



NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF SCIENCE AND TECHNOLOGY

COURSE CODE: NSS 323

COURSE TITLE: MATERNAL AND CHILD HEALTH NURSING I

NSS 323

MATERNAL AND CHILD HEALTH NURSING I

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Introduction

NSS 323: Maternal and Child Health Nursing I is a three (3) unit course for the students in the Bachelor of Nursing Science programme. The course is broken into 4 modules with 17 study units. It will introduce the students to Maternal and Child Care by evidence based midwifery practice in the hospital and outside the hospital. The anatomy and physiology information is very easy to understand. The course will also encourage the learners to put in their best in presence of many challenges that are facing nurses and midwives in the course of their profession practice such as inadequacy of staff, facilities and motivation in the developing countries.

At the end of the course, the learner is expected to demonstrate clear understanding of maternal and child care and develop specialized knowledge and skills for midwifery practice and issues challenging reproductive health services in the society. The learner will be able to explain her/his role, being the person alongside and supporting women at child birth. The learner will be knowledgeable in recognizing deviation from normal and act promptly to alleviate the suffering of women in pain or discomfort and be able to apply it in true-life situation. This course guide

provides what to expect in the course, and how to work through the course material as a distance learner who has to study on his/her own. Tutorial sessions are also linked up with the course to provide the needed support you required.

What You Will Learn In This Course

Today, Nigeria has a population of 140 million people. Despite the Federal Government's efforts to reduce maternal mortality rate through safe motherhood programme the death rate related to child birth is still on the increase. The latest figure by the ministry of statistics estimated maternal mortality rate to be about 800 per 100,000 live births .This figure is alarming and it is a great challenge to health services especially maternal and child care. The significance of this course, Maternal and Child Care [MCH] is to help you see the germane role of maternal and child care as a means of providing health services to the populace.

Course Aim

This course is designed to provide adequate knowledge of maternal and child care to Nurses and Midwives. It is believed that at the end of the course students will be better equipped to improve their competence, confidence and job satisfaction. They will be able to render quality care to their patients, procurement of medical assistance and execution of emergency measures in the absence of

medical help. This you can achieve by independent judgment, providing appropriate care including family planning.

Course Objectives

To achieve the aims set out above, the course sets the overall objective. In addition, each unit has specific objectives stated at the beginning of a unit. Learners are advised to read them carefully before going through the unit. You will have to refer to them during the course of your study to monitor your progress. You are encouraged to always refer to the Unit objectives after completing a Unit. This is the way you can be certain that you have done what was required of you in the unit.

The wider objectives of the course are set below. By meeting these objectives, you should have achieved the aims of the course as a whole.

On successful completion of the course, you should be able to:

Describe the structures and functions of the female and male reproductive

Organs.

Clarify sex determination of male and female traits.

Describe the physical and psychological reproductive changes that take

place during puberty and pregnancy as well as at menopause.

- Give optimal care to woman during childbirth.
- Teach positive health practice.
- Appreciate the importance of good history taking during admission
- Identify common discomforts associated with childbirth.
- Describe the developmental tasks that indicate family adaptation to pregnancy.
- State the benefit of encouraging father's participation in childbirth.
- Describe assessment and nursing intervention for women diagnosed with complications associated with childbirth.
- Discuss the key factors that might influence an individual's preferences for various contraceptive methods.
- Identify the most common sexually transmitted diseases including modes of transmission, treatment and prevention.

Working Through This Course

To complete this course, you are required to study through the units, the recommended textbooks and other relevant materials. Each unit contains some self assessment exercises and tutor

marked assignments and at some point in this course, you are required to submit the tutor marked assignments. This will be followed by an end of term examination.

Course Materials

The following are the components of this course:

1. The Course Guide
2. Study Units
3. Textbooks
4. Assignment File
5. Presentation Schedule

Study Units

This course is made up 17 study units in 4 modules. These are:

Module 1 Review of Reproductive and Urinary System

Unit 1 Anatomy and Physiology of Female Reproductive System

Unit 2 The Female Reproductive System

Unit 3 The Male Reproductive System

Unit 4 Foetal and Placenta Development and Foetal Circulation

Unit 5 Urinary System

Module 2 Physiology of Pregnancy

Unit 6 Physiology of Pregnancy

Unit 7 Prenatal Care

- Unit 8 Labour
- Unit 9 Management of Labour
- Unit 10 Puerperium
- Module 3 Abnormal Conditions in Pregnancy and Labour**
- Unit 11 Abnormal Conditions in Pregnancy and Labour
- Unit 12 Obstetrics conditions that complicate pregnancy
- Unit 13 Medical Conditions in Pregnancy
- Unit 14 Malpresentation/positions in Pregnancy
- Module 4 Obstetric Emergencies**
- Unit 15 Obstetric Emergencies
- Unit 16 Abnormal Puerperium
- Unit 17 Obstetric Interventions

Each unit contains self assessment exercise and tutor marked assignments of which the learners are required to attempt. Expectedly, it is believed that the exercise will help you to achieve the stated objective.

Recommended Textbooks for This Course

Cox, C.L. 1995. Health and Human Needs. In H. B. M. Heath (ed.) *Potters and Perry's Foundations in Nursing Theory and Practice*. Italy: Mosby, an imprint of Times Mirror International

Ewles and Simnett (1985) Health Education and Patient Teaching in Watsons Medical Surgical Nursing and Related Physiology Pg. 23

Kozier, B., Erb, G., Berman, A.U. & Burke, K. (eds.) 2000. Health, Wellness and Illness. *Fundamental of Nursing: Concepts Process and Practice* (6th edition). New Jersey: Prentice Hall, Inc.

Lucas A. O and Guiles H. M (1984) Preventive medicine for the Tropics, Kent, Hodder and Stoughton Ltd.

Lucas and Guiles (1989) A short textbook of preventive Medicine for the Tropics, 2nd Edition, ELBS.

Santhosh, M. (2000) Primary Health Nursing (PHN) Indria Gandhi National Open University, New Deli, Berny Art Press.

Assignment File

The assignment file will contain the Tutor Marked Assignment (TMA) which will constitute part of the continuous assessment (CA) of the course. There are 15 assignments in this course with each unit having an activity/exercise for you to do to facilitate your learning as an individual.

Presentation Schedule

This presentation schedule in this course provides with important dates for completion of each unit and tutor marked assignment. Please try to meet the deadlines.

Assessment

There are two aspects to the assessment of the course. These are the Tutor marked assignment and written examination. In tackling the assignments, you are expected to apply information, knowledge and strategies gathered during the course. The assignments must be turned in to your tutor for formal assessment in accordance with the stated presentation schedules. The works you submit to your tutor for assessment will count for 40% of your total course work. At the end of the course you will need to sit for a final written examination of three hour's duration. This examination will also count for 60% of your total course mark.

Tutor Marked Assignment (TMA)

There are Tutor-marked assignments in each of the units. You are expected to study them while going through this course. However, you will be given the four (4) to be submitted for assessment from the Study Centre. You are advised in your own interest to submit the assignments at the stipulated time. You will be able to

complete the assignments from the information and materials contained in your reading and study units. There is other self activity contained in the instructional material to facilitate your studies. Try to attempt it all. Feel free to consult any of the references to provide you with broader view and a deeper understanding of the course.

Final Examination and Grading

The final examination of NSS 323 will be of 3 hours duration and have a value of 60% of the total course grade. The examination will consist of questions which have bearings with the attempted self assessment exercises and tutor marked assignments that you have previously encountered. Furthermore, all areas of the course will be evaluated. Make sure you give enough time to revise the entire course.

Course Marking Scheme

The following table includes the course marking scheme

Table 1

Assessment	Marks
Assignment 4	4 assignments for the best Total = 10% x 4 = 40%
Final examination	60% of overall course marks

Total	100% of course marks
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Course Overview

This table indicates the units, the number of weeks required to complete the assignments.

Unit	Title of Work	Week Activity	Assessment
	Course Guide	Week 1	
Module 1	Review of Reproductive and Urinary System		
Unit 1	Anatomy and Physiology of Female Reproductive System	Week 2	
Unit 2	The Female Reproductive System	Week 3	
Unit 3	The Male Reproductive System	Week 3	
Unit 4	Foetal and Placenta Development with Foetal Circulation	Week 4	
Unit 5	Urinary System	Week 4	

Module 2	Physiology of Pregnancy		
Unit 6	Physiology of Pregnancy	Week 5	
Unit 7	Prenatal Care	Week 6	
Unit 8	Labour	Week 7	
Unit 9	Management of Labour	Week 7	
Unit 10	Puerperium	Week 8	
Module 3	Abnormal Conditions in Pregnancy and Labour		
Unit 11	Abnormal Conditions in Pregnancy and Labour	Week 9	
Unit 12	Obstetrics conditions that complicate pregnancy	Week 10	
Unit 13	Medical Conditions in Pregnancy	Week 10	
Unit 14	Malpresentations/positions in Pregnancy	Week 11	
Module 4	Obstetric Emergencies		
Unit 15	Obstetric Emergencies	Week 12	
Unit 16	Abnormal Puerperium	Week 12	
Unit 17	Obstetric Interventions	Week	

How To Get The Most Out Of The Course

In distance learning, the study units replace the university lecture. This is one of the greatest advantages of distance learning. You can read and work through specially designed study materials at your own pace and at time and place that suit you best. Think of it as reading the lecture notes instead of listening to a lecturer. In the same way that a lecturer might set you some reading task, the study units tell you when to read your other material. Just as a lecturer might give you an in-class exercise, your study units provide exercise for you to do at appropriate points.

The following are practical strategies for working through the course:

- Read the course guide thoroughly.
- Organize a study schedule.
- Stick to your own created study schedule.
- Read the introduction and objectives very well.
- Assemble your study materials.
- Work through the unit.

- Keep in mind that you will learn a lot by doing all your assignment carefully.
- Review the stated objectives.
- Don't proceed to the next unit until you are sure you have understood the previous unit.
- Keep to your schedules of studying and assignments.
- Review the course and prepare yourself for the final examination.

Tutors and Tutorials

There are 8 hours of effective tutorial provided in support of this course. Details will be communicated to you together with the name and phone number of your facilitator through the study centre.

Your tutor will mark and comment on your assignments, keep a close watch on your progress and any difficulties you might encounter and also provide assistance to you during the course. You must ensure that you submit your assignment as and at when due. You will get a feedback from your tutor as soon as possible to the assignments.

Do not hesitate to contact your tutor or study centre on phone or email in case of any of the following circumstances:

- You do not understand any part of the study units or the assigned reading
- You have difficulty with the self test or exercises.
- You have questions or problems with an assignment, tutors comments or grading of an assignment.

You are encouraged to attend the tutorials to allow for face to face contact with your tutor and ask questions which you needed answers immediately. It is also an opportunity to discuss any grey area with your tutor. You can equally prepare questions to the tutorial class for meaningful interactions. You are sure to gain a lot from actively participating in the discussion.

Best of Luck

NSS 323: MATERNAL AND CHILD HEALTH NURSING 1

Module 1 REVIEW OF REPRODUCTIVE SYSTEMS

Unit 1: Anatomy and physiology of female reproductive system

- 1.0 Introduction
- 2.0 Objectives
- 3.0 The bony pelvis, the pelvic floor and the fetal skull
 - 3.1 The bony pelvis
 - 3.1.1 Functions
 - 3.1.2 Pelvic bones
 - 3.1.3 Pelvic joints
 - 3.1.4 Pelvic ligaments
 - 3.1.5 Diameters of the pelvic bones
 - 3.1.6 Types of pelvis
 - 3.2 The pelvic floor
 - 3.2.1 Functions
 - 3.2.2 Muscle layers
 - 3.2.3 Perineal body
 - 3.3 The fetal skull
 - 3.3.1 The parts of the fetal skull
 - 3.3.2 Measurements of the fetal skull
 - 3.3.3 Importance of the fetal skull to the midwife
 - 3.3.4 The scalp
 - 3.3.5 The intracranial membranes and sinuses
 - 3.3.6 Moulding
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Teacher's marked assignment
- 7.0 References/ a list for further reading

1.0 Introduction

Welcome to NSS323 (Maternal and Child Health Nursing 1). This is the midwifery aspect of nursing practice that is, the care of women in pregnancy, labor and puerperium. For better understanding and effective midwifery practice and in order to achieve safe motherhood, the midwife, (you) must have sound knowledge and be familiar with the unique anatomical feature of the woman and understand the process of reproduction. Your general knowledge of the anatomy and physiology of the body are equally relevant to this course. In this unit emphasis will be laid on the female pelvis, pelvic floor and the fetal skull. It is believed that the knowledge you shall acquire will enhance your skill in the care of women in childbirth.

2.0 Objectives

At the end of this discussion you will be able to do the following:

- Recognize the unique characteristic features of the female pelvis.
- Identify abnormalities in the pelvis that can complicate labour and manage them appropriately.
- Explore the anatomical structure of the pelvic floor muscles for effective management of delivery.
- Prevent injuries to the fetal skull through skilful conduct of delivery and care after delivery.

3.0 Main Content

3.1. The Bony Pelvis

The bony pelvis form the bony canal through which the fetus must pass during the normal birth process. If the canal is of the normal shape, and size, the baby of the normal size will negotiate it without difficulties. but ,

because pelvis vary in size and shape it is important that the midwife recognizes the normal pelvis so as to be able to detect deviation from the normal. One of the ways of estimating the progress of labor is by assessing the relationship of the fetus to certain pelvic landmarks.

3.1.1.Functions

- It connects the spine to the lower limbs
- It protects the female reproductive organs, bladder, the urethra ,colon, rectum and anal canal
- It allows movement of the body especially walking and running
- It permits sitting and kneeling
- It forms a bony passage for the fetus during labor
- It transmits the weight of the trunk to the legs and holds the two femurs
- Protects the pelvic organs and to a lesser extent the abdominal contents
- The Sacrum transmits *cauda equina* and distributes nerves to various parts of the pelvis

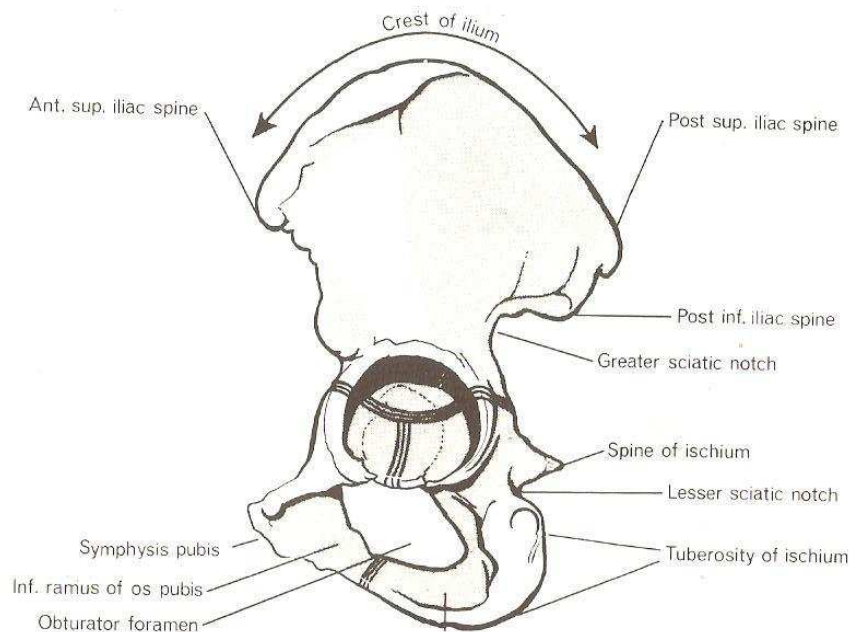


Figure 1-1 Bony Pelvis

3.1.2 *Pelvic bones:* There are four bones in the pelvis

- Two innominate bones (hip bones),
- One sacrum and
- One coccyx

Innominate Bones: each innominate bone is composed of three parts - the ilium, ischium and the pubis

- Ilium – large flared out part
- Ischium – the thick lower part
- Pubic bone – forms the anterior part

Sacrum is a wedge shaped bone consisting of five fused vertebrae. Upper border of the first sacral vertebral juts forward, known as *Sacral Promontory* which is the most important landmark in the female pelvis. Anterior surface is concave, referred to as *Hollow of the Sacrum*. Lateral sacrum extends into a *wing or ala*. Posterior surface is roughened to receive attachment of muscles. Two pairs of holes, or foramina, pierce the sacrum through which, nerve from the cauda equina emerge to supply pelvic organs.

Coccyx is a vestigial tail. It consists of four fused vertebrae forming a small triangular bone. The coccyx bends backwards at this joint during parturition to increase the anterior posterior diameter of the pelvic outlet.

3.1.3 Pelvic Joints - there are four pelvic joints

- One symphysis pubis – formed at the joint of two pubic bones, united by a pad of cartilage known as the symphysis pubis
- Two (right and left) sacroiliac joints – is the strongest joint in the body articulates sacrum to ilium. Normally there are little or no movements in these joints, but during pregnancy especially towards the end there is a certain degree of movement due to the relaxation of the ligaments of the joints. This may give rise to difficulties in walking and backache, especially the multiparous women. There is little widening during labour, commonly referred to as “give” of the pelvis.
- One sacrococcygeal joint – join the base of the coccyx to the tip of the sacrum

3.14 Pelvic Ligaments: ligaments bind the joints

- Inter pubic ligaments at the symphysis pubis
- Sacroiliac ligaments.
- Sacrotuberous ligament
- Sacrococcygeal ligaments.
- Inguinal ligament

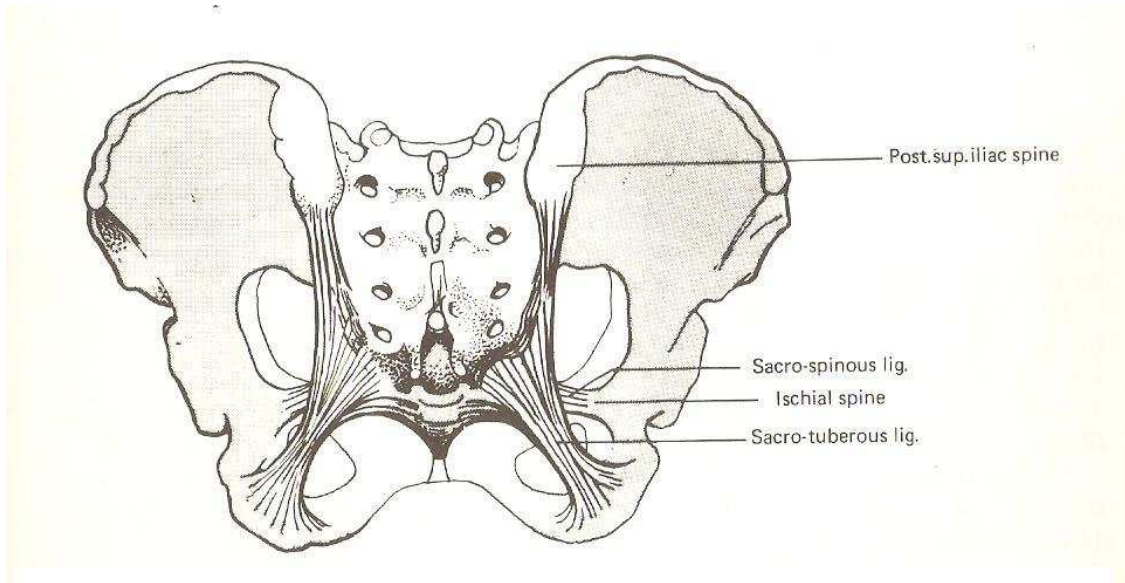


Figure 1-2 Posterior View of the Pelvis

Division of the Pelvis

The pelvis is divided into two parts, the true and the false pelvis. The false is the part above the brim. It has little importance in obstetrics

The true pelvis is the bony canal through which fetus must pass during birth. It consists of brim, cavity and outlet. Brim is round except where sacral promontory projects into it. Commencing posteriorly the pelvic brim includes the following important landmarks.

1. Sacral promontory
2. Sacral ala or wing
3. Sacroiliac joints
4. Iliopectineal line
5. Iliopectineal eminence
6. Superior ramus of the pubic bone
7. Upper inner border of the body of the pubic bone
8. Upper inner border of the symphysis pubis

3.1.5 Diameters of the pelvis

Diameters of the brim

- Antero-posterior diameter – from sacral promontory to upper most border of symphysis pubis 12cm. A measurement to the posterior border of the upper surface to a point 1.25cm lower is called the obstetrical conjugate, 11cm. It is the available space for the passage of the fetus hence it is called the true conjugate
- Diagonal conjugate is anteroposterior diameter from the lower border of the symphysis pubis to the centre of the sacral promontory measured vaginally for pelvic assessment 12-13 cm.
- Oblique diameter – from sacroiliac joint to the iliopectineal eminence on the opposite side (right and left). It measures 12cm
- Transverse diameter – it is between the points furthest apart on iliopectineal lines and measures 13cm. The fetal head commonly enters in transverse diameter of the pelvic brim
- Sacrocotyloid diameter – from sacral promontory to the iliopectineal eminence on each side, measures 9 – 9.5 cm
- The pelvic cavity extends from the pelvic brim above to the outlet below. Anterior wall is formed by pubic bones and

symphysis pubis - depth is 4cm. The cavity is circular in shape and is considered to be 12cm all round.

Diameter of the outlet:

There are two Pelvic outlets: described as *Anatomical Outlet* and *Obstetrical Outlet*. The anteroposterior diameter of outlet – from the lower border of the symphysis pubis to the sacrococcygeal joints 13cm

The oblique diameter of outlet - from the oburator foramen to the sacrospinous ligament 12cm

The transverse diameter of outlet - is taken between two ischial spines 10 -11 cm which is the narrowest diameter of the pelvis

Pelvic inclination there is difference in the inclination of the pelvis when the woman is standing, sitting and recumbent position. The inclination of the outlet is 11° , cavity 30° , brim 60° , almost 90° in Negro woman

Pelvic planes these are imaginary flat surfaces at the brim, cavity and outlet of the pelvic canal. The fetus will enter at right angle to the plane according to the inclination.

Axis of the pelvic canal a line drawn exactly half way between anterior wall and posterior wall of the pelvic canal to the plan of the outlet, cavity and the brim the curve it makes is known as the curve of Carus, the path which the fetus takes as it travels through the birth canal.

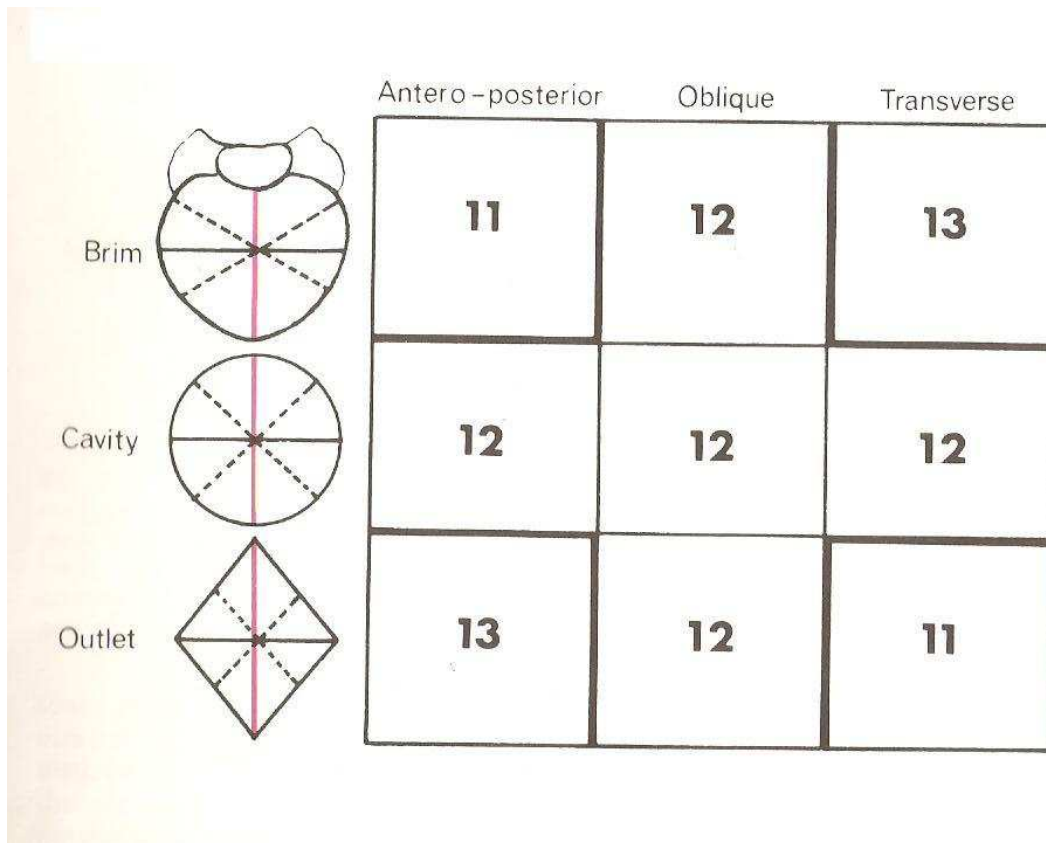


Figure 1-3 Diameters of the Pelvis

Types of Pelvis

- Gynaecoid pelvis – ideal pelvis for child bearing
- Android pelvis – resembles a male pelvis
- Anthropoid pelvis – has long oval brim in which anteroposterior diameter is longer than transverse diameters. Labor does not present any difficulties but favors occipitoanterior or occipitoposterior positions
- Platypelloid pelvis - flat with kidney shaped brim

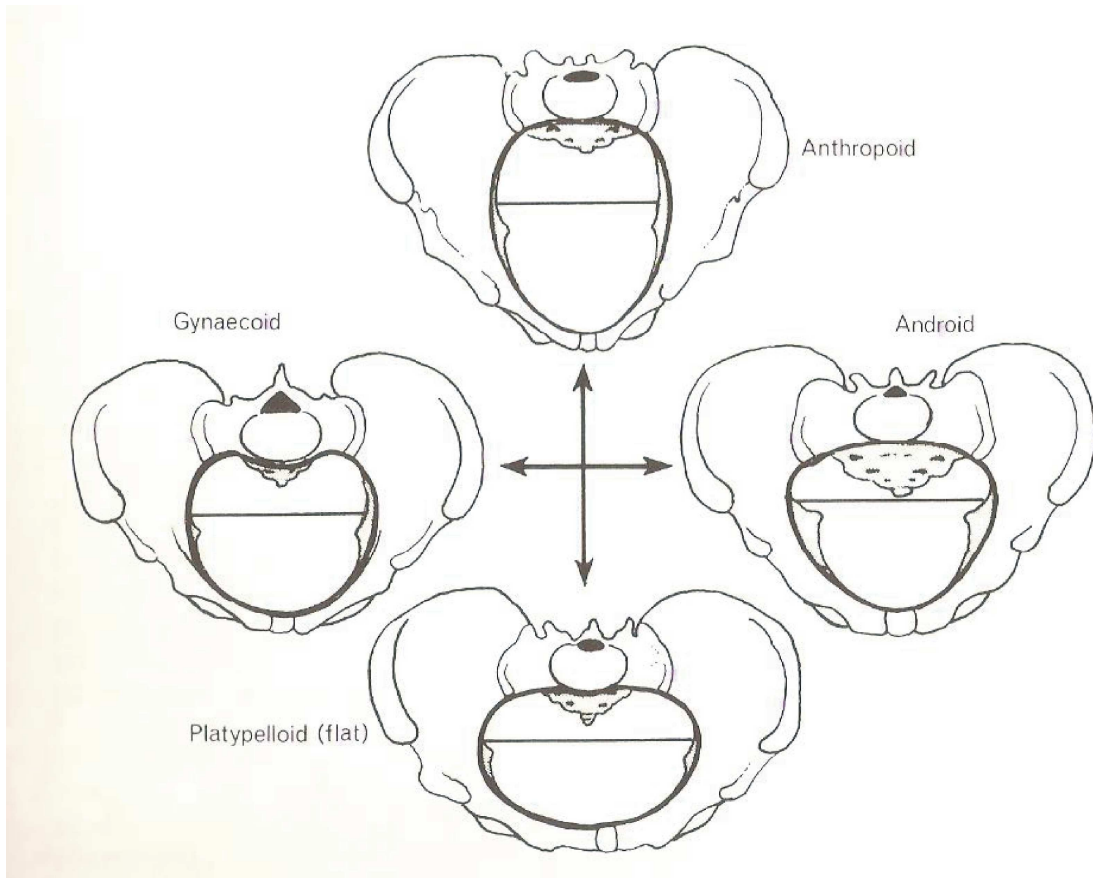


Figure 1-4: Types of Pelvis

Comparison of Male and Female Pelvis

<i>Female pelvis</i>	<i>Male pelvis</i>
1. Bones are light and smooth, side walls straight, fore-pelvis generous	1. Heavy rough and not so wide and broad
2. Wide iliac crest	2. Narrow iliac crest
3. Brim almost round	3. Brim is heart shaped
4. Cavity is shallow	4. Cavity deep and funnel shaped
5. Symphysis pubis wide	5. Symphysis pubis is deep
6. Wide transverse outlet	6. Narrow outlet
7. Sub-pubic arch is 85° to 90°	7. 65° to 75°

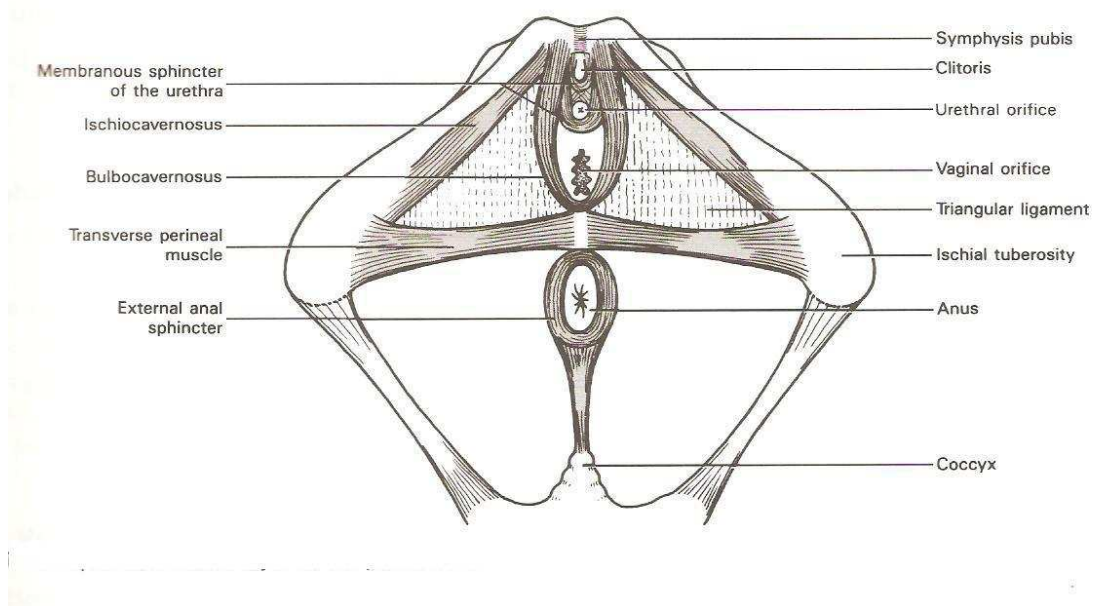
8. Joints movable	8. less movable
9. Sciatic notch wide	9. Sciatic notch narrow
10. Ischial spines blunt	10. Ischial Spines shaped

3.2. The pelvic floor

The pelvic floor is formed by the soft tissues that fill the outlet of the pelvis. It forms a strong diaphragm of muscle sling from the walls of the pelvis. The pelvic floor is made up of

1. The Skin
2. Subcutaneous Fat
3. Superficial Muscles
4. Deep Muscles
5. Pelvic Fascia
6. Peritoneum

The urethra, vagina and the anal canal pierce through it



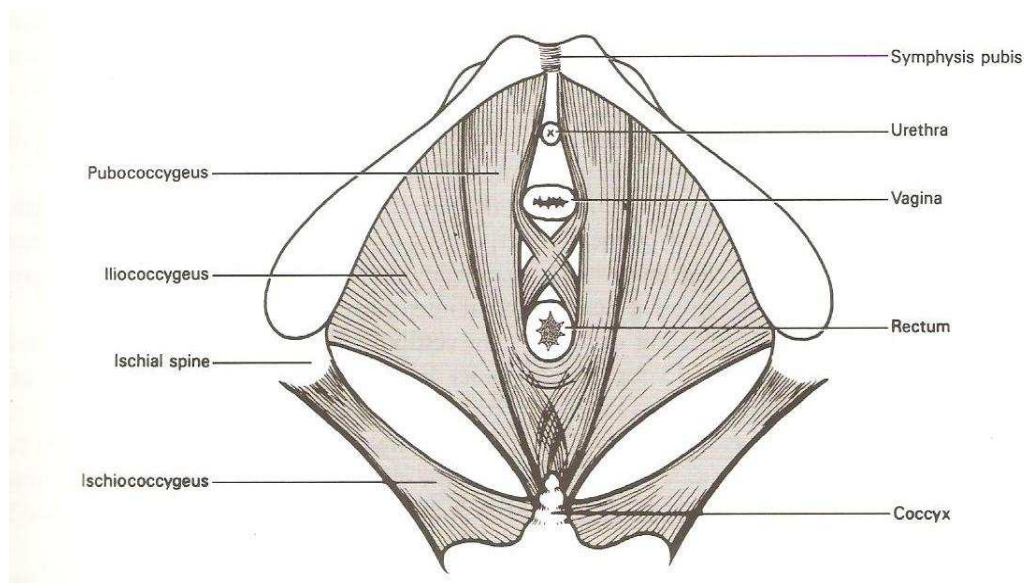


Figure 1-5 Pelvic Floor

3.2.1.Functions:

- Supports the weight of the abdominal and pelvic organs
- Responsible for the function of the menstruation and defecation and plays an important part in sexual intercourse
- Influence passive movement of the fetus during childbirth

3.2.2.Muscle Layers

Superficial Layers consists of five muscles:

1. The external and sphincter muscle
2. The transverse perineal muscle
3. The bulbocavernous muscle
4. The ichiocavernous muscle
5. The membrane sphincter of urethra

The Deep Layer is composed of three parts of muscle which together are known as the *Levator Ani Muscles* (left and right):

1. Pubococcygeal muscle

2. Iliococcygeal muscle
3. Ischiococcygeal muscle

3.2.3. Perineal body is a pyramid of muscles and fibrous tissue between vagina and rectum. Perineal body measures 4cm in each direction

Injury to the pelvic floor

- Overstretching of the muscles
- Laceration – 1st 2nd & 3rd degree tears

3.3 The fetal skull

The bones of the skull develop from membranes, ossification starts as early as the 5th week following conception. At term ossification is almost complete except for the thin lines of membranes separating the bones from each other known as the sutures. Ossification of the skull is not complete until early adulthood.

3.3.1 The part of the fetal skull

3.3.1.1 The vault: Is from the line from the nape of the neck to the orbital ridge. The vault is made up of 5 bones and two enter into the lateral wall. These are:

2 Frontal bones

2 Parietal bones:

1 Occipital bone

2 Temporal bones and the wings of the sphenoid bones form the side wall of the skull.

3.3.1.2 The face: This area extends from the orbital ridge to the junction of the neck with the chin. It is composed of 14 fused bones.

3.3.1.3 The base: These bones are also firmly united and help to protect the brain.

3.3.1.4 The Sutures

These are membranous lines found at the junction between the bones of the vault. There are four important sutures on the vault where ossification has not been completed.

The Frontal Suture: Separates the two frontal bones, it extends from the root of the nose to the bregma.

The Coronal Suture: Separates the frontal and the parietal bones.

Sagittal Suture: Separates the two parietal bones.

Lambdoidal suture: Separates the occipital and the parietal bones.

Others are the sutures that separate the parietal bones from the temporal bones.

3.3.1.5 The Fontanelles

Fontanelles are formed where two or more sutures meet between the bones. There are 6 sutures on the vault but only two are of importance. These are:

- 1. Anterior Fontanelle (or bregma):** Formed at the junction of the Sagittal, Frontal, and coronal sutures. It is a diamond shaped membranous space. It has four angles which correspond with the entry of each suture. It is about 3-4cm long and 1.5cm wide. It is a valuable aid in vaginal examination to determine the position. Cerebral pulsation can be felt through it and it is a guide to baby's health – It bulges in brain infection or increase pressure and depressed in dehydration. Closes 18-24months after birth.
- 2. The Posterior fontanelle – (lambda):** Formed at the junction of the sagittal and lambdoidal sutures. It is a small triangular membranous space. It is felt on vaginal examination during labour in a well flexed head. It closes at 6 weeks after birth.

3.3.1.6 The region of the fetal skull

1. Vertex
2. Face

3. Brow (Sinciput)

4. Occiput

Other regions are:

Glabella – is the bridge of the nose, between the eyebrows.

Bregma – anterior fontanelle

Lambda – Posterior fontanelle

Mentum – Chin.

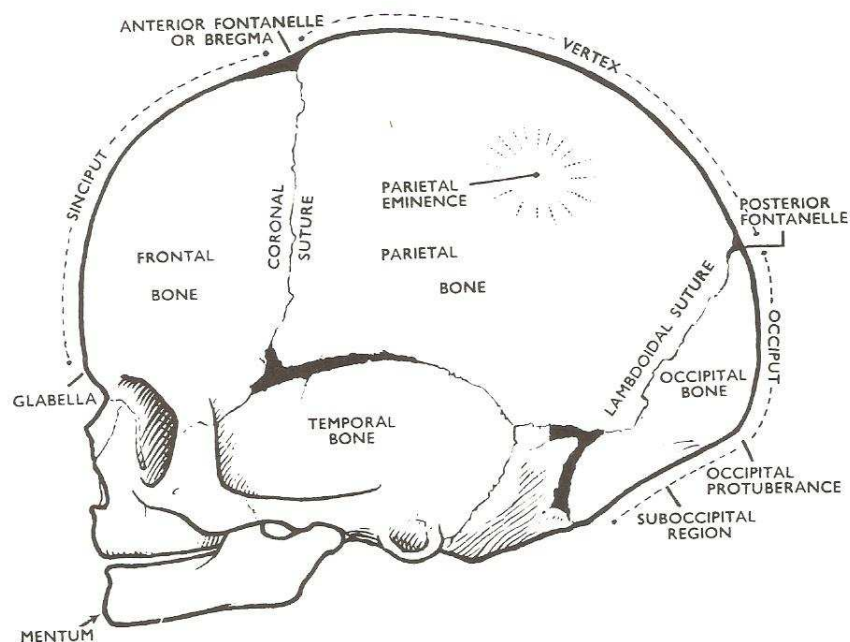


Figure 1-6 : Fetal Skull

3.3.2 Measurements of the fetal skull-

3.3 .2.1 Diameter of the fetal skull

These are the diameter the birth canal must stretch to allow the head to pass during labour. The largest being mento vertical 13.5cm.

1. Sub-Occipito Bregmatic (9.5cm)
2. Sub-Occipito Frontal (10cm)
3. Occipito Frontal (11.5m)
4. Mento Vertical (13.5cm)
5. Sub Mento Vertical(11.5)

6. Sub-mento Bregmatic (9.5cm)
7. Biparieta (9.5cm)
8. Bitemporal (8.2cm).

3.3.2.2 Circumferences

1. Sub-ocicpito bregmatic: is measurement taken round the occipital protuberance, parietal eminences and the bregma. It is the circumference which passes through the pelvis in a well flexed head 33cm.
2. Occipito Frontal: It is measured through posterior fontanel, parietal eminence and the orbital ridge. It is found in an erect head-military attitude 33-36 cm.
3. Sub-occipito frontal: It is taken round the perimeter of sub-occipito frontal 35cm.
4. Mento vertical: It is measured round the chin up to the vertex. It is found in partly extended head –(Brow). It is the largest diameter of the fetal skull 38 cm.

3.3.2.3 Attitude of the head

This determines diameter that pass through the pelvis.

1. **Vertex Presentation:** A well flexed head. It is the most favourable. engaging diameters are sub-occipito bregmatic of 9.5cm, biparieta 9.5 cm and the circumference entering the brim is sub-occipito bregmatic 33cm.
2. **Military attitude** – deflexed head. The head is more erect. Engaging diameters are occipito frontal 11.5cm Biparietal 9.5cm bitemporal 8.2cm. and circumference occipito frontal 35cm.
3. **Face Presentation:** Extended head. The head is completely extended. The engaging diameter is sub-mento bregmatic 9.5cm, Bitemporal 8.2cm. sub-mento vertical of 11.5cm will descent the vaginal orifice.
4. **Brow presentation:** Partially extended head most unfavourable presentation. Normal delivery is rarely possible if it does not change the attitude. The engaging diameter is mento vertical 13.5cm, Bitemporal 8.2cm and circumference is mento vertical 38cm.

3.3.3 Importance of the fetal skull to the midwife

1. It contains the delicate brain and about 95% of babies present by head.
2. Sound knowledge of fetal diameter and measurement cause least problems during labour and delivery through diagnosis of abnormalities presentation and position, also disproportion between the fetal head and the pelvis can be easily recognized.
3. Delivery can be conducted with minimal injuries to the mother and baby.
4. It is large in comparison with the fetal body and true pelvis; some adaptation has to be made between the head and the pelvis.
5. The head is the most difficult part to be delivered either it comes first or last.

3.3.4 The scalp

The scalp of the fetus consists of five layers.

1. The skin
2. A subcutaneous tissue: Contains blood vessels and hair follicles. Is the part where caput succedaneum is formed.
3. A layer of Tendon – Galea
4. A loose layer of alveolar tissue. Limits movement of the scalp over the skull.
5. The pericranium – is the periosteum of the cranial bones which covers the outer surface, and is adherent to their edge.

Cephalhaematoma is limited to the layer over the bones where it lays because it is attached to the edge of the bone.

3.3.5 The intracranial membranes and sinuses

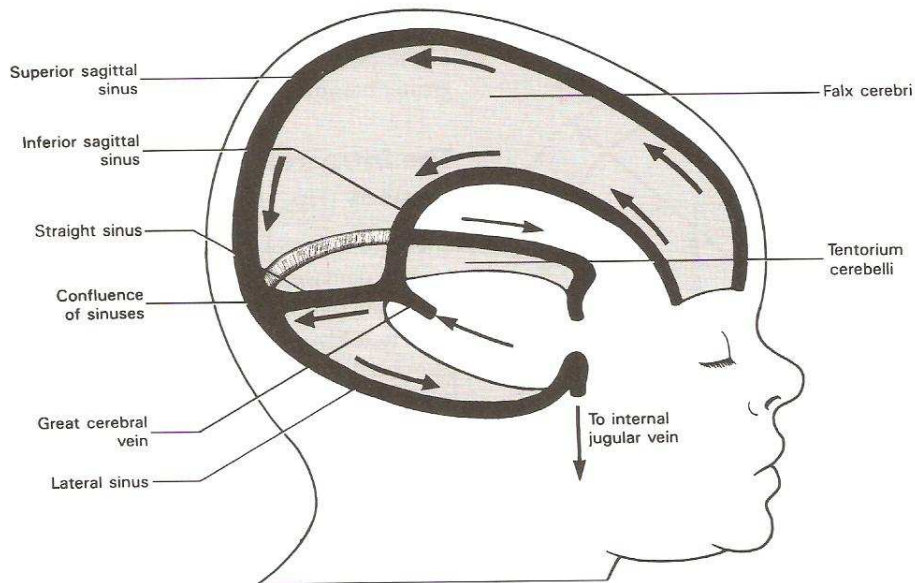


Figure 1-7 Cross-section of the fetal skull intracranial membranes and sinuses

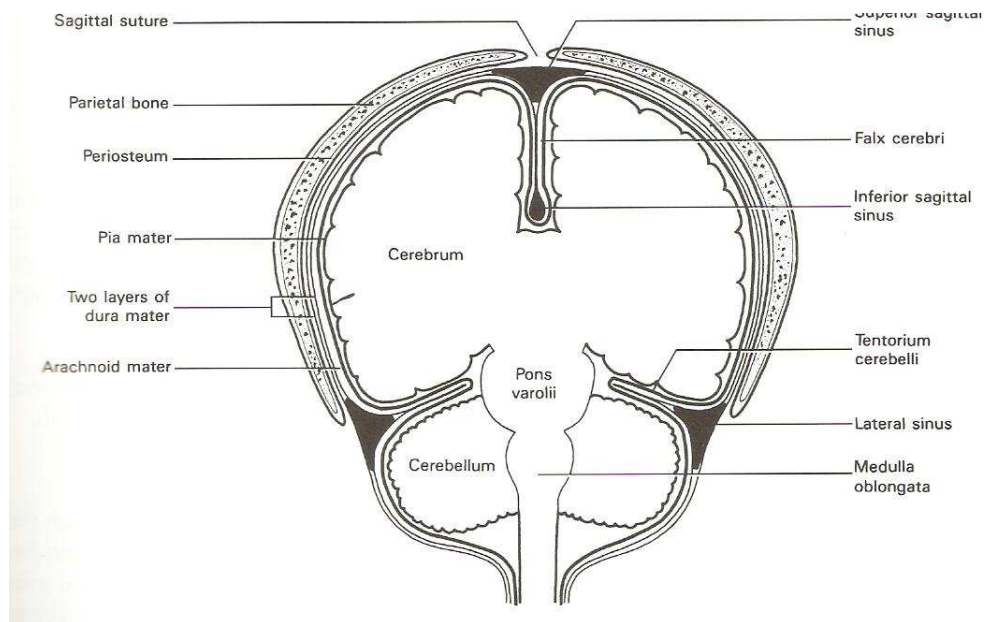


Figure 1-8 Coronal section of the fetal skull showing intracranial membranes and sinuses

The skull contains delicate membranous structure which is liable to damage during delivery especially if subjected to abnormal molding. Structures include:

- i. Folds of Dura matter and
- ii. Venous sinuses associated with them.

The membrane is in two layers, an outer periosteal layer which is adherent to the skull bones and the inner meningeal layer which covers the outer surface of the brain. The membrane does not only cover the brain but send fibrous partition to divide the brain into compartments.

- 1. The Falx Cerebri:** It is a sickle-shaped fold of membrane which dip down between the two cerebral hemispheres. It runs beneath the frontal and sagittal sutures – (From root of the nose to the internal occipital protuberance).
- 2. Tentorium Cerebelli:** This is a horizontal fold of dura matter situated at the posterior part of the cranial cavity. It lies at right angle to the falx cerebri. It has a horse – shoe shape and forms a tent-like layer between the cerebrum and the cerebellum. It contains large blood vessels or sinus which drains blood from the brain on their way to become the jugular vein of the neck.
- 3. The superior Longitudinal(Sagittal) Sinus:** it runs along the upper part of the falx cerebri from front to the back (from root of the nose to the internal occipital protuberance)
- 4. Inferior Longitudinal (sagittal) Sinus:** Runs along the lower part in the same direction.
- 5. The straight sinus:** Is a continuation of the inferior sagittal sinus and drains blood from the great cerebral vein and the inferior sagittal sinus along the junction of falx and the tentorium. The point where it reaches the skull and receives blood from the superior sagittal sinus is known as the confluence of sinus.
- 6. The Great Cerebral vein of Galen:** meet the inferior Sagittal Sinus at the inner end of the junction and where the falx joins the tentorium.

7. Lateral Sinuses: These are two in number they pass from the confluence of the sinuses along the outer edge of the tentorium cerebelli and carries blood to the internal jugular veins.

During moulding the falx and the tentorium are stretched. The tentorium is most vulnerable to tear near its attachment to the falx – (Tentorial Tears), this leads to bleeding from the great cerebral vein giving rise to intracranial hemorrhage.

3.3.6 Moulding

This is the term applied to the change in shape of the fetal head which takes place as it passes through the birth canal. It is brought about by pressure between the fetal skull and the maternal pelvis. It results in compression of the movable bones and elongation of those which are not compressed. Moulding brings about a considerable reduction in the size of the presenting diameters while the diameter at right angle to them elongates. This is possible because of the sutures and fontanelles on the vault which allows slight degree of movement and the bones to override each other. In normal vertex presentation, the biparietal diameter, sub occipito bregmatic reduce while the mentovertical lengthens. During moulding the anterior parietal bone override the posterior one, the frontal and occipital bones go under the parietal bones. The advantage of moulding is that it is a protective mechanism and prevents compression of the fetal brain, once it is not excessive, too rapid or unfavourable direction. The skull of a preterm baby may mould excessively while that of post mature does not mould which tend to make labour more difficult.

In certain types of moulding the internal structure maybe damage given rise to oedema or haemorrhage and congestion may give rise to mild cerebral irritation.

This can lead to death or permanent brain damage. These dangerous moulding includes:

1. Excessive moulding: In cases of prolonged labour, due to cephalo pelvic disproportion, prematurity.

2. Upward moulding: Occipito posterior position resulting in “face to Pubis” and after coming head of the breech.
3. Rapid moulding: Precipitate labour Rapid compression and decompression result in rupture of cerebral membranes.

Any baby with any of this dangerous moulding should be cot – nursed and observed for 24hrs for signs of cerebral irritation.

4.0 Conclusion

It is obvious from our discussion that the female pelvis is uniquely designed to favour pregnancy and labour . For the midwife to conduct labour successfully, she needs sound knowledge, skill and technology which must be built on sound knowledge of anatomy and physiology of the human body. The in-depth knowledge of the normal anatomy and physiology of the female will aid early and accurate detection of abnormalities in pregnancy and labour, and she can avert a lot of problems associated with childbirth for the mother and the baby.

5.0 Summary

The pelvis consists of four bones, two innominate bones, one sacrum and one coccyx, joined together by very strong fibrous band known as the ligament. The pelvis is divided into the false pelvis, which is of no significance to midwifery practice, and the true pelvis made up of important land marks. The most favourable type of pelvis for delivery is the gynaecoid. The pelvic floor is filled with muscles which hang down like a sling. It forms a good support for the pelvic and abdominal organs.

The fetal skull develops from membranes. At birth the bones are separated by membranous lines known as sutures. Where the sutures meet forms the fontanelles which are important landmarks in midwifery.

6.0. Tutor's Marked Assignment

1. Explain why the gynaecoid pelvis is so well suited for child bearing?
2. Describe the changes in the uterus during puerperium

7.0 References/further readings

Ojo O.A. and Briggs E.B. (2006) A Textbook for Midwives in the Tropics. 2nd ed. Jaypee Brothers Ltd. New Delhi

Fraser D.M. Cooper M.A. and Nolte A.G.W. (2006) Myles Textbook for Midwives, African edition.

Unit 2 : The Female Reproductive System

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 The Vulva
 - 3.2 The Vaginal
 - 3.3 The Uterus
 - 3.4 The Fallopian Tubes
 - 3.5 The Ovaries
 - 3.6 The Menstrual Cycle
 - 3.6.1 Ovarian Cycle
 - 3.6.2 Uterine Cycle
 - 3.6.3 Minor Discomforts with Menstruation
 - 3.7 Menopause
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- 5.0 Summary
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Introduction

In Unit one, we learnt about the bony pelvis, the muscles that cover it and the fetal skull with its external and internal structures. In this unit we shall describe the structures that make up the female reproductive system, their interrelatedness, structurally as well as in functions. These include the external part that comprises all the structures collectively known as the vulva and the internal part which are concerned with fertilization, and development of the fetus, these are the vulva, the vaginal, uterus, fallopian tubes and the ovaries.

2.0 Objectives:

By the time we finish the discussion in this unit you will be able to:

- Describe the various structures of the external female genitalia
- Delineate the internal organs of reproduction.
- Outline the muscles layers in the uterus that are involved in the control of haemorrhage in labor
- Describe the menstrual cycle
- Educate older women on menopause and how to cope with the symptoms that accompany it.

3.0 Main Content

3.1 The Vulva

The term 'vulva' applies to the external female genital organs. It consists of the following structures:

The mons veneris ('mount of venus') or mons pubis. This is a pad of fat lying over the symphysis pubis. It is covered with pubic hair from the time of puberty.

The labia majora ('greater lip'). These are two folds of fat and areolar tissue covered with skin and pubic hair on the outer surface. They arise in the mons veneris and merge into the perineum behind

The labia minora ('lesser lip') these are two thin folds of skin lying between the labia majora. Anteriorly they divide to enclose the clitoris; posteriorly they fuse, forming the fourchette.

The clitoris This is a small rudimentary organ corresponding to the male penis. It is extremely sensitive and highly vascular and plays a part in the orgasm of sexual intercourse.

The vestibule This is the area enclosed by the labia minora in which are situated the openings of the urethra and the vagina

The urethral orifice this orifice lies 2.5cm posterior to the clitoris. On either side lie the openings of Skene's ducts, two small blind –ended tubules 0.5cm long running within the urethral wall.

The vaginal orifice. This is also known as the introitus of the vagina and occupies the posterior two thirds of the vestibule. The orifice is partially closed by the hymen, a thin membrane that tears during the first sexual intercourse or during the birth of the first child. The remaining tags of hymen are known as the 'carunculae myrtiformes' because they are thought to resemble the myrtle berries.

Bartholin's glands there are two small glands that open on either side of the vaginal orifice and lie in the posterior part of the labia majora. They secrete mucus which lubricates the vaginal opening

The Perineum

The perineum is the area extending from the fourchette to the anus, and forms the base of the perineal body – a triangular mass of connective tissue, muscle, fat, measuring 4cm X 4cm. The perineal body fills the wedge shaped area between the lower ends of the rectum and vagina, and forms a central attachment for the muscles and fascia of pelvic floor. When, during the second stage of labor the perineal body is flattened out by the descending fetal head, the perineum elongates and becomes so thin that it is liable to tear.

- **First degree tear** the fourchette only is torn
- **Second degree tear** beyond the fourchette and not involving the rectum or anus
- **Third degree tear** the anal sphincter is torn, the rectum occasionally

The Blood Supply

This comes from the internal and external pudendal arteries. The blood drains through corresponding veins

Lymphatic Drainage

This is mainly via the inguinal glands

Nerve Supply

This is derived from branches of pudendal nerve. The vaginal nerves supply the erectile tissue of the vestibular bulbs and clitoris and their parasympathetic fibers have a vasodilator effect.

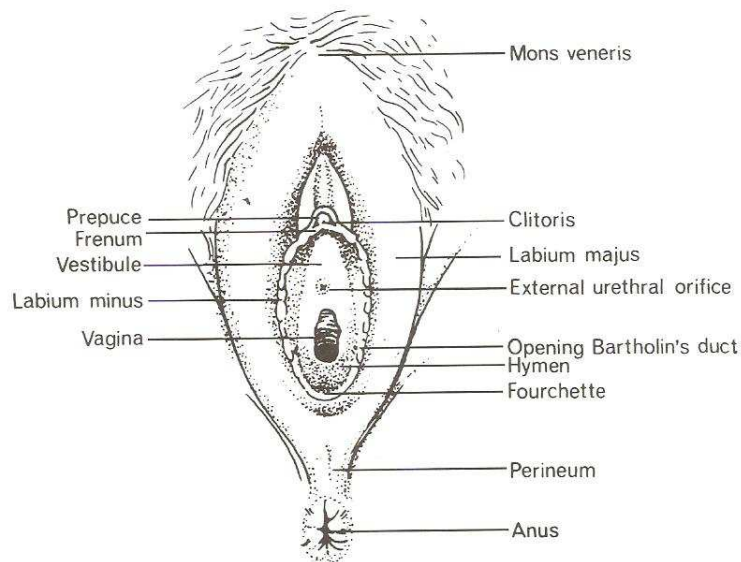


Figure 2-1 The Vulva

3.2 The Vagina

A muscular tube that extends from the cervix above to the vulva below

Functions

- It allows passage of menstrual flow
- It receives penis and sperm during sexual intercourse
- It provides an exit for fetus during delivery.

Position running from the vestibule to the cervix

Relations

Anteriorly bladder and urethra

Posteriorly behind the pouch of Douglas , the rectum and the perineal body. Each occupies approximately 1/3rd of the posterior vaginal wall.

Lateral Upper 2/3rd are pelvic fascia and the uterus. Lower third are pelvic floor.

Superior above the vagina lies the uterus

Inferior below the vagina lies the external genitalia

Structure posterior wall 10cm, anterior wall 7.5 cm. Cervix projects at right angle into upper part. Upper end is the *vault* to which the cervix projects. Vaginal walls are pink and thrown into small folds known as *rugae*.

Layers Lining is squamous epithelium. Beneath it, vascular connective tissue. Muscular layer is weak innermost and the outer layer are strong longitudinal fibers. Pelvic fascia surrounds the vagina.

Contents No glands in the vagina but moistened by the mucus from cervix. In spite of alkaline mucus vaginal fluid is strongly acidic (pH 4.5) due to the presence of the lactic acid formed by the Dederlein's bacilli. This acid deters the growth of pathogenic organisms.

Blood supply is from branches of internal iliac arteries and branches of uterine arteries

Lymphatic drainage is via inguinal, internal iliac and sacral glands.

Nerve supply is from Lee Frankanhauser plexus.

3.3 The Uterus

The uterus is a thick walled pear shaped hollow, muscular organ lying in the pelvis

Functions

- Prepares for pregnancy each month
- Shelters the baby
- Expels the uterine contents after pregnancy

Position - the uterus is situated in the cavity of the true pelvis, behind the bladder and in front of the rectum. It leans forward which is known as *anteversion*; It bends forwards on itself which is known as *anteflexion*. When the woman is standing this results in an almost horizontal position with the fundus resting on the bladder.

Relations

Anterior in front of the uterus lie the uterovesical pouch and bladder

Posterior behind the uterus are the rectouterine pouch of Douglas and the rectum.

Lateral on either side of the uterus are the broad ligaments, the uterine tubes and the ovaries.

Superior above the uterus lie the intestines

Inferior below the uterus is the vagina

Supports

The uterus is supported by the pelvic floor and maintained in position by several ligaments, of which those at the level of the cervix are the most important

The Transverse Cervical Ligaments these fan out from the sides of the cervix to the side walls of the pelvis. They are sometimes known as the 'cardinal ligaments' or 'Mackenrodt's ligaments'

The uterosacral ligaments these pass backwards from the cervix to the sacrum

The pubocervical ligaments these pass forwards from the cervix, under the bladder, to the pubic bones.

The broad ligaments these are formed from the folds of the peritoneum which are draped over the uterine tubes. They hang down like a curtain and spread from the sides of the uterus to the sides walls of the pelvis

The round ligaments. *These* have little value as a support but tend to maintain the anteverted position of the uterus. They arise from the cornua of the uterus in front of and below the insertion of each uterine tube and pass between the folds of the broad ligament, through the inguinal canal, to be inserted into each labium majus.

The ovarian ligament. These also begin at the cornua of the uterus but behind the uterine tubes and pass down between the folds of the broad ligament to the ovaries. It is helpful to note that the round ligament, the uterine tube and the ovarian ligament are very similar in appearance and arise from the same area of the uterus. This makes careful identification important when tubal surgery is undertaken.

Structure

The non- pregnant uterus is a hollow muscular pear-shaped organ situated in the true pelvis. It is 7.5cm long, 5cm wide and 2.5 cm in depth. The cervix forms the lower one third of the uterus and measures 2.5cm in each direction.

The uterus consists of the following parts :

The Body or Corpus This makes the upper two thirds of the uterus and is the greater part.

The Fundus This is the domed upper wall between the insertions of the uterine tubes.

The Cornua These are the upper outer angles of the uterus where the uterine tubes join.

The Cavity. *This* is a potential space between the anterior and posterior walls. It is triangular in shape, the base of the triangle being uppermost

The Isthmus this is a narrow area between the cavity and the cervix which is 7cm long. It enlarges during pregnancy and labour to form part of the lower uterine segment

The Cervix or Neck. This protrudes into the vagina, the upper half being above the vagina, is known as the supravaginal portion while the lower half is the infravaginal portion.

The Internal Os (Mouth) this is the narrow opening between the isthmus and the cervix.

The External Os. This is a small round opening at the lower end of the cervix. After childbirth it becomes a transverse slit with an anterior and a posterior lip.

The Cervical Canal lies between these two and is a continuation of the uterine cavity. This canal is shaped like a spindle, narrow at each end and wider in the middle.

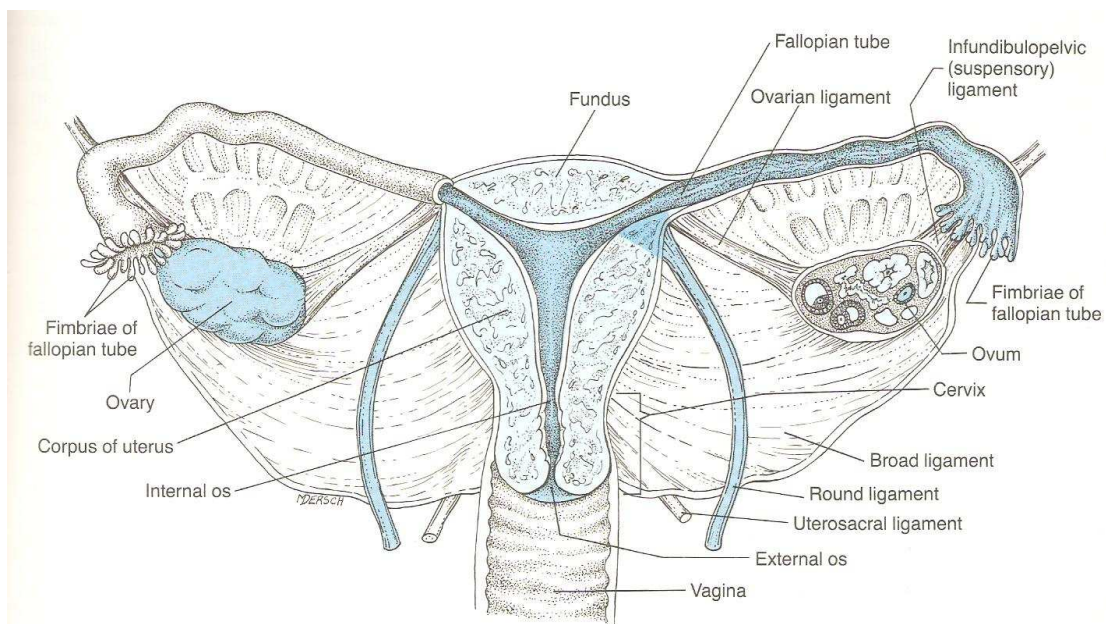


Figure 2-5 Female internal reproductive system

Figure 2-2 the Uterus

Layers

The uterus has three layers, of which the middle muscle layer is by far the thickest.

The Endometrium this layer forms a lining of ciliated epithelium(mucous membrane) on a base of connective tissues or stroma

In the uterine cavity this endometrium is constantly changing in thickness throughout the menstrual cycle. The basal layer does not alter, but provides the foundation from which the upper layers regenerate. The epithelial cells are cubical in shape and dip down to form glands that secrete alkaline mucus.

The cervical endometrium does not respond to the hormonal stimuli of the menstrual cycle to the same extent. Here the epithelial cells are tall and columnar in shape and the mucus-secreting glands are branching racemose glands. The cervical endometrium is thinner than that of the body and is folded into a pattern known as the 'arbor vitae' (tree of life). This is thought to assist the passage of the sperm. (the portion of the cervix that protrudes into the vagina is covered with squamous epithelium similar to the squamo-columnar junction and it is known as the intravaginal cervix ,about 1.5 cm.

The Myometrium or muscle coat. This layer is thick in the upper part of the uterus and is more sparse in the isthmus and cervix. Its fibers run in all directions and interlace to surround the blood vessels and lymphatics that pass to and from the endometrium. It is this arrangement that facilitate the arrest of haemorrhage after delivery of the baby-"living ligament" The outer layer is formed of longitudinal fibers that are continuous in those of the uterine ligaments and the vagina

In the cervix the muscles fibers embedded in collagen fibers, which enable it to stretch in labor.

The Perimetrium. This is a double serous membrane , and extension of the peritoneum, which is draped over the uterus, covering all but a narrow strip on either side and the anterior wall of the supravaginal cervix from where it is reflected up over the bladder

Blood supply

Uterine artery which is a branch of internal iliac artery. Ovarian artery a branch of abdominal aorta supply ovary and fallopian tube ad join with uterine artery

Lymphatic drainage

Lymph is drained from uterine body to internal iliac glands mainly

Nerve supply

Mainly from autonomic, sympathetic and parasympathetic nervous system via Lee Frankenhauser's plexus or pelvic plexus

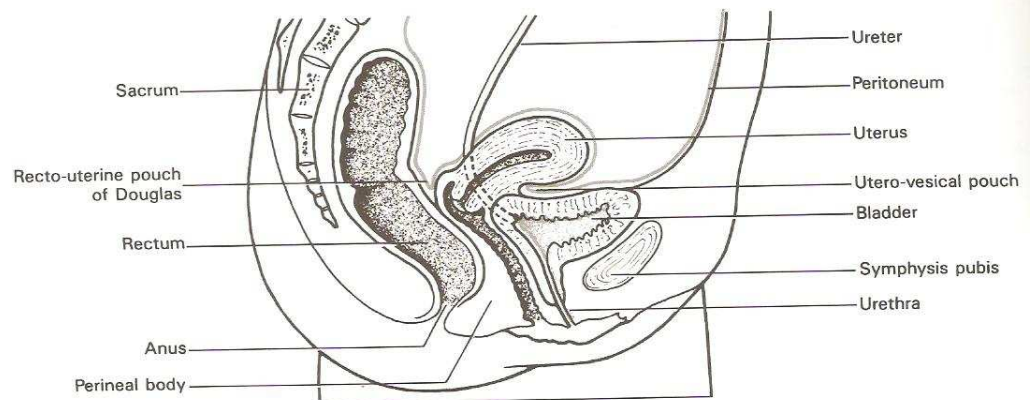


Figure 2-3 The Sagittal Section of the Female Reproductive System

3.4 The Fallopian Tubes

Functions

Propels the ovum towards uterus, receives spermatozoa, provides site for fertilization. Supplies nutrition to the fertilized ovum during its travel to the uterus

Position

Extends laterally from the cornua of the uterus –arches over the ovaries with the fringed ends hanging near ovaries to receive the ovum

Relations

Anterior, posterior and superior are the peritoneal cavity and intestines

Lateral – sidewalls of the pelvis

Inferior – broad ligaments and ovaries lie below the tubes

Medial – uterus lies between fallopian tubes

Supports fallopian tubes are held in place by their attachments to the uterus

Structure each tube measures 10cm long, lumen of the tube provides open pathway from outside to the peritoneal cavity. The fallopian tube has four portions

1. The Intestinal portion – 1.25cm inside uterine wall lumen 1mm wide
2. The Isthmus - narrow part 2.5cm from cornua of the uterus
3. The Ampulla – wider portion 5cm long extends from the isthmus to the infundibulum usually fertilization takes place here
4. The Infundibulum – funnel shaped fringed and which is attached to the ovary. It is about 2.5 cm long; one is known as the fimbriae. One of it extends to the ovary and is known as the fimbria ovarica

Layers - Lining in mucus membrane - ciliated cubical epithelium. Beneath this vascular, connective tissue, muscular layer and covering is peritoneum.

Blood supply - from uterine and ovarian arteries by the corresponding vein

Lymphatic drainage is to lumbar glands

Nerve supply - from ovarian plexus

3.5 The Ovaries

Functions

The ovaries produce ova for procreation and the hormones estrogen and progesterone

Position

The ovaries are attached to the back of the broad ligaments within the peritoneal cavity

Relations

Anterior the ovaries and the broad ligaments

Posterior the ovaries and the intestines

Lateral the ovaries and the infundibulopelvic ligaments and the side walls of the pelvis

Superior the ovaries and the uterine tubes

Medial the ovaries lie between the uterus and the ovarian ligament

Supports

The ovary is attached to the broad ligament but is supported from above by the ovarian ligament medially and the infundibulopelvic ligaments laterally.

Structure

The ovary is composed of a medulla and cortex covered with germinal epithelium

The Medulla. This is the supporting framework which is made up of fibrous tissue; the ovarian blood vessels, lymphatics and nerve travels through it. The hilum where these vessels enter lies just where the ovary is

attached to the broad ligament and this area is called the *mesovarium*.

The Cortex. This is the functioning part of the ovary. It contains the ovarian follicles in different stages of development, surrounded by stroma. The outer layer is formed of fibrous tissue known as the *tunica albuginea*. Over this lies the germinal epithelium, which is a modification of the peritoneum.

Blood Supply

The blood supply is from the ovarian arteries and drains by the ovarian veins. The right ovarian vein joins the inferior vena cava, but the left returns its blood to the left renal vein

Lymphatic drainage--This is to the lumbar glands

Nerve supply--This is from the ovarian plexus

3.6 The Menstrual Cycle

The reproductive phase of a women's life begins at puberty until menopause and it is associated with regular menstrual flow. The onset of the first menstrual period marks sexual maturity and is known as menarche. It signals the beginning of series of periodically recurrent changes in the hormonal status of the female, which causes build up and shedding of the endometrium. Menarche usually occurs between the ages 10 -16. Menstruation occurs once a month, averagely it is taken to be every 28 days and recurs regularly from puberty until menopause, though the length may vary with individuals, counting from day 1 of the menses. The flow last about 3-5 days with approximately 50 -100mls of blood. Menstruation is in two cycles.

The Ovarian Cycle

During the follicular phase, FSH stimulate the primordial follicles in the ovary, which respond by secreting oestrogen. (This prepares the uterine lining for arrival and implantation of the ovum).

The ovarian cortex contains about 200,000 primordial follicles at birth. The later become graafian follides. From puberty onwards certain follicles enlarge and one matures each month to librate an ovum.

The increasing level of oestrogen signals the hypothalamus to stop producing FSH, hence progesterone surge takes place which results in production of LH. This enhances the maturation of the follicles which causes rupture of the follicle on the 14th day results in ovulation.

This is followed by the luteal phase which begins with ovulation and ends with the start of the menstrual flow. The ruptured follicle continue to produce LH, it becomes, yellowish, increases in size to form the corpus Luteum (Yellow body). Progesterone level remains high. If the ovum is not fertilized by 48 hrs the hormonal levels drop and the endometrium begins to shed, this signals menstrual flow. However if fertilization takes place, the corpus luteum continue to secrete progesterone and oestrogen which maintain the endometrium until the placenta takes over.

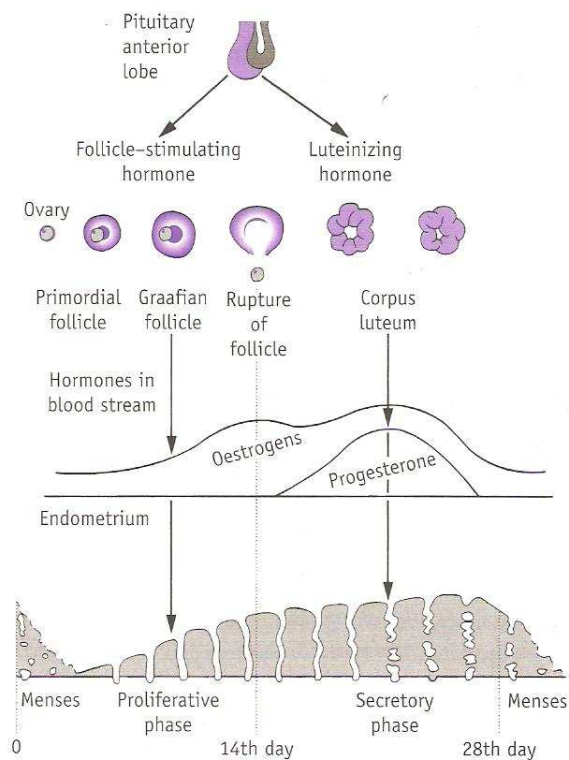


Figure 2-4 The Menstrual Cycle

Uterine Cycle/Menstrual Cycle

Menstrual cycle is described in phases.

Proliferative Phase (Resting Stage)

This phase begins immediately the menstruation stops. The first 2-3 days is a stage of repair of the endometrium sometimes referred to as Regenerative Phase, during this stage new endometrium is reformed. Proliferative phase last until ovulation. The endometrium is ready to received ovum. It is under the control of hormone, there is ripening of the granfian follicles which secrete oestrogen in large quantity, under the influence of the FSH from the anterior pituitary gland. The next level get to a peak it inhibit production of FSH. At the same time one graafian follicle would have mature and moves to the surface of the ovary. It bursts and discharges an ovum. This process is known as **Ovulation**, and takes

place about the 14 days before the next menses. As ovulation approaches, rising oestrogen level causes the cervical mucus to become thin, clear and elastic, this elasticity (spinnbarkeit) enhances the sperms motility and increases the female's fertility.

Oestrogen causes the endometrium to become thick, so at the end of this phase, the structure of the endometrium consists of three layers:

Basal layer, Functioning layer (surface layer), and Cuboidal ciliated epithelial layer.

Secretory Phase: This follows ovulation and is under the influence of progesterone and oestrogen. Increase in the progesterone level and development of corpus luteum further increases thickening of the endometrium and become softer. The lining become more vascular and ready to received fertilized ovum – layer increases to 3.5mm. If fertilization and implantation occurs, progesterone level continues to increase. This inhibits the maturation of another follicle. When the level of progesterone reaches it's peak and no fertilized ovum, production of LH is inhibited. The corpus luteum degenerates and atrophies resulting in sudden drop in the progesterone level which brings about menstrual flow as a reaction to shrinking and shedding from the uterine wall.

Menstrual Phase: This phase is characterized by uterine bleeding and shedding of the endometrial lining. After 14 days of corpus luteum and no fertilization result in sudden drop of progesterone and oestrogen, the functioning layer is shed off with the epithelial layer and expelled by the muscular contraction of the uterine muscle. This tissues plus bleeding from the ruptured blood vessels form the menstrual flow. It last for about 3-5 days. Total blood loss 50-100 mls. The fibrinolysis present in the blood prevents clotting.

The contents of menstrual blood are endometrial lining, blood from capillaries mucus and dead ovum. Regularity of menses depends on hormonal changes associated with ovulation, which are under the influence of changes in the anterior pituitary gland and some emotional factors. The life span of the ovum is 24-48hrs. Women are in the most fertile state about 14 days before the next menses. The secretory phase is more or less constant in length but the proliferative and menstrual phases may vary.

Some women experience little or no discomfort during menstrual cycle while some experience full blown premenstrual syndrome (PMS) which may occur several days before the onset and last a few days after. Slight pelvic pain may accompany ovulation, known as *Mittelschmerz's syndrome*, which may be due to stretching of the ovarian capsule, slight bleeding into the peritoneal cavity or peristalsis in the fallopian tubes – characterized by the following.

Minor Discomforts Associated With Menstruation

1. Headache, bloating, largely brought about by relaxation of smooth muscle caused by progesterone.
2. Heaviness of the lower abdomen and legs.
3. Tenderness and swelling of the breasts nipples fluids on the breast.
4. Visual disturbance, some women may become sleepy.
5. Impaired judgment careless mistakes especially during secretory phase.
 - Increased activity of the skin
 - Increased amount of vaginal discharge and
 - Increased frequency of micturation.
6. Nervous tension, irritability, depression.
7. Craving for salty and sweet things.

8. Digestive disturbances e.g. epigastric discomfort, heartburn and constipation.

Treatment

Analgesic, reduced sodium in diet, avoidance of caffeine and stress – activities e.g. walking, emotional support, and heat therapy, in severe cases refer (physician).

3.7 Menopause

This is the end of the reproductive period of a woman. This occurs between the ages of 45 and 50. The ovarian hormone being gradually withdrawn and ovulation ceases. The menopause is thought to take about 2 years. The time is known as climacteric.

The effect of this upon various systems of the body: it causes certain physical symptoms

Hot flush,

1. Palpitation, tendency to obesity
2. Vasomotor expressed as hot flashes
3. Psychological depression , anxiety mood swing etc

These are all physiological changes but are associated with psychological actions. Women should not expect ill health and they should be encouraged to live active interesting lives. For profuse, prolong and irregular bleeding, medical aid should be sought to exclude the possibility of malignancy.

4.0 Conclusion

The female reproductive system plays a significant role in reproduction. It forms a channel through which the ovum released at ovulation travels to fuse with the spermatozoa. The uterine muscle layers are specially designed to prepare, receive, accommodate, nurture zygote, and expel the fetus when at term by its contractile action.

The tranquility of the uterus due to the action of pregnancy hormones e.g. progesterone allows the uterus to shelter the fetus to mature before expulsion. From the discussion we can also conclude that the woman has a reproductive life span when she can bear children. A woman does not remain fertile for life.

5.0 Summary

The female reproductive system can be divided into two parts, the external genitalia known as the vulva which comprises of the vaginal, uterus, uterine tubes and the ovary. Each of these structures plays different roles but their focus is to bring about process of fertilization and delivery at the end of pregnancy.

Menstruation is the discharge of blood from the uterus as a response to progesterone hormonal level in the blood stream. Every month the uterus is prepared ready to receive fertilized ovum. In the absence of pregnancy the corpus luteum degenerate and menses occurs 14 days before the next one.

6.0 Tutor Marked Assignment

Identify the structures of the external female reproductive organs.

Briefly explain with diagram the phases of menstrual cycle.

7.0. References and Further Studies

- Fraser D.M. Cooper M.A. and Nolte A.G.W. (2006) Myles Textbook for Midwives African Edition
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Unit 3: The Male Reproductive System

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1.0 Introduction

In the preceding unit we described the female reproductive organs and the interrelatedness in their physiology that brings about the release of the ovum during the ovarian cycle. The male reproductive system too plays a very important role in reproduction. We shall now discuss the anatomy of the male organs, their functions, and production of spermatozoon which unite with the ovum that result in a new life.

2.0 Objectives

At the end of this unit you will be able to

- Describe all the organs of the male reproductive system
- Explain the process of spermatogenesis
- Appreciate the role of the male organ in reproduction.

3.0 Main Content

The Male Reproductive System

The male reproductive system is made up two main parts.

1. The External
2. The internal parts

3.1 The External Organs

3.1.1. The Penis

It has its root in the perineum with the lower 2/3rd of the body suspended outside in front of the scrotal sac. It is made up of three bundles of spong-like erectile tissues:

- i. 2 the corpora cavernosa on the lateral columns in front of the urethra
- ii. 1 The corpus spongiosum on the posterior column which contains the urethra enclosed in a firm sheath of firm tissue with rich blood supply and covered with the skin. The skin double fold backwards on itself at the glans penis to form the prepuce (foreskin) which is usually removed during circumcision. The penis transmits a portion of the urethra which acts as a passage for semen as well as excretion of urine... During sexual excitement the penis becomes larger, rounder, firmer and erect to be able to penetrate and deposit semen near the cervix. Stimulation of the nervous system increases blood supply to the organ.

This erections start at puberty and may result in wet dream in adolescent boy. There is a small sphincter in the urethra which prevent semen from entering the bladder and urine from the urethra mixing with the semen during intercourse.

3.1.2. The Scrotum

It is a sensitive pouch-like sac covered with wrinkled skin and hair from which the penis hangs. It lies in front of the thighs, behind the penis and is thickly pigmented. The scrotum is divided by a fibrous septum called Dartos muscle into two cavities each of which contain a testis epididymis and initial portion of the vas deference. The muscles contract in cold weather and relax in hot weather to ensure normal temperature around the testes. Next to the clartos muscle lies the cremaster muscle and fascia. It protects the testes from injuries.

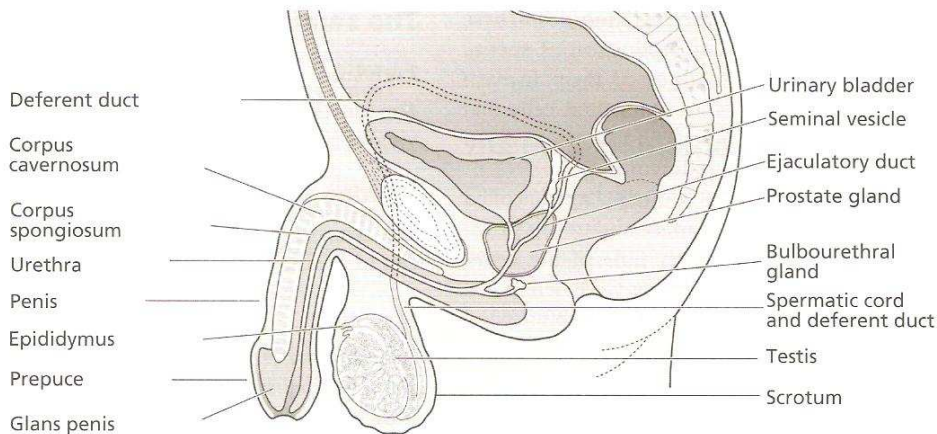


Figure3-1 The Cross Section of the Male Reproductive System

3.2. The Internal Organs

3.2.1. The Testes

The testes are the male reproductive glands (Gonads), equivalent to the female ovaries. They are formed in the fetal abdomen at the lumbar region just below the kidneys at about 28th week of gestation. The testes descend into the scrotum via the right and left inguinal canal, toward the end of pregnancy. They are suspended by spermatic ducts. The testis is ovoid in shape & white in colour.

Size: 4-4.5cm long, 2.5cm wide 3cm thick and 10-14gm or more in weight, depending on the heftiness of the individual man structure. Each testis is surrounded by 3 coverings of glandula tissue.

1. **Tunica Vaginalis:** This is the thick outer covering and is a double fold of a down growth of the abdominal and pelvic peritoneum brought down with the descending testis when it descends. The visceral layer surrounds the testes while the parietal lines the Germaters muscle.
2. **Tunica Albuginea:** This is a fibrous tissue coat surrounding the testes under the vaginalis. Ingrowths of albuginea form septa dividing the glandular tissue into 200-400 lobules. Each contains convulated seminiferous tubules lined with germinal epithelium which produce sperm (Spermatogenesis) from puberty. Surrounding the tabula are connective tissue stroma which contains cluders dendox cells (Leydig cells) cells which secrete testosterone.
3. **Tunica Vasculosa:** This consists of network of capillaries supported by delicate connective tissues. They surround each lobule of the testes. The testes must be kept below body temperature in order to function properly, hence they are situated outside the body. Inflammation of the testis is known as **Ochitis**.

Cryptorchidism: Complete failure of the testes to descend into the scrotum. Such testes are destroyed due to high body temperature.

3.2.2. The Epididymis

This is a fine convoluted tubule about 6 metre in length connecting the testis and the vas defense. It is found at the posterior aspect of the testis. It produces substance which stimulates the development of the sperm. The sperms are stored here to become mature and motile

3.2.3. Vas Deferens

A continuation of the epididymis, commences at the tail and, passes upwards behind the testis through the inguinal canal and ascends medially towards the posterior wall of the bladder; enter the pelvic cavity where it connects with the seminal duct. These are the tubes ligated during vasectomy; it is about 450cmlong. The vas deferens duct is surrounded by smooth muscle the peristaltic

contraction of the smooth muscle tissue help propel sperm cells through the duct.

3.2.4. Seminal Vesicles

These are small irregular Pyramid shaped sacs lying between the base of the bladder and the rectum. They are about 5cm long. They are composed of columnar epithelium, muscle and fibrous tissues. They secrete yellowish fluids which is an essential component of seminal fluid. Each vesicle opens into the seminal duct which joins the vas deferens on the corresponding side of the ejaculatory duct. The fluid contains fructose and other nutrients to nourish the sperm. Forms nutrients to nourish the sperm constitute about 60% of the semen and give it its colour.

3.2.5. Ejaculatory Ducts

They are two small muscular ducts about 2cm long. Pass through the prostate gland and connects with the vas deferens and opens into the urethra. They carry the spermatozoa and seminal fluid to the urethra.

3.2.6. Prostate Gland

Is a cone shaped structure, about the size of a walnut. 4cm long, 3cm wide, 2cm deep and 8g in weight. It lies below the bladder, surrounding the upper part of the urethra in direct contact with the neck of bladder. It is composed of glandular tissue and involuntary (Columnar epithelium) muscle enclosed in fibrous capsule. It secretes alkaline fluid which makes up 30% of semen. It is added to the sperm, and the muscle fiber aids ejaculation of the sperm. The fluid neutralizes the acidity of the vagina during intercourse. It gives the characteristic odour. Enlargement of prostate gland in old men causes urine retention.

3.2.7. Cowper's Glands (Bulbo Urethral Glands)

They are two small glands about the size of a cowpea, yellow in colour and lie below the prostate gland. The ducts about 3cm long open into the urethra before reaching the penile portion. The secretion is alkaline in nature and is added to the seminal fluids and also help to lubricate the penis during sexual activities.

3.2.8. The Urethra

Is a tube, about 8 cm long, travels from the bladder to the tip of the penis. Urine passes through it as well as a passage for semen during sexual intercourse. The muscle at the neck of the bladder closes it up to prevent semen from entering the bladder during sexual intercourse.

3.3. The Male Hormones

The hypothalamus produces Gonadotrophin releasing factors which stimulate the anterior pituitary gland to produce follicle stimulating hormones (FSH) and luteinising hormone (LH). The FSH act on the seminiferous tubule to bring about production of sperm, while LH acts on the interstitial cells (Leydig) within the testes, which produce testosterone. Testosterone is responsible for secondary sex characteristics - i.e. deepening of the voice, growth of the genitalia and growth of hair on the chest pubis, axilla and face, muscle mass development, strengthening of the bones and enlargement of the penis, scrotum, testes, prostate gland and seminal vesicle and all attribute to the influence of testosterone.

3.4. Formation of the Spermatozoa: Spermatogenes (Spermatogenesis)

Production of sperm starts at puberty and continues throughout life. Production takes place in the seminiferous tubules under the influence of FSH & testosterone. It takes some weeks (about 3 months) to mature. The matured sperm are stored in the epididymis . About 2-5mls of semen is deposited at each ejaculation and 1ml contain about 100 million sperm/ml which move at a speed of approximately 2-3mm per minute.

The scrotum produces an ideal temperature for production of sperm. Significant decrease or increase in temperature affects the testes ability to produce sperm. Illness, wearing of tight clothing, undue heat and exercise affect the temperature and can impair spermatogenesis .

3.5 Sperm

The sperm is about 0.05mm long. only visible under microscope. It has a head, body and a fine long mobile tail which lashes to propel the sperm along. The tip of the head is covered by an acrosome which contains enzyme that dissolves the covering of the ovum in order to penetrate it.

4.0 Conclusion

The male reproductive organ is equally important as that of the female. The unit has taken you through the structures that constitute the male reproductive system, the male hormones and production of spermatogenesis. All the organs work together to allow the male gonads to produce healthy sperm that are capable of fertilizing the female ovum.

5.0 Summary

This system is divided into 2 parts, the external and the internal. The external comprises the penis and scrotum. The internal structure lies within the body. The scrotum houses the testes while testes houses seminiferous tubules and gonads. Seminiferous cells contain the sperm cells in various stages of developments. The epididymis provides area for maturation of the sperm and acts as a reservoir for matured spermatozoa. Seminal fluids provide nutrition that aids motility and fertility ability of the sperm. Cowper's glands secrete alkaline fluid which neutralizes acidic vaginal secretions. For effective performance of its function the testes has to be at lower temperature than that of the body.

6.0 Tutor Marked Assignment.

Describe the male external organs

Explain spermatogenesis

7.0 References/further readings

- Ojo O.A. and Briggs E.B. (2006) A Textbook for Midwives in the Tropics. 2nd ed. Jaypee Brothers Ltd. New Delhi
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Unit 4: Fetal Development, Placenta Development and Fetal Circulation

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Fetal and Placental Development and Fetal Circulation

3.1.1 Fertilization

3.1.2 Formation of the decidua

3.1.3 Growth and development of the fertilized ovum

3.1.4 Summary of growth and development

3.2 The placenta development

3.2.1 Placenta at term

3.2.2 Functions of the placenta

3.2.3 The membranes

- 3.2.4 The umbilical cord
- 3.3 The fetal circulation
 - 3.3.1 Temporary structure
 - 3.3.2 The course of circulation
 - 3.3.3 Changes in fetal circulation at birth
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment
- 7.0 References/ Further study

1.0 Introduction

In the previous three units we have been discussing how the organs of reproduction facilitate reproduction, female and male alike. We also learnt that except these organs are in good state of health the smooth process of the function may be inhibited. Now we shall go into the process of fetal development, maturation, survival in-utero. I hope you will enjoy this unit that brings to our awareness the way we started the journey of life.

2.0 Objectives

By the time we finish the discussion in this unit, you will

- Gain insight into how conception takes place.
- Be able to explain how the organs of the body develop.
- Understand why some are born with congenital abnormalities
- Appreciate the factors responsible for maldevelopment and assist in preventing them.

3.0 Main Content

3.1 Fetal and Placental Development and Fetal Circulation

3.1.1 Fertilization

This is the fusion of the ovum and the spermatozoon, and it initiates the beginning of a new life. During ovulation the ovum which is released from the ovary is propelled towards the fallopian tube. During intercourse millions of spermatozoa are released and deposited at the upper vaginal tract towards the fallopian tube. Aided by the alkaline cervical mucous secretion at the time of ovulation they travel to the fallopian tubes where they meet the ovum just released during ovulation. Several hundred of them bind the ovum (zonal pellucida) but only one spermatozoon can fertilize at a time. The sperm are viable for 24-72 hours within the female reproductive system. As soon as fusion occurs between the spermatozoon and the nucleus of the ovum, the zonal pellucida goes through chemical changes releasing an enzyme which makes it impossible for other spermatozoa to penetrate. The membrane of the spermatozoon breaks; the tail separates and disappears, leaving a naked male pronucleus. The fertilized ovum is known as the **ZYGOTE**. A new individual has begun its journey till death.

Within a few hours of fertilization the process of rapid mitotic cell division, known as cleavage starts (2nd cleavage which has been arrested at metaphase resumes ending in Haploid number). Within 3 days a solid mass of uniform cells of 16 segments has formed known as the MORULA (Mulberry). During this period the egg is gently propelled from the ampulla tube where fertilization took place, along the tube towards the uterine cavity with its peristalsis and wavelike motion of cilia. With further development a central cavity is formed in the morula and the cell is now moved to one pole, aggregate to form the inner cell mass from where the embryo and the amnion will be formed, and the fluid on the other pole. At this stage the ovum is known as the **BLASTOCYST**, or **BLASTULA**. (By 4½ days the blastocyst has divided up to 100 cells and within approximately 6 days, reaches the decidua of the uterus where implantation takes place.). The outer wall of the

blastocyst is composed of fluid –filled cavity of (Blastocele surrounded by a single layer of cells) blastocele called **TROPHOBLAST** from where the placenta and the chorion are formed. It oxidizes the endometrial vascular walls, it is capable of eating through the decidua and embeds, and it provides the growing embryo with link to maternal circulation for transportation of nutrients and Oxygen. At this stage the zonal pellicuda has disappeared and the Zygote is ready to embed. A layer of cells connect the inner cell mass to the trophoblast, this forms the body stalk.

Implantation (Embedding): Nidation

Sites vary from one pregnancy to another, but most often the trophoblast implants itself in the upper segment of the uterus usually within seven days. Some women may experience slight vaginal bleeding during implantation (implantation bleeding). As soon as the trophoblast touches the already prepared uterus especially with the side of the inner cell mass lies free for 2-3 days, it sticks to the endometrium and secretes an enzyme which erodes the endometrial cells and begins to burrow into the endometrium. Three to four days after implantation, the blastocyst has penetrated very far and completely embedded and the uterine epithelium covered the entrance the trophoblast has proliferated and penetrated deeply in the uterus. This takes place by 11th day after ovulation. The stoma of the endometrium now reacts to the invasion by accumulating glycogen and lipid and the area become highly vascularised. The depression formed is filled up with maternal blood which surrounds the ovum. At this time the endometrium is referred to as the **decidua**.

3.1.2 Formation of the Decidua

After fertilization the endometrium of the uterus is known as the decidua. Oestrogen increases the size to about 4 times of its pre-gravid thickness, the corpus Luteum, and produce large amount of progesterone which increases the secretion of the endometrial

glands and increases the blood vessels. So it makes the endometrium to be softer, spongy and vascular for the fertilized ovum to embed and nourishes itself. The decidua is transformed into 3 layers.

- i. The Basal layer (Basement): This lies immediately above the myometrium. It remains unchanged in itself but regenerate the new endometrium after delivery.
- ii. The functional layer (cavernous layer): it consists of tortuous glands rich in secretions. The stoma cells are enlarged in what is known as the decidua reaction which provides defense against excessive invasion by the syncytiotrophoblast and limit it to this spongy layer. It provides anchor for the placenta and allows it to have access to nutrition and Oxygen. It is the functioning layer.
- iii. The compact layer it covers the surface of the decidua and composed of closely packed stoma cells, polygonal in shape and it contains necks of glands.

The blastocyst forms a small nodule in the decidua which bulges out into the uterine cavity progressively as it continues to enlarge and divides the decidua into three areas.

1. Decidua Basalis: This is the area of the decidua underneath the developing ovum.
2. Decidua capsularis: the area which covers the ovum.
3. Decidua vera (Parietal) (True Decidua): This lies in the remainder of the uterine cavity.

As development continues the ovum grows and completely fill up the uterine cavity, at about the 12th week the decidua capsularis comes in contact with the decidua vera, it fuses with it and degenerates.

3.1.3 Growth and Development of the Fertilised Ovum

During the first 8 weeks of pregnancy, embryonic tissues and the surrounding supportive structures are formed simultaneously. It is during this period that the embryo is at greatest risk for malformation. From the 8th week through the end of pregnancy, the

embryo is known as the FETUS. The supportive structures that nourish and maintain the growing fetus are called the fetal membranes. These include the yolk sac, amnion, chorion, decidua and the placenta.

The Trophoblast

As development continues small projections begin to appear all over the surface of the blastocyst known as the trophoblast, becoming most prolific at the area of contact – area of inner cell mass. The trophoblast differentiates into layers.

- i. The outer syncytiotrophoblast (syncytium): it is capable of breaking the decidua tissue during embedding. It erodes the wall of the blood vessels, making nutrient in the maternal blood accessible to the developing embryo. It acts as a protective layer between the chorionic villi.
- ii. Cytotrophoblast: This is a well defined single layer of cells which produce Human Chorionic gonadotrophin (HCG). It informs the corpus Luteum that pregnancy has begun, so as to continue to produce progesterone and oestrogen. The progesterone maintain the integrity of the decidua so that shedding does not take place (menstruation is suppressed), while the high level of oestrogen suppresses the production of FSH. The HCG is produced in high level in the first trimester and it is the basis for pregnancy test.
- iii. The Mesoderm: Consist of loose connective tissue. It is continuous with that in the inner cell mass where they join in the body stalk which later develops into the umbilical cord.

The trophoblast later form finger like process called –Primitive villi which develop into placenta and the chorion.

The Inner Cell Mass

As the trophoblast is developing into the placenta which will nourish the fetus, the inner cell mass is forming the fetus itself, umbilical cord and the amnion. The cells differentiate into three layers each of which will form particular parts of the fetus.

1. The Ectoderm: Mainly forms the skin, nervous system, mammary glands salivary glands, Pharynx, nasal passage and crystalline lens of the eyes, certain lining of the mucosa, hair, nails, and enamel of the teeth.

The Mesoderm: Forms the bones muscles, circulatory system old vessels Reproductive system (ovary and testes), kidneys, ureters, connective tissues, lymphatic system.

The Endoderm: Lines the yolk sac. It forms the Alimentary tract, liver, pancreas, lungs, Bladder thyroid glands.

The fetus develops it's own blood like other organs in the body. The maternal and the fetal blood never mix. During the later weeks (4 wks) the organs like the liver and heart start to function.

The three layers together are known as the **embryonic plate**. Two cavities appear in the inner cell mass one on either sides of the embryonic plate.

- i. **The Amniotic Cavity:** this lies on the side of the ectoderm. The cavity which is filled with fluid gradually enlarges and fold round the embryo to enclose it the lining forms the amnion. It later enlarges in the chronic cavity and comes in contact with the chorionic membrane.
- ii. **The Yolk Sac:** Lies on the side of the endoderm and provides nourishment for the embryo until the placenta(alimentary tract

After birth the remnants of the yolk sac is the vestigial structure in the base of the umbilical cord, known as vitelline duct.

The developing of spring is referred as EMBRYO after fertilization up to 8 weeks after which the conceptus is known as FETUS until birth.

Summary Of Fetal Development

0-4 weeks after conception

Rapid development
 Formation of the embryonic plate
 Primitive central nervous system forms
 Limb buds form
 Embryo is susceptible to damage from drugs , radiation and viruses

4 – 8 weeks

Very rapid cell division
 Head and facial features develop
 All major organs laid down in primitive form
 External genitalia present but sex not distinguishable
 Early movements
 Visible on ultrasound from 6 weeks

8 – 12 weeks

Eyelids fuse
 Kidney begins to function and the fetus passes urine from 10 weeks
 Fetal circulation functioning properly
 Sucking and swallowing begins
 Sex apparent
 Moves freely (not felt by mother)
 Some primitive reflexes present
 0 – 6 cm in length, weighs 30g, spleen produces RBC
 Face has human feature

12 – 16 weeks

Rapid skeletal development – visible on X-ray
 Meconium present in gut
 Lanugo appears
 Nasal septum and palate fuse
 10 -16 cm in length, weighs 120g

20 – 24 weeks

Most organs become capable of functioning
 Periods of sleep and activity
 Responds to sound
 Skin red and wrinkles

26 – 28 weeks

Survival may be expected if born
 Eyelids reopen
 Respiratory movements
 Weighs 1000 – 1200g

28 – 32 weeks

Begins to store fat and iron
 Testes descend into scrotum
 Lanugo disappears from face
 Skin becomes paler and less wrinkled

32 – 36 weeks

Increased fat makes the body more rounded
 Lanugo disappears from the body
 Head hair lengthens
 Nails reach tips of finger
 Ear cartilage soft
 Plantar creases visible

3.2 The Placenta Development

The survival of the fetus depends on the integrity and efficiency of the placenta. It performs the function which the fetus is unable to perform for itself in-utero.

Development: The placenta originates from the trophoblastic layer of the fertilized ovum which forms the chorionic villi. The chorionic villi become more profuse in the area which blood supply is richest. That is in the decidua basalis. This part is known as the **CHORIONIC FRONDOSUM** and it is what later develops into placenta. The capsular decidua later degenerate to form chorionic leave (bald chorium) from where the chorionic membrane is formed. These villi erode the maternal blood vessels opening them up to form a lake of maternal blood in which they float. Opened blood vessels are known as sinuses. Blood filled space is known as the intervillous space. The maternal blood circulates around the villi slowly enabling it to absorb oxygen and nutrients and excrete waste into it. These are known as **Nutritive villi**. A few villi are deeply attached to the decidua and are known as **Anchoring villi** they stabilize the placenta. They lie between the maternal and the fetal blood vessels. Each villus originates from one single stem and it consists of 3 layers of cells mesoderm which contains the blood vessels, inner layer of cytotrophoblast and outer layer of syncytiotrophoblast; so it is impossible for the fetal and maternal blood to mix except when there is damage to the chorionic villi. Villi do not penetrate beyond the functional layer; it stopped by a layer of fibrinoid material in the decidua known as the layer of Nitabuch. By 10 weeks the placenta is completely formed and starts to function. It is initially a soft loose tissue. It becomes more compact as it matures

3.2.1 Placenta At Term

The placenta at term is a round flat organ about 20cm in diameter and **2.5cm thick** at the centre. It weighs about $1/6^{\text{th}}$ of the baby's weight at birth. It is made up of chorionic frondosum and blood vessel containing fetal blood and decidua Basalis. It has two surfaces the fetal and maternal surfaces.

The Fetal Surface

It is smooth, whitish and shiny covered by the amnion and chorion. The cord is attached to it at the centre and the fetal blood vessels can be seen radiating from the insertion of the cord to the edge. The chorion hangs from the edge of the placenta while an amnion can be peeled up to insertion of the cord.

The Maternal Surface: This is rough and bluish-red in color. It is made up of chorionic villi arranged in 20 cotyledons or lobes separated by sulci or furrows some small deposit of lime salt can be found on the surface which appear gritty in appearance. This has no clinical significance. The surface is covered by a layer of trophoblastic cells.

3.2.2 Functions Of The Placenta

- 1. Respiratory:** During intrauterine life no pulmonary exchange of gases can take place. The fetus absorbs oxygen from the maternal haemoglobin by processes of simple osmosis and diffusion and gives off carbon-dioxide into the maternal circulation similarly.
- 2. Nutritive:** All food nutrients required by the fetus for growth and energy are obtained from the mother's blood in simplest form. Protein for building tissue, glucose for growth and energy, calcium & phosphorus for the bones and teeth, water, vitamins, electrolytes, iron and other minerals for blood formation, growth and various body processes. The Placenta does the selection. The placenta also does the metabolic function of glucose; it stores it as glycogen and converts it to glucose as required.
- 3. Excretory:** All waste products from the fetus are excreted into the mother's circulation through the placenta.
- 4. Endocrine:** Placenta produces some hormones.
 - a. Human Chorionic Gonadotrophin (HCG):** This is a unique hormone in pregnancy produced by the langhans cells of the chorionic villi – cytotrophoblast from its earliest day. It makes the corpus luteum to continue

with production of progesterone and Oestrogen until the placenta takes over. It can be detected from about the 30th day of conception and reaches its peak about 60-80 days of pregnancy. The peak drops at about the 12th week and a low level is maintained throughout pregnancy. The high level persist longer in multiple pregnancy, trophoblastic tumour (hydatidiform mole). It is excreted in urine and form the basis for immunological test for diagnosing pregnancy. It also regulates the production of oestrogen by the placenta.

- b. **Progesterone:** This is produced in the syncytial later by the placenta from about the 3rd month. It relaxes the smooth muscles and reduces exertibility tone e.g. uterus, stomach ureter and intestines. It is excreted in urine as pregnanediol. The level drops immediately before the onset of labor.
 - c. **Oestrogen:** Oestroil, oestradiol. It is produced by fetoplacenta unit from the 6th week. It aids the growth of the uterine muscle and mobility of the nipple. The amount rises steadily until term and falls when the placenta is expelled to allow prolactin to initiate lactation. The amount of the measured urine or serum oestrogen indicates fetal well being.
 - d. **Human placenta Lactogen (HPL):** Aids the development and growth of the breast. Has generalized metabolic effect on carbohydrate and lipids. It has connection with the activity of the growth hormone. The level of it in the blood reflects placental function.
5. **Storage:** It stores glucose in form of glycogen until the liver of the fetus is matured enough and capable of storage. Vitamins A & D and iron are also stored in the placenta.
 6. **Protective:** The placenta protects the fetus from some harmful diseases suffered by the mother e.g. malaria and T.B. Organisms can not pass through the placental barrier. But some bacteria and virus e.g. syphilis, rubella (German

measles), small pox may, and cause congenital abnormalities and some drugs (morphine, Pethidine, heparin etc) can pass through and affect the respiratory centre. Penicillin and sulphonamides can also pass through but this serves as an advantage in syphilis. Antibodies, immunoglobulin G (IgG) confer immunity for the first 3 months of life.

3.2.3 The Membranes

These are the sacs that contain the fetus and the amniotic fluid.

The Chorion: Is a thick, rough, opaque and fragile membrane continuous with the placenta at its edge. It lines the decidua vera of the uterine cavity. It is derived from chorion leave of the trophoblast and continuous with the chorionic plate. It ruptures easily and can be retained during the delivery of the placenta.

The Amnion: It forms the sac that contains the fetus, the amniotic fluids and the cord. It lies in contact with the chorion. It is smooth, translucent and tough. It is derived from the inner cell mass. It is thought to have a role in the formation of the amniotic fluids. The amnion is much stronger than the chorion and hardly retained. It can be stripped off up to the insertion of the cord.

The Amniotic Fluid: It is straw-colored fluid, alkaline in reaction. It is secreted from amniotic membranes, exudates from the decidua and placenta vessels and from fetal urine. The volume is 400-1,500mls in normal cases. It increases at the rate of about 30mls per week but decrease at term as the baby fills the uterine cavity. It reduced to about 1 litre near term (38wk). The reduction in volume may be partly due to the fetus swallowing it at term. It is most abundant in mid-trimester. It has the specific gravity of 1010, 99% water. The 1% solid matter is composed of lanugo, hair, epithelia cells, vernix caseosa, protein, glucose sodium, potassium and calcium. It has pH of 7.0 – 7.5.

Less than 300mls is regarded as Low volume – oligohydramnios

More than 1,500mls is regarded as High volume – Polyhydramnios

Functions of Amniotic Fluid

1. Provides protective medium for the fetus against injuries.

2. Acts as shock absorber
3. Equalizes the pressure by uterine contraction over the fetus and cord.
4. It permits free movement of the fetus in utero.
5. Maintains the temperature of the fetus.
6. It flushes the birth canal at and before the delivery of the baby
7. Provides nutritive material
8. Help impede the entering of bacterial into the uterus.
9. Aids effacement and dilatation where there is poor application of the presenting part.

3.2.4 The Umbilical Cord Or Funis

This forms the connection between the fetus and the placenta. It is composed of a jelly-like material known as the Wharton's jelly covered with a single layer of amniotic epithelium and stratified cubical cells. It contains one large umbilical vein which carries oxygenated blood from placenta to the fetus. Two arteries which is a continuation of the hypogastric arteries, wind round the vein and carry deoxygenated blood from the fetus to the placenta. The cord is about 50cm in length regarded short if less than 40cm but the length varies greatly. It may be as short as 7.55cm or as long as 2m. It is not of uniform thickness but is as thick as the little finger. There may be excessive collection of Wharton's jelly known as "**False knot**". The cord is attached to the placenta at the centre.

The false knot is not harmful but True knot which is very uncommon can be very dangerous. It results from excessively long cord & excessive movement. Short cord can cause delay in descent of the presenting part and premature separation of placenta. Excessively long cord can predispose to cord round the neck, body of the fetus, cord prolapse or True knot.

Anatomical variations of the placenta & the Cord

1. **Succenturiate Placenta:** An accessory lobe of the placenta is attached to the membranes, blood vessels run through the membrane to it. If retained may lead to PPH. It can be diagnosed with a hole in the membrane with blood vessels running into it.
2. **Circumvallate Placenta:** this is a situation where chorion and Amnion form a double layer. It is seen as an opaque ring on the fetal surface. It is of no significance.
3. **Battledore Insertion of the Cord:** the cord is attached to the edge of the placenta. Looks like a table tennis bat.
4. **Velamentous insertion of the cord:** The cord is inserted into the membranes some distance away from the edge of the placenta. The umbilical vessels run through membranes from the cord to placenta. It causes no harm to the fetus in a normally situated placenta, but may separate during the active management of the third stage of labor.
5. **Bipartite placenta:** The placenta divides into two separate segments the cords join together shortly after the segments. When it divides into three, it is known as Tripartite placenta.
6. **Placenta Accrata:** The placenta embeds beyond the normal level. Separation becomes impossible.
7. **Placenta Fenestrated:** Abnormal hole appear in the middle of the placenta it may be wrongly taken for missing lobe.
8. **Vasa Praevia:** If the placenta is low-lying the vessels may pass across the OS. In this case there is danger to the fetus as the vessel can be torn when the membranes rupture (e.g. artificial rupture of membrane) leading to severe and rapid haemorrhage and rapid exsanguinations of the fetus. This is suspected when onset of haemorrhage coincides with rupture of the membranes.

Diseases of the Placenta

1. Hydatidiform mole: A poliferative cystic degradation of the chorionic villi.
2. Calcareous degeneration: Associated normal degerative process of the placenta. The maternal surface is rough to

- touch and white gritty substance like broken egg shells form opaque on it.
3. **Infarcts:** Small whitish area of dead tissue found on the maternal surface. It results from necrotic chorionic villi. It can be found in cases of Pre-Eclampsia Essential hypertension and prolonged pregnancy.
 4. **Oedematous placenta:** This condition is found in hydrops fetalis when the placenta is large, pale with fluid oozing out from it.
 5. **Syphilitic placenta:** the placenta is greasy –looking and may weigh as much as one quarter of the weight of the fetus.

3.3 Fetal Circulation

The fetus derives its supply of oxygen and nutrients from the placenta so because of this the whole of fetal blood has to pass through the organ. The lungs and the alimentary tract being functionless during pregnancy require only a small blood supply first to nourish them. The fetus therefore has a blood circulation which differ from that of its post-natal life, at birth there is a dramatic alternation in the situation, an almost instantaneous change occurs. All organs must be mature and normal to take over. The fetal haemoglobin carries 20-30% more oxygen than adult haemoglobin. This is obtained indirectly from the maternal circulatory system. Through the umbilical vain that extends from the placenta oxygen from the chorionic villi enters the placenta through the umbilical vein and carbondioxide is removed by the umbilical arteries. The fetus relies on three shunt-like structures to supply Oxygen and nutrient and to exchange of waste products they are known as temporary structures.

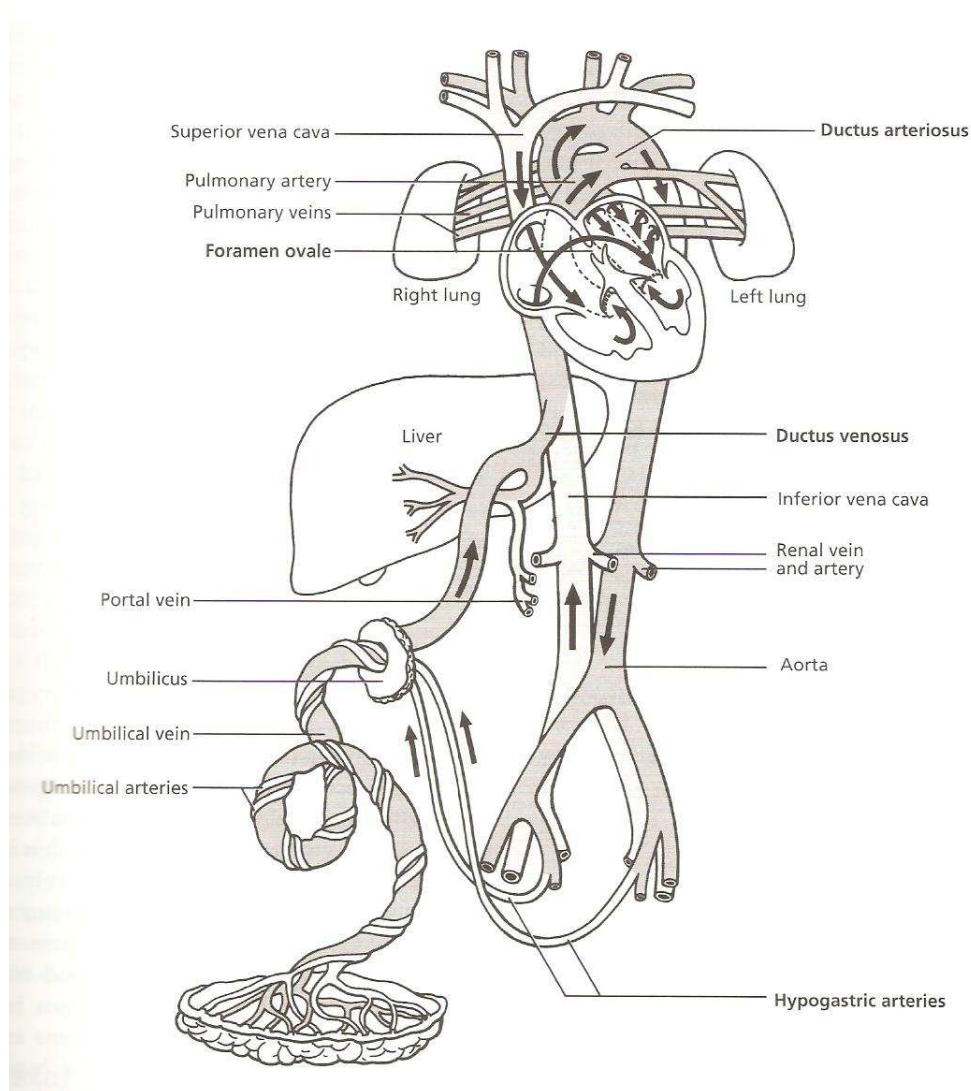


Figure 4-1 The Circulatory System

3.3.1 The Temporary Structure

1. The Ductus venosus: (Vein to vein) This vessel (pure) carries oxygenated blood that has been formed by the placenta from the umbilical vein to the inferior vena cava. It branches just before it reaches the vena cava to supply the liver.
2. The Foramen Ovale; (Oval opening) A temporary opening between the two atria. It allows majority of the blood

entering from the inferior vena cava to pass across from the right atrium to the left atrium.

3. The Ductus Arteriosus: (Arteries to arteries): Carries deoxygenated blood from the pulmonary artery to the descending arch of the aorta enters it just after the subclavia and carotid arteries branch off. By this it bypasses the pulmonary circulation.
4. Hypogastric Arteries: These vessels branch off from the internal ilia arteries and become the umbilical arteries when they enter the umbilical cord.
5. The umbilical vein: Carries oxygenated blood from the placenta to the undersurface of the liver. A branch from it supplies the liver.

3.3.2 The course of circulation

From the placenta, the umbilical vein carrying pure oxygenated blood passes through the abdominal wall to the undersurface of the liver (this is the only vein that carries pure blood). Just before it joins the Ductus venosus, part of it branches to supply the liver. The Ductus venosus carries the rest of the blood to the inferior vena cava where it mixes with the impure blood from the lower part of the body. The hepatic vein also empties its content into the inferior vena cava. The blood then enters the right atrium. Most of it (75%) shunt through the foramen ovale to enter the left atrium and passes into the left ventricle where it enters the aorta. (it has highest oxygen content in fetal circulation) and the major portion of it goes via the branches of the arch of the aorta to –the great vessels of the neck (Coronall and carotid arteries) to supply the brain and the heart and the upper limbs also benefit (subclavia arteries). This ensure that the brain and the heart receive freshly oxygenate blood. The remaining pass into the descending arch of the aorta.

The de-oxygenated blood from the head neck and arms retune through the superior vena cava to the right atrium, there it joins the small stream from the inferior vena cava (though not completely mixed) and flow into the right ventricle. From here the blood

passes into the pulmonary artery, small amount goes to supply the lungs to nourish them while the rest flows through the Ductus Arteriosus into the aorta. Some are distributed to the abdomen, pelvis, visceral and the lower limbs, while the rest pass through the hypogastric arteries which are branches of the internal iliac arteries, into the umbilical arteries, thus transporting the deoxygenated blood back to the placenta where interchange between the fetal and the maternal blood takes place for oxygenation through the processes of osmosis and diffusion and selective action of cytotrophoblast and syncytiotrophoblast. The impure blood from the legs return back into the inferior vena cava to join the circulation again the whole process takes about 30 seconds.

3.3.3 Changes in fetal circulation at birth

The first important change is brought about by the respiratory effort of the child at birth. As the baby gasps, takes a breath and cries, the lungs expand and blood flow into them. The blood which has been passing through the Ductus arteriosus to the aorta now flows to the lungs.

The ductus arteriosus which is no more required contracts and closes. It atrophies to become ligamentum artenosus. The blood now returns from the lungs through the pulmonary vein to the left atrium.

With the clamping of the cord circulation in the umbilical vein ceases and the vein collapses. As a result of this collapse of the umbilical vein, blood no more flows through the Ductus venosus, it collapses to become the ligamentum venosus, and later form a support for the portal vein. This result in reduced pressure of blood in the right atrium, with the establishment of respiration and enhanced pulmonary circulation the circulation the pressure of blood in the left atrium increases. These changes of pressure of the two sides of the heart (Atria) result in closure of the Foramen Ovale, it later become fibrosed and form the adult inter-atrial septum known as “Fossa valis”.

The abdominal portion of the umbilical vein gradually atrophies and becomes fibrosed to form a ligamentum teres which runs between the umbilicus and the liver, enclosed in a fold of peritoneum known as the falciform ligament.

The hypogastric and umbilical arteries contract become closed to prevent blood from escaping. The hypogastric arteries atrophy to become the obliterated hypogastric arteries except a few centimeters which remain patent and become the internal iliac and superior vesical arteries.

4.0 Conclusion

The ovum is receptive to fertilization 24 – 48 hours after ovulation. It is important to note that the process of fertilization include the journey through the fallopian tube to the uterus and critically depends on proper preparation of the reproductive organs systems across the cycle. Successful implantation depends on the action of progesterone on the cells of the uterine muscle fibers. The first few weeks of conception happens to be the period when the fetus is highly vulnerable to congenital abnormalities and factors that can predispose to this must be avoided. The survivals of the fetus depends on the integrity of the placenta , so it must be preserved in situ throughout pregnancy , during pregnancy women must be nutritionally adequate to be able to meet the needs of the growing fetus

5.0 Summary

We have acquired understanding of how the union of spermatozoon and an ovum initiates the beginning of new life. The conceptus is known as the zygote in the first eight weeks and as fetus from then on until delivery. We have also learnt that only one sperm can fertilize an ovum at a time. The uterus is specially prepared to accommodate and nurture the fetus until term and expel at birth. The fetus and placenta develop from the inner cell mass. The survival of the fetus depends on the integrity and efficiency of the placenta which performs all the functions the

fetus is unable to do in-utero. The fetus, we learnt manufactures its own blood and does not mix with that of the mother except where there is tissue damage. The fetus has a blood circulation which differs from the postnatal life and for it to circulate effectively it needs some temporary structures to make it by-pass the lungs and receive all the nutrients and oxygen from the mother through the placenta. Dramatic alteration takes place at birth for circulation to revert back to adult type. All these temporary structures close down to become ligaments that give support to the organ structures in the body.

6.0 Tutor marked assignment

- Compute a table of development of the zygote
- Identify the temporary structures of fetal circulation and describe the changes that take place at birth

7.0 References

Henderson C. and Macdonald s. (2004) Mayes' Midwifery, A textbook for Midwives. 13th Ed, Bailliere tindal New York.
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Unit 5: Urinary System

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Urinary system

3.1.1 The kidneys

3.1.2 Ureters

3.1.3 The bladder

3.1.4 Micturation

3.1.5 Physiological changes during pregnancy, labour and puerperium

3.2 The breast

3.2.1 The physiology of lactation

4.0 Conclusion

5.0 Summary

6.0 Tutor Marked Assignment

7.0 References/ Further study

1.0 Introduction

When we think of the urinary system what comes to mind is elimination and formation of urine, electrolyte balance and water control in the body. However because of the proximity of the female urinary system to the reproductive system, that has made it an important associate organ in reproduction, so much so that the presence of pregnancy affects the functions significantly. In this unit we shall discuss the organs that make up the urinary system briefly and the effect pregnancy has on them.

2.0 Objectives

By the time we end this unit you will be able to:

- Enumerate all organs of the urinary system
- Describe the organs with their functions
- Conduct safe delivery that minimize injury to this organs

- Educate women on how to cope with the physiological changes due to pregnancy, labor and Puerperium

3.0 Main Contents

3.1 The urinary system

The Unitary system consists of two kidneys, a single bladder, two ureters, which carry urine from the kidneys to the urinary bladder and a single urethra, which carries urine from the bladder to the outside of the body.

3.1.1 The kidneys

The kidneys are two bean- shaped glands about the size of a tightly clenched fist. They lie behind the peritoneum on the posterior aspect of the abdominal wall on either side of the vertebral column. The kidneys extend from the level of the last thoracic (T12) to the third lumbar (L3) vertebrae and the rib cage (diaphragm) partially protects them. The liver lies superiorly over the right kidney, causing it to be slightly lower than the left one.

Size

Each kidney is about 10cm long, 6.5cm wide and 3cm thick. It weighs about 120g.

The kidney is dark red in color and covered by tough fibrous capsule. **Microscopic Structure**

The kidney is composed of two zones, the outer portion of cortex and the inner part medulla. The cortex is dark red in color with rich blood supply while the medulla is paler in color. The collecting area for urine which merges with the upper pelvis is divided into major branches or calyces which later subdivided into smaller calyces; they are referred to as minor calyces. Each calyx cups over projections from the medulla known as pyramid.

The Nephrons

The Nephrons are the functioning units of the kidneys. There are about 1 million nephrons in each kidney and about 50-55mm in length. Each nephron starts at a knot of

capillaries called glomerulus. It is fed by a branch of the renal artery, the afferent arterioles takes blood to it and efferent arterioles collect the blood back.

Blood Supply: Renal entries early branches of the descending abdominal aorta

Venous Return: Corresponding vein, lymphatic drainage: Aortic lymph glands, nerve supply: sympathetic and parasympathetic nerves.

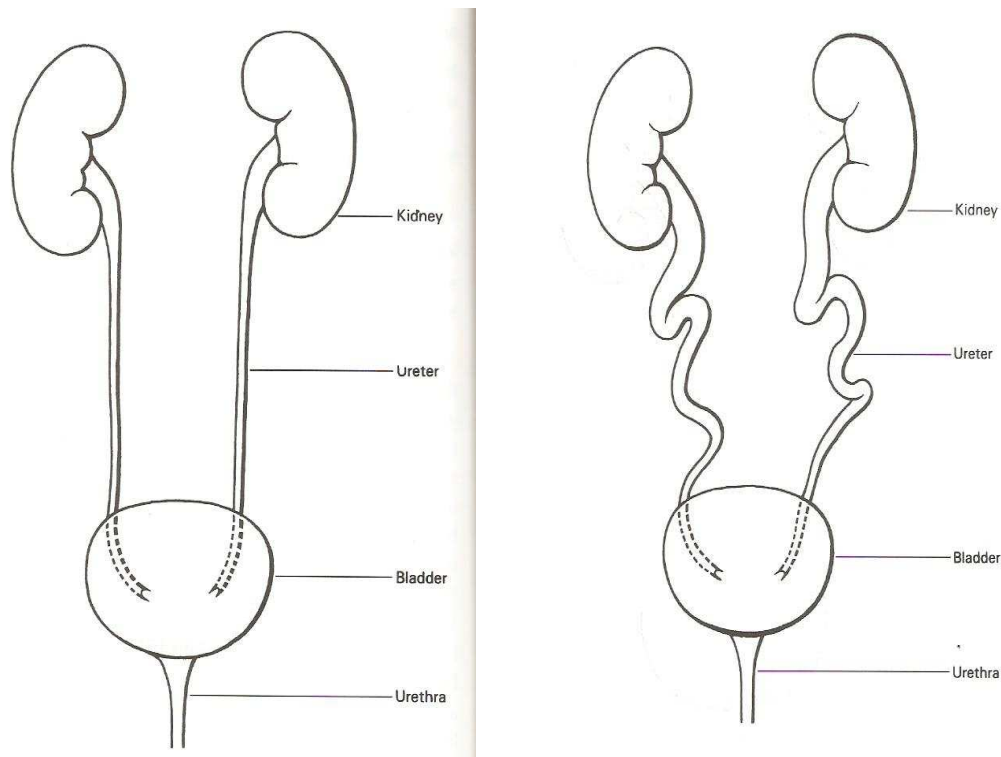


Figure 5-1 The Kidney

Functions of the kidney

1. Manufacture Urine:
2. Elimination of wastes from the body e.g. breakdown production of protein-urea, urates uric Acid, creatinine, ammonia and sulphate.
3. Elimination of toxins.

4. Secretion of useful substances to the body. Rennin and erythropoietin.
5. Regulation of the concentration of solute in the blood, regulate concentration of major ions in the body such as sodium Na^+ , chlorine Cl^- , potassium K^+ and calcium Ca^{2+} .
6. Regulation of pH of the extracellular fluid; the kidneys secrete variable amount of H^+ to help regulate the extracellular fluid pH.
7. Regulation of RBC synthesis. The erythropoietin secreted by the kidneys regulates the synthesis of RBC in the bone marrow.
8. Vitamin D synthesis: it plays important role in controlling Ca^{2+} level in blood by regulating the synthesis of vitamin D.
9. Regulation of blood volume: by producing either a large volume of dilute urine or a small volume of concentrated urine.

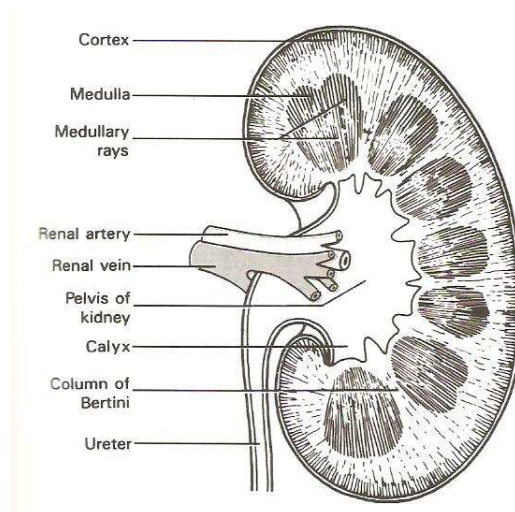


Figure 5-2 The Cross Section Of The Kidney

3.1.2 The ureters

These are the tubes that convey urine from the kidneys to the urinary bladder; the upper end is funnel-shape where it merges with the pelvis of the kidneys. Each tube is about 25-30cm long 1 and 3mm in diameter. It runs from the renal hilum to the posterior

wall of the bladder, pass down the posterior wall of the abdomen towards the pelvis, so remain outside the peritoneal cavity, beside the uterine cervix to enter the bladder from behind.

Structure

The ureter is made up of three layers.

1. **Transitional Epithelium:** This forms the lining of the ureter and is arranged in longitudinal folds.
2. **Muscular Layer:** This layer is composed of three fibers; inner longitudinal fibers, middle circular fibers and outer longitudinal fibers.
3. **Outer Coat:** This is made up of fibrous connective tissue which is continuous with the fibrous tissue of the kidneys. It is a protective layer.

Blood Supply

The upper part: by the renal artery in the pelvic portion- Common Iliac, internal iliac, uterine and vesical arteries,

Venous Returns- Corresponding veins.

Lymphatic Drainage- Internal and external common iliac lymph nodes.

Nerve Supply- Aortic, Renal superior and inferior hypogastric plexus. Sympathetic and parasympathetic nerves.

Effect of Pregnancy on the Ureters

Pregnancy hormone e.g. progesterone relaxes the walls of the ureters. This results in dilatation and kinking of the ureters which tends to slow down the flow of urine or causes stasis. This increases the risk of infection in pregnancy.

3.1.3 The bladder

Situation

The bladder lies in the true pelvis, just behind the symphysis pubis and in front of the vagina and the uterus. The base rests on the

upper half of the vagina while the apex point to the symphysis pubis.

The uterus rests partially over it due to its antverted and ante flexed position. The intestines and the position cavity also lie above it. The ureters enter from behind and the urethra leaves below. It is supported by the pelvic floor muscles it may become abdominal organ when full and during pregnancy and labor.

Shape

It is pyramidal in shape when empty but when full it becomes more globular in shape as the walls become distended.

Size:

When empty, its size is similar to that of the uterus but becomes larger when full. The bladder can hold up to 600mls of urine. During pregnancy it can hold more (under the influence of pregnancy hormone). The bladder is an important organ in midwifery because of its close relationship to the uterus.

Structure

The bladder is a hollow muscular organ capable of distension. The anterior part lies close to the symphysis pubis and it is known as the apex. It has a trigone where urine collects. From the apex, the urachus ligament runs up to the anterior abdominal wall to the umbilicus.

Microscopic Structure

The wall of the bladder excluding the trigone is made up of the following structures.

1. Transitional Epithelium- This lies the cavity of the bladder. It is arranged in folds known as rugae except over the trigone, to allow for distension as it expands and fill up with urine.
2. Connective Tissue- This lies beneath the epithelium. It carries blood, lymphatic vessels and nerves.

3. Muscle Layer: It is known as the destrusor muscle, whose function is to expel urine. It is made up of three coats.

- i. Inner longitudinal fibers,
- ii. Middle circular fibers, and
- iii. Outer longitudinal fibers

The circular fiber is thickly arranged around the internal meatus to form the internal urethral sphincter of the bladder. It is always in a state of contraction except during micturation.

4. Peritoneum: Covers the upper surface while the remaining surface is invested with visceral pelvic fascia.

5. The Tri-Gone: The tri-gone is situated at the back of the bladder. It is triangular in shape with its base behind and the apex in front. Each side measures 2.5cm in length. It has three openings which correspond with the angles. Two ureteric orifices where the ureters enter and the third is the exit of the urethra. The apex of the trigone is the bladder neck. The trigone is made up of special muscles.

- i. Transitional epithelium: This lies the trigone but not thrown into rugae.
- ii. Connective tissue- lies beneath the epithelium.
- iii. Muscle layer
 - a. Intermesentric Bar (Mercier's bar)- This lies between the ureteric orifices
 - b. Muscles of bell- These extend from the ureteric orifice to the internal urethral orifice.

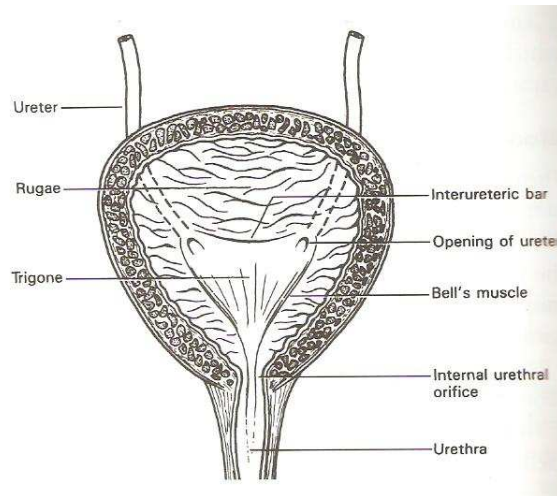


Figure 5-3 The Bladder

Blood Supply: Superior and inferior vesical arteries.

Various Drainage- Corresponding veins. Lymphatic Drainage- External iliac and obturate glands.

Nerve Supply: sympathetic and parasympathetic nerves from Le Frankehauser's plexus.

Supports

1. 2 lateral ligaments-from the bladder to the side walls of the pelvis.
2. 2 pubo-vesical ligament-Forms the neck of the bladder to the symphysis pubis.
3. Urachus Ligament: A fibrous band that extends from the apex of the bladder to the umbilicus.

Relations

Anteriorly-Symphysis pubis

Posteriorly- Upper half of the vagina and the cervix.

Superiorly- Utero vesical pouch, body of the uterus.

Inferiorly- Urethra, lower half of the anterior vaginal wall.

Laterally- pelvic floor muscles.

Functions

Reservoir for urine

Expels urine

3.1.4 The urethra

The urethra is the final passage in the urinary tract. It extends from the apex of the trigone (internal meatus) of the bladder and opens into the vestibule of the valve as the external urethral meatus, in female it passes between the levator and muscle and enclosed in the membranous sphincter of the urethra in the outer layer of the anterior vaginal wall. The urethra is tubular in shape and about 4cm long in female but becomes elongated during labor.

Structure

The wall contains small blind ducts which open to the urethra just beside the meatus in the vestibule urethral crypts, 2 longest tubes known as the Skene's ducts. The urethra forms the junctions between the urinary tract and the external genitalia.

The upper half in human is lined with transitional epithelium while the lower half is lined with squamous epithelium. The human is normally close except when passing urine.

2. Sub-mucous Coat: Beneath the epithelium is a bed of vascular connective tissue.
3. Muscle layer: The muscle layer is arranged in 2 layers: inner longitudinal fiber which continues with the inner muscle fiber of the bladder. Outer layer of circular muscle fiber. The circular fiber is thickened around internal urethral meatus forming a sphincter to open the sphincter during micturation.
4. The outer layer: is continuous with the outer vaginal wall of the connectives tissue.

At the lower end of the urethra, voluntary, striated muscle fiber form the membranous sphincter of the urethra. It is not a sphincter but give some voluntary control over the urge to urinate. The lower levator ani muscle also assist in controlling continence of urine.

Blood Supply: Inferior vesical artery and pudendal artery.

Venous Drainage: Corresponding veins.

Lymphatic Drainage- Internal iliac glands

Nerve Supply: Sympathetic and parasympathetic nerves to the internal urethral

Sphincter. External sphincter is under the control of will via the pudendal nerves.

Support

Anterior vaginal wall and the Pelvic floor muscles

Function: Convey urine from the bladder to the external.

3.1.5 Micturation

The urge to pass urine is felt when the bladder contains about 200-300mls of urine. Stimuli are conveyed to the hypothalamus and corticoid centre of the brain via the sympathetic nerves. The act can be delayed until when suitable, but it become irresistible when the volume get to 700mls. The act of micturation is a reflect response performed by nerve impulse from the cerebral cortex which increase the parasympathetic activity and decreases the sympathetic activity. This causes the internal sphincter to relax by the action of the bells muscle while that of the bladder muscle contract. If the urge is not resisted the external sphincter relaxes and the bladder is emptied. In porous women and pregnancy, however, stress incontinence may be experienced when coughing, laughing, sneezing and other factors that raise intral abdominal pressure. Other psychological stimuli operate such as walking after sleep, arriving or leaving home, others from external stimuli like sound and feeling of water or toilet seat. Regular exercises such as walking, swimming, running, pelvic floor exercise can help to raise the tone of the voluntary muscles. In the newborn the ability to control is underdeveloped until about 2-3 years when the child learns to control the urge to void.

3.1.6 Psychological changes in pregnancy, labour and puerperium

Because of the proximity of the uterus, cervix and vagina to the bladder and urethra their functions are correlated during child bearing and childbirth.

In Pregnancy

1. **Increased Frequency:** In the first 12 weeks of pregnancy, while the enlarging uterus is still a pelvic organ, the bladder can not fill up to its full capacity so the woman urinates frequently. This is described as physiological. Also during the last 4 weeks of pregnancy when the fetal head lies in the pelvis there is recurrence of increased frequency. In the middle weeks of pregnancy frequency in association with dysuria is due to urinary infection.
2. **Acute Retention:** Is a rare condition but sometimes occurs in about the twelfth week of gestation if the uterus is extroverted.
3. **Incontinence:** This sometimes occurs in late pregnancy when the head is deeply engaged in the pelvis.

In Labour

Increased Frequency: More common with Occipito Posterior Position (OPP). Pressure on the sacral plexus of nerve causes excess stimulation of the nerve to the bladder. There is increased desire but can not actually do it.

Acute Retention: The pressure on the nerve plexus may conversely cause lack of sensation stimulus to the bladder. In labor the urethral stretches from 4cm to about 15cm or more thus almost occluding the lumen completely. This makes micturation and even catheterization difficult.

Incontinence: If the bladder is not emptied at the end of first stage of labor there is dribbling of urine with each expulsive contraction during the second stage.

A full bladder causes delay in the first and second stages of labor. Bruising of the bladder may occur and on the urethral in addition to overstretching. Full bladder can lead to non-

separation of the placenta and PPH (Post Partum Haemorrhage).

In Puerperium

The Frequency: There is increased secretion of urine in the first 48 hours of puerperium. Frequency at this time is physiological. Some times it may be due to infection or lax muscle tone.

Acute Retention in puerperium may be due to:

1. Posture: Complete bed rest with use of bed pan.
2. Privacy: May be embarrassed by people around.
3. Pain: fear of pain following perineal tear or difficult labor on the nerve of the bladder during labor.
4. Lax muscle tone: as a result of over distention of the bladder. Abdomen should be palpated daily to rule out sub involution of the uterus and signs of infection.

Incontinence may result from trauma like Vesico-Vaginal Fistula (VVF). But stress incontinence is more common as in the multigravida, it results from lax pelvic floor muscles and weak sphincters.

3.2 The breast

The breasts, otherwise known as the mammary glands are the accessory organs of reproduction. They are two in number.

Shape: the breast is hemispherical in shape in nulliparae and pendulous in multiparae.

Situation: the breasts are situated on either sides of the sternum.

They lie on the superficial fascia of the anterior chest wall, over the pectorialis major muscles. Each breast extends from the 2nd above to the 6th rib below and are stabilized by the suspensory ligament.

Gross structure: the size of the breast varies with individuals, stage of development and age. At birth the breast is rudimentary, at puberty the breast develops and develop even further during pregnancy. At the centre of breast is a pigmented circular area,

about 2.5cm wide known as the areola. It surrounds the nipple. During pregnancy it is darker in colour known as the primary areola and enlarges further known as secondary areola. At the center of the areola is the nipple. The nipple is made up of erectile muscle. The surface of the nipple is perforated by small orifices known as the milk ducts. Within the areola are about 20 sebaceous glands. It secretes sebum which lubricates the nipple during pregnancy and breast feeding. During pregnancy it is known as Montgomery's tubercles. The breast has axillary tail which extends to the axilla.

Microscopic Structure: the breast is made up of mainly secretory glands known as glandular tissue and some fatty tissue and it is covered by the skin. The glandular tissue is divided into about 20 lobes which are separated by fibrous tissue. Each lobe is an independent working unit and is made up of the following parts:

1. Alveoli – it is made of acini cells which are the milk secreting cells surrounded by myo-epithelial cells.
2. Lactiferous tubules – these are small ducts which connect the alveoli.
3. Lactiferous ducts – a center duct into which the tubules run.
4. Ampulla – the widened part of the duct where milk is stored – reservoir.
5. Milk Ducts – these open into nipples.

Blood Supply: the breast are richly supplied with blood

1. Internal and External mammary arteries: (which branches of subclavia and thoracic and axillary arteries) and branches from upper intercostals arteries
2. Venous Drainage: mammary and axillary vein – arranged in circular fashion around the nipple.
3. Lymphatic Drainage: axillary glands and portal fissure of the liver. Gland in the anterior mediasternum.
4. Nerve Supply: nervous supply is poor because function is controlled by hormones.

- i. Thoracic nerves supply the skin
- ii. Sympathetic nerves supply the areola and nipple.

Function of the breasts

1. To manufacture milk
2. To supply milk for the infant
3. Beautifies womens' sex organ

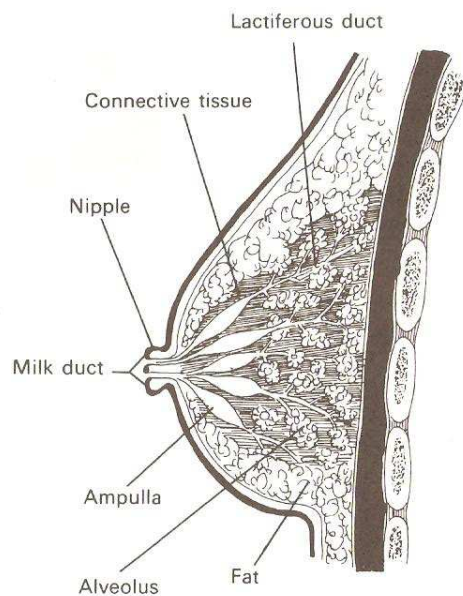


Figure 5-4 The Cross Section of the Breast

3.2.1 Physiology of Lactation

The two hormones responsible for lactation are prolactin and oxytocin. The process of lactation takes place in three stages:

1. Production of milk
2. The flow of milk
3. Maintenance of milk

1. Production of milk

Prolactin which is produced at the anterior pituitary gland is responsible for formation of milk. During pregnancy the action is suppressed by the high level of oestrogen in the

blood stream. But about the 3rd day of delivery, when the level of oestrogen falls, more prolactin is released into the blood stream and it acts on the cells of the alveoli to initiate lactation. As blood circulates through the breast essential substances are extracted by the acini cells of the alveoli and milk is produced. Prolactin suppresses ovulation & causes some women to remain anovulatory throughout period of lactation.

2. The flow of milk.

Two factors are involved in the transit of milk from the nipple secretory cells to the nipple

- i. The formation of new globules in the cells pushes the foremost ones into the lactiferous tubules and then to the lactiferous duct –(back pressure)
- ii. Neuro hormonal reflex; Neuroendocrine control.
As the baby sucks, the rhythmic movement of the baby's gum on the breast empties the ampulla and the large lactiferous ducts by contracting them. Milk is then forced towards the nipple then to the baby's mouth through the milk ducts.

3. Maintenance of Milk

As the baby sucks, and draws the nipple and the areola into its mouth by closing its jaw and swallowing, milk flows from the Ampulla and the lower part of lactiferous duct. More milk flows from the upper part propelled by the basket cells which surround the alveoli until the breast is empty. The more the baby sucks, and empties the breasts, the more prolactin is released and the more milk that is produced. It is therefore important to empty the breast at each feed. Lactation is based on positive feedback mechanism. Prolactin is more important to initiation of lactation, while oxytocin is for production of milk.

4.0 Conclusion

The urinary system is a close associate of the reproductive system. Due to the common source of nerve supply to the bladder and the uterus any undue stimuli to the bladder, like infection, can induce labour prematurely. This emphasizes the need to prevent urinary tract infection during pregnancy. Full bladder should also be avoided in labour as this can inhibit the smooth progress of labour. The breast is an accessory organ of production. It takes over the nutritional need of the infant after birth. To promote lactation, breast must be well developed; mother should take adequate nutrition and complete emptying of the breast during breastfeeding.

5.0 Summary

In this unit we have learnt that the urinary system consists of two kidneys, two ureters, which carry urine to the bladder, single bladder which acts as a reservoir for urine, a urethra which conveys urine from the bladder to the outside of the body. Urine is manufactured in the nephron, the microscopic unit of the kidney. Part of the effect of pregnancy on the bladder includes incontinence which may be experienced during coughing, sneezing, laughing or anything that increases abdominal pressure. Retention may be experienced during pregnancy, labour and puerperium. The woman experiences physiological frequency of micturation in the first 48 hours after delivery. There are two breasts situated at the anterior chest wall on either sides of the sternum. Breasts develop at puberty, it contains about twenty lobes. The sebaceous glands in the areola secrete sebum that lubricates the breast and it is known as Montgomery tubercles during pregnancy. Lactation occurs as a response to the effect of prolactin and oxytocin, the process which takes place in three stages.

6.0 Tutor Marked Assignment

- Enumerate six functions of the kidney

- Explain the process of micturation and its implications in pregnancy
- Explain briefly the physiological changes that take place in the urinary system during pregnancy

7.0 References /further studies.

Dranser M.D, Cooper M.A and Nolte AGW. (2006) Myles Textbook for Midwives African Edition. Elsevier Limited. London.

Didona N.A., Marks M.G., (1996) J.P Lippincott Philadelphia

Module 2: Physiology of Pregnancy

Unit 6: Physiology of Pregnancy

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3.5 Psychosocial care in pregnancy.

3.5.1 Family adaptation.

3.5.2 The role of father in antenatal care

4.0 Conclusion

5.0 Summary

6.0 Tutor Marked assignment

1.0 Introduction

In the previous module we learnt about the anatomy and physiology of all the structures involved in reproduction, conception and fetal development. This unit will focus on the physiology of pregnancy, changes in these organs and structures of the body as a response to the presence of fetus in-utero, signs and symptoms and diagnosis of pregnancy, and minor disorders associated with pregnancy and how to cope or solve them.

2.0 Objectives

By the time we finish with the discussion in this unit you would have been able to

- Describe the physiological changes in the body systems due to pregnancy.
- Offer advice to women on minor common disorders of pregnancy and how to cope with them.
- Diagnose pregnancy
- Differentiate between physiological and pathological symptoms of pregnancy.

3.0 Main Content

Pregnancy is defined as the period of time between conception and birth during which the fertilized ovum matures and grows in the female's ovum (Didona and Marks 1996). This period is sometimes referred to as the ante partum prenatal or antenatal period. The length of pregnancy last approximately 280 days.

3.1 Signs and Symptoms of Pregnancy

During pregnancy a woman's body adapt to the presence of the new life in it by undergoing a number of physical changes. These

changes are referred to as signs and symptoms of pregnancy and are classified in three groups: Presumptive probable and positive signs (3Ps).

3.1.1 Presumptive signs: ‘Possible’: are those that suggest but do not positively indicate pregnancy.

1. Amenorrhea – 4 weeks
2. Early morning sickness – 4 – 14 wks
3. Bladder Irritation – At about 6- 12 weeks the uterus presses on bladder especially when standing leading to frequency in micturation.
4. Skin changes: Due to hormonal changes melanocyte stimulating hormone leading to hyper-pigmentation, scars are darker, chloasma, Striae gravidarum and Linea Nigra are present.
5. Breast changes: starts about the 4th week there is tenderness and fullness of the breast , increase vascularity and increase dilatation of breast and chest veins.
It becomes nodular 6-8week as a result of proliferation of peripheral lobules of the breast. There is enlargement, formation of areola by the 12th week, it becomes darker & wider. Nipples become prominent, clear fluid from the breast (Cholostrum), Montgomery tubercles, Secondary areola formation
6. Abdominal changes: Fullness and enlargement of the abdomen
7. Quickening : 16 – 20wks.
8. Tiredness

3.1.2 Probable signs: are strong indicators of pregnancy but they do not in themselves confirm the condition.

1. On Vaginal Examination;

Vulva: Darker in color

Vagina: Purplish due to increased vascularity (Jacquemiers 8th sign) and soft. Increased pulsation at the lateral vaginal fornices (Osiander’s sign)- 8th weeks

Cervix: soft, purplish, increased cervical secretion – Leuchorrhoea and increased mucus – operculum.

Uterus: Braxton Hicks contraction, uterine soufflé 8 – 10 weeks, globular 10th than pear, Heger's signs 6 -12 weeks, Isthmus becomes soft, uterus enlarges 8th week, abdomen Enlarges 10th week internal ballotement 16 – 28 weeks

2. Biological Test: is done to detect the presence of Human Chorionic Gonadotrophic Hormone (HCGTH). This has been replaced with the use of ultrasound.

3.1.3 Positive signs: These are definite indications of the presence of fetus. They must be present to confirm a diagnosis of pregnancy. These include the fetal heartbeat, palpation of fetal movement, or ultrasonic evidence of a fetus.

At about 20 weeks

1. Seeing fetal movements seen or felt by the person examining
2. Palpating of fetal parts
3. Hearing fetal heart beats/sound 20weeks Ultrasound – 6wks.
4. Investigation –Plain Abdominal X-ray from 16th week.
5. Ultrasound scanning: ultrasonogram – reveals gestational sac. As early as 4 weeks
Sonicaid or Doptone – 12 weeks or even earlier

3.2 Differential Diagnosis

Presumptive signs (possible): the following conditions can present similar signs

Contraceptive pill, Hormonal unbalance, Emotional stress, Illness, Gastrointestinal disorders, Pyrexia illness, Cerebral irritation, Urinary tract infection, Pelvic tumour, Intestinal movement “wind”

Probable signs

Hydatidiform mole, Chorio carcinoma, Pelvic congestion, Tumours.

3.3 Physiological changes due to pregnancy

As soon as a woman gets pregnant, there is a dramatic physiological adaptation to pregnancy in various systems of the body especially in the reproductive system so that her body can cope with added work and nurture the fetus and prepare for labour and lactation.

This changes is sometimes under estimated but the effects vary from one woman to another. Midwife's understanding of the physiological changes will enable her to identify deviation from normal and will be able to provide adequate care to the woman or take appropriate stop to solve her problems.

3.3.1 Changes in the uterus

After conception the uterus provides a nutritive and protected environment for the fetus to grow and develop.

Size: The size increases progressively so that at term it is from 7.5 x 5 x 2.5cm to 30 x 23 x 20cm.

- **The Weight:** From about 60gm to 90gm.
- **The position:** changes from pelvic organ to abdominal organ. By the 12th weeks of pregnancy it is no longer anteverted and anterflexed but become more vertical and leans towards the right as pregnancy progresses.

Shape – As it fills up with the growing fetus the uterus becomes more globular. It changes from the ovoid shape when it was in the pelvic cavity to become globula.

The Decidua: becomes more thicker and increased vascularity of the lining. This is more marked in the fundus and the upper body of the uterus. The deciduas and trophoblast produce relaxin which relaxes the myometrium relaxation and play a role in ripening of the cervix at term and rupture of the membranes.

Myometrium: Each muscle fibre increases to about ten times its length and at least three times its width due to hyperplasia and hypertrophy of the myometrial cells under the influence of oestrogen.

Blood supply – increases to almost ten times due to increased cardiac output from about 50mls/min to 450 -700ml/min at term. Eighty percent of the blood flows through the placenta there is enlargement of the blood vessels and give rise to a sound known as uterine “soufflé”.

Support – the greatest strain is on the round ligament the changes in the size vary with each woman and the gestational age.

Changes in the uterine size

The uterus grows at such a regular rate that it is possible to estimate period of gestation by size. There is of course room for error as uterus may contain more than one fetus, large baby or excessive amount of amniotic fluid. Before 12th weeks the uterus remains a pelvic organ and maintains the ovoid –shape.

12th Week – The uterus fills the pelvic cavity and fundus just reaches the summit of the symphysis pubis. It is globular in shape about the size of a grape fruit. It is more upright usually incline to the right.

16th Week – the uterus has risen to less than halfway between the symphysis pubis and the umbilicus or about 7.5cm above the symphysis pubis. The shape is more ovoid than global because it is in contact with the abdominal wall quickening is felt. Uterine soufflé can be heard. The isthmus and the cervix develop into the lower uterine segment.

20th Week – the fundus is about the level of the umbilicus. From this stage the uterus become more ovoid in shape. Positive signs of pregnancy can be elicited without ultrasound (fetal heart, fetal parts and fetal movement).

24th Week – Fundus is at the upper margin of the umbilicus 20cm. the uterus tends to lean and rotates on its axis towards the right.

30th Week – The fundus can be palpated midway between the umbilicus and xiphisternum. The assessment may be subjective as the level of umbilicus may vary in size.

36th Week – The fundus rises to the highest level, in contact with the xiphisternum. No finger breadth between the xiphisternum and the fundus.

38th Week – The lower uterine segment is formed. The fetal presenting part descends and the fundal height drops, this is known as lightening, leaving pressure on upper abdomen engagement may occur in some women.

40th Week - The uterus is ready to go into labour. The lower uterine segment is relaxed and stretched the cervix is effaced and soft. The fetus further sinks down into the lower segment and the fundal height drop to about 34 week when the head is engaged.

3.3.2 The Cervix – During pregnancy the cervix remain closed. Blood supply is increased that it becomes softer and more bluish in colour. The cervical glands secrete more mucus. A plug of this viscous mucoid material fills the cervical canal. It is known as operculum. It minimizes the risk of ascending infection into the uterus. Collagenase and protoglandin are involved in cervical ripening. Theoretically effacement takes place about 2 week before term in primigravidae and when labour begins in multigravidae.

3.3.3 The vagina: there is some degree of hypertrophy of the muscle layer of the vagina causing the epithelium to become thicker. Increase blood supply (hyperaemia) result in the blue discoloration and increase pulsation at the fornix. The Doderlein bacilli act upon the vaginal collagen resulting in lactic acid which increases pH of Vaginal secretion to 4.5 – 5.0. This increases vaginal secretion – (Leuchorrhoea) during pregnancy.

3.3.4 The Fallopian Tubes and the Ovaries:

Blood supply to these organs increases. They become more vertical in position as the growing uterus fills the abdominal cavity. The corpus luteum enlarges, producing high level of oestrogen and progesterone in the first 10-12 weeks. Corpus intum degenerates after the 12th week and placenta take over its function.

3.3.5 The Breast: Owing to increase blood supply and the effect of oestrogen and progesterone new duct and actini cells are

formed. The breast increases in size. There is tingling sensation in early pregnancy, the breast is more firm and tender. The nipple becomes more dark and prominent. The primary areola becomes darker at the 12th week. Dilated veins may be open on the chest and breasts. Clear fluid may be expressed. At 16th week colostrum may be expressed, and secondary areola is formed around the primary areola .

From the 8th week Montgomery's tubercles are formed in the areola. They secrete sebum to keep the nipples soft and pliable.

3.3.6 Cardiovascular system: Profound changes take place in cardiovascular system during pregnancy. The heart slightly enlarges to about 12% to meet the challenges of increase blood volume – the blood volume increases by 50% plasma volume in the mid trimester (hydraemia) being mainly water volume. This leads to what is known as physiological anaemia. Blood vessels are dilated due to action of progesterone and this predisposes to varicose veins and haemorrhoids. Cardiac output increases.

Blood pressure - Even with raised cardiac output arterial blood pressure is reduced by 10%. Early pregnancy is associated with decreased diastolic blood pressure but little change in systolic by mid trimester the blood pressure slightly increases 5 -10mm/g in systolic and 10-15mm/mg in diastolic but soon return to normal before term.

Posture can affect blood pressure – supine position can decrease cardiac output by as much as 25%. There is increase production of red blood cell to meet the needs of the mother and baby .Despite this there is decrease haemoglobin concentration because of increase plasma volume.

3.3.7 Respiratory system

The Basal Metabolic Rate (BMR) is increased during pregnancy. Increased cardiac output leads to increase in tidal volume that enters and leaves the lungs during normal respiration. The rising uterine fundus compresses the base of the lungs making respiration to become costal. Up to 70% of pregnant women experience

dyspnoea beginning from first or second trimester. Cardiac and pulmonary disease must be ruled out.

3.3.8 Digestive system

The gum becomes oedematous, soft and spongy. It is easily brushed. Sometimes gingivitis (epulis) may develop.

Nausea and morning sickness occurs during the first three months of pregnancy in about 50% pregnant women.

Pregnancy hormone – Progesterone affect all smooth muscles of the gut resulting in indigestion, heart burn and constipation.

3.3.9 Skin changes: Intergumentary

From the third month until term, some degree of skin darkening is observed in about 90% of pregnant women. The abdominal skin stretches to accommodate the enlarging uterus and extra fat deposit resulting in small tears in the deeper layers of the skin. These are the stretch mark on the abdomen known as triae gravidarum. It may also occur in the breasts, thigh and back of the legs. More marked in multiple pregnancies and polyhydramnios.

Pigmentation of the skin occurs on the face – normally referred to as chloasma or pregnancy mask. The mid line seen to be extending from xiphisternum to the symphysis pubis area become darker and more pronounced. It disappears few days after delivery. It is known as linea nigra.

3.3.10 Skeletal system

There is alteration in the gait of the woman in an attempt to maintain balance due to the weight of the growing uterus. There is increase movement in the joints due to relaxing effect of the pregnancy hormones on the ligament.

3.3.11 Nervous system

Emotional instability is common in pregnancy and the woman cries easily. There is increase tendency to anxiety, fear and even depression.

3.3.12 Weight Increase in Pregnancy

A steady and adequate weight gain is necessary for the health and well being of the woman and the fetus. An average maximum weight gain of 11.5kg is expected during pregnancy. During the 1st

trimester a weight gain is slow most weight gain occurs in the second and third trimesters. It results from increase muscle tissue and fat, especially the breast, buttocks and loins and thighs. Growth of the uterus and the product of conception, fluid retention increase blood volume. Increase of 20% of the non gravid uterus is considered normal. The first 20 weeks the average weight gain is 2kg, weight gain is rapid during the second 20 week, a gain of 0.5kg per week making a total of 11 -12kg. Any weight above this should be investigated.

3.4 The minor disorders of pregnancy

These are conditions in pregnancy that are not threat to life but can distress the woman, making life miserable and undermine her health. Even if they can not endanger life, they should not be ignored or treated lightly. They can interfere with nutrition, sleep, outdoor recreation and normal household cores. These conditions should not be accepted as a normal associate of pregnancy but should be treated and alleviated. Minor disorder may escalate and become a serious complication of pregnancy.

The role of the midwife is to health educate the woman in order to tolerate the changes in pregnancy and her anxiety will be alleviated.

Causes can be due to hormonal, accommodation, metabolic and postural changes. Every system of the body changes and is affected by pregnancy.

3.4.1 Digestive system

Nausea and vomiting – (Morning Sickness)

This condition is very common in pregnancy. It occurs between 4 – 16th weeks gestation in about 50% of all pregnant women. It is associated with high level of oestrogen and progesterone, hypoglycaemia may also be a contributor. It is most marked when the woman wakes up in the morning though it can occur at any time of the day. It is more of retching rather than actual vomiting and may be aggravated by the smell of food.

Treatment

1. Understanding of the cause, and encouragement to look positively towards resolution of the problem between 12 – 16 weeks of gestation.
2. Snacks like dry biscuits, toast etc are more tolerable than full meals, especially carbohydrate snacks at bed time and before rising up from bed with a cup of tea.
3. Avoidance of food which irritates, – fatty food.
4. Easily digestible foods.
5. Getting up slowly from bed.
6. Take spices that can clear mouth – cola chewing stick etc can refresh the mouth, avoid starvation and dehydration. Avoid self medication as this can be very hazardous to the fetus. Rule out other conditions that have similar symptoms – appendicitis close monitoring to ensure it does not become severe. Solve emotional problems
7. Involve the husband in care of the woman.

Heart burn

This is a burning sensation in the intestinal region. It is due to reflux of gastric content into the oesophagus, resulting from relaxing effect of progesterone on the cardiac sphincter of the stomach. Heart burn can be very troublesome between 30-40 weeks gestation because the stomach is under pressure from the growing uterus.

Treatment

Depends on the severity of the condition. Avoid rushing over meal, small at a time rest after meal. Take less fatty and greasy food. Avoid bending over for too long. Sleep with extra pillows. Lie on the right side. Severe cases – Refer Dr. who will prescribe Antacides – Mist Magnesium Trisilicate(MMT), Gelusil.

Constipation

Progesterone causes relaxation and decreased peristalsis of the gut, which is also displaced by the growing uterus. It may be very troublesome in pregnancy.

Treatment:

Increased fluid intake.

Fresh fruits, vegetable and whole meal food in diet aid digestion. Exercises also aid digestion. A glass of warm water in the morning helps to reactivate and regulate bowel movement. Mild aperients as last resort in severe cases.

Ptyalism (Excessive Salivation)

Excessive salivation may occur from the 8th week' gestation. It is thought to be caused by pregnancy hormones. It may prove distressful to the woman. It coincides with time of morning sickness. The woman spit the saliva instead of swallowing it. The condition may reoccur with subsequent pregnancies psychological factors may be contributory.

Treatment

Explanation and attentive listening are helpful treatment.

Pica

This term is used when mother craves for certain strange foods or unusual substances such as coal, chalk, Petrol etc. the cause is unknown but hormones and changes in metabolic imbalance may not be unconnected. Midwife needs to health educate the woman as the substance craved for may be potentially harmful to the unborn baby.

3.4.2 Musculoskeletal system

Backache

This is a common problem during pregnancy, an average of 75% of women experience backache at one stage of their pregnancy. The pregnancy hormones soften the ligament and it may be partly

due to posture by some women to balance the weight of the gravid uterus.

Treatment

Health educate on posture

Good shoes (low heel)

Adequate rest

Sleep on flat surface or with board under the bed.

Physiotherapy – Tailor sitting position can be helpful.

Lying on one side away from the discomfort – affected leg uppermost in sciatic – like pain.

Pillows to support the whole limb.

Cramp

The actual cause of cramp in pregnancy is not known. It can be attributed to ischaemia or result from changes in pH or electrolyte status (– lack of calcium, chloride and vitamin B) though no significant evidence to support the claim.

It may be due to temporary circulatory changes in the legs.

Treatment

Calcium gluconate, milk, cheese Vitamin B, Gentle leg exercises at bed time or while in warm bath.

3.4.3 Genito-urinary system

Frequency of micturation

Occurs in the first few weeks of gestation when the growing uterus is still within the pelvic cavity. This reduces the space available for the bladder. Also in the latter weeks when the fetal head engages. The problem is resolved when the uterus grows out of the pelvis at about 12 weeks. Other causes of bladder irritation should be ruled out. The woman should be encouraged to sleep during the day to make up for the night.

Leucorrhoea

This is the whitish, non-irritant vaginal discharge in pregnancy. The patient may find the discharge disturbing. She should be encouraged to increase personal hygiene, wear cotton under wears and avoid nylon pants and tights. Wash with plain water twice a

day and mild cream is better than talcum powder. Thrush and trichomonas should be excluded.

3.4.4 Circulatory system

Fainting

In early pregnancy fainting may be due to vasodilation under the influence of progesterone, before compensatory increase in blood volume (haemodilution). In late pregnancy, it may be related to posture – lying flat on the back (supine hypotension). Turning to the side improves the condition rapidly. Other causes include fatigue stuffy room, anaemia and cardiac impairment or sudden drop in B/P.

Treatment

Avoid prolong standing. Sit or lie down when she feels slightly fainting. Avoid crowding room. Avoid lying on the back, stuffy room and take good diet. Treat medical conditions if present.

Varicosities

Progesterone which relaxes the smooth muscles of the veins results in sluggish circulation. This causes the valves to be ineffective and varicosities result. The superficial veins of the legs, vulva and anus may become engorged. The situation is compounded by pelvic congestion varicose vein of the vulva is very painful and midwife needs to be aware of mothers at risk (-family history of varicose vein).

Treatment

Avoid prolong period of standing. Exercising the calf muscles by rising onto the toes or making circling movement with the ankle will help the venous return. In early pregnancy resting the legs vertically against the wall for a short time will drain the vein. Wearing of elastic stockings or crepe bandage or tights before rising or after raising the legs. A panty-girdle or sanitary pad will give support to the vulva. Avoidance of constipation by adequate fluids and roughages in diet will prevent exacerbation of haemorrhoids, which may bleed sometimes Encourage adequate

rest. Refer to the Doctor if severe who may order xylocaine cream or anusol suppositories in case of hemorrhoids.

Warm sitz bath in puerperium with magnesium sulphate crystal to relieve pain and reduce engorgement. Cold compress could be applied.

Oedema of the legs

This results from pressure of the weight of the growing uterus on the brim interfering with venous return. A degree of oedema is normal and correlates with good state of health of the woman if it is not excessive. Physiological oedema may occur after rising and worsens during the day it is often associated with daily activities or hot weather.

Midwife should ask if the woman notices her rings to feel tighter and ankle swollen. Test for pitting oedema – if this reaches the ankle, it should be reported to the obstetrician.

Intergumentary

Mother may be worried about the skin changes like the linea nigra, darkened area of the breast, chloasma. There may be generalized itching which may start from the abdomen. It is thought to be connected with liver's response to pregnancy hormones which raises bilirubin levels.

Sometimes there may be itching of the vulva (Puritis vulvi), which may be related to poor hygiene, infection such as thrush or glucosuria as a result of diabetes.

Treatment

Exclude medical cause. Advise on cotton under wear and washing with unscented soap. Treat the cause if identified. Warm bath at night, apply calamine lotion to rashes. or talcum powder. Vaginal swab for microscopy and culture. If moniliasis – paint with Gentian violet and give metronidazole if due to Trichomonas .

3.4.5 Nervous system

Insomnia:

This occurs mainly in late pregnancy. It may be due to discomfort from fetal movement, frequency of micturation or difficulty in finding a comfortable position to lie. It may also result from anxiety or fear. It should not be ignored simple warm bath and hot or warm beverage at night may help. Mild sedation could be given (e.g. barbiturate, valium). Good counseling can be very effective – Early to bed, explain the situation to enable her cope with the reality.

Carpal Tunnel Syndrome/Paraesthesia

Numbness and pins and needles ‘tingling in the fingers and hands. It occurs usually in the morning but can occur anytime. It results from fluid retention which causes oedema and pressure on the median nerve. It resolves immediately after delivery. Doctor may prescribe diuretics but conservative treatment is better splint the hand at night and raise high on 2-3 pillows.

Glossitis and Gingivitis

Occurs as a result of poor oral hygiene and diet poor in vitamins and calcium intake. Patient develops poor appetite and anaemia may result. Can be treated with vitamin B – Complex ---- and food rich in vitamins and calcium, fruit and improving on oral hygiene.

3.5 Psychosocial care in pregnancy.

3.5.1 Family adaptation.

The presence of the newborn in the home calls for a serious adjustment in the family and this starts from pre-natal period.

If the pregnancy is expected, the family adjusts to it easily than when the pregnancy is unplanned for. Most women are delighted even when the pregnancy is unplanned. However, the couples are faced with impending new responsibilities, practical and financial and its effect on their independence. It is a period of great transition especially in the life of the woman which involves not

only major social and economic and emotional changes, but also acquisition of a new identity, new role and skills.

Family relationship is reappraised when the woman gets pregnant. In some cultures, pregnancy involves giving up a job; this leads to reducing of income and she becomes more dependent on her partner. In some, the couples draw closer, while in some it may be the beginning of conflict. It is worse if the pregnancy is unplanned or unwanted. Some women may feel they have lost control of their bodies and this can cause great distress.

In some cases they need helper in the home. They will need to readjust their living structure to meet with the demand of the new baby.

3.5.2 The role of father in antenatal care

A caring and considerate husband plays a great role in the stability of the pregnant woman. It is always good if the husband takes interest in the wife's well being especially concerning nutrition, rest and recreation; by this he is meeting her psychological needs and by that demonstrating his protective role for her welfare. The discomfort of pregnancy may make her irritable sometimes but the husband should bear with her. Husbands should be encouraged to attend classes on preparation for labour so that he can give his emotional support. The husband should provide for the needs of the woman generally.

4.0 Conclusion

Pregnancy is a normal and natural process even though it results in some physiological changes that affect the woman's life style. Some of the changes are bearable with the support of the Midwives and Doctor. The husband has a great role to play to share out of the burden on the woman physiologically. Proper screening in the antenatal clinic can lead to early detection of abnormal conditions that can hamper the smooth process of pregnancy. Many minor disorders do not require medical treatment if the woman possesses strong coping mechanism. Adequate ante natal care is required for a happy pregnancy experience.

5.0 Summary

Pregnancy is a period from when the woman conceives until onset of labour and the period is referred to as prenatal or antenatal period. The woman and the growing fetus require good nutrition for adequate development of the fetus and for the woman to be able to meet the need of the two of them. We also learnt that the presence of the fetus results into a lot of changes in the woman's body system which is normal phenomenon with all pregnancies.

Certain disorders also occur but are all bearable for women who take pregnancy as a normal process. We also learnt that examination and vigilant observation are highly important in the care of women during pregnancy. It is very important to let her know the expected date of delivery so that she can make adequate preparation towards labour.

6.0 Tutor Marked Assignment

- Classify into three groups the changes that takes place during pregnancy

7.0 References/Further Readings

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Unit 7: Prenatal Care

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1.0 Introduction

The birth of a live, healthy baby at the end of pregnancy is the goal of prenatal care. To achieve this, the woman must have adequate care during pregnancy. The root of maternal and child care lies in the care of the woman during pregnancy. In this unit, we shall define antenatal care and discuss the adequate care that the woman requires to have a pleasant pregnancy experience with minimal discomfort during the antenatal period.

2.0 Objectives

By the end of this discussion you will be able to:

- Diagnose pregnancy and confirm pregnancy
- Obtain ante natal history
- Give optimal care during pregnancy

- Teach positive health practice during pregnancy
- Detect problems associated with pregnancy and treat them promptly

3.0 Main Content

3.1 Definition

This is the advice, supervision and attention given to a pregnant woman from the time of conception is confirmed until the beginning of labor. Antenatal care is a part of preventive medium and should be conducted by both the Midwife and the Doctor, each with clearly defined roles towards the achievement of the same goals.

3.2 Aim of antenatal care

1. To promote and maintain good physical and mental health during pregnancy through health education on nutrition, hygiene etc.
2. To promote an awareness of the socio-logical aspects of childbearing and the influence these may have on the family.
3. To build up a trusting relationship between the family and the care-givers, which will encourage client to participate in and make informed choices about the care she receive.
4. To monitor the progress of pregnancy in order to ensure maternal health and normal fetal development.
5. To reduce maternal and perinatal mortality.
6. To recognize deviation from the normal and provide prompt management and treatment as required or referring the woman to appropriate health team.
7. To ensure that a live, mature, healthy baby when the woman reaches the end of pregnancy.
8. To help and support the mother in her choice of infant feeding: to promote breast feeding and advise on preparation for lactation.

9. To offer the family advice on parenthood. Either within a planned programme or on individual basis.
10. Providing a holistic approach to the woman's care that meets her individual needs.

3.3 Process of Ante-natal care

Booking

Women are encouraged to start antenatal visit as soon as pregnancy is suspected or they miss their menses for two months. This is necessary to confirm pregnancy and plan for appropriate care. To ascertain baseline data recording of vital signs – B/P, blood values, urinalysis and fetal development. This will serve as a standard to assess as the pregnancy progress. It also helps to assess the level of health of the women. Patient could attend antenatal clinic in either at health centre, hospital or maternity homes. During this period a comprehensive history is taken. These provide important information about the woman's general and reproductive health, both past and present. This starts by history taking.

History taking

The aim of history taking is not just for record keeping but it is a means of assessing the health of the woman. To know what to guide against in her management and method of delivery. Decision can be made if she will require hospital confinement.

Great patience is needed when taking history of a new patient especially primigravida.

Patient must be prepared to give accurate details of herself:

- Gain her co-operation
- Provide privacy
- Ensure friendliness and kindness.
- Ask direct questions.
- Do not help her to answer question
- Use simple non-technical language.

History is taken in the following areas.

Social History: should include the woman's name, address, age, occupation, religion, marital status and race (if need be). Social status, income, any social or financial problems should be recorded. Home condition is enquired.

Family History: This is to detect if there is any disease that runs in the family or hereditary conditions e.g. Diabetes which may show for the first time in pregnancy, sickle cell disease, Hypertension, mental disorders that can lead to psychosis in pregnancy or puerperium twining in family. Tuberculosis, venereal diseases, etc. Personal History should include:

Medical History: Ask if she has certain diseases e.g. Cardiac disease, Diabetes, hypertension, Rubella, kidney disease, venereal disease etc.

Surgical History

Any previous operations in the Abdomen, uterus or other areas including D & C which will be complicated by perforation leading to rupture uterus in labour. Caesarean section leaves scar tissue which may not stretch well in labour. Others are hysterectomy, myometomy or accident injury to the legs or joints or any blood transfusion.

Obstetric History:

Menstrual history: Regularity of cycle, volume, duration and dysmenorrhoea.

Previous Pregnancies: What ever the out come, abortion; miscarriage - if yet at what age of pregnancy cause, where, in the hospital or at home, complete or incomplete, any D & C, blood transfusion. Bleeding after 28 weeks, if pregnancy was normal or complicated by e.g. vomiting etc. If she carries the pregnancy till term.

Labour: if normal pre or post mature delivery. Type of delivery forceps or vacuum delivery. Spontaneous on set or induced, was it prolonged ,date, hemorrhage etc where she delivered, was the baby alive or dead, if dead, why? Any perineal tear or episiotomy.

Puerperium: Was the puerperium uneventful? Was she well throughout, any haemorrhage, lochia discharge. Did she breast

feed her baby and was she delayed for any reason. Others complications like sepsis, psychosis, venous thrombosis, Pyrexia etc.

Baby's History: Method of birth, Pre, Post or at term. Weight at birth, alive, still birth, perinatal death or neonatal death. Method of feeding, breastfed, how long, weaning method. Illness after delivery, congenital malformation, Birth injuries etc. Alive or dead –If dead at what age and the cause.

Place of delivery Home or Hospital.

History of Present Pregnancy

Last menstrual period (LMP) –to calculate expected Date of Delivery (EDD). Any morning sickness, bleeding, exposure to rubella, etc. Feeding pattern, social habit e.g. smoking or takes alcohol, parity – grande multiparous is prone to complication.

3.4 Advice to the Pregnant Woman

Mother craft talk should be an integral part of antenatal care. Mothers want the best for their babies so they are ready to learn and comply with the instructions that promote their health and that of the baby. Health instruction should be given in a simple and interesting manner.

Hygiene:

Pregnant woman should imbibe practice that promote personal and environmental hygiene. Bath regularly, clothing especially under wears must be kept clean. Home surroundings, cooking utensils should be kept clean.

Fresh Air & sunshine: Women are encouraged to have adequate sunshine (e.g. women in Purdah) morning sunshine generates vitamin D which is necessary for development of bones. Fresh air is essential at night and overcrowding should be avoided.

Recreation and Exercise: Mild exercise should be encouraged strenuous exercises, lifting of heavy weight should be avoided. She should not climb high object as this may cause loosing of balance and fainting, long standing predisposes to varicose veins.

1. It provide a change of scenery
2. It stimulate appetite and aid elimination
3. it stimulate circulation and induces
4. Sleep.
5. Restores good abdominal muscle tone.

Travel: This should be discouraged from traveling on long distance depending on the age of the pregnancy.

By road: at early and late pregnancy

Train: Late Pregnancy

Air: Late Pregnancy. Otherwise at low attitude.

Rest and Sleep: A pregnant woman must have adequate rest during the day. Adequate rest conserves energy and increases circulation of blood circulation to the uterus. One to two hours during the day and about nine hours in the night. A good warm bath in the night and a cup of warm drink induces natural sleep.

Suitable clothes: Clothing

Women can be as elegant and feminine as at any time even in pregnancy. She can enjoy a normal social life provided it will not interfere with the pregnancy. Dresses that are loose and cool will allow normal expansion of uterus. Dresses must be neat, comfortable of washable materials and attractive. Brassiere should be the one with big cup, loose, broad, long and adjustable straps. It should not depress the nipples.

Maternity corsets if not tight are good as this restores laxated abdominal muscles.

All clothing must be kept clean by washing especially the under wears.

Shoes: Low heels with broad base 4.5cm are advisable.

Bowels: Because of the effect of progesterone there is laxity in the alimentary canal but this should not lead to constipation. Plenty of fluids roughages should be encouraged during and in between meals. A cup of water early morning is good. Roughages, whole wheat bran fruits and vegetables also mild exercises will aid eliminations. She should form good habit of opening bowels e.g. in the mornings.

Care of the teeth: the previous belief that calcium is withdrawn from the mother's teeth to is baby is not true. Instead the calcium is withdrawn from the mother's bones. Care of the teeth is however important is pregnancy. She should eat a lot of food that contain calcium flouride.

Bathing: a pregnant woman needs to keep her skin clean and active. A daily bath is ideal. A cold bath is comfortable especially on a hot day and a warm bath is suitening and will make her relax well.

Alcohol: It is advisable to stop during pregnancy. Intake is related to vitamin deficiency (mineral) Major cause of coronary health disease, stroke & chronic bronchitis, lungs and other cancers.

Smoking: Smoking is associated with reduced fertility, early menopausal, placenta praevia, abroption, premature labour, low birth weight, wheezing in early childhood, Otitis media etc.

This can lead to reduction of oxygen concentration volume in pregnancy and leading to abortion. Smoking is habit forming; smokers do not eat well resulting to reduced nutrition to the baby and herself. She should reduce the smoking to the barest minimum or stop it completely if possible.

Marital relation: Sexual Intercourse coitus should be discouraged in early pregnancy especially cases of previous abortions as this can lead to premature uterine contractions. Prostaglandin in semen can aid uterine contraction in late pregnancy. Vaginal deodorants lower the normal vaginal PH and growth of microorganisms. If it has to be the husband should to be gentle and adapt safe position.

Care of the breast: Breast must be well developed; nipples must be erect with loose areola tissues. She should keep the breast clean by washing with soap and water with particular attention to the nipples. Good nutrition helps to develop the breast and prepare the breast for lactation in puerperium. Nipples should be pulled out and olive oil applied to moisten them. Malformation should be corrected during pregnancy.

Good well supporting brassiere must be worn; cup should be rooming without depressing the nipples.

Drugs: Should be advised to take only those drugs that were prescribed by doctor

Diet in Pregnancy

The midwife needs to advise a pregnant woman on good diet in quality and not quantity. Her diet need not to be changed but improvement on types, preparation and preservation. The aims of diet in pregnancy should provide for the needs of the growing fetus, maintenance of maternal health, alleviation of minor disorders, physical strength and vitality during labor and successful lactation.

Necessary food stuff nutrients are:

Protein, Carbohydrate, Fat, Vitamins, Minerals, Fluids and Roughages. Emphasis must be put on the preparation in order to preserve the nutrients.

3.5 General examination of the ante-natal patients

The general examination of the ante-natal patient is embarked upon after the routine examinations have been completed. These are as follows:

The blood pressure is checked and recorded, the weight and height are estimated and documented, the urinalysis is checked and findings are noted and recorded. Any abnormal finding is reported to the doctor and investigation of such abnormality is done and necessary treatment accorded.

Preparation

Ensure patient empties her bladder, Create some privacy by screening the patient, Explain procedure to the patient, Patient removes all her clothes and underwears, she then covers up with a wrapper or a sheet, the patient lies on the couch in a dorsal position, the midwife communicates with her in an understanding language and friendly approach that promotes adequate relaxation.

Procedure

Examination is done by observing the patient from head to toes =appearance, gait, posture, complexion.

The Head

Is examined to note personal cleanliness, presence of dandruff and lice, untidy hair-do, Abnormal swelling.

The Eyes: are observed for inflammation, discharge, pallor, abnormal growth, and infection.

The Ears

They are examined for: the location, the number, equality, cleanliness, abnormal discharge and abnormal contour.

The Nose

The nose is observed to note the size and shape and to detect: discharge, disease and abnormality.

The month

The lips are examined for pallor: dryness, cracks and sores.

The mouth is observed for bad breath and angular stomatities. The teeth are examined for the shape. dental hygiene or sores, the tongue is examined for pallor

dryness, coatedness, sores

The face

The countenance of the face is examined for puffiness which may be due to anemia, malnutrition, chronic nephritis, nephrotic syndrome, pre-exlampsia.

The Neck

This is observed for previous scar. It is palpated for any growth, distended jugular veins, enlarged lymph glands

The Upper limbs

The upper limbs are checked for: equality, abnormality.

The hands are examined for: pallor and puffiness which can be elicited through a handshake with the patient. The fingers are examined for shape, size, pallor, abnormality and puffiness especially around the ring finger if she wears one. The nail beds are also examined for pallor.

The patient now assumes a sitting up position for the examination of the breasts.

The breasts

These are first inspected for

Shape, size, equality, cleanliness, abnormality, changes due to pregnancy such as enlargement, pigmentation of primary areola, Montgomery tubercles, appearance of secondary areola, visible engorged veins, The nipples are examined for the shape, size, protactility.

The ducts are tested for patency by expressing the breast fluid

Palpation

The breast are each palpated. Any feeling of undue lump or irregular mass should be reported to the doctor.

Advice

The patient is advised on the Care of the breast which focus on

(a) **The Diet:** The type of food she should take must be rich in protein such as eggs, beans, fish meat, melon. minerals and vitamins such as green vegetables, carrots eggs, fruits with plenty of fluids. The quality of breast milk produced will depend on the quality of good intake.

(b) **Breast Hygiene:** She is advised to pay particular attention to breast care during bath times. The nipples should be washed with soft cloth or cotton wool and mild soap.

They are pulled out and later rolled between the thumb and index finger to get them toughened the nipples are then dried firmly with a soft towel and little oil such as kernel oil or olive oil is rubbed on them to soften them and prevent crust formation.

(c) **Expression of colostrums:** Colostrums is expressed from the breasts from the 34th week of pregnancy in order to maintain the potency of the ducts and thereby preventing breast engorgement in the puerperium.

(d) **Breast Support:** She is educated on the need to keep the breasts well supported with good, adjustable, firm, cotton material, wide strapped brassier which is large enough to accommodate the breasts during the progressive enlargement of the breast.

The Back: While the woman is still in a sitting up position, her back is examined for detection of – curvature of spine e.g. scoliosis

kyphosis, abnormal swelling e.g. lymphoma, lateral protrusion of the abdomen as in case of multiple pregnancy. Sacral oedema and other abnormalities such as spinal bifida occur.

The patient is later told to lie back on the couch with the midwife assisting her, so as to examine the abdomen.

The lower limbs

These are examined for cleanliness: Athlete's foot and foot drop, equality of legs and toes, curvature of legs, pallor of the soles of feet, varicosity of the legs.

Each leg is lifted up the fingers of the right hand are run under the posterior aspect of the leg and thigh to confirm or exclude varicosity. Simultaneously, the vulva is viewed quickly to note. Oedema, Varicose veins, excessive and unhealthy vaginal discharge, warts, hair follicle infection, bleeding.

The patient is then interviewed if she has any undue vaginal irritation or purulent vaginal discharge.

To demonstrate the presence of oedema in the ankle, the right thumb is pressed against the pre-tibial area and quickly run over the pressed area to elicit any pitting.

The general examination is now completed and the woman dresses up. She is commended where necessary and she enquires for clarification of any existing problem.

Patients with abnormal findings are referred, All findings are recorded in the patients ante-natal notes, Routine drugs are given e.g. (haematinics and antimalaria), Appointment is given for the next visit and a thorough explanation is outlined to this effect.

3.5.1 Investigations

Blood test – Hb estimation at booking, 28 – 32 weeks and after 36 weeks before labour. More frequently if there is abnormality.

PCV, FBC are also checked. Rhesus factor genotype and blood group are determined. Others are wasser man's Khan test. VDRL, HIV.

Urinalysis: Test urine for glucose, albumin, acetone. Further laboratory test may be done if there are abnormalities detected. If

Rhesus positive antibody titre is checked at booking, 28, 32, 36 and before labour starts.

Vaginal Examination is done at book or at least once during pregnancy. May be done early for the following, - to diagnose pregnancy, exclude pelvic tumor, to determine gestational age before 16 weeks.

X-ray may be required to ascertain maturity

Ultrasound scan

Doctor may do pelvic assessment on all primigravidae between 36-38 weeks.

3.5.2 Abdominal examination

(a) **Aims:** To observe signs of pregnancy, to assess fetal sign and growth, To assess fetal health, to detect any deviation from normal, to diagnose the location of fetal parts.

Preparation:

1. Ensure that patient empties her bladder
2. Let the patient lie in the supine position on the couch, with one pillow under her head. Her arms should be by her sides to prevent traction of abdominal muscles.
3. Draw the screen in order to ensure privacy.
4. Talk to the patient nicely to aid relaxation.
5. The examiner's arms and hands should be relaxed.

Three ways of obtaining information required are: -

Inspection, palpation, Auscultation

1. Inspection: note the size and shape of the abdomen

a. Size: Should correspond with the supposed period of gestation.

If much larger or smaller:-

- i. Review the date of the last normal menses
- ii. Note the size of the patient. If dates are correct but uterus is large, possibilities are: multiple pregnancy, polyhydramnios, a large fetus, a fetus plus uterine fibroid.

b. Shape: Should be longitudinally ovoid. This is clear in most primigravidae.

Round: is due to multiparity, transverse lie, obesity, polyhydramnios.

In addition to the above, note on inspection: Pigmentation, scars, striae gravidarum, The quality of the muscles of abdomen and the contour.

c. Fetal Movement: This is evidence that the fetus is alive. It also aids in the diagnosis of position as the back will be on the opposite side where movement is seen.

d. Contour of the abdomen: (a) Normal is dome –shape (b) Pendulous abdomen is common with multigravid woman. (c) when lightening has taken place the uterus sag forward and uterus is more prominent e.g. when standing. (d) Depression at the umbilical level suggest occipito posterior (e) skin-scar, striae gravidarum, Linea Nigra are observed.

2. Palpation;

Aim

1. To observe signs of pregnancy. To determine fundal height Size and growth of the fetus. This should correspond with the period of gestation.
2. To ascertain fetal parts of the fetus is in different parts of the uterus, also the lie and attitude of the fetus.
3. Relationship of presenting part to the pelvis: how to palpate the uterus. Detect any deviation from normal.

The hands should be clean and warm, cold hands do not have necessary acute sense of touch and tend to induce contraction of the abdominal muscles. Arms and hands should be relaxed and the pads NOT THE TIPS of the fingers are used with delicate precision moving smoothly over the abdomen without lifting them. Erratic and sudden pressure and rough manipulation are irritating and can cause contractions making detection of fetal parts impossible.

Abdominal palpation is done by the following maneuvers: (though not by mean the order)

- a. Estimation of fundal height

- b. Fundal palpation – To determine the part of the fetus in the fundus.
- c. Lateral palpation
- d. Pelvic palpation (lower pole palpation)

Fundal height:

- a. **Method:** The ulnar border of the left hand is placed at the upper border of the fundus in order to locate the highest point of the fundus. As many fingers of the left, hand as can be accommodated are laid flat between the upper border of the fundus and the xiphisternum. The distance between fundus and xiphisternum is estimated in fingers breadth. At 36 weeks gestation no fingers can be inserted.

Using MC Donald’s technique – A measuring tape that has centimeter is used. After locating the fundal height, the zero end of the tape is paced on the symphysis pubic and stretched to the height of fundus. The measurement on the tape is recorded as the fundal height. It is more accurate between 20-31 weeks gestation.

- b. **Fundal palpation:** This manoeuvre will help to determine whether the presentation is cephalic or breech and the lie longitudinal or transverse. In 95% of cases the breech will be in the fundus and this denotes a cephalic presentation. When the head is in the fundus, the presentation is breech. While facing the woman’s head “walk” up both hands, one on either side of the uterus and lay them flat on the fundus of the uterus to feel what is lying there.
- c. **Lateral Palpation:** This maneuver is useful to locate the fetal back as an aid to diagnosis of position.

Method: while still facing the patient’s head or feet, the hands are placed on both sides of the uterus at about umbilical level. Pressure is applied with the palms of alternate hands to differentiate the degree of resistance between the two sides of the uterus. One hand is used to steady the uterus and press the fetus over towards the examining hand which determines the presence of the

broad resistant back or the small parts that slip under the examining fingers.

By using a rotary movement of the fingers:

1. The back may be mapped out as a continuous smooth resistant mass from the breech down to the neck.
2. The limbs are noted as small irregularities which are often felt to move.

d. Pelvic palpation: This is the most important maneuver in abdominal palpation because of its value in the diagnosis of presentation of the fetus, engagement of its fetal head and disproportion between head and pelvis. It should not cause discomfort to the women.

Method: The midwife stands on the patient's right with her thighs against the couch, her body, turned at the waist, facing towards the women's feet. Using both hands, the midwife finds out what is in the lower pole of the uterus as follows:

The sides of the uterus, just below the umbilical level are grasped snugly between the palms of the hands, the fingers held close together, pointing downwards and inwards. What ever is in the lower pole can then be held between both hands. In most cases it is the head that is in the lower pole and is recognised as follows:

- i. It is smooth, round and hard.
- ii. It is ballotable (if not engaged).
- iii. It is separated from the trunk by a groove (the neck)

Occasionally it is the breech; which is

- i. Less hard
- ii. More irregular
- iii. The lower limbs are nearer to it.

Pawlik's grip

This method of palpating the lower pole of the uterus is most effective when the head is not engaged.

Method: The midwife, standing on the patient's right, faces the woman's head and using the right hand, grasps the lower pole of

the uterus with the thumb on the woman's right side and the fingers on the left side of the uterus. Fingers and thumb must be sufficiently far apart to accommodate the fetal head.

Engagement of the head

Definition

Engagement means when the widest diameter of the presenting part has passed through the pelvic brim. In some women engagement does not take place before term. In some African women it occurs during the first stage of labour.

Recognition of engagement

- I. The head or breech is not mobile
- II. Less of the head will be felt per abdomen

Auscultation

The fetal heart sounds are like the ticking of a watch under a pillow. The rate may be double that of the mother's heart beat observed at the wrist. About 140 beat per minute.

Procedure

Place Pinard's stethoscope over the back of the fetus and support with the pinna of the ear while the right hand feels maternal pulse at her wrist.

NOTE: All information obtained must be considered in making diagnosis. If any information does not correspond, repeat and think again.




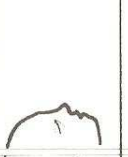


$\frac{5}{5}$	$\frac{4}{5}$	$\frac{3}{5}$	$\frac{2}{5}$	$\frac{1}{5}$	$\frac{0}{5}$
Sinciput & Occiput above the brim	Sinciput prominent Occiput descending	Sinciput rising Occiput can be tipped	Sinciput not so prominent	Sinciput Occiput not felt	Head on pelvic floor
					
Brim					

Figure 2-1. Abdominal palpation showing in fifths to determine descent of the fetal head

3.5.3 Head fitting

From the 36 week onwards, it is essential to assess the pelvic capacity in every pregnant woman. In a normal pelvic brim inclination of 60° the head should engage from 36 week, but in some African women with pelvic inclination of over 80° the head does not engage until labour has been in progress for some hours.

The following methods of assessments are considered

1 Sitting the patient up.

Ensure that the bladder is empty while patient lies on the couch, grasp the fetal head with the right hand as in pawlik's grip. Rest the ulna border of the examining hand, with the 4th and last fingers on the symphysis pubis. The woman is asked to sit up without assistant and to lean forwards for a short time. Her diaphragm and abdominal muscles tend to press the fetus downwards. The thumb, index and middle fingers feel the head go through the pelvis. Any overlap (which is suggestive of cephalo – pelvic disproportion will be felt by the fingers on the symphysis pubis)

2 With the Patient Standing: Let the patient stand up with her feet slightly apart. Face her and grasp fetal head gently. Let her lean forward slightly holding the edge of the couch with both hands. Push the head backward and downward gently. The tilted pelvis makes the entry through the pelvic brim 'direct' in the absence of cephalo -pelvic disproportion.

3.6 Calculation of expected date of delivery (EDD)

Add seven days to the first day of the last menstrual period to get the day. Add nine months to the month or count three months backwards from the month to get the month. Example: 10th January 2008.

LMP 10: 1: 2008

$$\begin{array}{r} 10 \quad 1 \\ + 7 \quad + 9 \\ \hline 17 \quad 10 \quad 2008 \end{array}$$

EDD = 17th Oct 2008.

If the figure is more than 12, then you move the extra number to the following year. If the day is more than that of the particular month the extra date is recorded for the following month.

On-going Antenatal care:

Subsequent visit: the usual routine procedure involves all those at booking with the exception of full history taking. Nevertheless enquires are made about her health every visit. Frequency depends on the age of the pregnancy. She should visit every 4 weeks until 28 weeks, every 2 week until 36 weeks and every week until onset of labour. If there is any complication she should visit more frequently.

- General examination to rule out anaemia, oedema, varicose veins etc, urinalysis, blood pressure,
- Weight – to ensure the progressive and normal increase as explain earlier. During each visit the woman is given counsel on health promotion.

3.7 Prenatal screening for hospital delivery

The aim is to detect condition that put the fetus and the mother at high risk. This indicates for the meticulous observation and diligent supervision by the care givers. This will reduce perinatal mortality rate. During the normal booking procedure which has been discussed in details, women at high risk are selected for hospital delivery or for special management by the obstetrician such cases include mothers with diabetes mellitus, elderly primigravida, pregnancy induced hypertension ,Cardiac diseases, sickle cell disease ,anaemia, obstetric conditions – ante partum haemorrhage, malpresentations and malpositions,Rhesus

incompatibility cephalo- pelvic disproportion, multiple pregnancies, premature labour, intrauterine death during last trimester, polyhydramnios, alcohol dependent, Nicotine dependent, untreated syphilis, all primips.

4.0 Conclusion

Caring for a woman in pregnancy involves physical care and psychological support. It requires collaborative effort of the nurses and the doctor. Careful examination during the visit will help to monitor the progress of pregnancy and maintain a good state of health of the mother and the baby. Good history taking serves as a parameter on which other assessment and evaluation will be based on. It is therefore necessary that a pregnant woman books early so that the necessary cares are obtained. She should be encouraged to attend visit regularly.

5.0 Summary

Antenatal care is a part of preventive care which aims at maintaining physical and mental health during pregnancy to ensure a life healthy baby at term. It prepares the family psychologically on how to cope with the demand of child bearing. The process of antenatal care is in two parts; booking- a comprehensive history is obtained from the woman that is, social, medical, surgical obstetric and baby of previous pregnancies and of the present pregnancy. This is followed by thorough general examinations. The subsequent care is based mainly on assessment of progress of pregnancy and any problem that may crop up and prompt treatment is given.

6.0 Tutor Marked Assignment

- State 8 eight aims of antenatal care
- Explain the importance of history taking in antenatal care.

7.0 References/ Further readings

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Unit 8: Labour

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Definitions

3.1.1 Stages of Labour

3.1.2 Duration of Labour

3.1.3 Physiology of labour

3.2 Causes of onset of labour

3.3	Mechanism of normal labour
3.4	Signs of labour
3.5	Pain relief in labour
3.5.1	Methods of pain relief in labour
4.0	Conclusion
5.0	Summary
6.0	Tutor Marked Assignment
7.0	References /Further readings

1.0 Introduction

In the previous units of this module, we have learnt much about pregnancy and care during the prenatal period. In this unit we will learn about the remarkable events that result in delivery of the baby. We shall discuss the physiology of labour, the factors that causes the onset of labour, signs of labour and how to alleviate the woman's sufferings in labour.

2.0 Objectives

At the end of lesson the learner will be able to

- Describe the changes that occur in the uterine tissue during labour.
- Describe the stages of labour
- Explain the spontaneous process of labor and how this may be enhanced or inhibited.
- Plan and time care in order to optimize the well-being of both the mother and the baby during the course of labour.

3.0 Main Content

3.1 Definitions

Labour is described as the process by which the fetus, placenta and membranes are expelled through the birth canal after 24 weeks of gestation .

Normal labour

Is the process by which the fetus is born at term (after 37 wks gestation vertex presenting, spontaneous in onset (natural unaided

effort of the mother) with 18 hours and without injury to the mother and the baby.

Labour does not involve only the physical stamina but it involves emotional control. The event that happened during labor can affect the relationship between mother and child and influence subsequent pregnancies. Labour is influenced by three factors.: the powers that is ,the contractions, the passages that is, the birth canal and finally the passenger which is the fetus

3.1.1 Stages of labour

Labour is described in three stages the fourth stages is the first one hour after the delivery of placenta.

1. The First Stage

“This is the period from the onset of the true regular uterine contractions until full dilatations of the cervical Os.” This is the period of cervical dilatation and it is described in phases.

- a. **Latent Phase:** this is the period prior to active stage of labour. Time from spontaneous onset of labour until the cervix is 3-4cm dilated and the cervix shortens from 3cm to 0.5cm long. It may last 6-8hours in primip but much shorter in multiparous, the line on the partogram remains horizontal.
- b. **Active phase:** Is the period from 3-4cm to 10cm dilatation. The cervix undergoes more rapid dilatation, at the rate of about 1cm per hour. The line on the partogram rises rapidly. It last 2-6 hours but shorter in multiparous women.

2. Second Stage

This is that of expulsion of the fetus. “it is the period from full dilatation of the cervix and the urge to push and ends when the fetus is expelled”.

The Third Stage

Is that of separation and expulsion of placenta and membranes and the control of bleeding. “That is from the birth of the baby until the delivery of the placenta and membranes and bleeding is controlled”. Not affected by parity.

The fourth stage:

This is a period of one hour following the birth of placenta. This period is given recognition in order to emphasize the importance of continuous vigilance on the woman for the risk of post partum hemorrhage. Not affected by parity. It is actually the first one hour in puerperium.

3.1.2 Duration of labor

There are wide variations in the duration of labor. The length of labor is influenced by parity, time of the last delivery, type of pelvis, size and presentation of the fetus, strength and frequency of uterine contractions. The greatest part of labor is taken up by the first stage. The most important thing is the progress of labor provided the woman is comfortable and the fetus is well. The labor last longer in primigravidae than in multigravidae.

	1 st	2 nd	3 rd STAGE
Primigravida	8-12hrs	30-60mins	5-15mins
Average	11hrs	45mins	: 15mins = 12hrs
Multipara	6 ½ - 8 hrs	15-30mins	: 5 – 15mins
Average	6:30mins	15mins:	15mins = 7hrs

Some times primigravidae spend less time while multipara spend more time in labour. Evidences have shown that the use of Oxytocin and one-to-one care has reduced the period of labour considerably.

Calculation of duration of labour

Example:

Date – 12/6/2008

Time:

Labour begins – 12:30a.m

OS fully dilated – 7.15a.m

Baby delivered – 7.25am.

Placenta & membranes delivered – 7.38a.m

1st Stage: 12.30 – 7.15a.m = 6hrs : 45mins

2nd Stage : 7.15 – 7.25a.m = 10mins

3rd Stage: 7.25 – 7.33a.m = 8mins

TOTAL = 7hrs: 3mins

3.1.3 Physiology of labour

This refers to the changes that take place during labor.

1. Contraction

This is shortening of muscle fibre. Uterine contractions are involuntary, peristaltic and intermittent. They are regular and painful in nature, enough to distract patient from her normal activities. They are controlled by nervous system and endocrine influence. Normal contractions increase in frequency, strength and duration. They become more painful, rhythmic in nature, starts by occurring every 15-20 minutes in early labor (frequency) and increase to 2-3 minute in second stage, strength increases in intensity lasting 50-60 second in duration at the end of first stage. The pain of contraction has the same characteristic as that of spasmodic dysmenorrhea. It compresses the gestational sac and raises the intrauterine pressure from about 5-10 mmHg to 25mmHg in labor and even increases to 50-75mmHg at the height of contractions in the second stage of labour. As a result pressure is directed towards the less resistant lower uterine segment. This permit the cervix to dilate and the strongly contracting fundus to expel the fetus in the second stage.

Fundal Dominant

Each contraction starts at the fundus near the cornua and spread gradually across downwards to the lower uterine segment, but usually remain stronger and last longer at the upper region of the uterus (fundus), but the peak is reached simultaneously over the whole uterus and the contraction fades from all part together.

2. Retraction

Retraction is peculiar to the uterine muscles only, whereby the wave of contraction does not pass off entirely, but the muscle

fibres retain some of the contractile tone instead of relaxing completely. Retraction assists in the progressive expulsion of the fetus by maintaining the downward pressure. As the upper uterine segment becomes shorter, thicker and the cavity reduces the lower uterine segment becomes longer and thinner.

3. Polarity

This is the neuro-muscular harmony that prevails between the upper and the lower uterine segments. The two poles act harmoniously. The upper segment contracts strongly and retracts to expel the fetus while the lower uterine segment contract slightly and stretches to expel the fetus. If polarity is disorganized the progress of labor is inhibited.

4. Formation of upper and lower uterine segment

By the end of pregnancy the uterus divide into two distinct poles. The lower segment develops from the isthmus, internal Os and the cervical canal. During labor the retracted longitudinal fibres in the upper segment exert a pull on the lower segment making it to stretch. This causes the Os to dilate and become part of the lower segment. The upper segment is concerned with contraction and is getting thicker while the lower segment which is for distention and dilatation is getting thinner aided by the force of the descending head.

5. Development of retraction Ring: The ridge which forms where the thick upper segment meet the thin lower segment is known as Retraction Ring. It is a normal ring and should not be felt or seen per abdomen. When it becomes abnormal and can be seen or felt on palpation is known as *bandl's ring*. It is a sign of obstructed labour when the upper segment is abnormally thick and the lower segment is abnormally thin. It rises as the upper segment contracts and retracts until full cervical dilatation.

6. Taking up of the Cervix Effacement: When labour begins the muscle fibres surrounding the internal Os are drawn up by the retraction of the upper uterine segment. The cervix becomes shortened as it merges with the lower uterine segment. It takes place before dilatation in primip but in multip it occurs as the cervix

is dilating. In grande multiparae complete effacement may not take place.

7. Dilatation of the cervix: Is the widening of the external Os. The retracted muscle fibres of the upper segment exert a pull on the weak lower segment and the cervix, making, it to dilate from a thing closed aperture to an opening large enough to permit passage of the fetal head.

In primigravida the internal Os dilates at the same time the cervix is being taken up, and then the external OS dilates later. In the multiparous woman both the internal and the external OS dilate as the cervix is being taken up. Dilatation of the Os is a gradual process. Full dilatation is 10cm. A well flexed head favours efficient dilatation.

8. Show

The lost of blood stained mucoid discharge as the cervix dilate. It is from the plug of mucus that guards the cervical canal during pregnancy. It can be seen a few hours before or after labour has started.

9. Formation of bag of waters

When the lower uterine segment stretches, the chorion get detached from it and the increase intra uterine pressure causes the bag of fluid to bulge through the dilating internal OS. The well flexed head which fix neatly into the cervix cut off the fluid in front of the head from the one which surrounds the behind body. This one in front is known as **forewaters** and the behind is known as **Hind – waters**

Advantage: It prevents transmission of pressure from the hind water from being applied on the fore water so keeps the membranes intact during first stage of labour.

General Fluid Pressure: Is the term used when the amniotic fluid equalizes the pressure throughout the uterus during contractions. It ensures adequate supply of oxygen to the fetus during contraction by preventing compression of the placenta by the fetus.

10. Rupture of Membranes: the amniotic sac should remain intact until the OS is fully dilated (end of the 1st stage) but this is

not always the case. In badly fitting presenting part the membranes rupture quite early because the fore waters are not cut off completely from the hind waters so there is transmission of pressure to the fore waters during the intra uterine contractions. In some cases it does happens for no apparent reasons. Sometimes the membranes do not rupture even at 2nd stage and the baby is born with it, this is known as “caul”. Ruptured membrane (RM) may be spontaneous or artificial – ARM. Artificial rupture of membrane (ARM) promotes labour.

Physiology of the second stage

1. Contraction and Retraction continue: During this stage the contraction are more severe, stronger and expulsive, occurring more frequently (about 1-2mins) and of longer duration about 60sec or more. The fetal head press and stretches the vagina which in-turn stimulates uterine action. Also the membranes help the fetus to be in close contact with the cervix, the upper segment gets much shorter and thicker. The placental circulation is much more interfered with than during first stage. The pain suffered during this time is less and different in characteristic from that of first stage because the pain is due to stretching of the vagina, pelvic and perineum. It is therefore felt in the back, pelvis and may radiate down the inner surface of the thigh.
2. Secondary powers come into play/Accessory muscle: the abdominal muscles and diaphragm now come into play to help with the expulsive contractions to expel the fetus. The woman now has the urge to push “known as bearing down”. As the presenting part reaches the pelvic floor and descent it, the pushing becomes involuntary. Secondary powers help to overcome the pelvic floor resistance.
3. Displacement of the pelvic floor: This is a “swing door action.” The anterior wall of the vagina and the pelvic floor are pushed upwards and forwards while the posterior wall of the vagina and pelvic floor push downwards and backwards.

The bladder is drawn up into the abdominal cavity. The rectum is compressed by the advancing head, anus bulges, defecation may take place and the anus gapes. The perineal body stretches and thins out lengthen the posterior wall of the birth canal causing the vaginal orifice to be directed upwards.

4. **Expulsion of the Fetus:** With each contraction the head descends along the birth canal and recedes in between contractions until it is seen on the vulva. This continues until crowning takes place. When the head no longer recedes between contractions the bi-parietal diameter distend the vaginal orifice and occiput escapes under the symphysis pubis. The head is born by extension. The rest of the body is born by lateral flexion and remaining liquor amni expelled.

Physiology of third stage

1. **Contraction and Retraction Continue:** As the upper segment becomes thicker and smaller after the birth of the baby the placenta site also become reduced this makes the placenta to buckle off the uterine wall and separate. The placenta drops into the lower uterine segment or the vagina, followed by the membranes which stripped off the uterine wall by the traction of the descending placenta. The stronger the contraction the sooner the placenta separates (5 mins) about 1/3 separate with the birth of the baby.

Methods of placental separation

There are two methods of separation and expulsion of the placenta.

1. **Shultze Method: 80%:** This is the most common method. In this method separation starts from the centre of the placenta and with the aid of Retroplacenta clot the placenta drop into the lower uterine segment or into the vagina. During delivery the fetal surface appears first at the vulva followed by the membranes. There is minimal blood loss with this method. The 3rd stage is neat
2. **Mathews Duncan Method 20%:** In this method separation starts at the edge and slides down sideways. It comes through

the vulva with the lateral border first, like a button through a button hole. The maternal surface is seen first at the vulva. There is trickling of blood throughout the third stage. The third stage is messier.

- 3. Control of bleeding:** the Contraction and retraction of the uterine muscle fibers that bring about separation of the placenta also act as “living Ligatures” by compressing the blood vessels and controlling the bleeding. The clamping mechanism is of little value until later when contractions are much less. The opposite wall are now in contact and apply further pressure on the placenta site.

3.2 Causes of onset of labor

The exact cause of the onset of labor is still uncertain, but it appears to be multifactorial in origin, being combination of Hormonal and Mechanical factors. There is evidence that something triggers the fetal hypothalamus to produce releasing factors which stimulate the anterior pituitary gland to produce adrenocorticotropic hormone (ACTH) which stimulate the fetal adrenal glands to secrete cortisol, this causes changes in the relative level of placental hormones, Oestrogen and Progesterone. Oxytocin is also released. This gives reason to some theories as to the causes of onset of labour.”

Hormonal theories:

- 1. Oxytocin:** A hormone produced from the posterior pituitary gland which the uterine muscle is very sensitive to. It is released in high dose at the end of pregnancy leading to contraction of the uterine muscle. Maybe as a result in progesterone: Oestrogen ratio, also the reduction in the level of oxytocinase in the blood stream makes the muscles more sensitive to oxytocin. Oestrogen facilitates the release of oxytocin. Oxytocin stimulates the release of prostaglandins from the myometrium of the hormone.
- 2. Progesterone deprivation theory:** During pregnancy, progesterone is secreted in high level which has a sedative

effect on the uterine muscle making it remain relaxed. As pregnancy advances the level of progesterone get reduced so the uterus becomes more active so that a diminished amount leads to onset of labor. Progesterone has opposite effect to that of oestrogen, making the myometrium less sensitive to stimuli.

- 3. Oestrogen Stimulation Theory:** there is an opinion that the rising level of oestrogen during the last few weeks of pregnancy results in the formation of oxytocic receptors in the uterine muscle cells. This makes the muscle respond more easily to stimuli or to oxytocin.
- 4. Prostaglandins:** Is found in high level in the amniotic fluid and blood stream during labour. They initiate uterine contraction. The rising level of oestrogen increases oxytocin receptors in the myometrium. Oxytocin stimulates the release of prostaglandin from the deciduas and membranes. The role played by this hormone is yet to be fully investigated but it is known to have oxytoxic effect on uterine muscles.
- 5. Foetal Endocrine Control:** there is interaction between the fetal adrenal gland and the uterus. At term the fetal adrenal gland secret corticoid steroid which is believed to trigger the release of prostaglandin in the maternal decidua, a mechanism leading to labour. By stimulate the precosol to prostaglandin synthesized in the decidua at term.

Mechanical Theories:

1 Overdistension/Uterine stretch theory: During pregnancy the uterus is in pace with its content, but when it stretches to it's maximum it starts to contract to expel it's content. This evidence can be seen in multiple pregnancy and Polyhydramnios.

2 Increase contractibility: As the end of pregnancy approaches the normal Baxton Hicks contractions becomes exaggerated as the uterus becomes more sensitive to stimuli.

- 3 Pressure of the Presenting part:** On the cervical nerve endings is thought to stimulation nerve plexus (known as cervical ganglion) which result in secretion of oxytoxin by the Posterior Pituitary Gland (PTG). This gives the reason why labour is very fast with engaged head.
- 4 Circulatory Deprivation theory:** Towards end of pregnancy the placental functions become inefficient thereby leading to reduction in circulatory nutrition and blood supply to the fetus.
- 5 Other conditions:**
 - a. Hyperpyrexia
 - b. Strong Emotions
 - c. Cyanosis e.g. Eclampsia

3.3 Signs of Labour

The Premonitory Signs of Labour

During the last three weeks of pregnancy or previous to onset of labour certain changes take place which serve as useful means to determine the approach of labour (pre-labour).

1. Lightening

This is the sinking of the uterus, and it takes place 2-3 weeks before term. It occurs as a result of softening of the pelvic bones, the symphysis public widens, the pelvic floor relaxes, softens and sags by as much as 4cm, therefore allowing the uterus to descend further into the true pelvis. The lower uterine segment stretches, and the fetus' head sinks further down into the uterus.

This will cause the fundus to drop to a lower level and the uterus becomes more prominent. It leads to engagement of the head in primigravida with good, firm abdominal muscles provided there is no disproportion.

In multiparous women the uterus will sag further forwards and the abdomen becomes pedulous the head may not engage. Walking becomes more difficult and this may also give more to backache or pain in the region of symphysis pubis. Slight discomfort may be experienced in the lower abdomen, groins and thighs. Vaginal

discharges also became more profuse at this time. The uterus presses against the bladder, causing more frequency. There is leg cramps & backache due to pressure on the sciatic nerve.

2. Frequency of Micturation

This is due to pressure of the fetal head on the bladder limiting its capacity therefore causing the woman to micturate more often. Sometimes there is mild stress incontinence as a result of lax condition of the softened pelvic floor which gives rise to poor sphincter control- if the woman laughs, coughs or sneezes some urine may trickle out.

3. False pains: Spurious Labour

These are erratic, irregular uterine contractions making the uterus to contract without retraction. It is very common with the primigravida. The pain are true but not rhythmic in pattern usually short in duration and not increased in intensity. It is relived by walking. Pain is felt in the Abdomen alone.

4. Taking up of the cervix Effacement

Taking up of the cervix may start in the latter 2-3 weeks of pregnancy. Occurs as a result of changes in the solubility of collagen present in cervical tissue, this is aided by alteration in hormones activity particularly oestradiol, progesterone, relaxin, prolactin and prostaglandin. Braxton Hicks contractions which become more stronger also enhance the process. In primigravidae, effacement of the cervix precedes dilatation, but in multigravidae the two occur simultaneously.

TRUE SIGNS OF LABOUR

1. **Contractions:** contraction of the uterus in labour brings about effacement, dilatation of the cervix and expulsion of the fetus in labour when the true labour is established the contractions are strong, rhythmic, regular and are felt by the woman as tightening discomfort or actual pains and occurs at 10 minutes intervals. At this period the uterus feels hard to touch. At the beginning of labour the contractions are painless, weak lasting 15-30sec duration and infrequent occurring 10-20minutes interval. The pain gradually

increases in intensity that is they become stronger, more frequent in duration. In the second stage they occur 5:10min duration, it is intensified with walking and lasting about 40-60sec or more.

2. **Dilatation of the cervical OS:** This is the widening of the external OS from a tiny circular opening to one sufficiently large enough to permit the passage of the fetal head. It is a gradual process. Progressive dilatation of the cervix is a definite sign of labour.
3. **Show:** This is the release of a blood stained mucoid discharge as the cervix dilates. It is from the operculum, which is the plug of mucus guarding the cervical canal during pregnancy. The blood is from the detached chorion from the wall of the lower uterine segment as it stretches. It can be seen before labour or few hours after labour has started. It follows cervical dilatation.
4. **Rupture of Membranes:** This may not be a true sign of labour as the membranes can rupture days or hours before labour and sometime membranes may not rupture till the end of 1st stage of labour. To confirm if the fluid is urine or Amniotic fluids test with Nitrazine swab which will change from orange to navy blue if it is amniotic fluid. Membranes are thought to rupture as a result of increased production of prostaglandin E₂ in the amnion during labour, and force of uterine contractions causing increase in the fluid pressure of the fore waters and lessen of support as the cervix dilates.

3.4 Mechanism of normal labor

Is the series of passive movement of the fetus in its passage through the birth canal. The skilful management of normal delivery is based on a good knowledge of mechanism of labor.

Terms used in mechanism (movement)

1. **Flexion of the head:** Bending of the head over the chest and the limbs over the abdomen. The head is normally flexed at the beginning of labor, with good uterine contractions flexion

- of the head is increased, thereby helping descent. The smaller presenting part facilitates descent.
2. **Internal Rotation (of the Head):** This is a turning forward of whatever part of the fetus reaches the pelvic floor first.
 3. **Crowning of the head:** This is when the occipital eminence passes under the symphysis pubis and the head no longer recedes between contractions.
 4. **Extension:** is a movement by which the flexion of the head is undone.

Descent: Downward movement of the presenting part of the fetus. It is aided contraction of the uterus, abdominal muscles, positioning of the fetal body, Amniotic fluid and uterine pressure.

5. **Restitution:** This is the turning of the head to undo the twist in the neck which took place during the internal rotation of the head. Usually towards the back of the baby, it reveals the position of the fetus.
6. **Internal rotation of the shoulder:** The shoulders engage in oblique diameter of the pelvis. The anterior shoulder reaches the pelvic floor first and rotate forwards, bringing the shoulders into anterior posterior diameter of the pelvic outlet. It takes place during contraction after the head has been born.
7. **External Rotation of the head:** This is the turning of the head which accompanies the internal rotation of the shoulders. That is the occiput turns a further $1/8^{\text{th}}$ of a circle and it should always be in the same direction as in restitution. The body is ready to be born. Not the same as restitution so should be allowed to occur before the shoulders are born.
8. **Lateral flexion of the body:** This is a side ways bending of the spines which takes place while the body is being expelled so that it conforms to the curve of the birth canal.

Common Principles to all mechanisms

1. Descent takes place throughout.

2. Which ever part leads and meets the resistance of the pelvic floor relates forwards until it comes under the symphysis pubis.
3. What ever emerges from the pelvic will pivot around the pelvic bone.

Positions of vertex presentations

Mechanism of normal vertex presentation

Left occipito anterior

Right occipito anterior

Left ocicpito anterior – LOA

Lie: is longitudinal

Position: is left occipito Anterior

Presentation; Cephalic

Attitude: One of the complete flexion

Denominator: Occiput

Presenting part: Posterior area of right parietal bone.

Engaging Diameter: Sub-Ocicpito Frontal (10cm).

The occiput faces the left ilio perineal eminence while the sinciput faces the right sacro iliac joint. The sagittal suture lies in the right oblique diameter of the pelvic brim while the shoulders are in the left oblique diameter of the pelvis.

With good uterine contractions descent of the head takes place with increased flexion. The engaging diameter now reduced from sub-occipito frontal (10cm) to sub-occipito bregmatic (9.5cm). The occiput being the leading part reaches the pelvic floor first and rotate 1/8th of a circle forward (along left side of the pelvis. This causes a slight twist in the neck as the head is not in alignment with the shoulders. With further descent the occiput slips beneath the symphysis pubis, crowning occurs, sinciput, face and the chin sweep the perineum and the head is born by extension. Restitution, takes place (the occiput turns towards the left of mother).

The shoulders enter in left oblique diameter of the pelvis, with further descent, the anterior shoulder reaches the pelvic floor first

and rotate 1/8th of a circle forwards along the right side of the pelvis). This internal rotation of the shoulders is accompanied by external rotation of the head. The shoulders are now in anterior posterior diameter of the pelvic outlet. The anterior shoulder slips under the symphysis pubis, the posterior one passes over the perineum and the body is born by lateral flexion towards the mother's abdomen.

Mechanism for R.O.A.

The same as the L.O.A. but has to substitute right for left and vice versa.

3.5 Pain relief in labour

It is not possible to assess how much pain a person is feeling because pain cannot be measured. Pain leads to physical and emotional exhaustion and lessens the woman's confidence. The pain threshold varies from one individual to another so the woman in labour must be relieved from pain and baby's safety must be ensured.

Factors that influence perception of pain:

- a. Fear and Anxiety:** Heighten the individual's response to pain. E.g. fear of unknown, previous bad experiences etc.
- b. Personality;** Plays a part in the woman's response to pain. A tense and anxious woman will respond poorly to pain and cope less.
- c. Fatigue:** A woman who is fatigued will tolerate pain less: prolonged labour.
- d. Culture & social Factors:** Also play a part while some cultures encourage stoicism others encourage expression of feelings.
- e. Expectations:** A woman who is realistic in her expectations is well equipped and will cope better with labour pain.

Labour Pain

Pain in labour is caused by uterine contractions, dilatation of the cervix and stretching of the vagina and the pelvic floor muscles to accommodate the presenting part (In late 1st and 2nd stage). The

pains are said to be transmitted by the thoracic, lumbar and sacral nerves.

3.5.1 Methods of Pain relief in labour

1. Psychological method: This is the most important aspect of pain relief, because a woman who is already apprehensive with labour pain will relax if she is admitted into a clean, well organized, calm and reassuring environment. The midwife must be sympathetic and understanding. These will allay her fears, relax more and be able to cope with the pain. The personality of the Midwife should reflect kindness, interest in the patient with kind words and deeds. These include:

- a. giving of information: as necessary
- b. Allaying of anxiety
- c. Participating in Planning and care.
- d. Giving of physical care.

Support during labour: Massage the back during contractions.
Provide hygiene and comfort positioning Bladder and bowel care.
Feeding;

2. The Use of Drugs (Chemotherapy)

It is not possible to classify accurately the action of groups of drugs. A small dose of narcotic would act as sedative, while a large dose of tranquillizer would act as hypotonic. Since drugs are used for various reasons the Midwife must know the reason for administration of a drug that is to relieve pain, allay apprehension, and induce sleep.

The Midwife must have a good knowledge and understanding of the principle underlying the administration of various drugs, and the main action of the drug she administers. Success and safety of drugs depend on:

- The choice of the appropriate drug or combination of drugs,
- Adequate dosage,
- Proper timing, and

Checking the dose.

3.5.2 Drugs used in labour

Analgesics

These are drugs that are supposed to relieve pain without rendering the patient unconscious. Examples are panadol, Aspirin, fortal etc.

Narcotics: Allay anxiety and induce sleep – strong analgesic with some sedative effect e.g. pethidine, morphine, pethilorfan, fortal, tramal

Hypnotics: Induce sleep, anti convulsant – chlorhydrate, welldone, Diazepin, omnopon, paraldehyde

Tranquillisers: Calm patient: Phenegan

Sedatives: Induce sleep – Barbiturate groups.

Lytic cocktail

Refers to any of various mixtures of phenothiazine derivatives and Pethidine for intravenous administration. E.g. chlorpromazine (Largactil) 50mg. Promethazine (Phenergen) 50mg. Pethidine 100mg. Mixed and given slowly intravenously until a state of sedative, tranquility and analgesia (at analgesic) is produced.

Use: In the treatment of pre eclampsia and eclampsia, for forceps and breech deliveries and caesarean section.

Inhalational analgesia:

It is permitted by Midwife Board) It is used on healthy women in late first stage of labour or in 2nd stage of labour. They are volatile agents which are excreted fairly quickly from the body. They include Entonox: Pre mixed nitrous oxide 50% and Oxygen 50%.

Trilene (trichloroethylene)

A blue liquid evaporates easily into the air to form a non-inflammable vapour. It is an anaesthetic agent with analgesic action. The anaesthetic effect depends on the concentration. It is administered in Emotril Automatic inhaler apparatus.

Obstetric anaesthesia

Anaesthesia means absence of sensation and free from pain or reversible depression of all the senses.

Types of anaesthesia are:

General anaesthesia,
Regional anaesthesia(e.g. epidural block, spinal anaesthesia, pudendal block), and
Local anaesthesia(e.g. lignocain).

Spinal Anaesthesia:

Technique whereby local anaesthetic solution is injected into the subarachnoid space i.e. into the CSF.

Pudendal block – Local anaesthetic solution is injected adjacent to the pudendal nerves just below the ischial spines where they supply pelvic floor, vulva and perineum.

d. **Paracervical block:** These cases the paracervical plexus are blocked. It is used in prolonged labour – 10mls of 1% lignocaine solution is injected into the lateral fornices of the vagina. It reduces pain and backache in the last 2-3hrs. There is risk of bradycardia – fetal death may occur due to spasm of uterine vessels.

Local anaesthesia

10mls of 0.5% Lignocain is infiltrated into the perineum for episiotomy. The technique used will depend on the type of episiotomy.

4.0 Conclusion

The process of labour and child birth bring about the event that the woman has been anticipating throughout her pregnancy. The forces of labour are referred to as “4P’s”. They are the Passage, Passenger, Power, and the Psyche.

These important factors must work together for labour to progress normally. An alteration in any one or a combination of the factors can alter the outcome of labour.

The length of labour varies widely and is influenced by parity, birth interval, psychological state (psyche), presentation, position, pelvic shape and size and character of uterine contractions. Sound knowledge of physiology of labour aids the midwife in the course of her managing her patient.

Summary

The onset of labour marks the end of prenatal period when the tranquility in the uterine muscle reverts to contraction that results in the expulsion of the baby. Labour is said to be normal when all processes remained normal and no hazard to both the mother and the baby and it occurs within a reasonable length of time. The first stage is the period from true uterine contraction until the cervix is fully dilated and it is in phases: the latent and the active phases. The second stage being from full cervical dilatation until the baby is delivered and the third stage ends when the placental is delivered.

The duration of labour is influenced by factors like parity, type of pelvis size, presentation of the fetus and nature of contractions. During labour, contractions and retractions in the uterus results in the birth of the baby and control of hemorrhage. The exact cause of labor is not known but certain factors initiate uterine contractions, they are mechanical and hormonal factors.

6.0 Tutor Marked Assignment

- Describe the physiology of the first stage of labour.
- Calculate the EDD of the following LMP
 - i. 23rd September 2007,
 - ii. 10th April 2008

7.0 References/Further readings

Refer to Unit One.

Unit 9: Management of Labor

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Management of patient in labor
 - 3.1.1 Admission of patient in labor
 - 3.2 Indications for vaginal examination
 - 3.2.1 Points to note on vaginal examination
 - 3.3 Subsequent management of labor
 - 3.4 Second stage
 - 3.5 Methods of delivery
 - 3.6 Left lateral position
 - 3.7 Management of third stage
 - 3.7.1 Signs of placenta separation

3.7.2	Methods of delivery of placenta
3.8	Care after the delivery of the placenta
3.9	Episiotomy
4.0	Conclusion
5.0	Summary
6.0	Tutor Marked Assignment
7.0	References/Further Readings

1.0 Introduction

The successful management of labour depends on good supervision during pregnancy to rule out abnormalities and threat if detected. A good midwife must realize that she is dealing with two lives and she must try her possible best to preserve these lives. Her attitude toward the woman is most important as her approach can reduce the woman's anxiety considerably.

Their relationship should be that of woman-centered care that assesses the needs and expectation of individual in labour and plan care to meet her specific needs and expectation.

2.0 Objectives

By the end of this unit you will be able to

- Plan a care that will meet individual needs of women during labour.
- Provide supportive care that alleviate the woman's suffering during the first stage of labour
- Successfully conduct delivery with minimal or no injury to the mother and baby.
- Deliver the placenta through accurate timing

3.0 Main Content

3.1 Management of patient in labour

Basic Principles of Management

1. Understanding and meeting the woman's psychological needs
2. Provide efficient bedside care
3. Maintain cleanliness, antisepsis and asepsis during labor
4. Restrain from unnecessary interference
5. To cope with emergencies

3.1.1 Admission of patient in labor

When a patient comes into the labor ward she must be treated politely and kindly.

1. She must be welcomed in a friendly manner. She must be reassured and midwife must gain her confidence, especially the primigravida who are usually tense and frightened of the unknown.
2. Time to record all the strange procedures and must be properly explained to the patient.
3. The relatives must be treated with courtesy. Offer them seats, and tell them when to check on the patient.
4. If the woman has gone far in labour she should go straight to the delivery room if not some enquiries are made to ascertain whether she is in true labour. There are two types of patients. The booked and the unbooked.
5. If the patient is booked, her card is obtained and studied carefully in case there are special instructions to how she should be managed in labour. And if she is unbooked she has to be booked and enquiries are made regarding previous labour, weight of the baby, instrumental delivery, still birth etc. also any abnormal condition in the present pregnancy e.g. pre-Eclampsia anaemia, diabetes, cardiac disease, rhesus negative factor blood type and group, allergy to food. In all cases take the history of the present labour;
 - a. Time the labor began
 - b. Frequency and strength of the contractions.

- c. If she has had any show.
- d. If membranes are ruptured or intact, if ruptured the time it ruptured and the colour and the amount of liquor amnii
- e. She should be asked if she has eating within six hours time and type of food she ate. All these should be recorded. To plan appropriate care, the health status is determined, by gathering base time information to assess health conditions, stage of labor and to rule out complications.

General Examination

1. Urine Test: Albumin, sugar, Acetone, if albumin is present a mid-stream specimen is obtain?
2. Status of membranes and vaginal bleeding. Elimination pattern, hydration.
3. Psychosocial Assessment – Prenatal education, response to labour, self confidence.

Abdominal Examination

1. Inspection: Shape, size, scars (if any ask for the reason)
2. Palpation: Fundal height, lie, presentation position, engagement of the head.
3. Auscultation: Fetal heart, Rate, volume regularity.
4. Strength duration and frequency of contractions.

Vaginal examination

This should be done as frequently as necessary (4-6hrs). Asepsis must be kept during the procedure because of the danger of introducing infection. It is the only certain method of determining cervical dilatation.

3.2 Indications for vaginal examination

1. To diagnose labor
2. To assess progress of labor
3. To know if the head is engaged e.g. Obese patient
4. To exclude cord prolapse – Ruptured membranes

5. To confirm presentation and positions – Where there is doubt – to insert fetal scalp electrode. To confirm lie, presentation of 2nd twin.
6. To confirm second stage of labor – full dilatation– to ascertain if membranes are still intact. To assess progress or delay of labour.

3.2.1 Points to note on vaginal examination

External genitalia:

1. Note the Vulva – for signs of infection, oedema or varicose veins warts or sore from tear or episiotomy.
2. Perineum – Previous scars
3. Drainage of liquor – colour, odour & amount green-meconium stained. Blood stained – ante partum haemorrhage. golden – Rhesus iso-immunization.

Condition of the vaginal

4. Vagina – if dry, moist, warm or hot.
5. If dry and hot – sign of gross dehydration Normal – soft, moist, warm and dilatable.
6. Cervix – soft, thin or thick, tight or loose or oedematous. Also if the OS is dilating.
7. Membranes – Intact or ruptured.
8. Presentation –head or buttocks.
9. Position of the foetus.
10. Level of the presenting part: High up in the brim or low in the cavity.
11. Degree of moulding
12. Other abnormalities – Prolapse of cord and cord presentation, anencephaly and hydrocephaly.

Pelvic adequacy; Ischial spines – can be felt or not if felt inform Doctor.

13. rectum – full or not
14. Sacral promontory – if felt or not.

After that the pubic hair is shaved to prevent infection. Enema is given to empty the bowel in order to prevent passing of faeces

during delivery to stimulate uterine contractions. (This has been abolished in the present era of HIV). Vulva is swabbed and patient should have a bath. She should then change into clean Hospital dress and transferred to the first stage room for further management.

Contraindication for vaginal examination

1. Heavy show
2. Ante partum hemorrhage

3.3 Subsequent management of labour

If an expectant mother is given some idea in simple language before the labor begins, of what to expect in each states of labour, she is likely to be more co-operative. Patient should never be left alone. Further management include

1. Observation and recording

All observations made must be recorded.

Types of observations.

- a. General appearance:** The effect of labor on the woman is she taking the labour pain easy or is it making her distress.
- b. Vital signs:** Blood pressure 1-2hrly Pulse, Respiration.
Hourly early labor 15-30mins in late labour. Infection
Ketosis, haemorrhage ruptured uterus. Temperature – 4 hourly. Abnormalities in the observation should be reported.
Volume of pulse is important as thready pulse may indicate pre-eclampsia.
- c. Fetal heart Rate;** Hourly in graph form rhythm, rate and volume are noted. Normal beat is between 120-160 beats per minute and drop of 20 beats below or above should be reported. Fetal heart is not auscultated during contractions because it can alter the normal rate.
- d. Contraction.** Characteristics of contraction –strength duration and pregnancy

Membrane status

If ruptured or still intact. If ruptured – Liquor amni volume, colour etc time of rupture, colour, and Odour. Color should be clear or pale amber with slightly fleshy odour. Rule out cord prolapse.

Foetal Assessment

1. **Contraction:** Strength, Duration, frequency. E.g. when contraction is 1-10min it should be weak at first then becoming more frequent and strong and for longer duration.
2. **Descent of the head:** This is one of the ways of determining the progress of labour. That is the head engaged or not or if getting engaged if not engaged at the beginning of labour. If head is persistently high it should be reported to the Doctor. It is done in fifth of the head per symphysis public.
3. **Feeding:** During early labour the patient can be given small easily digestible food with plenty of glucose drink, milk, tea or fruit. 5% Dextrose can be given intravenously if patient can not take orally or ill patients e.g. Pre-elampsia. Accurate fluid chart should be kept.
4. **Bowel and Bladder:** Full bladder and bowel can lead to uterine inertia and delay in engagement of the head. Midwife must encourage the woman to pass urine every two hours and all must be tested. Enema may be repeated if necessary but not towards the end of first stage of labour. Bed pan should be used during late stage of labour.
5. **Rest and sleep:** The midwife must ensure adequate rest and sleep during labour. Drugs are given to relieve pain and induce sleep e.g. pethidine 100mg. Pethilorfan 2mls intramuscularly in early labour.
6. **Comfort:** Non-medical method-proper position, damp cool cloth on forehead distraction – music, TV, pictures, breathing exercises and relaxation. The midwife should pay attention to the woman's toileting by washing the face, and hands, change perineal pad and clothing when necessary – medication – may be used in a safe way.

7. **Posture:** patient should be on lateral position as this reduces the risk of compression on the vena cava which occurs in supine position in some women. Upright position facilitates engagement of the head. The woman is allowed to walk about if the membranes are in tact and head engaged. When membranes rupture she should lie on bed because of the risk of cord prolapse.

When membrane ruptures in labor put patient on bed and check the vulva by opening the labia for cord prolapse. Also note the colour odour and volume. Vaginal examination could be done, Note the cervical dilatation and level of the head.

Relief of pain in labour: Objective is to provide maximum relief while maintain maximum safety for the woman and fetus. May be achieved through and conpharmexcotogic approach or combination of both.

8. Monitor progress of labour:

- Contraction should be increasing in frequency, strength and duration.
- There should be a progressive decent of the head over a period of time.
- V.E. is performed to determine & effacement. The cervical OS should be dilating progressively. And the labor pain should not distress the woman.
- Station of the head in relating with the Ischial spines.

Preparation for delivery

Just before the end of the first stage of labour, the delivery room must be got ready. The delivery trolley must be set ready under strict aseptic technique. They are set from the drum or packs which are used with basic requirement.

3.4 Second stage

Objectives

1. To prevent infection of the genital tract by careful attention to asepsis and antisepsis.
2. To ensure that the child is born alive with no injuries.
3. To prevent injury to the perineum.

Physiology of the second phase(refer to Module Two Unit One)

Signs of Second stage of labor

The following signs and symptoms will be observed when a woman reaches the second phrase of labor

1. On vaginal Examination: OS fully dilated
2. Expulsive uterine contractions
3. Trickling of blood Rapture of membranes
4. Tenseness between coccyx and anus Vulva gapes.
5. Anus pouts gapes
6. Urge to push
7. Presenting part is visible
8. Perineum stretches and bulges.

Active management

Patient should be transferred to the second stage room or lie on her bed in the first stage room. She should not be left alone.

Vaginal examination is done to confirm full dilatation of the cervix. Patient can lie in any position she finds most comfortable for her. If membranes are intact it should be ruptured artificially using a pair of cockers or artery forceps. Observations and recordings continues and more frequently between contractions (1) Uterine contractions (ii) Descent of the presenting part (iii) maternal pulse 5 – 15 minutes –intervals. Fetal heart rate every 5 minutes. Any irregularity must be reported. As oxygenation to the fetus may be less due to compression of head or cord.

Bladder must be kept emptied by catheterization at the end of first stage or at the beginning of second stage, if the bladder is full as this can cause delay in the engagement of the head and post partum haemorrhage in third stage. Only a sip of glucose drink is allowed

if the second stage is getting prolonged and the woman's condition permits it, because of danger of vomiting. The hands and the face could be sponged with cold water. Two nurses should do a delivery at a time. One clean nurse and one assistant. Head should be delivered slowly to prevent injuries to the perineum. The woman should be discouraged from active pushing until the head is visible. She can practice breathing exercise – Rhythmic, easy breathing, avoid shallow panting, very deep breathing and prolong breath – holding. She should feel free to express herself – cry, shout, etc. it helps her to cope.

Position: Depend on maternal & fetal conditions, mother preference, the environment, Midwife's confidence. Positions include: Dorsal, Left lateral, Squatting, Kneeling, or standing, the birthing chair.

3.5 Methods of delivery

Dorsal Position:

The advantages of this position are the woman can push more effectively.

- Can rest and relax between contractions. Observation of the abdomen is easily carried out and close observation on her face and general condition, early signs of distress detected.
- No changing of position for the third stage. Clearer view on the perinium. The woman lies on her back with her knees Flexed and wide apart.

As soon as the head is delivered, the eyes are swabbed with sterile water from within out using one swab at a time. The nose and the mouth are cleared of mucus. Feel for the cord round the baby's neck (Nuchal cord). If the cord is present and loose it should be clipped over the shoulder and the baby delivered through it, if tight, double clamp the cord and cut. Wait for the external rotation of the head which tells that the shoulders are in Anterior-posterior diameter of the outlet and ready to be delivered. With the hands on either sides of the baby's head or gentle downward

traction is applied on the head during the next contraction to free the anterior shoulder from under the symphysis pubis. When the anterior shoulder is delivered, the posterior one and the rest of the body are delivered by lifting the head up. To allow the posterior shoulder to escape over the perineum the more will grasp around the chest to aid delivery of the trunk towards the mother's abdomen by movement of lateral flexion. The midwife checks the time immediately. The baby is then held upside down or at an angle of 45° to drain fluid from the respiratory passage and later laid between the mother's legs. The nose and mouth are sucked clear of remaining mucus with soft rubber catheter and a low grade sucker or by mucus extractor. Double clamp the cord with the artery forceps. Separate the baby from the placenta by cutting the cord between the forceps, ligate the cord. Do the Apgar score at 1 minute then at 5 minutes later. Show to the mother for identification of the sex, put identification band, wipe body, wrap in warm towel and keep in a clean warm cot.

3.6 Left lateral position

The woman lies on her left side with the buttocks at the edge of the bed and leg slightly flexed. The midwife stands behind the patient facing her feet while the assistant raises the leg sufficiently enough to take the cot from the midwife's hand, she passes her hand between the thighs down to the vulva. The rest of the delivery is the same with the other method.

Care of the baby

1. Immediate care of the eyes: Immediately the baby's head is born the eyes are cleaned with sterile swabs and water, from within out using one swab at a time.
2. Establishment of Respiration: Aim is to promote clear airways by wiping the mucus from the nose and mouth to allow the baby to cry. Tilt at an angle of 45° head down or complete upside down for a few seconds to drain mucus and liquor amni from the mouth. Suck the oropharynx, rub the

- back gently and flick the sole of the feet if baby does not cry immediately.
3. Note the time of delivery Do the Apgar scoring.
 4. Double clamp the cord cut and ligate.
 5. Show the baby to the mother for identification of sex
 6. Provision of warmth wipe the body and wrap with sterile towel.
 7. Label the baby
 8. Weigh the baby.

Mother

The vulva is swabbed and perineum examined for any laceration place the receiver for placenta in situ. While you assess for signs of excessive bleeding while you observe the mother for placenta separation.

3.7 Management of third stage

The uterus usually rest for a few minutes after the delivery of the baby. But normal contractions soon start again to separate the placenta and push it to the lower uterine segment or vagina. While the placenta separate there may be slight blood loss. The midwife must observe the woman's condition as she wait for signs of placenta separation.

The woman lies in dorsal position. The midwife places her left hand on the uterus to know that it is well contracted. When well contracted the uterus feels hard like a cricket ball. Also to note the size of the uterus. The hand must not meddle with the uterus. Signs of placenta separation are also observed for. Asepsis and antisepsis must be maintained throughout this stage.

3.7.1 Signs of placenta separation

1. Cord lengthens
2. Uterus becomes harder and mobile.
3. Small gush of blood.
4. Fundus rises.

3.7.2 Methods of delivery of placenta

1. Controlled cord Traction; this method is becoming commonly used now a days because of its advantages of reducing the risk of post partum Haemorrhage, shortens the third stage of labour.

It is done by administration of sytometrine 2 mls, 5 unit Oxytocin ,0.5mg Ergometrine with the birth of the anterior shoulder or the after coming head. The success of the method depends on good knowledge of pharmacological action of the oxytocic drug used and proper timing of the procedure. A downward and outward traction is applied on the cord following birth canal while the left hand braces the uterus backwards to provide counter-traction. The uterus must be well contracted. Mayor forceps could be applied to give a firmer grip on the cord. This method must not be combined with fundal pressure to prevent inversion of the uterus. A sterile kidney should be placed against the perineum to collect blood loss and receive the placenta

Contraindications

1. Preterm baby
2. Macerated fetus

2. Fundal pressure

With this method the placenta must have separated and lying in the lower uterine segment or vagina. The uterus must be well contracted. The woman must relax her abdominal muscles by breathing through her mouth gently. The well contracted uterus is used to push the placenta out as the piston is used to push fluid out of the syringe.

The midwife standing on the patient's right hand, grasp the fundus with her left hand with her fingers behind the uterus and her thumb in the front. She then applies a pressure with the palm of her hand towards the pelvic outlet in a downward and backward

direction. The right hand receives the placenta at the vulva then the left hand joins it when the placenta is almost completely expelled. Give Ergometrine 0.5mg i.m.

3. Maternal Effort:

Good uterine contraction will separate the placenta. When the placenta has separated and descended into the lower segment signs of placental separation are present with the next contraction the woman is asked to push as she did for the delivery of the baby. The placenta is received into a cupped hand, twisting the membranes into a rope to prevent it breaking. If membranes are adherent then apply a gentle up and down traction using a forceps.

4. Brandt Andrews maneuver:

In this method the placenta must also have separated and the uterus well contracted. The midwife places her left hand on the uterus over the symphysis pubis. A forceps is applied on the cord or cord wound round the right hand twice, a gentle traction is applied while the left hand applied on upward pressure on the uterus. If properly used it is a safe method.

3.8 Care after the delivery of the placenta

When the placenta and the membranes are out give ergometrine 0.5mg or syntometrine 1ml (i.m). start to prevent haemorrhage. Swab the vulva examine the perineum and vaginal wall for any laceration. Suture if necessary. Make the patient comfortable by changing linens and applying a sterile pad to the perineum check vital signs and record. Check uterus to be sure it is well contracted.

Later wheel the trolley to the sluice room and examine the placenta and membranes for completeness. Measure all blood loss. The women must be kept in the labor room for at least one hour for close observation –fourth stage. An hour after delivery, she is later transferred to the lying-in ward with her baby after the uterus is explored of blood clots and uterus is checked and is contracted. An hour after delivery the blood clots are expelled and uterus checked for contraction. Check vital signs and transfer to the lying –in ward.

3.9 Episiotomy

An episiotomy is a deliberate surgical incision made into the perineum to enlarge the vaginal orifice (inritus) to facilitate the birth of the baby. It is a planned surgery but often, it is performed as an emergency, because the need for it may not be apparent until the second stage.

Indication:

To minimize severe spontaneous maternal trauma.

Delay 2nd stage – Tear in imminent Disproportion, - Rigid perineum. Contracted outlet, abnormal positions e.g. OPP, face to pubes delivery.

Fetal distress – e.g. prolapse cord. To hasten the delivery of the head.

To facilitate vaginal and intrauterine manipulation e.g. e.g. forceps delivery, ventouse extraction, breech delivery.

Preterm babies – to avoid intracranial damage.

Previous complete perineal tear

Primipara with big baby.

TYpes

1. **Media:** This is a midline incision which follows the line of insertion of the perineal muscle. It begins in the centre of the fourchette and directed posteriorly for about 2.5cm.

Advantages:

1. Causes less bleeding, because it does cut through any big blood vessels.
2. It is easy to repair and it heals better.
3. It is more convenient for the woman.

Disadvantage

1. It may extend and damage the anus (third degree tear) or to the rectum (fourth degree tear).
2. It does not give enough room as medio-lateral for instrumental delivery and rotation used mainly in USA.

2. Medio-lateral: The incision begins in the centre of the fourchetter and directed to the right or left of the lateral margin of

the anal sphincter, diagonally in a straight line, at an angle of 45° between the tuberosity and the anus. It should not be more than 4-5cm long and about 2.5cm away from the anus. This line avoids damage to the anal sphincter and Bartholin's gland.

Advantage:

1. Can not lead to 3° tear-recommended for midwives. Use more in U.K.

Disadvantage

1. It is more difficult to repair.
2. Bilateral mediolateral episiotomy are not recommended, because it can cause excessive bleeding.

3. J-Shaped or Schuchardt incision

The incision begins in the centre of the fourchette and directed posteriorly in the midline for about 2cm and then directed laterally (at 7.O'clock) to avoid the anus. It helps in difficult deliveries e.g. large head, shoulder dystocia or difficult breech. It is difficult to suture and the wound tend to wrinkle.

4. Lateral Episiotomy

The incision begins about 1-2cm away from the centre of the fourchette. It cut across the labia majora, large blood vessel and Bartholin's duct may be damaged.

Disadvantage

1. Causes profused bleeding
2. Difficult to repair
3. Causes a lot of discomfort to the woman
4. It has been abandoned.

Timing of the incision

Episiotomy must be properly timed to achieve the desired goal. It is given when the presenting part is directly applied to the tissue. If given too early it will fail to release the presenting part and causes profuse bleeding. The levator ani muscle would not have displaced laterally and may be incised. If given too late, there will be not enough time to infiltrate with local anaesthesia or the tear might have occurred. The purpose is then defeated. The woman should be in dorsal or lithotomy position.

Infiltration:

The perineum should be adequately anaesthetized prior to the incision. Xylocaine or lignocaine 0.5% 10mls or 1% 5mls is used. It takes 3-4 minute to take effect and last for about 1 hour. So proper time is very important. Clean the perineum with antiseptic solution. Insert two fingers along the proposed incision, to protect the fetal head.

Insert the needle beneath the skin for 4-5cm in a straight line, withdraw to ensure it has not puncture a blood vessel.

Inject the lignocaine as the needle is being withdraw slowly, reinsert into the other direction just before the tip is of the needle is withdrawn.

Making the incision

A straight, blunt-ended pair or major's episiotomy scissors is usually used. The blade must be sharp to ensure a straight clean incision. Insert two fingers as before and position the blades and cut one straight line during a contraction. The length is better judged when the perineum is stretched. A single deliberate incision is better than small nips which result in ragged edge and difficult to unit. A 4-5cm long incision is made at the correct angle. Delivery of the head should follow immediately. If there is any delay pressure should be applied on the wound to minimize bleeding.

Repair of Episiotomy

Early suturing is recommended as this prevents sepsis and poor union. The local anaesthesia should be effective so she may not require another one for repair. Inhalational analgesic such as Trilene could be used to relief pains. She should be in dorsal position or Lithotomy position with legs well apart and thighs abducted buttocks at the edge of the bed or table. The vagina is packed to prevent obstruction by the uterine bleeding. Sterility must be maintained. An episiotomy is equivalent to 2^o tear so it is repaired in 2 layers.

- i. the vaginal wound
- ii. the pelvic floor muscles and perineal body
- iii. Perineal skin.

Touch the cut area to ensure that the effect of anaesthesia has not worn off. If she feels pains there is need to give more anaesthesia. Adjust the light for clearer view.

Use 2-2 or 3-0 chromic catgut is preferable because it is flexible, strong and last long enough for healing to occur. 0-1 may also be considered in the absence of non. Generally absorbable catgut is less painful, less tissue reaction. A curved round body needle is used for the tissue. Continuous or uninterrupted stitches are better, starting from the apex of the vaginal wound to the fourchette. This is followed by the pelvic floor muscles and the perineal body. Care must be taken not to suture the anus. Ensure that wound is properly aligned. The sutures should not be too light which can cause oedema, haematoma and prevent healing. Now close the subcutaneous tissue. The skin may be sutured with chromic 0 or 1 or non-absorbable suture with cutting edge needle. Then remove vaginal pack insert a gloved finger into the anus to feel top of the rectum of suture. If non-absorbable suture is made on the skin, the number should be recorded for removal. Double check to ensure no pack or instrument is left in the woman's vaginal. Clean her with antiseptic lotion and apply sterile pad and make her comfortable. Advise the woman to keep her perineum clean and dry. Use sanitary pad wash the vulva with soap and water tds (three times daily) or as necessary. She should report a week later for inspection of the wound.

Requirement for Perineal suturing

1. 1 toothed dressing forceps
2. 1 mayo's needle holder
3. 1 spencer well's artery forceps
4. 1 mayo's scissors
5. suturing materials
6. 10 gauze swabs
7. 20 wool mops
8. 1 perineal pad
9. Haped vaginal tampon.
10. Gown, mask, cap, hand towel and gloves.

Advantages of Episiotomy

1. Prevents over stretching of pelvic floor muscles.
2. Reduces maternal exhaustion and incidence of PPH.
3. Reduces the risk of cerebral damage to infant resulting from acidosis and hypoxia.
4. Heals faster than ragged tear.
5. Prevents damage to the urethra
6. Prevent 3rd degree tear.
7. Does not extend to involve the anus-mediolateral episiotomy.
8. Easier to suture

Care in the Puerperium

1. Analgesia in the first 48-72hrs.
2. Perineal toilet with saulton 1:100, 4hrly.
3. Empty bladder and bowel regularly.
4. Keep wound surface dry.
5. Sitz bath – Hibitane for 5 mins or radiant heat lamp for 5 minute 2-3 times a day.
6. Inspect for signs of infection.
7. If wound breaks down, resuture with non-absorbable suture after thorough cleaning.

Complications

1. Haemorrhage
2. Haematoma
3. Infection
4. Dyspareunia
5. Temporary loss of Libido
6. The scar may necessitate episiotomy in subsequent deliveries.
7. An unnecessary injury if given without good cause.

4.0 Conclusion

For labour to end successfully the midwife must meet the woman's needs psychologically and physically. She must realize that the woman is prone to infection and maintain asepsis during labour. Her approach has a great influence on the woman's response to

labour. The midwife must show understanding and build trusting relationship between her and her client. She must provide efficient bedside care and relief pain when necessary and allow nature to take its course.

5.0 Summary

The management of patient in labour is divided into stages as classified in unit three. The first stage starts from admission in labour, the second stage is concerned with the delivery and the third stage is the delivery of the placenta and control of hemorrhage. In each of these stages a sound understanding of the psychological process guides the midwife of what is expected and what preparations must be on ground to deal with the situation. Vigilant observation of both the mother and the baby is very paramount. Adequate preparation must be made before the next stage. Active management of placenta is the best method to prevent postpartum hemorrhage.

6.0 Tutor Marked Assignment

- Describe the management of a woman in first stage of labour
- Explain active management of placenta

7.0 References/Further Readings

Franser M.D, Cooper M.A and Nolte AGW. (2006) Myles Textbook for Midwives African Edition. Elsevier Limited. London.

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Unit 10: Puerperium

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Psychology of puerperium

3.2 Physiology of puerperium

3.2.1 Involution of the uterus

- 3.2.2 Urinary system
- 3.2.3 Circulatory System
- 3.2.4 Musculo-Skeletal System.
- 3.3 Restoration of ovulation and menstruation
- 3.4 Management of puerperium
- 3.5 Birth control/family planning methods
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment
- 7.0 References/Further Readings

1.0 Introduction

In the previous unit in this module we have acquired enough knowledge to make us manage pregnancy and conduct delivery successfully.

Now we shall discuss the care the woman requires within the first 6 weeks after delivery and how the body readjusts back to the period before pregnancy. We shall review contraception, so that she will get pregnant only when she desires.

2.0 Objectives

At the end of this lesson the learner will be able to

- Assess process of involution of the uterus
- Promote the wellbeing of women after delivery recognize when lochia discharge is becoming abnormal
- Guide women in making informed choice on the method of family planning.

3.0 Main Content

Puerperium is defined as a period which commences after the expulsion of the placenta and lasts up to about 6 -8 weeks after delivery. It is characterized by the following physiological and psychological changes when the reproductive organs return to their pre-gravid state, lactation is initiated and established and

recuperation from physical and emotional experiences of pregnancy and delivery.

The foundations of the relationship between the mother and infant are laid. She assumes responsibility for the care and nurturing of her infant. The process by which the generative organs returned to their pre-gravid state is known as “Involution”.

3.1 Psychology of puerperium

Most women are happy during Puerperium. Some may be anxious, apprehensive and sensitive. These groups of women cry easily and find the task of caring for the baby too cumbersome. The midwife needs to be understanding in her dealings with the mother. Mothers are always appreciative of the midwife’s advice, kind approach, assurance, and assistance.

Puerperium is a period of excitement, the mother is eager to share her experiences with partner, family and friends.

3.2 Physiology of puerperium

These are the changes that take place after delivery. This is characterized by endocrine activity. Oxytocin acts upon the uterine muscle and breast tissue. In the 3rd stage the action brings about the separation of the placenta and prevents hemorrhage (by the action of living ligature) and initiation of lactation. Other changes include the lochia which undergo sequential changes as involution progresses. The main changes occur in the uterine and decidua but the ligament also return to their former state prior to pregnancy. The stretched vagina, pelvic floor and perineum regain their tone but, in some instances a degree of laxity persists. There is a dramatic reduction in the level of estrogen and progesterone reaches basal level by the 7th day if she breastfeeds, otherwise the oestradiol begins to rise 14 – 21 days after birth indicating a resumption of ovarian follicle development and later ovulation

3.2.1 Involution of the uterus: Return of the uterus to its pre-gravid state. The reduction in the size of the uterus is brought about by the process known as Autolysis and Ischaemia i.e. self digestion of the uterine muscle fibres by proteolytic enzymes and self destruction. The end results are removed by the phagocytic action of polymorphs and macrophages in the blood and lymphatic system which invades the collagen fibres between the myometrial cells and remove the fat from the area. This process is further assisted by the contraction and retraction of the uterine muscles under the influence of oxytocin resulting in the compression of blood vessels and reducing uterine blood flow causing the release of more lochia and after pain during breast feeding. Involution reduces the size of the uterus by about 1.6 in. (about a finger breath) a day.

Progressive changes in the uterus after delivery

	Weight of uterus	Diameter of placenta	of cervix
End of labor	900gm	12.5cm	Soft , flabby
End of 1 week	450gm	7.5cm	2cm
End of 2weeks	200gm	5.0 cm	1 cm
End of 6 weeks	60 gm slightly larger than pre-gravid state	2.5 cm	A slit

The remains of the spongy layer of the decidua are shed. At the end of the 8th week, the placenta site is healed and a new endometrium is regenerated. After about 4 or more weeks menstruation may commence, by the 12th day of Puerperium the uterus has shrunk behind the symphysis pubis.

Lochia

This is the term given to the discharges from the uterus during the Puerperium. They are alkaline in reaction and organism flourish more in it than in the acid vaginal secretion. The amount varies in

women and more in quantity than menstrual flow. The odor is heavy and unpleasant but not offensive, similar to menstrual flow. Lochia undergo changes as involution progresses. The volume is described as heavy, moderate and scanty

Progressive changes

1. Lochia rubra (red): 1 – 4 days of Puerperium. For the first 3 days the lochia consist mainly of blood, shred of decidua and fragments of chorion, amniotic fluid, laguno vernix caseosa and meconium.
2. Lochia serosa (pink): 5 – 9 days. The discharge is paler and brownish in color. It contains less blood and more serum. Also contains leucocytes and organism , no clots
3. Lochia Alba (white) 10 –15 days: the discharge is creamy greenish in color and contains leucocytes, organisms, cervical mucus and debris from healing process in the uterus and vagina. Slight blood discoloration may be seen for a further 2—3 weeks. A persistent red lochia is a warning sign of retained product of conception and likelihood of puerperal hemorrhage and this should be reported without delay.

3.2.2 Urinary system

Kidneys: renal action is increased in early part of Puerperium more urine is passed because of reduction of blood volume (red cell mass) from its raised pregnancy levels and excretion of waste products of autolysis.

Bladder in the first few days micturation may be difficult partly because of reflex suppression of the destrutor activity and sphincters spasm from irritation of the levator ani muscle during delivery or odema of the urethra. During the first 1 or 2 days marked diuresis occurs due to falling progestrone and alteration of cell metabolism to the non-pregnant state.

3.2.3 Circulatory System: During pregnancy circulatory volume increases by 50%,this places exact strain on the heart. The cardiac output immediately after delivery increases for about 48 hrs

returning to pre-gravid level in 4 weeks. Fluid loss result from diaphoresis (profuse perspiration) and diuresis (urinary output) during labor and childbirth is approximately 2.2kg. Up to 500mls of blood may be lost in normal delivery. Amniotic fluid is another source during birth. The cardiovascular system has to quickly adjust itself to these changes. It also results in improvement in varicosities. There is relief of pressure on the vena cava placed on it by the gravid uterus.

Blood changes : in the last 4 weeks of pregnancy there is a significant rise in the levels of fibrous plasmogen factors II, VII, VIII & X. A few days a rapid fall in fibrogen plasminogen factor VIII level occurs while there is a rise in circulating fibrinogen degradation products, probably due to the lysis of fibrin deposits in placenta bed. By the 2nd week of Puerperium the coagulability of the blood is altered and increases risk of thrombosis is present. The normal non-pregnant red cell levels are reached about the 40th day.

3.2.4 Musculo-Skeletal System: The stretching muscles and loss of tone of abdominal muscles during pregnancy results in flabby appearances of the abdomen immediately after delivery. This normally responds to exercise and involution and gradual tightening of pelvic muscles and ligaments. This is however faster and better with primiparae than multiparae.

Nervous systems: this is normally unaffected except for the effects of drugs during labor

Integumentary: striae gravidarum become lighter and silvery; gradual disappearance of linea nigra, chloasma gravidarum and nipple hyperpigmentation. With exercise and good diet circulation, muscle tone, skin elasticity and healing improves.

Respiratory: after child birth many women are able to breathe easily. Shortness of breath at anytime after child birth requires further assessment to rule out underlying pathophysiology ; Post – Partum Hemorrhage (PPH) .

Gastrointestinal system: some women experience constipation in puerperium which may be attributed to relaxation of abdominal wall and loss of intra-abdominal pressure. The presence of hemorrhoids or an episiotomy may cause some discomfort during bowel movement.

Breasts: the female breast undergoes changes during pregnancy in preparation for lactation and breast feeding. Colostrums supply the neonate with good nourishment. It contains more protein and salts (NaCl, Zinc) but less fat & Carbohydrate. The breast milk is secreted in the last month to 3 days postpartum when breast milk appears. It is rich in antibodies, acts as laxative aiding passage of meconium. Lactation begins 48-72hrs after child birth, but not fully established until about 10 days after birth.

3.3 Restoration of ovulation and menstruation

Women who breast feed exclusively and suckle on demand are likely to have delayed ovulation and menstruation for a considerable period. The more the woman suckles the higher the plasma prolactin level and the longer ovulation is delayed. For those who breastfeed partially ovulation may occur and subsequently pregnancy without menstruation for a considerable period. Ovulation may delay up to 5 months in lactating mother though menstruation may start earlier in breastfeeding mothers.

About 10% menstruation may start 10th week

About 30% menstruation may start 20th week

About 60% menstruation may start 30th week

About 80% of non breastfeeding mothers may start 10th week and ovulation is likely to occur from this time onwards.

Post partum women should be warned that conception can take place whether they breastfeed or not.

Diminished volume of circulatory progesterone has a reverse effect on the pelvic floor, perineum, vagina, vulva and bowel. These organs become more active

Other organs affected include:

3.4 Management of puerperium

Caring for the woman, her newborn baby and her family after a normal delivery creates a happy, exciting and rewarding experience. It is a time when the midwife exercises her ability of observation and sensitivity to provide excellent nursing care. The puerperal woman is no more treated as ignorant, idle, ill woman, confined to bed. Today the puerperal woman is regarded to be healthy, intelligent, who is anxious to see, touch and care for her baby. The first ten days is regarded as the “lying-in-period” when close observation and adequate care should be given to the patient.

Care during puerperium must aim at:

- Promote physical well being of client by correcting anaemia, providing comfort, cleanliness and promoting sufficient physical activity to ensure good muscle tone and involution of the pelvic organs.
- Establish emotional well being, quietness, freedom from worry and excitement and proper psychological approach.
- prevent infection
- promote breast feeding
- provide education on the proper care of her baby

Postpartum care is divided into two phases; immediate and subsequent.

Immediate care: covers the first 24 hours after birth. The first 1 hour is most critical is regarded as the 4th stage of labour. Ideally it should be spent in the labour ward. It is the time most Post – Partum Hemorrhage (PPH) occur, shock or sudden collapse.

Close observation is needed. Pulse, BP, involution, Lochia, perineum, could be done every 15minutes. It includes condition of the uterus, condition of the perineum, bladder and voiding.

Rest/Sleep – sedation may be served. If B/P is high, sedation should be given orally or intravenously to prevent postpartum eclampsia. She is made comfortable and allowed to rest. At the end of one hour, she is observed again, cleaned up and offered a drink-encourage to pass urine and uterus should be emptied. Uterus should be well contracted.

Subsequent Care:

1. Rest and Sleep: very essential calm atmosphere should be provided. No strenuous activities
2. Ambulation: 6 –12 hours after delivery- promote feeling of well-being, good circulation and drainage of Lochia. She can now participate in the management and care of her baby.
3. Diet, fluids and vitamins: a protein diet, vitamins and minerals to promote good lactation. Adequate fluids – milk, fruit supplementary vitamins , iron, folic acid to prevent anemia
4. Care of bladder and bowel: encourage to empty bladder regularly to prevent Post –Partum Hemorrhage (PPH), sub-involution and Urinary Tract Infection. Catheterize if necessary to prevent constipation. dulcolax suppository or magnesium hydroxide (30mls). May begin to take food rich in roughage.
5. General comfort and cleanliness – vulval toilet regular perineal care and changing of pad, sanitary towel should be discarded
6. Promote involution – encourage early ambulation good health , prevent infection , breast feeding ,postnatal exercises and estimate fundal height daily
7. Postnatal exercises: this should be done daily in puerperium.
8. Promotion of breastfeeding: this should be encouraged most mothers are eager. Empty breast at each feed nipples must be free from infections cracks and engorgement. Mother must be free from infections.
9. Prevention of infection: reduce visitors, antisepsis and asepsis should be observed when caring for the vulva. On

- suspicion of infection, patient should be isolated or barrier nursed.
10. Records: all observation vital signs abdomen, uterine tenderness or full bladder. Involution, breast examination, Lochia color , odor amount and consistency , wound for healing or removal of stitches.
 11. Education of the mother – mother must be educated on care of the baby and the need for post natal visit and family planning be emphasized

Method of measuring fundal height during puerperium;

1. Done by the same person , same time using same instrument
2. Patient should empty her bladder
3. Palpate the abdomen and locate the fundus uteri and upper border of the symphysis pubis. using a flat graduated rule estimate the distance between the symphysis pubis and the uterine fundus

Post natal examination: conducted 6weeks later to ensure

1. organs affected by pregnancy return to their pregravid state
2. lactation : assess if the breast is lactating well
3. good condition generally –medically and gynecologically
4. family planning

Post natal procedure

1. Urine testing, vital signs and blood clot
2. Vital signs
3. Blood test
4. Examination –generally, abdomen, breast
5. Vaginal Examination (by doctor) to assess if the cervix is closed or still open
6. Perineal examination – laceration ,cough to exude prolapse
7. Vaginal discharge return of menses
8. Baby examination- general condition sleep elimination, circumcision, feeding general appearance etc.

9. Ask questions on her wellbeing and that of the baby

Common complications

1. Vaginal discharge – infection
2. Backache- (poor feeding and work)
3. headache, prolapse

3.5 Birth control/family planning methods

WHO's Definition of Birth Control. "It is a way of thinking and living that is adopted by individuals or couples in order to promote the health and welfare voluntarily upon bases of knowledge, attitude and responsible decision of the family and to contribute to the advancement of the community."

Benefits of family planning

Barrier methods of contraception

Barrier methods are the oldest means of contraception and have been in use for centuries.

Diaphragms and cervical caps are much in the same way as the various halves of various fruit skins. Barrier method offers an alternative to prolong pill or IUCD use for those who delay child bearing to later age.

Many providers recommend it for the advantages and diversity of these simple methods. Clients also prefer it because they do not act systematically thus have fewer side effects.

There are two common barrier methods:

1. Chemical – prevents spermatozoa from entering the womb by chemical action e.g. spermicides.
2. Mechanical – keeps sperm from entering the womb e.g. condoms, cervical caps, sponge diaphragm. Mechanism of action involves creating a barrier between the spermatozoa and the ovum which prevents the two live units from meeting thus prevents fertilization.

Chemical Methods

Types

1. Creams, Jellies, Foams, Aerosol foam, Vaginal foaming tablets, Vaginal suppositories.

Advantages

1. Do not require medical intervention
2. Readily available over the counter
3. Simple, easily understood by the user.
4. Serve as lubricant for intercourse.

Disadvantages

1. Has higher failure rate compare with some others.
2. Require interference with the genital tract which some users.
3. Some couples find spermicides to be messy and aesthetically unpleasant.

Jelly, Cream or foam is aerosol container

Normally enclosed in special tubes and comes with applicators.

For aerosol contain foam always remember to shake the tube before filling the applicator.

Mechanical method

Diaphragms (Dutch cap)

This is a mechanical barrier method of birth control. It is a dome shaped latex cup or rubber cup with flexible metal-rim. It is introduced into the vagina before intercourse to prevent pregnancy.

Mode of action

- 1 Prevent sperm from entering the cervix

Advantages

It is portable, has no systemic effect, and inexpensive if well taken care of.

Disadvantages

Must be measured and fitted by a Provider, must be in situ for 6-8 hours after intercourse before removal.

Condom

Condom is a thin sheath that is worn over the erect penis before intercourse they act as a barrier preventing semen from entering the vagina. Condoms are known by a host of popular

names such as: Rubber, English cap, Durex, raincoat, French letter etc.

Mode of action

It acts as a mechanical barrier between the penis and the vagina and prevents the sperm from entering the vagina.

Advantages

1. Highly effective when correctly and consistently used – 90% effective.
2. Permit active involvement and responsibility of the male partner.
3. Widely available.

Disadvantages

1. Failure – due to spilling, breaking and leaking.
2. Decreased sexual enjoyment for some couple
3. Interrupts fore play.
4. Allergic reaction to rubber.
5. Some men can not maintain erection with it.

Female condom:

Is made of polyurethane sheath. It is a woman method of protection against STDS. It is made up of thin, transparent soft plastic.

Effectiveness

Similar to male condoms and to other vaginal methods If used correctly and consistently failure rate is low.

Advantages

1. Designed to prevent both pregnancy and STDs
2. No apparent side effect.

Cervical caps

Cervical cap is a thinle shaped cup – a miniature diaphragm with tall dome. There are three types, though they are not widely used: -Cavity Rim Cap, Vimule Cap, Duma's or vault Cap,

Sponge

New devices, not very common in use. Designed to provide effective barrier. It is inserted like the Diaphragm against the

cervix. It acts as mechanical barrier and the spermicide kills sperm. Its effectiveness is as high as that of the Diaphragm.

Hormonal contraceptives

Hormonal contraceptives are synthetic compounds that resemble human hormones used in various forms to prevent pregnancy. They contain two main female hormones Oestrogen and Progesterone. When single, contain progesterone alone, the combine are usually taken by mouth while the progesterone only may be given by intramuscular injection (injectables) or by implantation underneath the skin (Norplant Implant) or as oral pills (Minipills).

Types

1. **Oral contraceptives:** Popularly known as “The Pill” e.g combined, mini, and sequential.

The pills

There are three main forms of oral contraception

Combined – Oestrogen and progesterone

Mine pills – Progesterone –only.

Combined pills

100 – 150 Microgram of oestrogen and 1-10mg of Progestin

Advantages

1. Highly effective if used correctly – it is the most effective reversible method.
2. Client can discontinue independently.
3. Suitable for young (under 35 yrs).
4. Regularizes irregular periods.

Disadvantages

1. Has to be taken daily.
2. May cause some minor side effects Nausea, vomiting, spotting.
3. Do not protect against STI's and HIV/AIDS

Mechanism of action

They are thought to inhibit ovulation by blocking the production and release of FSH and LH. The oestrogen suppresses the FSH production so retards development of ovum.

The combine pill reduces cervical mucus thus blocking passage of sperm into the uterus. Also makes endometrium lining oedemataus and unfavourable for ovum implantation.

Mini pill

They come in different forms and packages –

21 days plus Placebo for 7 days.

21 days only. Taken from the 5th day of menstruation.

Placebo – Iron tablet contains 75mg per tablet to maintain continuity or regime and supply extra iron.

Advantages

Decreases menstrual Cramps does not disturb breast milk production chances of PID are probably reduced. Less likely to cause headaches or raised B/P. No increased risk of cardiovascular complications.

Disadvantages

Must take the pill every day. Slightly less effective than combined pills Barrier method must be used for more effectiveness.

May cause infrequent menstrual period more likely to cause irregular bleeding although many clients have normal cycle.

Ectopic pregnancy is some what more common with mini pill users.

Indication

Suitable for women over 35 years

Safe for breastfeeding mothers who have been well counseled.

Injectables

These are long-acting contraceptive containing progestogen only which are given by intramuscular injection.

Advantages

- Highly effective
- Long-acting

- Injections are culturally more acceptable. Decreases menstrual cramps.

Disadvantages

May cause irregular bleeding

Return of fertility may be delayed

Norplant implant

The Norplant is an implant which consists of six plastic-like tubes (containing the Progestin Levonorgestrel) which are inserted under the skin of the upper arm by a minor operation.

Mechanism of Action

1. Inhibition of ovulation
2. Thickening of the cervical mucus.

Advantages

1. It is a very safe, effective and reversible contraceptive.
2. It becomes effective within 24hrs

Disadvantages

1. Spotting and irregular vaginal bleeding
2. Minor procedure is required to insert or remove Norplant.

Intrauterine contraceptive devices

Intrauterine contraceptive device is an object inserted in the uterine cavity to prevent unwanted pregnancy. It is made of plastic, stainless steel, or flexible polyethylene nylon. They are of varied sizes, shapes and types.

Types

There are two types of IUCDS : Medicated and Non-medicated

Non-Medicated

They are made of inert plastic material (e.g. lippers loop Saf – T coil.)

Medicated

Copper T (Cup T200, Cu – T220c, Cu-T 380A),

Copper 7 (Gravigard), Multiload (cu-250 and Cu-375),

Progestasert – Contains progesterone, Norgestrel – T contains levonorgestrel and Nova Postpartum T cu 200

Mechanism of action

The mode of action of the IUCDs is not really known, but there, are some satisfactory explanations that have been observed in human beings. It does not disturb normal functioning of menstrual cycle and there is no alteration of ovulation. Most widely accepted explanation are:

1. Leucocytosis: Multiplication of white cells – excess white cells that treat sperm and ova Blastocyst as bacteria by engulfing and dissolving them, copper affect endometrium enzymes making the lining hostile to implantation. Hence there is increase in the mid cycle vaginal discharge.

Voluntary surgical contraception (Sterilization)

This is a minor surgical operation performed on a male or female to stop his or her ability to have more children. In the past such operations were performed only for therapeutic purposes. But in the recent years the phenomenon has become more common in the U.S. In Africa countries the method is still not very popular among couples due to cultural beliefs.

Counselling

Both partners should be fully involved and the decision should be a joint one. It should be a voluntary decisions, should have general knowledge about the operation. Give accurate information about the procedure. If possible give written material to read.

Emphasis on – Irreversibility, Psychological

Side effect – Regret (divorce death etc)

Complication – Emotional involvement

Ambivalent emotion.

Advantages

1. Provides permanent contraception
2. Highly effective method of contraception
3. Cost effective

Disadvantages

1. Does not protect against STDs
2. Irreversible

3. Requires a minor operation.
4. Reversal is expensive; require special skills for operation and the results is uncertain.

Client's preparation

Assessment: To determine client's fitness for sterilization identify any condition that may increase risks associated with it. Check that preliminary screening has been done (e.g. history, physical examination investigation etc.

Male sterilization – vasectomy

It involves cutting of the vas deferens which carries spermatozoa from the testicles. It is much simpler and safer procedure than female sterilization. It is as effective as that of female. It is rapidly gaining popularity and is a direct male contribution to family planning. The influence of cultural factors varies from country to country.

Female sterilization tubal ligation—this is ligation of the fallopian tube. It is done through a small incision through the abdominal wall .It is very effective

4.0 Conclusion

Puerperium is a period when the woman recuperates from the strain of pregnancy and labour. Adequate rest is imperative during this period. It is the period when a good foundation of relationship is laid between her and her baby. Midwife must ensure that this period is uneventful through careful assessment and supportive care.

5.0 Summary

This unit has defined the period of puerperium as the first six weeks after delivery. A lot of processes of readjustment take place in the body; the effect in the uterus will result in the reduction of the size and the discharge of lochia. Lochia changes in volume and color as the placental site heals from rubra, red, serosa, pink and finally alba (white). Persistently red lochia is a sign of problem in

the uterine cavity. Care during puerperium is classified into immediate when the woman is observed for bleeding, and the subsequent care which include follow up. Birth control can start as soon as she desires to commence coitus after six weeks when placenta site would have healed. The method will be based on informed choice by the midwife/ practitioner.

6.0 Tutor Marked Assignment

- Describe lochia
- List 2 advantages and 2 disadvantages of condom

7.0 References/Further readings

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Module 3

Unit 11: Abnormal Conditions in Pregnancy and Labour

- 1.0 Introduction
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1.0 Introduction

The period of pregnancy is not always as smooth as we discussed in the different units in Module 2. There are varieties of complications that can arise during pregnancy. In this unit we shall discuss some of these major complications and the role of the midwife in the prevention, diagnosis and treatment of these complications. They include structural abnormalities, social factors and medical conditions.

2.0 Objectives

By the end of the course you would be able to:

- Give health instructions that will prevent some of these complications in pregnancy
- Make accurate diagnosis of these conditions during antenatal assessment
- Identify cases for referral
- Counsel and support the women to enable them cope with the complications.

3.0 Main Content

3.1 Cephalopelvic Disproportion – (CPD)

3.1.1 Definition

This is a disparity between the fetal head and the maternal pelvis. It means that the particular head is too big for the particular pelvis through which it must pass, it may be due to:-

- A contracted pelvis with a normal sized head.
- A normal pelvis with a large baby ,or
- A combination of a large baby and a contracted pelvis

Cephalopelvic disproportion cannot be diagnosed before the 36th week of pregnancy because before then the fetal head is too

small for comparison with the pelvis but at 36th week the fetus would have reached its maximum size.

3.1.2 Disproportion

There are three degrees of disproportion

1. Minor degree: Here, the head does not engage or pass through the pelvic brim but it maybe possible to push it through the brim. The head is at the same level with the anterior boarder of the symphysis pubis. With good uterine contractions the head may be able to push through the brim.
2. Moderate degree: - Here, the head cannot be made to engage at the pelvic brim, the head slightly overlaps the anterior edge of the symphysis pubis.
3. Major degree:- Here, the head greatly overlaps the anterior edge of the symphysis pubis

3.1.3 Diagnosis of Disproportion

1. Disproportion should be suspected in short primigravidae.
2. It is uncommon in multigravidae women with a previous history of spontaneous vaginal delivery of babies weighing more than 3.4kg.
3. A pendulous abdomen should lead to the suspicion of disproportion.
4. If at 38th weeks of pregnancy, the head cannot be made to engage
5. Non engagement of the head in a primigravida at 36wks in Caucasian is regarded as an ominous sign of cephalopelvic disproportion but in African, the fetal head does not engage until the 40th week or even towards the end of the first stage of labor, the head can however be made to engage by the head fitting test.
6. Diagnosis can be made by assessing:
 - i. the degree of overlap of the head over the pelvic brim at the symphysis pubis
 - ii. Internal pelvic and external pelvic.

- iii. X-ray Pelvimetry which is done at 38 weeks of pregnancy.

3.1.4 Management

Major & moderate degrees of disproportion are delivered by elective caesarean section; patients with minor degrees of cephalopelvic disproportion are allowed trial of labour with the aim of achieving vaginal delivery.

Trial of labour: A test carried out in the presence of minor degree of cephalopelvic disproportion to see if vaginal delivery will be possible. It is done in an equipped and staffed hospital for operative procedures in case vaginal delivery fails. The success of trial of labor depends on:

1. The effectiveness of uterine contraction
2. The flexibility or “give” of the pelvic joints
3. Flexion of the fetal Head.
4. The degree of moulding of the fetal head.

Ambulation and upright positions can be adopted to promote effective uterine contraction cervical dilatation and flexion of the head, progress of labour is recorded on a partogram, continuous fetal monitoring is used to assess fetal well being.

The aim of trial labor is to ensure a successful outcome of labour, if dilatation is slow and the head fails to descend, despite good uterine contractions, the decision must be made whether or not to allow labour to continue. If at any stage during this labour the mother or the fetus is under stress a caesarean section will be performed.

3.1.5 Complications of CPD.

1. Prolonged obstructed labour
2. Vesico vaginal Fistula and Recto vaginal fistula.
3. Rupture of uterus due to thinning of the lower uterine segment.
4. Birth asphyxia
5. Brain damage due to severe Birth asphyxia

6. Ascending infection if ruptured membranes occurs for a long period
7. Hypostatic pneumonia and respiratory distress.
8. Venous thrombosis.

3.2 Retroverted Gravid Uterus

The normal position of the uterus is anteverted and anteflexion i.e. leans forward and bends forward on itself but in the case of retroverted gravid uterus, it means the long axis of the uterus is directed backwards during pregnancy.

In the first trimester, retroversion of the uterus is said to occur in 11% of all pregnancies and this is associated with slightly increased risk of early pregnancy bleeding and abortion which may be due to compression of the uterine vessels decreasing blood flow to the deciduas. But as pregnancy progresses most cases correct spontaneously causing no further problems, but in some cases, the uterus becomes incarcerated i.e. it fails to rise out of the pelvic cavity by the 14th week. Incidence: 1- 30,000 pregnancies.

3.2.1 Causes

- Congenital anomalies of the pelvis and uterus
- History of pelvis adhesions,
- Edomentrosis, Fibroids, Ovarian or pelvic tumour.

3.2.2 Signs and Symptoms

Due to the confinement of the growing uterus within the pelvis, beneath the sacral promontory, causing pressure leading to the following:

- Abdominal discomfort and a feeling of pelvic fullness.
- Low abdominal or back pain.
- Frequency of micturation ,dysuria and paradoxical incontinence

- Compression of the bladder neck leads to urinary retention.
- Urinary stasis may result in infections like pyelonephritis
- Constipation with impacted faeces.
- On examination, bladder is palpable abdominally the fetal heart rate may be difficult to auscultate if the bowel is full.

3.2.3 Management

- Catheterization is done to relieve the retention of urine. An in-dwelling catheter is used to keep the bladder empty, enabling the uterus to rise out of the pelvis.
- Later an attempt is made to encourage the uterus to assume an anteverted position, this may be achieved by putting the patient in an exaggerated Sim's lateral position or asking her to be in a semi-prone position, if all these do not bring about spontaneous correction,
- The doctor may attempt to correct the position of the uterus with the patient placed in the knee-chest position (genupectoral position) usually under general anaesthesia – manually
- Using Hodge pessary for 6-8 weeks.

3.3 Breast Conditions

Inverted nipple and flat nipples: the nipples of women are flat or inverted below the skin surface. These conditions make breast feeding difficult as the infant can not grasp the nipple. Both can be corrected by the use of plastic woolwich shells worn over the nipple from 34th weeks.

3.4 Hyperemesis Gravidarum

3.4.1 Definition

This is excessive vomiting in pregnancy which occurs in the first trimester before the 20th week of gestation and this becomes serious when the patient vomits throughout all day until she

empties the stomach contents. The vomitus may contain bile in some cases.

The severe nausea and vomiting leads to dehydration, electrolyte imbalance, weight loss, anorexia which could lead to malnutrition and metabolic disturbance and this requires interventions.

3.4.2 Causes

The causes of hyperemesis gravidarum are unknown but the predisposing factors include;

1. **Psychological factors:** It occurs in a case of unwanted pregnancy or when a woman wants sympathy or attention from her husband and relatives. More common among educated and nervous women.
2. **Endocrine factors (hormones):** Rising level of oestrogen and human chorionic gonadotrophin hormones also appear to be significant. The hormones progesterone relaxes the cardiac sphincter of the stomach resulting in back reflux of its contents.
3. **Multiple pregnancy, hydatidiform mole, acute hydatidiform mole, infective hepatitis, pyelonephritis** can also predispose to the condition.

Signs and symptoms;

1. Persistent nausea and vomiting which is severe.
2. Weakness, miserable, apathetic i.e. display of emotion
3. Dehydration , emaciated
4. Rapid pulse, low blood pressure.
5. Sunken eyes and dull looking.
6. Dry and inelastic skin.
7. Concentrated and scanty urine and this contains acetone, breath is offensive and smell of acetone as well.
8. Dry furred tongue with cordes on the teeth, dry and cracked sore lips.

9. Hypotension, proteinuria, jaundice, delirium and coma, and death may supervene

3.4.3 Medical management

There is need for prompt and adequate treatment due to the seriousness of the condition.

1. The patient is admitted in the hospital,
2. History is taken and physical examination by the doctor in order to rule out other causes of vomiting e.g. Hepatitis, hydratidiform mole, UTI etc.
3. Rehydrate and correct electrolyte imbalance through IV. Infusion Hypoglycaemia and electrolyte in balance are mainly corrected.
4. Oral fluid is to be suspended for about 24 hours to rest the stomach.
5. Drug such as Antiemetic some of which have sedative effect such as lorgactil 25mg is given or avomine 25mg and this is done with care because of possible effects on the developing embryo
6. Multivitamins, iron and daraprim are also given
7. Fluid balance record is kept.
8. Record of vomitus is separately maintained.

3.4.4 Nursing Management

The patient is usually miserable and feels sorry for herself.

1. The midwife should show love, understanding and empathy to the patient to allay her fear. Be tactful and firm in dealing with her.
2. Complete bed rest, daily bed baths, oral care and care of pressure area.
3. Strict intake and output chart is maintained.
4. Urine is tested daily for protein, acetone, bile and chloride and specific gravity is also noted. Record of the findings is done.

5. Vital signs are monitored and recorded. Report on any deviation from normal.
6. If she has constipation mild apparent such as magnesium chloride may be given under doctor's prescription.
7. Weigh the woman on admission and on alternative days.
8. The role of the husband is important in the care of the woman.

She can commence on oral diet if vomiting has stopped for 24 hours. Easily digestible food served in attractive manner. Give food that she can tolerate, small at frequent intervals. Avoid fried foods and oily foods. Give fruit juice.

3.5 Psychosis in Pregnancy

Childbirth is a psychological milestone. Mature parents grow emotionally during the process by adaptive mechanism.

A psychotic or potentially psychotic individual lacks the resilient psyche needed to handle either pregnancy or the subsequent presence of a child. Hormonal changes probably play a role which cannot at presently be defined.

Therapeutic abortion may be warranted particularly in serious recurrent psychosis. Hospitalization, temporarily separation of the mother from the infant (if the patient has delivered), electro shock and psychotherapy are essential.

The prognosis for the mothers cannot be generalized but must be determined on an individual patient basis. Although, hereditary tendencies have been suggested, there is no convinced evidence that the infant is affected by maternal psychosis.

3.6 Harmful and Traditional Practices against Women and Children

3.6.1 Introduction

Harmful practices are practices that are injurious to specific population or groups within the community. Harmful traditional practices have their root in the ancient traditional, cultural and religious practices, handed down through successive generations either verbally or otherwise. Most of them are detrimental to the health, psychological and social wellbeing of women and the girl child.

Tradition: Traditions are customs, beliefs and values of a community which govern and influence their behavior. Tradition constitutes learnt habits which are passed on from generation to generation; people adhere to these patterns of behavior, believing that these are the right things to do.

Classification of Traditional Practices

Beneficial

- Continuous Breastfeeding for 2 years
- 40 days rest after delivery.

Harmful

- Female Genital cutting (FGC)
- Child marriage
- When women cannot make decision to seek medical care
- Son preference
- Force feeding
- Food taboos for children and pregnant women.
- Gender based violence

Neutral

- Wearing charms around the neck and waist to send evils spirit away.
- Putting wool on baby's head to stop hiccup.

Groups of Harmful Practices

- Those related to nutrition e.g. nutritional taboos associated with pregnancy, puerperium, infancy and childhood.
- Those related to reproductive health e.g. harmful delivery practices, child marriage and teenage pregnancy and female genital cutting.
- Those related to fundamental human right e.g. denial of the girls access to education, male preference, widowhood rite and inheritance, violence against women and children etc.

3.6.2 Consequences of Harmful practices

FGC – has both long term and short effects. E.g. short term include – pain, bleeding, shock etc. long term includes – infertility difficult labour haematocoporse et.c.

Child Marriage and teenage pregnancy make the girl vulnerable to eclampsia, obstructed labour, vesico-vaginal fistula (VVF) Rectovaginal fistula (RVF). Harmful delivery practices exposes the woman to hepatitis B, HIV/AIDS as a result of unsterile instrument, infections, exhaustion, recurrent Urinary tract infection (UTI), burns etc.

Nutritional taboos can result into under weight, anaemia, vitamin and mineral deficiencies in the mother.

The child can suffer low birth weight, growth retardation, learning difficulties etc. Domestic violence may result in bruises, fractures, burns loss of part of the body e.g. eye, mental illness etc.

Contributory factors – poverty, low level of education, religious misconception, social injustice and inadequate policies.

Strategies to address harmful practices are Advocacy, Awareness and networking steps to eradicate item include;

- Identification of target violence e.g. opinion leaders, policy maker, men and market woman.
- Education of the community using culturally acceptable means/materials.

Domestic violence

This is defined as collective methods used to exert power and control by one individual over another in an adult domestic or intimate relationship. Women in heterosexual relationship experience more violence although the homosexual too suffer violence in their relationship as well. World wide at least one in every three women is a victim of violence or sexual coercion at some point in her life.

Types of domestic violence: It may be in any form:

- Verbal attacks
- Insults, intimidation, threats, emotional abuse, social isolation, economic deprivation, intellectual derision, ridicule, stalking and physical attacks and injuries.
- Physical battering include slapping, kicking, shoving, punching, forms of torture, attack with objects or weapons and sexual assault. Women who are physically abused can also suffer psychological and emotional abuse.

Characteristic of Battered women

- They hold traditional view of sex roles – to be submissive, passive and dependent and seek approval from male partner.
- Some have experienced violence in childhood, by their parents.
- Full time house wives – no work outside home.
- Isolated from family and friends and are totally dependent on their partners for financial and emotional needs.
- The abuser shift the family problems on them many believe the batterer's insults and accusation.
- They have low self-esteem reinforces their belief that they deserve to be beaten.
- Feel a pervasive sense of guilt, fear and depression.
- Low problem-solving ability
- May experience lack of support from family friends and their religious community.

Characteristics of Batterers

- Comes from all background.
- Often have feeling of insecurity, socio economic inferiority, powerlessness and helplessness that conflict their assumption of male supremacy.
- Emotionally immature and aggressive men projecting their feeling of inadequacy through violence.
- Many are under serving their partners.
- They lack respect for women in general.
- Come from home where their mothers are abused.
- Having been abused themselves as children.

Reasons for wife battering e.g. in Nigeria include refusal to respect husband, abusing husband, insufficient food allowance, refusal to have sex, disrespect to in-laws, extra marital affairs, inability to cater for the home and participate in women activities. Patriarchy allows men to have control over their women and their property.

Sorts of injuries instill on the women include facial bruises, cuts in the mouth, loss of teeth and severance of the hand.

Nursing Management

- Screening of women to identify those women who have been abused –this is done privately.
- Never be judgmental
- Create a warm caring climate conduct in sharing
- Encourage her to ray her mind out about the injuries.
- Help the woman realize her problem and realistic idea of eliminating these problems.

Specific care

- Medial treatment for injuries
- Temporary shelter to provide safety for her and her children.
- Counseling to raise her self esteem.
- Legal assistance for restraining order, protection or prosecution.
- Financial assistance for food, shelter, and clothing.
- Job training and employment counseling for empowerment

- An on going support group counseling – social welfare.
- Try to reduce their anxiety.
- Counsels to assist her regain her feeling of control over life.

3.7 Sexually Transmitted Diseases

Gonorrhoea

If untreated will give rise to much ill-health and pelvic discomforts.

Signs and Symptoms

1. Profuse, purulent discharge.
2. Pain and frequency of micturition.
3. Vaginitis-infection of the Skene's gland. Bartholin's gland and cervical glands. On microscopical examination. Gonococcus may be found.

Treatment- Penicillin group of drugs.

Nursing Care;

1. Hands must be carefully washed after the treatment is given. Gloves should be worn, especially if any abrasion is present on the hand.
2. Toilet requisites, kept separate and sterilised carefully after discharge.
3. The eyes of the newborn must carefully be wiped before opening and prophylactic drops can be instilled.
4. While giving bath to the baby, prevent the water from head or face from entering the eyes.

Complications

- a. To the mother Salpingitis, ectopic gestation, sterility.
- b. For the baby Ophthalmia neonatorum.

Syphilis

Effect of Untreated Syphilis on Pregnancy

1. Sterility

2. Abortion may occur after the 20th week
3. Premature labour
4. Intrauterine death
5. Congenital syphilis of the baby

Treatment

Prophylactic routine blood test of all pregnant women for Wasserman and Khan. Early treatment of infected person and thus preventing congenital syphilis. Penicillin therapy is used and if the treatment is started after the 28th week, the result is good.

Nursing Care

If infected lesions are present, barrier nursing to protect the other patients. After the birth of the baby the mother must attend the clinic for repeated check-up for three months. If necessary treatment must be repeated for subsequent pregnancies but if the treatment has been adequate and Khan test is negative, no further treatment is necessary.

Congenital Syphilis

Babies are very rarely born with syphilis, the skin lesion of the palm of the hand, and sole of the feet at birth are suspicious and snuffles at about 4 weeks. The cry become hoarse, fissures at the centre of the lips, the angles of the mouth and around the anus, sore buttock and saddle nose at about 12 months.

Treatment

1. Prevent by early recognition of maternal condition
2. Treatment in early pregnancy
3. Isolate the baby and give intensively penicillin therapy
4. Baby must have a Wasserman test every 3 months for 2 years.

Human Immunodeficiency Virus (HIV)

Recent studies have shown that increasing number of women of child-bearing age is infected with HIV; 30 to 40% of whom will transmit the infection to their infants in utero or during perinatal period. There is no known treatment for pregnant woman with

acquired immunodeficiency syndrome (AIDS). There are poor maternal and perinatal outcome 25 to 40% of infected infants will die before their second birthday.

Those at risk of developing AIDS are sexual partners of men with AIDS, intravenous drug abusers, recipients of blood transfusion and women from tropical countries of Africa and Asia. It is recommended that these women are screened in pregnancy and if found to be seropositive early treatment and care can commence before she carries the pregnancy to term, long-term follow-up studies on mother and child are needed as antiviral treatment may be beneficial if started in infancy.

3.7.1 Non-venereal Vaginal Infections

Vaginal discharges

Because the normal acid medium of the vagina is altered sometimes in pregnancy; the vaginal discharge are quite common. Certain organisms grow readily if it is slightly less acid or more acid. Leucorrhoea is a white creamy discharge which is merely excessive discharge from the cervical gland. It is normal, and if there is no irritation, requires no treatment.

Trichomonas vaginalis is an offensive, purulent discharge greenish yellow in colour and is associated with soreness and extreme irritation to the vulva. Though it is common in pregnancy it can occur at other times also.

Causative organism is protozoa. *Trichomonas vaginalis* is seen under microscope while examining a fresh vaginal discharge. It grows readily in a less acid medium.

Treatment

1. Medical aid
2. Clean and vagina with dry swab
3. Apply gentian—violet
4. metronidazole gel or tablet cotrimazole pessaries daily for 7days..

Vaginal Thrush

This is fungi infection of the vagina and is caused by *Monilia albicans*. It readily grows on an acid moist mucus surface. The mouth of the newborn babies, and the vagina of the pregnant women being the common site of infection.

Signs and Symptoms

1. Soreness and irritation of the vagina with intense itching.
2. Profuse white or yellow discharge, which patches fungus in the vaginal wall. Microscopic examination of vaginal discharge shows the organisms.

Treatment

Medical aid; swab the vagina and vulva dry paint with an aqueous solution of gentian violet 1 per cent 2 or 3 times a day.

Vulva Warts

May occur which are not due to syphilis or gonorrhoea. Cause is thought to be viral infection and vaginal discharge and lack of cleanliness

Treatment

1. Clean with soap and water.
2. Small warts may be touched with collodion salicylate.
3. Extensive warts are cured by removing them by an electric cautery under local anaesthesia.

Diseases which pre-exist or occur during pregnancy do not confine to pregnancy alone. Some of them can affect pregnancy adversely and pregnancy can affect this condition also adversely. Sometimes they prove fatal to the mother.

Other Acute Infections

- a) Typhoid, pneumonia, dysentery, malaria and febrile conditions: These conditions may terminate pregnancy. In some cases the placental barrier is crossed through the toxins from the mother and the death of the fetus may result.
- b) Virus infections: Rubella, measles, poliomyelitis, influenza,

chickenpox, smallpox and whooping cough are the common virus diseases.

- c) Pyelitis: Though it is not common in pregnancy, it does effect on pregnancy.
- d) Ureters are very close to the intestines and hence E.Coli infection. It can occur at any time of pregnancy but most common 16th to 24th week of pregnancy.

The causative organisms are E. coli, Streptococcus and Staphylococcus.

Signs and Symptoms

Pain in the loin, headache, nausea and vomiting. If there is stasis there will be painful and frequency of micturition. In severe cases pyrexia 38.9° C and more with rigor.

Investigations

By urine analysis causative organism should be discovered. Sensitivity test, as to what antibiotic drug, which is corresponding. Usually broad spectrum antibiotic. Urine is acid in reaction, fishy smell.

4.0 Conclusion

Certain disease conditions have serious effects on pregnancy and vice versa in terms of severity and difficulty in the management. Regular antenatal examinations, beginning at early pregnancy, can assist in the prevention of it developing, and when it exists, can help to avert the terrible effect on the mother and baby.

5.0 Summary

We have in this unit discussed some of the major complications that occur in pregnancy. We have discussed structural abnormalities (e.g. cephalopelvic disproportion) social conditions (as in harmful traditional practices and domestic violence) and psychosis in pregnancy. Medical conditions affect women in pregnancy; some of these are anaemia in pregnancy, breast

conditions, sexually transmitted diseases, and their appropriate management.

6.0 Tutor Marked Assignment

- Identify the different harmful practices in Nigeria
- What is your role as a midwife in the prevention of anaemia in pregnancy?

7.0 References

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Unit 12: Obstetric Conditions that Complicate Pregnancy

- 1.0 Introduction
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- 3.0 Main Content
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 - 3.1.1 Definition
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3.5.5 The Effect of Twins on Labour

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1.0 Introduction

In unit one we learnt about certain factors that complicate pregnancy like structural and social conditions. In this unit we shall discuss more obstetric conditions that can hamper the smooth progress of pregnancy. This shall include multiple pregnancy, pregnancy induced hypertension, hydramnios, intrauterine death.

2.0 Objectives

By the time we conclude the discussion in this unit you would have been equipped with enough skills to:

- Identify deviation from normal pregnancy as you assess women in ante natal clinic
- Manage those conditions effectively
- Promote psychological coping mechanism in women with these conditions
- Alleviate their sufferings in pregnancy

3.0 Main Content

3.1 Essential Hypertension

3.1.1 Definition

This is a condition in which the blood pressure is raised much above the normal level before the onset of pregnancy. The diagnosis is made either very early in pregnancy or in the non-pregnancy state. The diagnosis is difficult because there are other conditions which bring about elevated blood pressure e.g. pre-eclampsia and chronic nephritis.

Commonly, a blood pressure of 140/90mmHg is regarded as hypertension but a midwife should not have a fixed figure. Any sharp rise in blood pressure e.g. from 100/60 – 130/80mmHg should be taken serious even if the level of 140/90 is not yet reached.

3.1.1.1 Symptoms: Usually asymptomatic and is only discovered on routine physical examination

If symptoms are present, they present as:

- a. Throbbing occipital headache or migraine.
- b. Weakness, dizziness, visual disturbance.
- c. Epistaxis
- d. Palpitation
- e. Angina pectoris
- f. Dyspnoea

Later Signs: It affects the target organs i.e. eyes, kidneys and brain.

3.1.2 Effects on Pregnancy

1. If blood pressure is very high, the patient may develop albuminuria and frank pre-eclampsia may set in.
2. A very high blood pressure causes cerebral hemorrhage.

3. Later in pregnancy, it may cause concealed accidental hemorrhage (Abruptio placenta) which may lead to renal complications.
4. On fetus, there is higher incidence of abortion, intrauterine death and premature labor.
5. Generally there is increased maternal morbidity

3.1.3 Management

1. Sedatives – to relax the patient sodium Amytal 200mg 6-8hrly.
2. Hypotensive drugs – reserpine 0.5 – 0.75mg dly, Guanethidine 10-25mg dly, Methyldopa 250mg tds

3.1.4 Obstetrics

Patient with this condition should not carry pregnancy beyond term. In mild-moderate cases, surgical induction is done (artificial rupture of membrane) at 38-40wks. In severe cases, labour is induced to avoid eclampsia.

Nursing: Ensure bed rest and adequate sleep

Observation: Blood pressure is checked at least twice daily and in severe cases, 4 hourly or 2 hourly.

Diet -Low Sodium intake and low alcohol intake

Exercise – Plan daily exercise to maintain weight, lifting is contraindicated.

Manage stress appropriately.

3.2 Intra Uterine Death of Fetus (IUD)

3.2.1 Definition: This refers to the death of the fetus occurring after 24 weeks of gestation resulting in stillbirth.

3.2.2 Types

There are two main categories of still birth or intra uterine death.

1. Intra uterine death resulting in a fresh stillbirth
2. Intra uterine death resulting in a macerated baby.

3.2.2.1 Fresh Still Birth

This is intra-uterine death occurring just before delivery and is usually caused by accidents in labour such as;

- i. Cord prolapse, delay in second stage of labour ,prolonged labour and obstructed labour.

3.2.2.2 Macerated Still Birth

This is an intra -uterine death when the fetus lies for 12-24hours within the uterine cavity and it usually occur in most cases before the onset of labour.

3.2.3 General Causes of Intra Uterine Death

1. Severe anemia in pregnancy resulting in fetal hypoxia
2. Severe attack of malaria or any other cause of hyperpyrexia such as typhoid fever.
3. Dysenteries, example amoebic or bacillary dysentery
4. Small pox and other severe viral infections ,Syphilis
5. Placenta insufficiency resulting from severe pre-eclampsia, Eclampsia, Chronic vascular hypertension example is essential hypertension, Post maturity.
6. Diabetes mellitus
7. Congenital fetal abnormalities,
8. Rhesus incompatibility
9. True knots in the cord.

3.2.4 S & S Clinical Manifestation

1. Failure of pregnancy in progress as evidence by lack of increase in the size of the uterus. The breast may feel less heavy.
2. Absence of fetal movement. and fetal heart sound

3. A negative pregnancy test (usually ordered by the Doctor)
4. Spalding's sign.
5. Collapse of vertebral column of the fetus, diagnosed radiologically about 7-10days after fetal death.
6. Gas bubbles in the body..

3.2.5 Management

1. All cases of intrauterine death are referred to the Doctor. Usually nothing is done until confirmatory X-ray diagnosis has been made.
2. Patient is given medical induction of labour in the form of pitocin infusion or high dose of still boesterol to sensitize the uterus, before the action of oxytocin. Surgical induction is never used in this case.

In many cases, spontaneous labour occurs 2 or 3 weeks after fetal death.

3.2.6 Complication

Profuse hemorrhage from hypofibrinogenaemia four or more weeks after fetal deaths has occurred (very common.)

3.3 Polyhydraminios

3.3.1 Definition

Polyhydraminios which is often simply called Hydraminios has been defined as being a quantity of amniotic fluid which exceeds 1,500mls. The average volume of liquor in the latter half of pregnancy is between 500 – 1,500ml. The lower limit of normal is 500mls of liquor amni while the upper limit of normal is 1,500mls. In most cases, the excess fluid accumulates gradually (chronic hydramnios) and is only noticed after 30th week. In a few exceptional cases, hydramnios occurs earlier and more quickly (acute hydramnios) and many of these cases are associated with uniovular twins.

3.3.2 Aetiological factors

Hydramnios occur more often in multiparae than in primigravidae. The mechanism of production of liquor amni is not quite understood; consequently the pathophysiology of hydramnios is obscure. Certain maternal and fetal conditions are however known to be associated with hydramnios.

3.3.2.1 Causes

Most times unknown

1. Twin pregnancy particular uniovular twins.
2. Congenital fetal abnormalities, Open neural tube defect – anencephaly , spinal bifida
3. Oesophageal atresia,
4. Rarely -rhesus isoimmunization, chorioangioma of the placenta(rare)
5. Hydrops fetalis.
6. Maternal diabetes mellitus

3.3.3 Clinical Features Of Hydramnios

3.3.3.1 Acute Hydramnios

1. Occurs at about the 20th week & comes on suddenly.
2. The fundus reaches the xiphisternum in about 3-4 days.
3. Frequently associated with monozygotic twins.
4. Abdominal pain and vomiting in rare cases.
5. Dyspnoea & indigestion if the uterus is very much enlarged.
6. Abdomen is large than expected for the duration of pregnancy.
7. Abdominal muscle may be stretched and oedematous
8. Difficulty in feeling the fetal part and fetal heart sound may be muffled or inaudible.
9. Fetus is unusually mobile and presentation is unstable.
10. Oedema of the vulva

3.3.3.2 Chronic Hydramnios

1. It is gradual in onset, usually from about the 30th week of pregnancy.
2. It is the most common type.
3. There is gradual increase in abdominal girth.
4. There are signs of pain, dyspnoea and digestive discomfort in severe case.
5. Difficult in palpating the fetal part and fetal heart sound is inaudible.
6. Fluid thrill can be elicited.
7. Abdominal girth increases to about 100cm.
8. Ultrasound scanning

3.3.4 Effects on Pregnancy & Labour

1. Preterm labor
2. Cord presentation and prolapse.
3. Increased incidence of Caesarean section, mal-presentation may occur.
4. Antepartum hemorrhage – placenta abruption.
5. After delivery, there is risk of post partum hemorrhage.
6. Raised perinatal mortality

3.3.5 Management

There is no known method of controlling the production or absorption of amniotic fluid except that improved control in cases of diabetes may reduce the prevalence of hydramnios.

1. The woman may be admitted to a consultant obstetric unit. Subsequent care depends on condition of the woman, the fetus, the cause and degree of hydramnios and the stage of pregnancy. Hydramnios without symptoms and without any evidence of fetal abnormality requires no treatment.
2. An upright position will help to relieve any dyspnoea and antacid may be given to relieve heartburn and nausea.

3. In the presence of gross abnormalities labor should be induced. Some Obstetrician would draw off part of the liquor by abdominal amniocentesis before the induction.
4. Abdominal amniocentesis is particularly suitable in cases in which the pregnancy is not sufficiently advanced for safe induction but the patient is in discomfort.
5. Labour is usually normal but the midwife should be prepared for the possibility of post partum hemorrhages.
6. The baby should be carefully examined for abnormalities and the patency of the oesophagus ascertained by passing nasogastric tube.

3.3.6 Oligohydramnios

This means small volume of amniotic fluid. The quantity of amniotic fluid is markedly diminished, of less than 500ml and sometimes as less as 60ml.

Oligohydramnios is most often associated with poor placental function and fetal growth retardation. Severe Oligohydramnios is seen with obstructive lesions of the fetal urinary tract and with renal agenesis, if diagnosed in early pregnancy.

In some cases the cause is unknown. The fetus has little room to move and at times will cause compression deformities e.g. talipes and ankytosis of joints

3.3.6.1 Signs & Symptoms

- The uterus appears smaller than expected for the period of gestation.
- Reduction in fetal movement
- Intra uterine growth retardation.
- On palpation, the uterus is small and compact and fetal parts are easily felt.
- Ultrasound scanning will confirm diagnosis

3.3.6.2 Management

The woman may be admitted to hospital. Check the woman for the possibility of preterm rupture of the membranes by careful questioning.

When fetal abnormality is considered not to be lethal, or the cause of the Oligohydramnios is not known, prophylactic amnioinfusion with normal saline, Ringer's lactate or 5% glucose may be performed in order to prevent compression deformities.

Labour may be induced because of the possibility of placental insufficiency. Epidural analgesia may be indicated because uterine contractions are unusually painful with this condition.

Continuous fetal heart rate monitoring is desirable as fetus is prone to hypoxia.

3.4 Postmaturity (Prolonged Pregnancy)

3.4.1 Definition Pregnancy is said to be prolonged when it stays more than the normal duration. There is no definite accepted duration that can be regarded as normal but when pregnancy exceeds 294 days (42 weeks) as calculated from the 1st day of the last menstruation pregnancy is said to be prolonged because actual date of conception is not certain and not all fetuses mature at the same number of days. It occurs in about 10% of all pregnancies.

3.4.2 Causes

Unknown, but sometimes it runs in families. It may be related to race and geographical locations.

Effect on Mother

1. Has additional risk to those with obstetrical complications e.g. Hypertension eclampsia e.t.c
2. Predisposed to traumatic delivery -- Cesarean section, forceps and vacuum deliveries

Effect on the Fetus:

1. Placental insufficiency
2. Fetal distress resulting from fetal acidosis

3. Ossification of the skull bones – leading to less moulding and traumatic delivery.
4. Perineal death
5. Still birth

3.4.3 Diagnosis

1. By calculation from the last menstruation period.
2. Scrutiny of Ante Natal record to monitor fetal growth
3. First day of quickening is considered
4. Ultrasound – to assess size of the head
5. X-ray to see ossification of the lower femoral epiphysis (36wks) and upper tibia epiphysis (at term)
6. diminished liquor amni

3.4.4 Management

1. Each case is dealt with according to its special circumstances
2. Rule out case Cephalopelvic Disproportion (CPD)
3. Admission is necessary
4. Induction with Artificial Rupture of membrane (ARM) and Oxytocin
5. Caesarean Section: it is complicated by pre-eclampsia, infertility, elderly primip, oligohydramnios, fetal distress and failed induction (by 6hrs)
6. Prostaglandin E₂ gel can be injected into the extra uterine space or posterior Vaginal wall to ripen the cervix. This may be followed by another dose.
7. Forceps delivery may be necessary in second stage.

Midwives Role:

1. Ascertain expected delivery date ,Refer to Doctor at the ANC
2. In labor – careful monitoring of fetus, fetal heart Rate Contractions
3. Vital Signs during induction
4. The woman should lie on her side

5. Reassurance the woman.

3.4.5 Characteristics of Post matured Baby

1. Hard skull bones, small fontanelles and narrow sutures
2. Loose, dry and cracked skin
3. Long nails.

3.5 Multiple Pregnancy

When there is more than one fetus in- *utero* the term 'plural' or 'multiple' pregnancy is applied. Twins occur approximately once in about every 90 pregnancies, and the tendency is manifest in certain families.

3.5.1 Monozygotic (Uniovular)

Monozygotic or single ovum twins are known as identical twins because their physical and mental characteristics are so similar. They develop from one ovum which has been fertilised by one spermatozoon and are always of the same sex. They are definitely uniovular if they share one placenta and one chorion; a few have two chorions. There is a connection between the circulations of blood in the two babies. Finger and palm prints are identical in monozygotic twins.

Errors in development are more likely in monozygotic twins, so abnormal fetuses are more common: conjoined twins, usually known as Siamese, are uniovular in type- The perinatal mortality rate is higher than in dizygotic twins.

3.5.2 Dizygotic (Binovular)

Dizygotic or double ovum *twins*, which are three times more common than uniovular twins, develop from the fertilisation of two ova and two spermatozoa. The babies may or may not be of the same sex and their physical and mental characteristics can be as different as in any two members of one family. Dizygotic twin bearing is hereditary mainly *via* the mother. They each have a separate placenta and chorion, but, although the placentae may

fuse. Fetal circulations do not mix. The differentiation between monozygotic and dizygotic twins at birth is not always easy, because some monozygotic twins have two chorions.

If the babies are of different sexes or have two separate placentae, they are definitely dizygotic. But sometimes the two zygotes embed close to each other so that the placentae fuse and appear to the naked eye to be one single placenta. In that case, if the sex of the babies is the same, diagnosis is made by examination of the membranes of the fetal sac, in dizygotic twins two chorions are present.

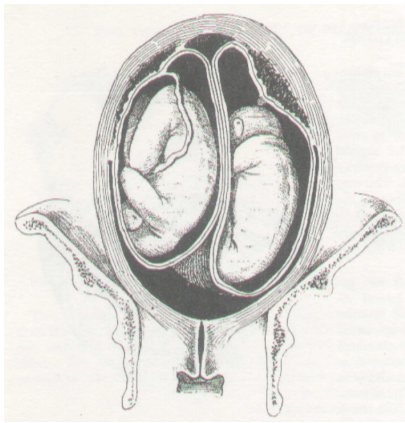


Figure 3.1

Monozygotic Or Uniovular

One ovum.

One spermatozoon.

One placenta.

One chorion (*a few have two*).

Two amnions.

One sex.

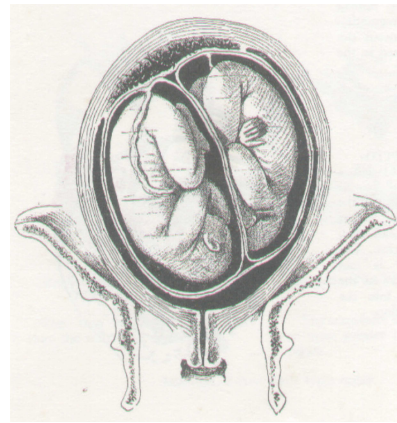


Figure 3.2

Dizygotic Or Binovular

Two ova.

Two spermatozoa

Two placentae (may fuse)

Two chorions

Two amnions

One or two sexes

Very occasionally one fetus may die and be retained *in utero* until term when it will be expelled with the placenta as a flattened paper-like fetus—a fetus papyraceous. Although twin babies are as

a rule small and often preterm, ranging from 2260g to 2720g, normal weights are not uncommon; the author having seen twins weighing 4060g and 3960g; 4340g and 4300g.

3.5.3 Diagnosis of twins

The diagnosis of twins is not always easy in primigravidae with firm abdominal walls, or in obese women, and experienced doctors and midwives may not always detect them. The period of gestation is also difficult to assess.

An ultrasonic scan will demonstrate two heads at 15 weeks; two gestational sacs have been seen at eight weeks. X-rays may be used after the 30th week.

Twins may first be diagnosed by finding the uterus large and the fundus well above the umbilicus after the birth of the first baby.

On inspection

Suspicious is aroused when the uterus is unduly large for the period of gestation after the 20th week. The uterus looks round or broad and fetal movement may be seen over a wide area, but this is not diagnostic. At term, a woman of average build has an abdominal girth of about 100cm. the possibility of polydramnios must be considered, and it can be present in conjunction with or independent of twins, but palpation should help to conclude the diagnosis.

On palpation

Finding two heads is diagnostic. If one fetus lies in front of the other, it may not be easy to detect two heads or two backs. Should the fetal head seem small in comparison with the size of the uterus this rather suggests the presence of two fetuses. Excessive fetal parts might make one suggest that twins were present.

Auscultation

Hearing two fetal hearts is not a reliable method of diagnosis because with a large, vigorous fetus, the fetal heart can sometimes be heard over a wide area.

3.5.4 The Effect of Twins on Pregnancy

Pre-eclampsia is more common than in single pregnancies.

Polyhydramnios. Acute polyhydramnios is invariably associated with uniovular twins, the usual outcome being abortion.

Anaemia develops because of the increased fetal demands for iron:

The minor disorders and general discomforts of pregnancy are more pronounced: morning sickness, nausea and heartburn are more persistent.

Pressure symptoms due to the weight and size of the uterus may be troublesome,

(a) The tendency to oedema of the ankles and varicose veins is increased because of pressure on the veins returning blood from the lower limbs,

(b) Dyspnoea and indigestion are more marked: backache is common.

Management of Pregnancy

As soon as twins are diagnosed a close check should be kept on the mother's haemoglobin and advice given regarding foods rich in iron.

Ferrous preparations are usually prescribed and vitamin supplements are essential. The woman should drink at least 1200 ml of milk daily to prevent her calcium reserves from being depleted.

Her protein intake must be adequate.

In order to detect pre-eclampsia which is three times more common in multiple pregnancy, the woman is seen weekly from the time twins are diagnosed about the 20th week.

To relieve the discomfort of a heavy uterus, a good supporting maternity belt will be appreciated.

Extra pillows are needed for sleep, as the woman feels more comfortable when propped up. Adequate rest is essential during the last 12 weeks to increase uterine blood flow.

The woman may be admitted to hospital from the 30th to the 36th week to avoid preterm labour by providing rest, and to improve her nutrition. She should not be permitted to go beyond term but many go into labour prior to then.

3.5.5 The Effect of Twins on Labour

Although, multiple pregnancy may not be regarded as abnormal in itself, many complications that endanger fetal and maternal life do arise. Labour is often preterm: the babies tend to be light for date even when at term.

The perinatal mortality rate is higher than in single births. The mortality rate of the second twin is twice that of the first, and this may be due to reduction in the placental circulation and partial separation of placenta following the birth of the first twin.

Malpresentation is more common. For these reasons hospitalization for delivery is advocated.

The Management of Labour

Heavy sedation should be avoided.

Epidural analgesia may be use.

If delay occurs due to hypotonic uterine action after the delivery of the first twin an oxytocin drip may be given after puncture of the membranes and kept running until one hour after both babies and placenta are delivered.

Preparations should be made for the reception of two immature babies, who may show signs of asphyxia or intracranial injury.

Woman should be observed for signs of shock due to sudden reduction in abdominal pressure.

Active Treatment

The woman may be more comfortable in the dorsal position with additional pillows.

Perineal infiltration or pudendal nerve block is commonly employed and an episiotomy is made *in an endeavour to lower the high perinatal mortality rate.*

The airway of the first baby is cleared. The cord should be ligatured in two places, for although the placental end of the cord is tied or clamped at every delivery, it is because of the possibility of undiagnosed monozygotic twins that this is done. The first baby, after being marked No. 1, is laid in a warm cot and the midwife keeps her *'ear and eye on it.*

The abdomen is palpated without delay to ensure that the lie of the second twin is longitudinal. Presentation and position are diagnosed, but are of less importance: the fetal heart is listened to. The midwife stands by. She will closely observe the uterus, probably keeping her hand lightly on it to detect uterine contractions. The fetal heart should be checked frequently.

With three or four good contractions and the woman pushing effectively the second baby ought to be born. But if, when 5 minutes have elapsed, contractions have not recommenced, the midwife should scrub up and after making sure that the head or the breech is presenting she should puncture the bag of membranes and massage the uterus to stimulate uterine action. The second baby should be born within 15 minutes after the first baby.

Ergometrine, 0.5mg or Syntometrine, 1ml, should be given intramuscularly as soon as both placentae are born to prevent postpartum haemorrhage. If Syntometrine is given inadvertently after the birth of the first baby, the second baby must be expelled immediately by fundal pressure. Midwives must always remember the possibility of an undiagnosed twin when they administer Syntometrine during the actual birth of a baby. The woman should not be left until at least two hours after the birth of the placentae and to ensure sleep a sedative is given.

Avoid unnecessary delay in the delivery of the second as this may result in:

The fetus in utero may die of anoxia should the placenta separate.

The risk of sepsis is increased when the cord is lying outside the vulva.

The cervix closes to a certain extent and will have to dilate again. Having ensured that the lie is longitudinal, the doctor will probably puncture the membranes, and give an oxytocin drip, when the uterus begins to contract he may apply forceps or use the Malmstrom vacuum extractor.

The expulsion of a placenta or bleeding before the birth of the second twin gives warning that the placenta still in- utero may also be separating and causing hypoxia of the unborn twin; in which case, the midwife should massage the uterus and expel the second twin as soon as possible by using fundal pressure. (The usual sequence of events is for both babies to be born and then the placentae).

Locked twins are very rare indeed, and the most serious variety occurs when the first fetus is presenting by the breech and the head of the second fetus which is presenting by the vertex gets in front of the after coming head of the first baby. The heads become impacted and decapitation of the head of the first baby is usually necessary.

Management of the Puerperium

Involution of the uterus may be slow; after pains are more troublesome. The care of the babies is a most urgent problem, as the number of twin babies who die is alarmingly high, the smaller one may be light for date. The mother will need help and advice in regard to feeding, and should not be discharge from hospital until the babies are gaining weight satisfactorily.

4.0 Conclusions

Some conditions that affect the health of the woman during pregnancy are directly related to the pregnancy itself. They add more risk to the mother and the fetus while some lead to greater emotional and financial difficulties e.g. multiple pregnancy. Early diagnosis of these conditions prevents the serious effect on the pregnancy, labour and puerperium. Women with previous history

of these conditions must register early and pay more visits to the clinic for close monitoring of their condition.

5.0 Summary

In this unit we learnt about some pregnancy related conditions. We were made to understand that dizygotic twins are the most common and black race has the highest prevalence. Multiple pregnancy is classified into mono and dizygotic twins, diagnosis and management in pregnancy and labour. Pregnancy induced hypertension include pre-eclampsia which the diagnosis in high blood pressure of 140/90 mmHg ,proteinuria and oedema or any one or two of this cardinal conditions in two separate occasions. Polyhydramnios predisposes the women to post partum hemorrhage. All these conditions can be well controlled during pregnancy with thorough examination during pregnancy , prompt and proper management.

6.0 Tutor Marked Assignment

- Distinguish between monozygotic and dizygotic twins
- Enumerate the causes of intra uterine death

7.0 References

- Baker N.P. and Holmes D. (2006) Midwifery by Ten Teachers, International Students' Edition holder and Arnold , New York.
- Fraser D.M. Cooper M.A. and Nolte A.G.W. (2006) Myles Textbook for Midwives, African edition.London.

Unit 13: Medical Conditions in Pregnancy

- 1.0 Introduction
- 2.0 Objective
- 3.0 Main Content

- 3.1 Pulmonary Tuberculosis in Pregnancy
 - 3.1.1 Treatment
 - 3.1.2 Labour
- 3.2 Cardiac Diseases
 - 3.2.1 Classification
 - 3.2.2 Aetiology
 - 3.2.3 Management
- 3.3 Anaemia in Pregnancy
 - 3.3.1 Anaemia
 - 3.3.2 Anaemia in Pregnancy
 - 3.3.3 Physiological Anaemia In Pregnancy
 - 3.3.4 Nutritional or Pathological Anaemia in Pregnancy
 - 3.3.5 Folic Acid Deficiency Anaemia
 - 3.3.6 Sickle Cell (Disease Anaemia in Pregnancy)
- 3.4 Malaria in Pregnancy
 - 3.4.1 Definition:
 - 3.4.2 Causes
 - 3.4.3 Sign & Symptoms
 - 3.4.4 Pathophysiology
 - 3.4.5 Treatment
 - 3.4.6 Effects of Pregnancy on Malaria
 - 3.4.7 Prevention Malaria
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment
- 7.0 References

1.0 Introduction

In unit one, we discussed psychological conditions and in unit 2 pregnancy related conditions that complicate pregnancy. In this unit we shall examine those disease conditions that affect pregnancy. These are anemia, malaria and sexually transmitted diseases, cardiac diseases and tuberculosis

2.0 Objective

At the end of the lesson you will be able to

- Screen out women with anaemia in pregnancy
- Educate mothers on good nutrition
- Counsel women on precautionary measures to prevent malaria
- Treat common diseases in pregnancy like malaria, tuberculosis
- Manage women with cardiac diseases in pregnancy and labour
- Apply the principle of health promotion to enhance the health of affected mother in pregnancy.

3.0 Main Content

3.1 Pulmonary Tuberculosis in Pregnancy

It is often aggravated by pregnancy, especially when no adequate care and nutrition is given. The woman appears to be improved in pregnancy, because the growing fundus presses on the diaphragm and splint the lung as a pneumothorax.

Diagnosis - Loss of weight, night sweat, coughing and X-ray confirms the diagnosis.

3.1.1 Treatment

Early detection and treatment is very important.

Colapse treatment till 36weeks.

X-ray chest for all expectant mothers.

TB has very little effect on pregnancy, nor is the baby usually infected in utero.

Constant supervision is necessary.

Treat anaemia.

In very advanced cases, especially if the home conditions are poor, a therapeutic abortion may be performed before the 12th week.

3.1.2 Labour

1. Sedation producing the maximum amount of rest.

2. Short 2nd stage; strenuous pushing must be avoided. Give episiotomy, and forceps or inhalation of nitrous oxide.
3. Bleeding must be minimized.

Puerperium

1. Isolation in the hospital or send her to a sanatorium in active Stage.
2. Collapse therapy to be continued.
3. Fresh air good nutrition and prolonged rest. Baby should be isolated from the mother.
4. Give BCG vaccination.

If Mantoux test is not positive in three months, BCG must be repeated or given according to the schedule.

Prognosis; TB is a social and economic problem. Although woman may give birth to two or three children without deterioration in her condition, but the hard work involved in child-rearing may prove to be even more detrimental than child-bearing. So it maybe desirable that she avoids many pregnancies.

3.2 Cardiac Diseases

During pregnancy, certain changes occur in the cardiovascular system in order to meet the increase demands of the fetoplacental unit thus increasing the workload of the heart. This begins in early pregnancy until the 30th – 32nd week when they are maintained until term. These changes include:

- i. Increased cardiac output ,Increased blood volume ,Decreased peripheral resistance

3.2.1 Classification: There are four grades

- i. No symptoms during ordinary physical activity.
- ii. Symptoms during ordinary physical activity
- iii. Symptoms during mild physical activity
- iv. Symptoms at rest.

It describes the extent of the immediate problem but has little predictive value.

Signs And Symptoms: Breathlessness, oedema, irregular pulse, unexplained tachycardia, palpitation, cough, anaemia, loss of energy.

3.2.2 Aetiology: The lesions encountered in a patient with heart disease include mitral stenosis, mitral valve and aortic valve incompetence, congenital heart disease, and cardiomyopathies.

Risk to Fetus:

Growth retardation, fetal loss, increased incidence of congenital heart disease.

Risk to Mother:

Predisposes to bacterial endocarditis, thrombo embolism unless given anticoagulants, increase incidence of death especially with acquired heart disease.

3.2.3 Management

Pre-Conception

- Patient should see cardiologist before getting pregnant.
- The patient should be helped to control obesity, cut down smoking and choose diet that will prevent anaemia.
- Family size should be limited as risk increases with each pregnancy.

Ante Natal Care

- a. **Diagnosis:** early diagnosis to aid prompt management.
- b. **Assessment** of the problem and its prognosis is done ,depending on results.
 - If there is no evidence, follow up is not necessary.
 - With mild lesion, the patient may not be affected but prophylactic antibiotics cover in labour is necessary.
 - With significant lesion, the future of the pregnancy needs to be discussed with counseling. If the woman can cope, caesarian section may be done at 37 weeks.
- c. **Physical care:** Depending on severity, antenatal visits should be made more frequent than usual.
 - In late pregnancy, activities should be restricted or she should be admitted.

- Admission is necessary in grades 3 and 4,
 - Complete bed rest is of utmost importance.
 - All sources of sepsis should be eliminated to reduce risk of endocarditis.
 - Intake and output fluids should be maintained
 - Early ultra-sound scanning (USS) examination of fetus to confirm gestational age and congenital abnormalities; to assess fetal growth, monitor fetal heart rate.
- d. **Social care:** This involves arrangement for transportation and home help services.
- e. **Psychological Care:** Psychological support should be given especially with admission to hospital and separation from family.

3.3 Anaemia in Pregnancy

3.3.1 Anaemia : It is the reduction in the Oxygen carrying capacity of the blood. It is the reduction in the quantity and quality of the red blood cells and haemoglobin levels.

3.3.2 Anaemia in Pregnancy: It is a condition in pregnancy in which the hemoglobin level is less than 11g/dl and packed cell volume is less than 33%. Anaemia in pregnancy is a common cause of maternal mortality

There are 2 types of anaemia in pregnancy

Physiological

Nutritional or pathological

3.3.3 Physiological Anaemia in Pregnancy

During pregnancy, the maternal blood tries to compensate for the blood being used by the fetus from the mother thereby causing increase plasma volume of the maternal blood which gradually increases by 50%. This usually occurs in the mid-trimester.

Also, there is increase in red blood cells towards the later part of pregnancy to about 25%. This results in haemodilution (which is an increase of plasma in the blood in proportion to the cells) which causes fall in haemoglobin concentration. These physiological

changes are not pathological but are necessary for the development of the foetus in pregnancy.

3.3.4 Nutritional or Pathological Anaemia In Pregnancy

During pregnancy, approximately 1500mg of iron is needed for the increase in maternal hemoglobin (400-500mg) the fetus and placenta (300-400gm) replacement of daily loss through stools, urine and skin (250mg) replacement of blood loss at delivery (200mg). About 95% of pregnant women with anaemia have the iron deficiency type.

Causes

1. Reduced intake or absorption of iron as a result of iron deficiency in diet and gastro – intestinal disturbances (as in morning sickness).
2. Withdrawal of iron by fetus
3. Folic acid deficiency resulting from haemolysis, malaria , hemoglobinopathy, inadequate intake ,malabsorption of folic acid
4. Excess demand due to multiple pregnancy, multiparty, chronic inflammation especially urinary tract infection.
5. Hemorrhage, antepartum or post partum hemorrhage, hookworm.

Signs and Symptoms

Mother

Pallor of mucus membranes

Lassitude (always tired) Fainting, Dyspnoea, Tachycardia and palpitations

Reduced resistance to infection – Puerperal sepsis

Potential threat to life.

Fetus/Baby

Increase risk of abortion

Increased risk of intrauterine hypoxia and growth retardation

Preterm birth, Low birth weight

Increased risk of perinatal morbidity and mortality

Management

1. Good ante-natal care
2. Intake of diet rich in iron, diet rich in protein, minerals and vitamins
3. Reduce workload and stress. Encourage rest
4. Early recognition and treatment for anaemia .
5. Drugs/medication
 - Ferrous sulphate – 200mg tab b.d or t.d.s
 - Ferrous gluconate - 300mg tab 1.e 2 tab b.d
6. Blood transfusion might be given to treat severe anaemia.
7. Treatment for worm if present.

3.3.5 Folic Acid Deficiency Anaemia

It is a type of anaemia in pregnancy which there is a physiological disease in serum folate levels which occurs towards the end of pregnancy.

Causes

1. Reduced dietary intake
2. Threaten abortion
3. Interference with utilization e.g. drugs like anti conversant
4. Excessive demand and loss as in multiple pregnancy

Investigations

Packed cell volume, Full blood count

Signs and Symptoms

pallor, lassitude, weight loss, depression, nausea and vomiting, glossitis, gingivitis, diarrhoea.

Management

1. Folic acid therapy: 5mg orally daily
2. Encourage diet rich in folic acid e.g. green vegetable, bananas, citrus fruits, pears, peanuts.
3. Ensure adequate rest.

3.3.6 Sickle Cell (Disease Anaemia in Pregnancy)

Sickle cell disorders are found most commonly in people of African or west Indian origin.

In this condition defective gene produce abnormal haemoglobin beta chains: the resulting Hb is Hb SS.

Sickle Cell Anaemia: Sickle cells have an increased fragility and shortened life span of 17 days resulting in chronic haemolytic anaemia and causing episodes of ischaemia and pain; these are known as sickle cell crisis. Women with sickle cell anaemia may be subfertile but those who do become pregnant may already have organ damages.

Precipitating Factors to Crisis;

Psychological stress, cold climate, extreme temperature changes, smoking , induced hypoxia, strenuous physical exercise, fatigue, respiratory disease and pregnancy.

Signs and Symptoms

Jaundice, Anaemia, fatigue, joints pain, epigastric pain, vomiting, abdominal tension, splenomegally, hepatomegally, pyrexia.

Effect On Foetus

1. Risk of early abortion
2. premature birth
3. Intra uterine death

Effect on Mother

1. Low immunity.
2. Risk of embolism

Ante Natal Care

1. Refer to bigger hospital with better equipments for care
2. Regular monitoring of haemoglobin level
3. Anti-malaria therapy
4. Folate supplements
5. Blood transfusion every 6 weeks if necessary.
6. Advise woman to avoid situation that will precipitate a crisis.
7. If crisis occurs, admit patient, rehydrate, treat infection, relief pain, give oxygen therapy and blood transfusion.

3.4 Malaria in Pregnancy

3.4.1 Definition:

Malaria is a parasitic infection which is carried by mosquitoes and is the commonest cause of pyrexia in many parts of the tropics. It is a serious disease but it is preventable.

3.4.2 Causes:

It is caused by plasmodium parasites which are of 4 species:

- i. Plasmodium Malariae, Plasmodium ovale, Plasmodium Vivax and Plasmodium Falciparum

In Nigeria, Plasmodium falciparum is the chief cause of malaria in adult. The vector is female Anopheles mosquito.

3.4.3 Sign & Symptoms

- i. Fever which may be very high
- ii. Rigors and sweating are common
- iii. Headache and generalized malaise
- iv. Gastro-intestinal disturbance e.g. vomiting and diarrhoea
- v. Jaundice in cases of excessive haemolysis
- vi. Anaemia

3.4.5 Treatment:

Admit the patient and put her on bed rest. Take observation i.e. the temperature, pulse and respiration and Blood Pressure. In case of pyrexia, expose the patient, tepid sponge or fan the patient. Check the packed cell volume and do grouping and cross matching should in case she would need transfusion. If there is loss of appetite, give light nourishing fluid diet. Give prescribed anti malaria drugs e.g. chloroquine 4:4:2 and give accompanying haematinics and vitamins supplement. Give psychological care to allay patient's fear and explain cause and course of treatment. Teach the patient how to prevent re-occurrence. Advise on discharge:

- Use of mosquito net, cut surrounding bushes, drain gutters and washes regularly.
- Avoid stagnant water and, use daraprim.

3.4.6 Effects of Pregnancy on Malaria

Pregnancy has effect on malaria by decreasing acquired immunity to malaria mostly in 1st pregnancy but subsequent pregnancies do not.

Effects of Malaria on Pregnancy

- Hyperpyrexia caused abortion or premature labour or intrauterine death or macerated fetus
- Rapid destruction of red blood cells will cause haemolysis that lead to development of folic acid deficiency anaemia and jaundice.
- It causes parasitization of placenta,placenta insufficiency which leads to delivery of low birth weight babies.
- Splenomegaly
- Delirium,Convulsion,Coma.

3.4.7 Prevention of malaria:

- i. Cutting of surrounding bushes
- ii. Use of mosquito treated net
- iii. Drawing and washing of gutter
- iv. Regular dusting of rooms
- v. Disinfection of pool
- vi. Use of insecticides
- vii. Prophylactic anti-malaria drugs

4.0 Conclusion

Medical conditions complicate pregnancy and make management difficult. They do not only increase the morbidity rate for the mother, but result in placental insufficiency which may lead to abortion, premature labour and low birth weight sequentially. It may also pose as a threat to life. Education on diet and health promotion in general can go a long way to prevent the conditions. Midwives must encourage mothers (husbands inclusive) to attend mother craft classes during pregnancy.

5.0 Summary

This unit has discussed the following; that malaria is a parasitic infection transmitted through mosquito bites. Anaemia is serious hazardous conditions in pregnancy that causes placental insufficiency. The physiological anaemia has no health effect while the pathological anaemia has effect on the health of the mother and baby. Sickle cell is a major cause of anaemia in the affected people because of the shape and the short life span of the RBC. Cardiac diseases are classified into groups according to the symptoms presented. Early diagnosis of these conditions aids effective management

6.0 Tutor Marked Assignment

- Explain five conditions that promote malaria infestation during pregnancy
- Enumerate the effects of anaemia on pregnancy

7.0 References

- Fraser D.M. Cooper M.A. and Nolte A.G.W. (2006) Myles Textbook for Midwives
- Ojo O.A. and Briggs E.B. (2006) A Textbook for Midwives in the Tropics. 2nd ed. Jaypee Brothers Ltd. New Delhi

Unit 14: Malpresentations/Positions

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Breech Presentation
 - 3.1.1 Various types
 - 3.1.2 Causes

- 3.1.3 Diagnosis
- 3.1.4 Management
- 3.1.5 Dangers of Breech Presentation
- 3.2 Occipito Posterior Position
 - 3.2.1 Right Occipito-Posterior Position-Long Rotation
 - 3.2.2 Persistent Occipito posterior position short-rotation
 - 3.2.3 Brow presentation
 - 3.2.4 Face presentation
- 3.3 Abnormal Uterine Action
 - 3.3.1 Definition:
 - 3.3.2 Types:
- 3.4 Transverse Lie/ Shoulder Presentation
 - 3.4.1 Causes:
 - 3.4.2 Diagnosis
 - 3.4.3 Management
 - 3.4.4 Unstable Lie
 - 3.4.5 Compound Presentation
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment
- 7.0 References

1.0 Introduction

Progress in labour is dependant on the three variables: the powers, that is, efficiency of uterine contraction, the passenger: that is, the fetus with respect to its size, presentation and positions and the passages: that is uterus, cervix and the bony pelvis.

Abnormalities in one or more of these factors can slow down the progress of labor. In this unit we are going to examine these abnormal presentations and their effect on the course of labour.

2.0 Objectives

At the end of these lectures you will be able to

- Outline the types of abnormal presentation and positions.
- Identify the causes.
- Make accurate diagnosis
- Manage the conditions effectively.
- Describe the possible outcomes.

3.0 Main Content

3.1 Breech Presentation

Presentation is said to be breech when the buttocks occupy the lower pole of the uterus.

It is the commonest type of all mal-presentations. During the first trimester the fetus usually presents mainly by breech. As pregnancy advances spontaneous version occurs:

At 20weeks	40% are breech
At 28weeks	15% are breech
At 34weeks	6% are breech
At 40weeks	3% are breech

Mostly by 34th week over $\frac{3}{4}$ of the baby who previously presented by the breech have undergone spontaneous cephalic version in singleton.

Breech is most common in premature births and multiple pregnancies. Common causes of dystocia and a major cause for caesarean section.

Positions of Breech

1. Left Sacro-Anterior ; LSA
2. Right Sacro-Anterior; RSA
3. Left Sacro-Posterior ;LSP
4. Right Sacro-Posterior ; RSP
5. Left Sacro-Lateral ; LSL
6. Right Sacro-Lateral ; RSL

3.1.1 Various types

1. Complete or full Breech

In this type the fetus lies in attitude of complete flexion, the thighs and legs are both flexed and the head is well flexed on the chest.

The presenting part is therefore bulky consisting of buttocks external genitalia and both feet.

Incomplete Breech

2. Frank Breech/extended Breech

In this type the breech presents with the thighs flexed and the legs extended on the fetal abdomen - common type (70%)

3. Footling Breech

Rare; 25% of breech

In this type both legs or one leg is fully extended at the knee but partially extended at hip

4. Knee presentation

The knee is flexed while the thigh is extended at the hip. In frank Breech the buttocks fit the cervix accurately and cord prolapse is uncommon, but may not in other types. The hands may be extended above the head during labour

3.1.2 Causes

1. mostly unknown
2. conditions that favour Breech presentation include
 - a. contracted (brim) pelvis
 - b. placenta praevia
 - c. pelvic tumors – fibroids
 - d. grand multiparity , polyhydramnios
 - e. abnormal uterus – bicornate uterus

Fetal causes

1. prematurity
2. fetal abnormalities – anencephaly and hydrocephaly
3. multiple pregnancy –twins
4. intrauterine death.

3.1.3 Diagnosis

It is very important to diagnose Breech pregnancy before 34 weeks so that version may be attempted between 32 and 36 weeks. But 25% are not detected until during vaginal examination in labour

In pregnancy:

On inspection:

The abdomen looks normal except in Frank breech when the abdomen looks long and narrow

On Palpitation

The breech is felt as soft irregular mass in the lower pole of the uterus – better detected by policks' grip, while the head is felt as hard ballotable mass in the fundus. But when the legs are extended the head is less mobile.

On Auscultation

The fetal heart sound is usually heard above the umbilicus or at the level if the buttocks are engaged

In cases of doubt X-ray of abdomen or ultrasound scan may be done

In Labor

On vaginal examination

Soft irregular mass is felt. The external genitalia, the ischial tuberosities, the sacrum and the coccyx may also be felt.

The anterior buttocks are felt 1st and separated from that of posterior by genital organs.

The absence of legs and feet will confirm the diagnosis of extension of legs. The Breech is sometimes confused with face particularly if the part (face) is oedematous. If the examining finger is inserted into the anus it will be gripped by the anal sphincter and the finger will be meconium stained. Diagnosis may be difficult in primigravidae with firm muscle of the abdominal wall or uterine irritability.

3.1.4 Management

In pregnancy

Because of high fetal loss associated with breech delivery external version should be done at 32 -36 weeks. Before 32 weeks the fetus can revert back to breech. After 36 weeks the manipulation is difficult to accomplish due to less room and reduced liquor amni. If the correction fails the breech should be left alone.

All cases of breech should be referred to doctor to perform version. Regardless of parity all cases of breech should be delivered in the hospital to reduce the fetal mortality. Caesarean section is the method of choice in the delivery of breech in recent years to avoid damages to the baby e.g. fracture, intracranial injuries.

Management of Breech Presentation in Labor

Immediately a woman is admitted in labor with breech, the doctor should be informed; all cases of breech should be delivered in the hospital.

First Stage

The usual normal management for cephalic presentation is done. But her cooperation is greatly needed in his case because she has to push the baby out. So the midwife needs to be patient, never to rush to deliver the baby until the cervix is fully dilated. She must be ready to receive an asphyxiated baby and resuscitate the baby. Vaginal examination should be made early in labour to confirm the presentation, position and that the pelvis is adequate in size.

A second vaginal examination is mandatory when the membranes rupture to: exclude prolapse of the cord, and to know if the breech is complete or incomplete.

Sedation could be given as the labor is likely to be prolonged. The woman should be prevented from pushing prematurely, until the buttocks appear at the vulva. If she pushes through undilated cervix the labour may be delayed after the delivery of the shoulders. She should be encouraged to breathe through her mouth if she has the urge to push.

Second Stage

A vaginal examination must always be made to confirm full dilation of the cervix before the patient is allowed to push. With the appearance of the anterior buttock at the vulva the patient is placed in a lithotomy position at the edge of the bed. Knees flexed and abducted to allow the body to hang. The bladder is catheterized to make sure the bladder is empty. The vulva is swabbed and sterile drapes are put on. Having done that, the woman is encouraged to bear down with each contraction. With this the buttocks will advance well and be expelled from the vulva followed by the legs the rest of the body is delivered using Burn's Marshall Maneuver (the midwife may perform a medio-lateral episiotomy to give more room.

Complications that may arise :

Extended legs. This can be delivered using the Pinead's method.

Extended hands. This can be delivered using the Lovset's Maneuver.

Extended head. This can be delivered using the Mauriceau-Smellie Veit's Method

3.1.5 Dangers of Breech Presentation

Mother:

1. prolonged labour,severe lacerations,infections
2. post partum hemorrhage due to atony of the uterus ,anemia
3. retention of urine – due to laxed sphincter muscle

Baby:

1. asphyxia due to
 - a. Compression of the cord
 - b. Early separation of placenta as a result of fundal pressure
 - c. Cord prolapse
2. Intral Cranial Injury
Hemorrhage. This is the most common cause of death

3. Other injuries

- a. Erb's Palsy – due to damage to the brachial plexus
- b. Fracture of Humerus – extended arm
- c. Fracture of Femur – extended legs
- d. Rupture of the liver and internal organs due to increase rough handling of the body

3.2 Occipito Posterior Position

3.2.1 Right Occipito-Posterior Position-Long Rotation

Although the vertex is a normal presentation, the course of labour can border on the abnormal when the Occipito occupies a posterior instead of an anterior part of the pelvis.

Diagnosis of (Right Occipito-Posterior)

Abdominal Examination

On inspection there is a saucer-shaped depression at or immediately below the umbilicus, the high head with the depression above it looks rather like a full bladder.

On palpation: the head is high

The head feels unduly large; this is due to the larger circumference of the deflexed head.

The occiput and sinciput are on the same level.

The back is difficult to palpate because it is placed well out on the right side.

Limbs are felt on both sides of the midline.

On auscultation the fetal heart beat will be located in the right flank, somewhat muffled as the muscles there are thick. It may also be heard in the midline near the umbilicus or slightly to the left.

Diagnosis during labour

Posterior position should be suspected where there is no disproportion and a vertex presentation is held up at the brim in spite of good uterine action.

On vaginal examination: locating the anterior fontanelle to the left anterior is diagnostic of an R.O.P. The sagittal suture will be in the right oblique diameter of the pelvis... The large caput may make identification of sutures and fontanelles difficult

Outcome of Labour

Long internal rotation of the head commonly takes place and the baby is born normally.

Short internal rotation of the head takes place and the baby is born face to pubes.

Deep transverse arrest of the head occurs in the pelvis which has projecting ischial spines that inhibit forward rotation of the head.

Labour may be prolonged because larger diameters of the skull present, the deflexed head does not dilate the cervix effectively.

The necessity for interference is greater. Epidural analgesia may be used for backache.

Rotation of the head may have to be assisted manually or by forceps; application of forceps is frequently required because of delay in the second stage, or on account of fetal or maternal distress.

The fetal mortality and morbidity rates are higher because of intracranial injury and hypoxia.

Summary of Clinical Features

The head descends slowly, even when there are good contractions.

The uterine contractions are sometimes weak. Dilatation of the cervix is retarded.

The membranes usually rupture early.

Backache is frequently complained of.

Difficulty in micturition is common.

The urge to bear down at the end of the first stage is especially great, probably because the occiput is pressing on the rectum.

Nursing care

Although only 10 per cent of these patients will have a prolonged or difficult labour, such a possibility should be anticipated in every case so that further complications can be averted. Additional nursing care, including observation of the maternal and fetal conditions will be necessary.

3.2.2 Persistent occipito posterior position short-rotation

The occiput points to the sacro-iliac joint, left or right. In this condition, the occiput fails to rotate forwards. Instead the sinciput takes the lead reaching the pelvic floor first and rotates forwards. The occiput goes into the hollow of the sacrum and the baby is born facing the pubic bone – face to pubis

Causes

- failure of the head to flex
- small head with a large pelvis
- anthropoid pelvis favours it

Diagnosis

- head is slow to engage
- fetal heart sound is heard in the flank or midline above the umbilicus
- delayed second stage
- large caput succedaneum
- the pinna of the ear is pointing to the maternal sacrum, is indicative of posterior position
- Excessive bulging of the anus and the perineum due to the biparietal diameter descending the perineum instead of the bi-tempora
- At birth, the sinciput appears first under the symphysis pubis

Management

You should allow the sinciput to engage as far as the root of the nose, and then maintain flexion by restraining it from escaping. Allow the occiput to sweep the perineum and be born. Then grasp the head and extend it and bring the head down under the symphysis pubis because of the large diameter it may be necessary you give episiotomy. After observe the perineum for tear (bottle neck tear)

Complication:

- 3rd degree tear, Intracranial hemorrhage, Excessive moulding

3.2.3 Brow presentation

In brow presentation the head is partially extended it is very rare and diagnosis is ever made until the woman is in labour.

Diagnosis

- A depression is felt between the fetal head and the back
- Presentation part is high
- Head is unduely large
- Cephalopelvic disproportion (CPD) may be present.
- On Vaginal examination (VE) the examining fingers fell the orbital ridge, anterior fontanelle
- Baby has large caput succedaneum

3.2.4 Face presentation

Face present when the attitude of the head is that of complete extension. The occiput of the fetus is in contact with the spine.

Causes

- Anencephaly, Contracted pelvis, Occipito posterior position, Pendulous abdomen
- Polyhydramnious , Congenital abnormalities- tumour of the fetal neck(rare)

Diagnosis:

Abdominal palpation may not detect the presentation during pregnancy or early labour

Because of the bulk presenting parts. However the following points may guide the midwife to make the diagnosis;

- Fetal sound is too loud at the same side as the limbs.
- On V.E. the chin orbital ridges, malar bone ,bridge of the nose may be felt.

- Ultra sound scanning, x-ray at 34 weeks confirm diagnosis.

Progress in labour

Mechanism of labor is not possible due to large diameter of 13.8 descending the perinum. Spontaneous delivery is rare except when the baby is extremely small. Usually cesarean section is the mode of delivery. Sometimes the brow is converted to another presentation like face or vertex presentation by vaginal manipulation under anesthesia

Complication

Same as face presentation

3.3 Abnormal Uterine Action

3.3.1 Definition:

This is an upset in the normal uterine action – lack of polarity.

Causes:

1. Mostly unknown
2. Predisposing factors;
 - a. Psychological influence – fear
 - b. Disproportion and malpresentation/Malposition e.g. Breech, occipito posterior position.
 - c. Parity: there is always more resistance in first pregnancy – Primigravida and lasity in the uterine muscle tones in multiparous women can also give rise to poor neuro-muscular reflex.
 - d. Age: Common in elderly primigravidae than in young primips.
 - e. Maturity of the pregnancy: Failure in the formation of the lower uterine segment.
 - f. Uterine over-distension as in Twins and polyhydramnios .

3.3.2 Types:

1. Hypotonic Uterine Action – Uterine Inertia

This term is used when the uterine contractions are weak, short lived (duration), infrequent, irregular and shallow. The contractions are less painful and the uterus is well relaxed between contractions. The labour may begin with this type of contraction and continue throughout the stage of labour. This is known as “primary uterine inertia”. Usually common with the primigravidae. It is a faint shadow of normal pattern of labour – so called “False labour.” It has less effect on cervical dilatation. It leads to prolonged labour, but becomes stronger in the second stage of labour.

The condition may develop during labour when the contractions start well but later become weak, irregular and infrequent. This is known as “secondary uterine inertia” it is basically uterine exhaustion or uterine fatigue. It may occur in first or second stage of labour. Usually follows excessive uterine action. Common in impending rupture of uterus e.g. disproportion. (Is a nature’s way of preventing uterine obstruction or rupture).

In the third state: It is characterized by flabby and inexcitable state of the uterus. It gives rise to delay in the separation of placenta or post partum haemorrhage from partial placental separation and a failure of uterine contraction.

Management:

1. Admission
2. Exclude CPD
3. ARM, Syntocinon-small dose 2.5 unit in 450mls at 15 drops per minute.
4. Correct electrolyte imbalance or loss.
5. Prevent dehydration.
6. Monitor maternal and fetal conditions (Prevent acidosis).
7. Fetal blood sampling (P.H) if necessary.
8. C/S or forceps/vacuum in 2nd stage of labour.
9. Antibiotic – if membranes have ruptured up to 12hrs.

Nursing Care

1. Reassure the patient
2. Observation of: Vital sign.

- a. Contraction – Frequency, strength & duration. Effect on descent of the presenting part.
3. Vaginal examination, Liquor amni – colour, amount & odour.
4. Accurate fluid balance chart. Urinalysis
5. Light diet.

2. Hypertonic Uterine Action

This term is used when there is persistent high tone of uterine contractions during and in between contractions. Contractions are usually frequent strong without relaxation and usually very painful with sudden effect on cervical dilatation. So it may give rise to erratic uterine contraction leading to precipitate labour. Cervical and perineal tear may occur. Fetal hypoxia may occur, injuries to the baby's head. Umbilical cord may tear or cut leading to haemorrhage .

Management

1. Exclude CPD,
2. Small dose of oxytocin – 5 unit/litre – To correct the rhythm of contractions.
3. Relief of pain – sedation, Narcotic e.g. valium 10mg, pethidine 100mg /Pethilorfan 2ml.
4. Correct dehydration and electrolyte imbalance – i.v. infusion.
5. C/S if no progress in cervical dilatation in 4-6hrs – forceps/vacuum in 2nd stage.
6. Frequent vaginal examination review.
7. Early admission with subsequent deliveries.
8. General nursing care in labour

Observation of vital signs, contractions, urinalysis.

Provide comfort

Maintain input and output chart.

3. Incoordinate uterine action

This occurs as a result of lack of polarity (Neuro muscular disharmony) between the upper and the low pole of the uterus. The contractions are irregular in term of strength. There is an increase muscle tone in the lower uterine segment, in some cases even between contractions. This increases the intral uterine pressure. So

patient experiences pains or discomfort more than the strength of contraction and it lasts longer.

There may be a reversal of the uterine action, when the lower segment is contracting strongly and pains are felt at the back and lower abdomen. The patient feels pains at the onset, in between and at the termination of the contractions. It may not be effective thereby leading to prolonged labour. The cervical dilatation may be very slow; cervical may be very thick, tight and unyielding. The uterus is tender to touch. There may be early rupture of membranes and signs of maternal or fetal distress or both.

4. Construction Ring

A localized spasm of a ring of circular muscle fibres of the uterus. This occurs between the two poles at the isthmus. Rare, less than 1-1000. It usually forms around a narrow part of the fetus (neck) preventing descent but occasionally at the level of the internal OS. It is a physiological ring but exaggeration of it is known as BANDL'S RING.

IT may occur in any stage of labour, when it occurs in 3rd stage it is known as hour glass contraction.

Causes:

1. Hypertonic uterine Action
2. Early rupture of membranes
3. Interference – Use of oxytocin or manipulation under light or no anaesthesia – Internal version.

Diagnosis

1. No advancement of the presenting part.
2. Tenderness of the upper uterine segment to touch – Action is meeting with obstruction.
3. Could be felt on palpation.

Treatment

1. Anaesthesia: before attempting delivery
2. Sedation – To calm patient and relief pains (but no effect on the constriction ring).

3. 10mls of 20% solution of magnesium sulphate i.v. (Epsom salt).
4. Amyl Nitrite 1 ample to inhale – vasodilator – to relieve the muscle spasm.

5. Cervical Dystocia

This is a condition when there is slow or no dilatation of the cervix even in the presence of good uterine contractions. It may result from cervical stenosis as a result of previous cervical tear or infection, amputation, irradiation or cauterization (cervical erosion).

Diagnosis:

On vaginal Examination:

1. Cervix feels thin, tight, rigid and unyielding first then later becomes thick and oedematous.
2. There may be caput on the presenting part.
3. Labour is marked with severe back ache.

Treatment:

1. Sedation,
2. C/S

Nursing care:

Same as hypertonic uterine Action.

3.4 Transverse Lie/ Shoulder Presentation

The term is applied when the fetus lies with its long axis across that of the mother. In transverse lie, the shoulder usually presents. This is a very serious complication in obstetrics and the ratio is 1:300 cases near term. The incidence is greater in multiparae than in primigravidae. The breech is usually slightly higher on one side than on the other side. Back may be in anterior or posterior.

3.4.1 Causes:

Maternal:

1. Contracted pelvis – prevent engagement (rare)
2. Tumours – Fibroids (rare)

3. Grande multiparity – lax uterine and abdomen muscles
4. Abnormal uterus – Bicornuate\ subseptate uterus

Fetal:

1. Multiple pregnancy – Twins.
2. Prematurity – Large amniotic volume & small fetus
3. Macerated fetus.
4. Placenta praevia – Hydrocephalus & gross abnormality
5. Polyhydramnios ,Anterior obliquity of the uterus

Positions

1. Dorsal Anterior – the fetus lies with the back to the front of the mother. Head could be to the left or right.
2. Dorsal Posterior – the fetus lies with the back to the back of the mother.

3.4.2 Diagnosis

During pregnancy

On inspection – Abdomen looks broad fundal height is lower than normal

On Palpation

1. No presentation part either at the pelvis or in the fundus.
2. Fundal height lower than gestational age.
3. Head is felt on one side and the breech at the other side

On Auscultation

Fetal heart sound is head below the umbilicus

Ultrasound: May be used to confirm the lie & presentation.

In Labour

When membranes rupture the uterus appears more irregular, the uterus mould round the fetus making palpation to be difficult – shoulder may be wedged into the pelvic brim.

There may be prolapse of the arm, foot, cord or both foot and arm.

On Vaginal Examinations

Presenting part is very high – cord may prolapse – soft irregular mass may be felt.

Ribs may be felt, arm prolapse may occur. Spontaneous delivery becomes impossible except in macerated fetus when it is born doubled – up.

No mechanism for shoulder presentation. Placenta praevia must first be excluded before performing vaginal examination.

3.4.3 Management

In pregnancy:

Adequate prenatal care to diagnose the case antenatally. Causes should be investigated by Doctor. The position can be rectified or appropriate management is arranged prior to labour e.g. in case of contracted pelvis and placenta praevia elective C/S is done at term. If no contraindication external cephalic version is done at 34th week to longitudinal lie.

In Labour:

Inform Doctor immediately. In early labour and membranes intact external cephalic version could be done, followed by immediate rupture of membranes and close observation to ensure a longitudinal lie. In late labour with ruptured membranes internal podalic version is performed under general anaesthesia and the baby delivered by breech extraction. Caesarean section is the method of choice in cases of:

1. Failed external cephalic version.
2. When membranes are gone
3. Cord prolapse
4. Prolonged labour.

Immediate C/S is done whether fetus is alive or dead.

Danger

1. Early rupture of membranes leading to oedematous vulva
2. Cord prolapse and arm prolapse.

3. Obstructed labour
4. Ruptured uterus
5. Still birth
6. Infection.

3.4.4 Unstable Lie

This term is applied when the lie which should be stable as longitudinal at 36 weeks of pregnancy is found to vary from one examination to the other – breech, vertex or shoulder.

Causes

1. Any condition which increases mobility of the fetus in utero e.g.
 - a. Polyhydramnios, Fetal
 - b. Laxed uterine muscle as in grande multiparity.
2. Any condition that prevents the head from entering the pelvis e.g.
 - a. Contracted pelvis, placenta praevia

Management

1. Admit the woman to the hospital at 37th – 38th week of pregnancy till she delivers to avoid
 - a. Unsupervised onset of labour with transverse lie.
 - b. To receive essential and expert supervision – investigation to detect the cause – rule out placenta praevia.
2. Further attempts are made to correct the lie by external cephalic version.
3. At the 38th week or when labor starts membranes may be ruptured after making the lie longitudinal bearing in mind the risk of cord prolapse.
4. Intravenous oxytocin drip is set up taking appropriate precaution especially in
multiparous patients.
5. Vigilant supervision is important in labour to see that the longitudinal lie is maintained throughout labour by thorough abdominal examination at the onset of labour and at frequent

intervals. Fetal heart sound should be checked frequently for possible cord prolapse.

6. The bladder should be emptied 2hrly to aid descent of the presenting part.

7. Bowels should be emptied so as to facilitate and preserve longitudinal lie.

8. If the correction of the lie fails at term caesarean section is done. Labour is considered trial.

Complication

Same as transverse lie if labour commences in any lie other than longitudinal.

3.4.5 Compound Presentation

When a hand or foot lies alongside the head the presentation is said to be compound. Common with small pelvis or roomy pelvis – it may be head, hand, foot

Causes

1. Small fetus
2. Very roomy pelvis

Diagnosis

1. Usually made on V.E or
 2. Seen at the vulva during labor.
- Usually not a difficult encounter.

Management

First Stage:

Seek medical aid.

An attempt could be made to push the arm upwards over the baby's face.

Second Stage

Midwife should hold the hand back pushing it over the baby's face. Occasionally caesarean section may be necessary where there is average pelvis and average size baby.

4.0 Conclusion

When occiput does point to any other landmark on the pelvic brim other than the anterior, the presentation and position are said to be mal. Mal position and presentations lead to delayed progress of labour. Both the mother and the baby are vulnerable to complications which may endanger their lives.

Since the diagnosis may not be made until the woman comes in labour, the midwife must be vigilant and accurate in her observation of the woman in labour so that prompt intervention can help to circumvent most of the complications accompanying these conditions and the successful outcome for the mother and baby are ensured.

5.0 Summary

In this unit we have acquired more knowledge about other possible presentations and positions which may complicate normal labour. A labour that started well may end up to be prolonged due to obstruction. Most fetuses present by breech in early pregnancy but soon turn as pregnancy advances while about 3% still present by breech at birth. Unstable lie, transverse lie, require immediate correction so that the woman does not go into labour with abnormal lie. In cases of failed correction, caesarean section should be done. Abnormal uterine actions indicate lack of polarity in the action of the uterine muscle in labour; this may be hypo or hyperactivity and sometimes, the parts of the muscles do not work harmoniously leading to prolonged labour with subsequent instrument intervention. Close monitoring during labour aids early diagnosis. Occipito posterior position may end up as normal delivery if the head rotates three eighth of a circle or be delivered face to pubis if it rotates one eighth of a circle .

6.0 Tutor Marked Assignment

- Identify six predisposing factors to abnormal uterine action during labour
- As a midwife how would you differentiate per vaginam complete and frank breech presentation in labour?

7.0 References

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Module 4

Unit 15: Obstetric Emergencies

- 1.0 Introduction
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 - 3.7.4 Endotoxic Shock
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment

7.0 Reference

1.0 Introduction

Emergencies during childbirth carry a high risk of mortality and morbidity to the woman and her baby. Accurate and prompt action of the midwife to summon medical aid determines their survival. In most cases emergencies in obstetrics are associated with hemorrhage, amniotic embolism, maternal and fetal distress and obstructed labour and cord prolapse. These conditions that constitute emergencies in childbirth will be discussed in this unit and your role as a midwife to effect prompt life saving measures to prevent death will be highlighted

2.0 Objectives

At the end of this unit the learner will be knowledgeable to be able to

- Identify the types and causes of emergencies in pregnancy and labour.
- Give post abortion care.
- Describe the midwife's management of emergency situations in labour and puerperium .
- Judge accurately when labour is getting prolonged
- Have thorough understanding of prompt diagnosis and intelligent intervention of post partum hemorrhage

3.0 Main Content

3.1 Bleeding In Early Pregnancy

This is bleeding from the genital tract before 24th week of pregnancy. Approximately, a 20% of pregnant women experience bleeding during the first trimester. Vaginal bleeding in pregnancy is abnormal. Any report of it should be viewed seriously by the midwife. When it occurs, the volume of blood loss, colour and if associated with pain or not should be established.

Causes

1. Abortion
2. Implantation bleeding
3. Cervical lesions.
4. Erosion, mucous polyps and carcinoma of the cervix
5. Hydatidiform mole.
6. Ectopic Pregnancy.

3.1.1 Abortion

This is bleeding or expulsion of the fetus before 24th week of gestation or viability or less than 500g of weight (WHO). Abortion may be spontaneous or induced.

Incidence: 15% of pregnancies abort spontaneously with peak period of 6-10 weeks – This may not be unconnected with low progesterone secretion (About 65% occurs at this period) 80% happens in the 1st trimester. Bleeding in the 2nd & 3rd trimester carries a greater risk to the mother & child because the placenta is already firmly attached.

3.1.1.1 Causes

Fetal causes:

In about 60% of cases the cause is multiple resulting from chromosomal abnormalities of the conceptus.

- Mal-development
- Defective implantation

Maternal Causes;

- Infection – Acute fevers, rubella, syphilis, Chronic Nephritis, thyroid dysfunction
- Environmental factors – Effect of drugs, cigarette and alcohol,
- ABO incompatibility, High blood lead, Diabetes, Hormonal imbalance, High parity, Local disorders of genital tract, retroverted or Bicornuate uterus, Cervical incompetence, Environmental stress. Local Causes :
- Conditions that interfere with embedding and nutrition of the ovum (anemia), Trauma and Fibroid tumors.

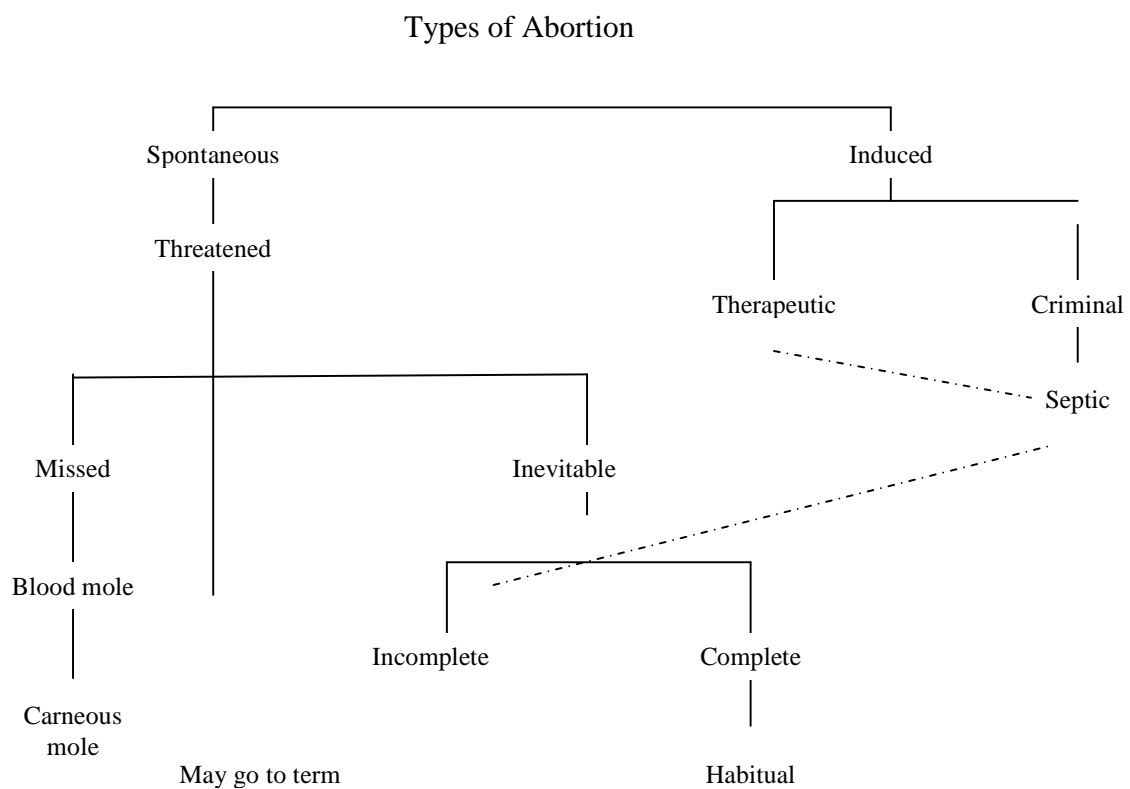
Social Causes:

Teenage pregnancy, unmet needs, failed family planning, rape conception.

3.1.2 Types of Abortion

Abortion is classified into the following clinical types

1. Threatened Abortion
2. Inevitable Abortion
3. Incomplete Abortion
4. Complete Abortion
5. Missed Abortion



3.1.2.1 Threatened Abortion

Vaginal bleeding during the first 20 weeks of pregnancy, whether the bleeding is associated with uterine contraction or not.

It can be distinguished from implantation bleeding which is usually bright red colour and stops quickly.

Signs and Symptoms

1. Slight bleeding
2. Os is closed and not effacement
3. Slight uterine contraction
4. Slight abdominal discomfort & cramping with backache
5. On speculum examinations cervix is closed and membranes intact
6. Ultrasound scan

Treatment

1. Admission in the hospital
2. Reassure client
3. Assess general condition – history, vital signs etc.
4. Routine Observation bid or 4hrly
5. No Vaginal Examination and enema
6. Save all discharges – Pads, soiled clothing, linens etc.

Blood Test: Grouping and Cross matching, Hb, Rh factor, plasma Human placenta lactogen level – helps to determine prognosis as low level indicate that pregnancy will terminate (inevitable abortion)

Drugs

Valium 5mg tds

Amylobarbitone sodium (sodium Amytal) 200mg nocte Pethidine 50-100mg to relief pain of uterine contractions,

Morphine 15mg.

Speculum examination to rule out bleeding from local lesion.

Monitor fetal condition – FH by sonicaid/Dipltone

Do pregnancy test.

Allow up and about after bleeding has stopped for 3 days

Nutritious diet and personal hygiene

Prognosis: 70-80% - continue with pregnancy

Prognosis is better if bleeding becomes brownish from bright red-only about 10% will abort, while initial brown blood becomes red 66% will abort. If accompanied with severe uterine contraction there is increased possibility of abortion.

Advice on Discharge

Rest, less activities, no lifting, or coitus for 2-3 weeks, she should report any case of bleeding.

3.1.2.2 Inevitable Abortion

Definition: Abortion is inevitable when bleeding is accompanied with uterine contractions, bleeding becomes severe and dilatation of the cervix. It is impossible for the pregnancy to continue. It may end up complete or incomplete.

Signs & Symptoms

1. Slight or severe vaginal bleeding
2. Increase contraction of the uterus – Pain
3. Dilatation of the cervix
4. Membranes may or may not be ruptured, it may bulge through the Os or in the vagina
5. Shock may be present
6. Product may protrude through the cervical Os or in the vagina

Treatment

Treat as threatened abortion until Dr's arrival. If bleeding is severe, give 0.5mg ergometrine or 1ml syntometrine ,keep all blood loss for Dr's inspection.

Give analgesics – Pethidine 100mg or Morphine 15mg. Oxytocin drip is given or prostaglandin E₂ if it is after 16 weeks.

Evacuate the uterus under G.A.

Blood transfusion if necessary.

3.1.2.3 Complete Abortion

When the entire products of conception are passed, abortion is considered complete. It occurs usually before the 8th week. Bleeding is reduced to mere staining.

There are signs of pregnancy regresses.

3.1.2.4 Incomplete Abortion

The fetus has been expelled but parts of the placenta and membranes are retained in-utero. Lochia is heavy, bleeding may be profuse, pain may or may not be present .Os is partly closed – cervix patulous, there is sub -involution.

Treatment

In the District

Send for medical Aid

Give syntometrine 1ml or 0.5mg ergometrine 1m and can be repeated 5-10 minute later if bleeding is profuse,

Pethidine 100mg if there is pain,

Resuscitate if in shock,

5-10 units of oxytocin in 5% glucose

Accompany to nearby Hospital and give post abortion care.

In Hospital

Give syntometrine or ergometrine 0.5mg. Take blood for grouping and cross matching. Take high vaginal swab, evacuation of the uterus is done.

If in Shock

Receive into a warm bed, elevate foot of the bed, give ergometrine- i.v.

Infusion 5% dextrose with Ringers lactate, syntocinon 10unit may be added to drip. Observe vital signs – pulse every 5 minutes B/P – every 30 minutes.

When condition improves – evacuate under G.A.

Treat for anemia if present.

Antibiotic coverage.

Discharge on the 5th day.

3.1.2.5 Missed Abortion

This term is applied when the fetus is dead and is retained with it's placenta in the uterus. Death usually occurs before 8 weeks

though mother may not know. Ultrasound may diagnose it even before the woman notices it.

Treatment

1. Some obstetrician will prefer to leave it as spontaneous expulsion will take place: this may cause anxiety and distress to the mother.
2. Prostaglandin E₂ may be given to induce labour in conjunction with i.v oxytocin
3. Manual Vacuum aspiration of the content may be performed
4. Blood coagulation disorder may develop if up to 6-8 weeks
5. Plasma fibrinogen estimate weekly
6. If several weeks have elapsed between death and expulsion of the conceptus give fresh compatible blood.

3.1.2.6 Habitual Abortion

Abortion is said to be habitual if it has occurred spontaneously for at least three or more consecutive occasions. The risk of further abortion with subsequent pregnancies is high. Occurrence is about 1% of all pregnancies and in the early weeks of pregnancy if pregnancy continues till mid – trimester there is risk of threatened abortion or premature labor.

Causes

Most time unknown occurs more with incompetent cervix

Local causes: fibroid, displacement of the uterus medical condition include diabetes mellitus, nephritis, and tuberculosis.

Treatment

- Early booking ,no coitus, hospitalization may be imperative
- Shirodker stitches – (cervical serclage) at about 14th –16th week complete bed rest - ventolin tablets 2-4mg bid or daily
-

3.1.2.7 Septic Abortion

Most common complication of induced or incomplete abortion. It is due to ascending infection.

Signs & Symptoms

Anemia, Signs of Miscarriage, Feeling unwell, lower abdominal pain, headache, vomiting, Pyrexia, rapid pulse, lochia are profuse and offensive.

May be localized or as generalized septicemia with peritonitis

Treatment

I. V. antibiotic for a start, followed by broad spectrum antibiotic that is effective against anaerobic infection.

3.1.3 Blood Mole

Occasionally mixed abortion may progress to blood mole. This is a smooth brownish red mass which contains the fetus and the placenta and it is completely surrounded by the capsular deciduas. The mole usually forms before 12th week and it is retained in the uterus for a period of months. Later the fluid is extracted from the blood and the fleshy, firm hard mass that is remaining is known as a Carneous Mole. On histological investigation the fetus may be found in the centre of the mass.

Treatment

Prostaglandin E₂ pessaries will be inserted into the vagina to ripen the cervix followed by i.v. oxytocin – dosage adjusted according to uterine activities. Analgesic to relief pains. Observation of the mother.

3.1.4 Extra-uterine Pregnancy

When fertilized ovum embeds outside the uterine cavity, the pregnancy is said to be extra uterine. Commonly in the fallopian tube, abdominal cavity, cervix and rarely ovaian .

Tubal Pregnancy /Ectopic Pregnancy

Causes:

- Congenital abnormality of the tube, Previous infection, Surgery on the tube IUCD, Assisted reproductive techniques

Physiology:

The blastocyst rapidly erodes the epithelial lining of the fallopian tube and becomes attached to the muscle layer.

Signs & Symptoms

- History of amenorrhea
- Mild lower abdominal discomfort or acute Abdominal pain
- Occasional attack of sharp and stabbing pain which is localized in nature
- Accompanied by nausea
- There may be brownish vaginal discharge, dizziness, shoulder pain – bleeding into the peritoneal cavity

Other signs of pregnancy may be absent

- Ultrasound may assist diagnosis
- Shock may be present

Possible outcome:

If occurs near the distal end of the tube

- (i) Tubal abortion may result
- (ii) Tubal mole
- (iii) Tubal rupture which may be gradual or sudden
- (iv) Abdominal pregnancy

3.1.5 Abdominal Pregnancy

This is a rare condition. The fetus develops outside the uterine cavity following abortion or rupture. Uterine tube placenta attaches to neighbouring organs. Majority do not survive. If it occurs in early pregnancy, the product gets re-absorbed . Infection may occur leading to abscess – peritonitis or septicaemia.

Rarely proceed to term

Diagnosis:

On Palpation – lie is abnormal, fetal part is readily felt

Management:

Delivery is by laparotomy

Placenta may or may not be removed – later is safer.

Prophylactic antibiotic is given.

Baby:

May have compression deformities due oligohydramnios

3.1.6 Hydatidiform Mole

Case of gross malformation of the trophoblast. The chorionic villi proliferate and become vesicles which looks like a bunch of English grape. Risk is higher in a woman who has had it before – (1 in 50) and under the age of 20 and above 40 years. There are 2 types:

Complete. No evidence of embryo, cord or membrane .

Incomplete has evidence of embryo, fetus or amniotic sac.

Signs & Symptom:

These vary according to type of mole. Exaggerated pregnancy symptoms by 6 – 8 weeks. Bleeding or blood stained vaginal discharge after a period of amenorrhea.

- Slight pink or brownish discharge,
- Passage of vesicles per vaginam,
- Anaemia,
- High chorionic gonadotrophic hormone (CGTH) level,
- Pre-eclampsia in early pregnancy,
- On palpation – uterus larger than date, feels doughy or elastic, no fetal parts, no fetal height can be mapped, no fetal movement.

Diagnosis

Ultrasound, Increase CGTH,

Treatment

Remove all the trophoblastic tissues, Terminate pregnancy, Follow up to 2 year until CGTH is negative, Give psychological support.

3.1.7 Post Abortion Care (PAC)

This is an approach for reducing morbidity and mortality from incompetent and unsafe abortion and resulting complications and for improving women's sexual and reproductive health lives.

Elements of PAC:

There are 5 elements of PAC which are:

- Treatment of incomplete and unsafe abortion and abortion related complications that are potentially life threatening
- Counseling to identify and respond to women's emotional and
- Physical health needs and other concerns
- Contraceptives and family planning services to
 - Help women prevent unwanted pregnancy
 - Encourage the practice of birth spacing
 - Reproductive and other health services that are:
 - Provided on-site
 - Provide via referrals to other facilities in providers' networks
- Community and service provider partnerships to:
 - Prevent unwanted pregnancies and unsafe abortion
 - Mobilize resources for timely care for complications from abortion
 - Ensures health services reflect and meet community expectations and needs

Principles that Support Patients' Rights in PAC Setting

- Having empathy and respect for patients
- Maintaining positive interaction and communication with patients
- Respecting privacy and confidentiality

Roles of the Midwife in PAC

The midwife is the general overseer or manager of the totality of Manual vacuum Aspiration (MVA) services within the facility

- The midwife has the responsibility of ensuring that the facilities and the necessary equipments are always available at the MVA room. Portable water should be made available.
- She should ensure proper cleaning and setting of trolley. She must also ensure completeness of the items on both shelves of the trolley
- Pre and post procedure care of the patients is an important responsibility of the midwife.
- Her role in the actual MVA procedure depends on whether she is permitted to carry out the procedure or to assist the doctor during a procedure. In which ever situation, she must have a good grip of the procedure.
- She must possess a proper understanding of cleaning and sterilization/or disinfecting of equipment used during the procedure and disposal of wastes, aspirates and sharp instruments in order to prevent infection especially HIV/AIDS
- She is responsible for keeping record of details of the procedure.

Manual Vacuum Aspiration (MVA)

This is a procedure carried out to evacuate uterine contents in incomplete abortion. The indications are:

- Threatened or imminent abortion, Inevitable abortion, Incomplete abortion
- Infected abortion, Missed abortion, An embryonic pregnancy, Hydatidiform mole
- Retained placental products

Advantages

- Requires only slight dilatation and scrapes gently

- Lower risk of complications, Lower cost of services, Can be used in low resource setting, Decreased need for hospitalization, is a day case.

The procedure is usually carried out by trained health personnel.
(Refer hand book for nurses and midwives for details)

3.2 Bleeding In Late Pregnancy:

Ante partum Hemorrhage (APH):

This is bleeding from the genital tract after 24 week of gestation and before the birth of the baby. It may place the life of the mother and unborn child at risk.

Any bleeding of this type is said to have been caused by placental separation. It may endanger the life of the mother and baby. The origin of this bleeding has two main sources.

1. Placental causes
2. Non-Placental causes

Placental causes

- i. Placental Praevia: Unavoidable haemorrhage
- ii. Abruptio Placenta – Accidental haemorrhage

Non-Placental causes:

Incidental causes – Bleeding from other lesion of the genital tract e.g. Cervical causes – cervical erosion, cervical laceration, Polyps, cervical carcinoma.

Vaginal causes – laceration, vaginitis, ruptured varicose veins of the vulva.

3.2.1 Management of Undiagnosed APH

Any bleeding from the genital tract during late pregnancy is dealt with as been due to placental separation until the actual diagnosis is made. Either in the District or Hospital the first Aid management is the same. Hospitalization is imperative either the bleeding is slight or severe because she stands the chance of further bleeding. In all cases:

1. No vaginal examination is made
2. Save all soiled linens & pads for Dr's inspection.

3. Enquire the cause of bleeding: Fall, coitus, continuous or intermittent.
4. Abdominal examination is done gently – noting pain, tenderness, uterine contraction and consistency, mal-presentation, high head and fetal heart rate or movement.
5. Record is made of the name, age, parity, week of gestation, blood loss, BIP, Pulse, urine passed, FH and drugs administered.
6. Ultrasound scanning to locate the placental site.
7. No enema is given.

Treatment by Midwife in the District

Put the woman to bed, on her side, reassure the woman, monitor vital signs, send for medical aid immediately, make arrangement to transfer to hospital, give pethidine 100mg or morphine 15mg or omnopon 20gm i.m., transfer in a comfortable transport and a midwife and relations must accompany the woman, to give detail of management.

Treatment in the Hospital

In addition to the First Aid treatment

1. Blood is taken for – Group and cross matching, Hb estimation, Rhesus factor, clotting time, plasma fibrinogen level and serological test for syphilis (if not already done).
2. Intravenous administration of blood, glucose, Ringers lactate solution, Oxytocin and fibrinogen
3. Analgesics or sedation e.g. Pethidine 100mg i.m.
4. Urinalysis Administer oxygen, to increase oxygen concentration to the fetus.
5. Vital signs, fetal condition using sonicaid, Pulse 5-15mins, FH 10-20min or continuous monitoring B/P 15mins.
6. Fluid chart record.
7. Consent for operation.
8. Reassure the woman and her spouse.

Mild case

Aim is to prolong pregnancy

1. Give the first Aid Treatment

2. Shave the vulva.
3. No enema on admission
4. Speculum examination after 48hrs bleeding has stopped to rule out cervical causes and confirm diagnosis.
5. A papanicolaou smear may be taken
6. She is allowed out of bed after five days of no bleeding.
7. Discharge after a week of no other obstetrical complications to report if bleeding occurs or in labour.
8. Monitor fetal wellbeing
9. Give high protein diet
10. Maintain hygiene.

Severe case

Aim is to resuscitate and deliver the baby as soon as possible.

1. Immediate resuscitation is imperative.
2. No time must be wasted on obtaining blood.
3. Admit in the special care unit, procedure for slight bleeding is carried out.
4. Check vital signs, fibrinogen and clotting time.
5. Sedation for apprehension. Analgics for pain
6. I.V. Infusion of Dextrose 5%, Ringers lactate while blood is being cross matched.
7. Transfuse with fresh blood O-ve.
8. Monitor Fetal Heart rate 10-15mins on cardiograph
9. Measure abdominal girth for concealed bleeding.
10. Further management depends on patient's condition.

3.2.2 Placental Praevia

When placenta is partially or wholly implanted in the lower uterine segment; either anterior or posterior wall. The anterior location is less serious than the posterior. Bleeding from placenta praevia is unavoidable and inevitable due to the stretching of the lower uterine segment in later weeks of pregnancy which tears the anchoring chorionic villi. Bleeding may be slight or severe depending on how much encroachment in the lower segment. When placenta lies on the internal Os bleeding is severe during

effacement and dilatation of the cervix. Bleeding may also be precipitated by coitus. Hemorrhage of this type places mother and baby at high risk and constituted obstetric emergency.

Incidence: About 0.5% of all pregnancies more common in multigravidae.

Signs & Symptoms

1. Painless vaginal bleeding which may be continuous or intermittent during rest or sleep.
2. Occasionally is accompanied with uterine contractions.
3. Increased bleeding
4. Mal presentations may be associated – Breech Transverse or oblique lie.
5. High presentation – Non engagement of the presenting part.
6. Unstable lie
7. Laterally – It pushes the head to one side. Posteriorly – Overlaps the head, pushes the head anteriorly giving the impression of cephalo pelvic disproportion.

Placenta Praevia is classified into degree according to placental location known as types.

Type 1 Placenta Praevia

The majority of the placenta is in the upper uterine segment. Only a tip of the placenta tissue touches the lower segment. Bleeding is usually mild. Vaginal delivery is possible, mother and fetus are in good condition.

Type 2 Placenta Praevia

The Placenta is partially located in the lower uterine segment near the internal OS – (Marginal Placenta Praevia). A bit of the placenta touches the internal OS, vaginal delivery is possible if it anteriorly, bleeding is moderate. The fetus is usually more affected than the mother, that means fetal hypoxia is common.

Type 3 Placenta Praevia

The placenta covers the internal OS but not centrally but does not when the lower segment starts to stretch and cervix begins to

efface and dilates up to 6cm. Vaginal delivery is not appropriate because the placenta precedes the fetus.

Type 4 Placenta Praevia

The placenta lies over the internal OS centrally. The OS is covered completely even at full dilalation of the cervix and torrential hemorrhage is very likely. Vaginal delivery should not be considered. Caesarean Section is essential to save the life of the mother and fetus.

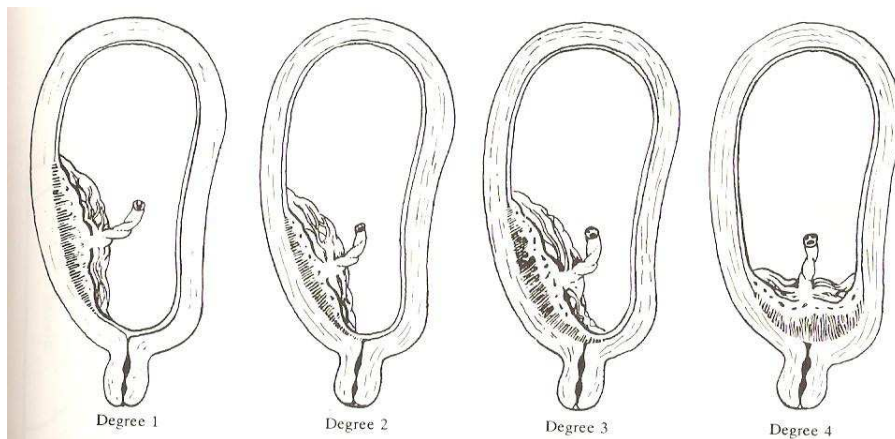


Figure 4.1 Classification of placenta praevia.

Causes of placenta praevia;

1. Grande multiparity; Previous C/S,
2. Multiple Pregnancy, Previous Placenta Praevia
3. Certain fetal abnormalities.
4. Age – older mother are more at risk than younger ones.
5. Abnormal Placenta – Bipartita and succenturiate placentae

Diagnosis

1. Commonly it manifest 34-38wk though sometimes earlier.
2. On general examination the woman may be clinically normal.
3. On Abdominal Examination: Difficulty in identifying the fetal part on palpation.
 - i. Fundal height may be normal
 - ii. Uterus is normal in consistency, no tenderness or tension

- iii. Fetal Heart rate may also be normal – depending on severity of bleeding.
- iv. Presentation may be abnormal e.g. Breech.
- v. High head, oblique or Transverse lie or unstable
- 4. On vulva Inspection Slight or severe bleeding
- 5. Fetal movement – Excessive or slow or normal.
- 6. Rapid respiration, Pulse – Signs of shock in the mother

Management

Objectives of Management;

- 1. To control hemorrhage
- 2. Save mother and infant's life

Management depends on the amount of blood loss; may be active or conservative, condition of the mother or fetus, the location of the placenta, the stage of the pregnancy.

In all cases Hospitalization is necessary.

Conservative Management

Mild bleeding, mother and fetus are well.

The woman will be on admission

- 1. Bed rest until bleeding stops.
- 2. Speculum examination to rule out incidental causes, after 24hrs of no bleeding.
- 3. Monitor placental function by using fetal kick chart.
- 4. Ultrasound scanning at intervals to locate placenta
- 5. Monitor fetal growth.
- 6. Vaginal delivery may be possible – 1 & 2 Anterior
- 7. Remain on admission till term.
- 8. Examination under anesthesia (EUA) – from 37weeks followed by Caesarean Section if a bulge is felt. If not the patient is induced.

9. Active Management

Caesarean section is necessary in cases of

- 1. Severe bleeding, Types 3, 4 and 2 posterior even if fetus is dead, Bad obstetric history, elderly primip, Malpresentation – Breech. Active bleeding with induction.

Give emergency treatment

1. Resuscitate
2. Prepare for EUA and C/S
3. C/S if fetal heart is present in respect of gestational age. In a hospital with facilities for special care of preterm.
 - i. I.V. infusion of 5% Dextrose saline
 - ii. Blood transfusion – O- negative blood.

Hysterectomy if bleeding becomes uncontrollable to save the woman's life.

Complication

1. Post partum hemorrhage due to atony of the uterus
2. Maternal shock from blood loss (hypovolaemia)
3. Maternal death maternal mortality
4. Fetal hypoxia due to placenta separation
5. Fetal death 5-15% - usually fresh still birth
6. Placenta accreta, (in up to 15% cases)

7. Anesthetic & surgical complications.

3.2.3 Abruptio Placenta

Bleeding is due to premature separation of a normally situated placenta occurring after 22wks of pregnancy. (Sometime referred as Abruptio – tear asunder) Accidental bleeding, it is about 2% of all pregnancies. It may occur at any stage of pregnancy or during labour.

Causes

The aetiology of haemorrhage is not always clear (40%) but it is often associated with hypertensive disease in pregnancy, sudden reduction in uterine size polyhydramnios, preterm labour, rupture of membrane, acute emotional state previous history of placenta abruptio. Strenuous physical exercises over distension of the uterus, road traffic accident, direct trauma to abdomen or version. Multiparty, cigarette smoking, Poor nutritional status, Infection, after the delivery of 1st twin – Recurs in 10-25% of cases.

Types

1. Revealed hemorrhage

In this case blood escapes from the vagina it is the commonest type. Bleeding may become severe from slight. It may be accompanied by abdominal pain and tenderness, delivery of the baby should be accomplished within a few hours (6 hrs) to avoid coagulation failure developing. Bleeding is proportional to the amount of visible vaginal blood loss.

2. Mixed or combined hemorrhage.

This hemorrhage is primarily concealed then later becomes revealed with little vaginal bleeding. A degree of shock is exhibited which is usually severe compared with the vaginal bleeding. It is usually associated with blood coagulation disorders.

3. Concealed hemorrhage

This is a serious condition with high maternal and fetal mortality. It account for 55% of maternal death. It is associated with severe bleeding but no vaginal bleeding occurs but large retro-placental clot forms behind the placenta – maternal surface.

Mother shows signs and symptoms of hypovolaemic shock, uterine enlargement and severe pain.

Signs and Symptoms:

History of pregnancy induced hypertension, headache, nausea and vomiting, epigastric pain, following road traffic accident or trauma.

Mild - general condition is fair, pain on one side of the uterus, there may or may be no vaginal bleeding, vital signs may be normal and B/P may be raised.

Severe

Shock – B/P may be below 90/60 or more, Severe abdominal pain, anxiety, Uterus is tender to touch, No fetal heart beat is heard or not heard, Pulse is rapid and thready, signs of pre-eclampsia pitted oedema, Urine is scanty – protein is positive or negative, Fetal lie is normal. Amount of visible bleeding is not a guide to severity of the hemorrhage.

Management

Mild

Admit, treat as undiagnosed APH, Set up I.V. infusion Destrose 5%, Set up sintocynon to induce labour, ARM is done if she is over 37 weeks, Observations of vital signs, blood loss, pallor oedema and record, Vaginal delivery is contemplated.

Severe

1. Routine blood investigation; Plasma fibrinogen and clotting time test. The Fi-test Baxter hyland for hypofinogenaemia when facilities for laboratory test are not available.
2. Pethidine 100mg, morphine 15mg to relief pain
3. Blood transfusion of at least 2 litres of fresh blood within 1hr – rapidly .Fibrinogen 4-6g intravenously followed by 1gm at ½ hourly until clotting mechanism is normal – fresh blood is the best source.
4. Monitor Renal secretion – at least 30mls per hour. Record fluid intake – urinalysis for protein.
5. When Clotting defect is controlled Caesarean Section is done.
6. Record weight of retro placental clot.
7. EUA is done in the theatre. Rupture the membranes to reduce intra uterine pressure and induce labour. Oxytocin is set up to start uterine contraction.
8. Vigilant observation of the vital signs, contractions and Fetal heart beats.
9. Usually labour is rapid.
10. To prevent PPH deliver the placenta by controlled cord traction.
11. Examine the placenta for retro placental clots .
12. Prepare for resuscitation of an asphyxiated baby – pediatrician should be around.

Post Natal Care

1. Observe carefully for renal function – Acute renal failure.
2. Restrict fluid intake to 1000mls daily.
3. Low Protein diet, low sodium and potassium, Estimate blood area, Potassium for 3 days.

4. Accurate fluid balanced chart.
5. Report signs of Oliguria (less than 500mls daily).
6. Treat anaemia – Transfusion or give haematinics.

Complication

1. Disseminated intravascular coagulation (DIC) – moderate & severe
2. PPH. Due to convelaire uterus or DIC.
3. Renal failure – hypovolaemia, poor kidney perfusion.
4. Pituitary necrosis resulting from prolonged and severe hypotension – shock.
5. Increased mortality for the infants – 50-80%

3.2.4 Disseminated Intravascular Coagulation (DIC)

This is a situation of appropriate of blood within the vessels. Consumption of clothing factors, fibrin and platelets occurs, resulting in failure of the blood to clot at bleeding site. DIC is secondary to some other disease process e.g. placenta abruption, intra uterine death amniotic fluid embolism, pre-clampsia and eclampsia management.

Midwife should watch out for this complication in conditions that predispose to it. She should be alert for signs of clotting abnormality.

3.3 Obstructed Labour

Labour is said to be obstructed when there is no advancement of the presenting part. Usually it occurs at the brim but may occur at the outlet or deep transverse arrest in android pelvis.

Causes

CPD, deep Transverse arrest, fetal abnormalities – hydrocephalic fetus, locked twins, mal-presentation, pelvic tumours.

S & S

Early signs are non-engagement of head despite contraction., Slow dilatation, of the Cervix late signs are Dehydration, Ketosis, Severe pain, Rapid pulse, Low & concentrated urine, Fetal distress, Tonic contraction of the uterus – Abnormal uterine action, Bandl’s Ring,

Vaginal is hot and dry, High presenting part, Excessive moulding and caput-succedaneum

Management

I.V infusion to correct dehydration, Antibiotic, Rotation and deliver by forceps or vacuum, C/S, Resuscitate asphyxiated baby.

Complications

Maternal Infection - injuries to bladder, ruptured uterus, hemorrhage, maternal death,

Fetal - hypoxia, still birth, permanent brain damage, intracranial hemorrhage, neonatal pneumonia.

Prevention

1. Proper history taking of previous deliveries e.g. prolonged labor, big baby etc.
2. Correct mal-presentation early, pelvic assessment at 36 wks. Careful monitoring of descent in labour ,
3. Timely medical Aids; cesarean section.

3.4 Rupture of Uterus

Rupture of uterus is a serious obstetric accident. It is common in developing countries where antenatal care is very poor. It is an countered in women of high parity. Ruptured uterus may be complete or incomplete. Incomplete does not invoke the peritoneal covering of the uterus but complete involves all uterine muscle layers.

Causes

- Obstructed labour e .g (CPD, mal presentation)
- High parity
- Previous trauma to the uterus e.g CLS, Myomectomy, D & C.
- Difficult obstetric manipulation e.g Harrison – the presence of previous uterine scar.
- Instrumental delivery use of forceps or vacuum, craniotomy, decapitation.

- Abuse of oxytocic drugs e.g in the presence of previous scar.

Clinical Features Of Ruptured Uterus

Occurs in the last four weeks of pregnancy in cases of previous caesarean section or sometimes early stage of labour. The term silent rupture is used as the symptom may not be dramatic usually symptoms are:

- Low abdominal pain which be accompanied by vaginal bleeding
- Patient may feel faint and goes into severe shock
- Cold and clammy skin
- Low B/P, rapid and thready pulse
- Contractions and abdominal pain ceases as soon as the fetus is extruded into the peritoneal cavity.
- On abdominal palpation
There is an area of tenderness
Fetal parts are easily palpated
No fetal movement and fetal heart sound ceases.

Management:

- Midwife should inform the doctors immediately
- Observe vital signs quarter hourly.
- Give analgesic- morphine 15mg 1.m
- Set up I.V normal saline
- Cross match blood for transfusion of immediate laparotomy possibly hysterectomy and stabilization silent ruptures are sometimes discovered after delivery, uterine routine exploration of the uterus. In this case no treatment is necessary but the woman is observed closely for 48-72hrs.

If hysterectomy was not done, on discharge she should be informed to avoid pregnancy for about 2 years. She should be told to report in a hospital as soon as she gets pregnant and inform them about her previous operation. Elective caesarean section must be done near term with subsequent pregnancy.

3.5 Cord Presentation and Cord Prolapse

3.5.1 Cord Presentation

Definition: is a condition when the cord lies in front of the presenting part when the membranes are still intact.

Causes

1. Abnormal presentation or positions :any presentation when the presenting part is not well applied on the cervix as seen in breech, face and brow, transverse lie and occipito -posterior position
2. Contracted pelvis: flat pelvis-platypelloid when the anterior-posterior diameter is reduced.
3. Low implantation of the placenta –placenta praevia
4. Excessively long cord
5. Premature rupture of membrane
6. Grand multiparity- flabby weak muscle tone
7. Multiple pregnancy - small baby
8. Polyhydramnios – increase mortality
9. High head
10. Prematurity –head too small to fill the birth canal

Diagnosis: cord will be felt pulsating during vaginal examination with the membranes intact.

Management:

1. Prevent rupture of the membranes and compression of the cord
2. Arrange for immediate medical aid
3. Elevate foot of the bed
4. Put patient in any of the positions described in cord prolapse
5. Reassure the patient
6. Prepare for emergency caesarean section if cord is pulsating

Prognosis:

Not good

It carries 50% mortality

Usually better with footling breech then, secondary to compression or spasm of the cord.

3.5.2 Cord Prolapse

Definition: it is a condition when the cord lies in front of the presenting part when the membranes are ruptured.

Causes: same as for Cord Presentation

Diagnosis:

Is made when the cervix is at least 2cm dilated.

1. Cord may be felt on vaginal examination or seen lying outside the vulva on inspection. It may or may not be pulsating.
2. It is important for the midwife to make sure that she does not mistake her own pulsation on her thumb for that of the cord. In case of any doubt the cord could be held between two fingers or pressed against the presenting part
3. Auscultation of the fetal heart sound can also help to confirm the diagnosis especially where there is compression of the umbilical vessels, in such cases the fetal heart may be rapid, slow or irregular.

Management

Management depends on if the fetus is alive or dead and dilatation of the cervix.

1. Position the patient in knee chest position (genu-pectoral) or Sim's lateral position with the pelvis raised on pillows. This raises the pelvis level above the chest. This is the most comfortable position for the woman ; or raise the foot of the bed
2. Arrange for immediate medical aid and prepare for caesarean section if the cord is still pulsating and fetal heart sound is audible
3. Re-assure the patient – be tactful

4. Make attempts to replace the cord
5. Prevent spasms of the cord (due to prolonged exposure) by wrapping the cord in sterile gauze of warm saline solution.
6. Monitor fetal heart rate
7. If in the first stage – Caesarean section is done if cord is still pulsating.
If in 2nd stage – give episiotomy and deliver by fundal pressure
8. Forceps delivery – if doctor is around
9. Prevent the woman from walking about when head is not engaged

Management in the districts

1. Give emergency treatment as in the hospital
2. Arrange and transfer the patient to the nearest hospital where there are facilities for instrumental delivery
3. Position the patient to prevent compression on the cord during the journey
4. Sterile gloved hand can be used to apply pressure on the presenting part.
5. Monitor fetal condition on the way once the cord is still pulsating and there is no compression, the baby can still survive even for hours.

3.6 Maternal and Fetal Distress

This refers to maternal exhaustion. It does not occur in good midwifery practice. It usually associated with

1. Prolonged labour, Starvation and Prolonged dehydration.

Signs

1. Increase pulse rate (90 -120) or more. Rise in temperature 37.2⁰C or more. Increase Respiration (24 beats) or more. Signs of dehydration – furred tongue, dry skin Presence of acetone in breath and urine.

2. Distension of the bowel with gass. Vomiting may occur. Restlessness, weakness, sweating. Patient looks ill, worried & anxious.

All these signs must not be allowed to be present in a woman before interfering.

Management:

1. Inform Doctor, Adequate rest, Sedation and avoidance of Prolonged labor.
2. 20mls 50% dextrose, followed by 5-10% Dext .I.V drip to correct dehydration & ketosis. Termination of labour: Caesarean Section if in 1st stage. Episiotomy in second stage of labour.

Fetal Distress

This refers to fetal hypoxia in-utero, and it occurs the when there is interference with the supply of oxygen to the fetus. Conditions that can predispose to fetal Distress.

1. Maternal conditions:- Pre-eclampsia, Eclampsia, severe hypertension, chronic nephritis, chronic pyelonephritis, Diabetes: These conditions may lead to placenta insufficiency.
2. Severe Anaemia in pregnancy.
3. Abnormal uterine Actions e.g. hypertonic type
4. Prolonged labour.
5. APH due to premature separation of placenta.
6. Prolapse of the cord or presentation which compression.
7. True knots in the umbilical cord.
8. Prematurity
9. Post maturity – degeneration of the placenta
10. Congenital fetal abnormalities.

Diagnosis:

1. Increase FH (increase of 20 beats) is an early sign of mild hypoxia. A rate of over 160 beats should cause concern.
2. Slow fetal heart rate – sign of severe hypoxia.
3. Irregular heart rate
4. Passage of meconium – cephalic presentation

5. Fetal blood sampling.

Management

Prophylaxis:

1. Good screening of all pregnant women.
2. Complicated case should have Hospital bed.
3. All women with high head should be on bed.
4. Frequent observation of FH in susceptible cases.
 - a. Inform Dr. tell the woman to lie on one side.
 - b. Stop oxytocic drug if any.
 - c. Give O₂ to the mother.
 - d. Immediate delivery – (C/S, Episiotomy, Forceps)
 - e. Notify Paediatrician.
 - f. Get resuscitation tray ready.

Complication of fetal Distress

1. Asphyxia, Still birth, Mental retardation and Saptic paralysis.

3.7 Obstetric Shock

Shock is collapse which is mostly due to circulatory failure. Shock in obstetric does not differ from surgical shock.

Causes:

In most cases shock in obstetrics are associated with

1. Hemorrhage (especially carried by Trauma)
2. Prolonged or severe anesthesia
3. Severe pains associated with manual removal of placenta.
 - a. Difficult labour, forceful dilatation of the cervix, difficult instrumental delivery, internal version, Rupture of uterus. Inversion of uterus. Concealed accidental hemorrhage. Pulmonary embolism.
4. Amniotic fluid embolism – Intravascular coagulation.
5. Reaction to blood transfusion of incompatible blood.
6. Severe infection (clostridia or gm-ve enteric bacteria).
7. Very rarely – Air embolism.
8. It maybe purely neurogenic and due to fear.

9. Sudden reduction in intra-abdominal pressure following the delivery of twins.

In most cases shock is caused by more than one factor – hemorrhage and trauma and prolonged anesthesia.

Signs and symptoms

1. Rapid and thready pulse - 90 beats & above
2. B/P of below 90 systolic call for alarm
3. Increased pallor of the skin ,Cold sweat ,cyanosis ,Subnormal temperature
4. Deep and sighing respiration. Restlessness, Patient may complain of thirst or faintness. May lose consciousness.

Management:

1. Call Doctor at the first sign of rising pulse rate.
2. Urgent resuscitative treatment
3. Principle of treatment.
 1. The administration of fluids – collapse is due to circulatory failure so increase blood volume – using ABO group and Rhesus type. Plasma may be used. Saline or Dextrose may be set up temporarily.
 2. Raise foot of bed – to maintain circulation to the vital organs.
 3. Oxygen by mask at the rate of 1 –2 litres/minute
 4. Rest – Morphine to relieve pain.
 5. Keep in a quiet and undisturbed as possible.
 6. Cortisone or nor adrenaline are sometimes effective in adrenal failure but not in other cases as it may cause severe vasoconstriction and decrease venous return further.
 7. Avoid warm – cold skin constrict the arterioles in the skin directing the little blood to the heart and brain. Warming the skin may contradict this compensatory mechanism.
 8. Stimulant such as coramine (2mls) may be given intramuscularly.

3.7.1 Mendelson's syndrome (Pulmonary acid Aspiration Syndrome)

This is a significant cause of obstetric anesthetic death. It occurs due to inhalation of vomited or regurgitated gastric juice. The gastric juice being highly irritated to the bronchial tree and lungs produces bronchospasms, dyspnoea cyanosis and pulmonary oedema death may occur in hours or days. It can occur even when no food has been taken for many hours.

Treatment

Prophylaxis

1. 15mls Mist Magnesium Tricilate 2 hourly during labour and less than 30 minutes prior to G.A. or operative procedure to reduce acidity of the stomach content.
2. Pre anaesthetic induction dose of antacid is recommended – 20mls of 0.3 molar sodium citrate solution.
3. **Active Treatment**
 - a. Lower the bed at the head. Apply cricoid pressure Clear the air ways – by suctioning. Give Oxygen, Steroids and aminophylline for relief of bronchial spasm. I.V. glucose and Antibiotic therapy .

3.7.2 Amniotic Fluids Embolism

This is an obstetric emergency with 80% mortality rate. It usually occurs toward the end of 1st stage of labour that has apparently been normal.

It is characterized by rapid strong tumultuous contractions. Membranes are usually ruptured.

Predisposing factors

1. Administration of oxytocin
2. Over 35 years of age.

Pathophysiology

Amniotic fluid which is high in thromboplastin is forced into the maternal circulation via the utero- placenta site and give rise to blood coagulation disorders e.g. hypofibrin- ogenaemia.

Sign and Symptoms

1. Respiratory distress of sudden onset, severe dyspnoea.
Sudden collapse Cyanosis
2. Pulmonary oedema ,Hypotension,Trachycardia.

Treatment

1. Give Oxygen
2. Aminophylline is given slowly to reduce bronchia spasm.
3. Anesthesia to damp titanic uterine contraction.
4. Fresh blood transfusion slowly.
5. Forceps delivery.
6. Rectify clotting defect to prevent uncontrollable APH.

3.7.3 Haemorrhage (Hypovolaemic shock)

Refer to ante-partum hemorrhage for detail

3.7.4 Endotoxic Shock

(Bacterium shock)- shock resulting from release of endotoxins from gram negative organisms, particularly E. coli. In obstetrics shock is mostly frequently associated with septic criminal abortion. It results in severe septicemia which releases toxins from gram negative organisms.

Sign & Symptoms

1. Hypotension – in proportional to the blood loss.
2. tachycardia ,Cyanosis
3. Cold , moist skin, oliguria – serious sign
4. Mental confusion and coma are terminal manifestations.

Treatment:

1. Blood culture, Urine culture, cervical swabs, throat Swabs.
2. Antibiotic – heavy dose.
3. Intravenous infusion.
4. Monitor electrolyte balance and urinary output.
5. Corticosteroids to combat circulatory failure.
6. Central nervous system monitor.

4.0 Conclusion

Bleeding is one of the most serious complications of obstetric, whether before, during and after delivery. In any incidence of severe bleeding the life of the woman and the baby depend on the midwife's prompt action to control hemorrhage. The action of the midwife is fundamental to the well-being of the mother and baby.

5.0 Summary

In this unit we have discussed bleeding in pregnancy. Bleeding before 24 weeks of pregnancy is known as abortion while after 24 weeks is regarded as antepartum hemorrhage. Regardless of the cause of bleeding, any incidence of the haemorrhage in pregnancy which may be due to placenta praevia or placenta abruption should be taken as emergency. Management should aim at replacement of the blood loss and saving the lives of the mother and the baby. Vaginal examination and enema must not be performed on the woman on admission.

6.0 Tutor Marked Assignment

- Use a well illustrated chart to explain types of abortion.
- Describe the conservative management of antepartum haemorrhage

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Participants Handbook for Nurses/Midwives (2005), Life Saving Skills Training, Federal Ministry of Health / Nursing and Midwifery Council of Nigeria.

Unit 16: Abnormal Puerperium

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1.0 Introduction

This unit will prepare you to recognize those conditions that deviate from normal during puerperium. It will equip you with knowledge and skills to be able to make early and precise diagnosis and give prompt intervention to women with these anomalies in puerperium, such as

2.0 Objectives

By the end of this course you will be able to

- Make accurate diagnosis of conditions that deviate from normal during puerperium.
- Effect appropriate intervention to circumvent the conditions
- Prevent future occurrences through education of the woman .
- Make referrals.

3.0 Main Content

3.1 Sub-Involution

This is defined as a delay of the uterus to return to their pre-gravid state, usually due to retained products of conception and infection.

Causes

1. Anything interfering with proper contraction of the uterus e.g. full bladder and rectum and retained product.
2. Local uterine infection
3. Presence of uterine fibroid
4. Grande multiparity

Signs And Symptoms

1. Bulky and soft uterus
2. Lochia are profuse and reddish brown.
3. The fundal height remains stationary for a few days.

Management

The midwife should palpate the uterus to exclude tenderness which may be due to infection. The suprapubic area should be percussed to exclude full bladder. Constipation should also be excluded; early ambulation of the patient should be encouraged. The doctor may order a course of ergometrine 0.5mg x 3 days orally analgesics e.g. panadol 2 tablets when necessary. The lochia should also be closely watched.

Nursing care

This includes physical care, psychological care, asepsis, exercises, adequate breast feeding, good diet.

3.2 Post Partum Hemorrhage

Definition

Excessive bleeding from the genital tract of 500mls or more after the birth of the baby, or with less but deterioration in the patient's condition.

Classification

1. Primary Post Partum haemorrhage
2. Secondary post Partum haemorrhage.

Primary Post Partum haemorrhage when it occurs within 24 hours after delivery. There are two types of PPH

1. Atonic Haemorrhage – Bleeding from the placenta site.
2. Traumatic PPH – Bleeding from laceration of the genital tract.
3. Blood dyscrasia. (Developmental disorder of the blood)

3.2.1 Atonic Haemorrhage

Bleeding is due to inability of the uterine muscle to contract effectively causes.

1. Atonic uterus: leading to incomplete separation of placenta 30 prevent effective retraction of the placental site.
 - a. Common with prolonged labour
 - b. Prolonged and deep anaesthesia.
 - c. Overstretching of the uterus – e.g. Polyhydramnios, multiple pregnancy.
 - d. Multipara with lax uterine muscle.
 - e. Concealed Ante Partum haemorrhage.
 - f. Rapid expulsion of a large baby (Precipitate labour)
2. Mismanagement of the 3rd stage of labour. This is about the commonest cause of post partum haemorrhage and under the control of the midwife. This management includes:
 - a) Conducting labour with full bladder.
 - b) Massaging, kneading, squeezing and pushing of the uterus – These over stimulate the uterus and cause irregular contraction and partial separation of the placenta and inadequate control of haemorrhage.
3. Subendometrial Fibroids; This interferes with uterine contraction.
4. Blood dyscrasia: clotting disorders – Hypofibrinogenaemia.
 - i. It is associated with concealed Accidental haemorrhage.
 - ii. Amniotic fluid embolism
 - iii. Mixed abortion for many weeks.

If in addition the uterus is atonic uncontrollable bleeding occurs
5. Placental abnormalities

- i. Placenta chorionic villi penetrate more deeply than usual – (Placental accrete) leading to inseparation.
 - ii. Placenta Praevia – partial separation.
- 6. Anaemia ketosis – Induction or augmentation of labour with oxytocin

Sign & Symptoms

1. Bleeding – May start a few minute after delivery of the baby and comes out in gush.
2. Big uterus – Higher than umbilical level or feels large
3. Boggy: soft and flabby, distended with no definite outline
4. Rapid Pulse: Above 90 beats
5. Pallor – on the face
6. Collapse.

Management

Prevention:

1. Treat anaemia in Pregnancy.
2. High Risk women should be delivered in Hospital – Previous PPH, Placenta accrete, Grandmultiparity, APH, and Fibroids.
3. Good management of second stage of labour.
 - i. Empty bladder at the end of first stage.
 - ii. Slow delivery of the baby.
4. Good management of 3rd stage – Control Cord traction (CCT)
5. Anticipation of blood coagulation disorders.
6. The use of oxytocic drugs.
 - i. Suspected cases
 - ii. Oxytocin drip – To run for 1hr after delivery (Induction).

Active Management

(Before the delivery of the placenta) To control the bleeding the uterus must be strongly contracted and empty.

Principle of Management

1. Stop the bleeding
2. Replace lost fluid
3. Treat circulatory failure – Shock
1. Massage and kneed the uterus to contract.

2. Deliver the placenta by CCT or Brandt Andrews method and remove blood clots.
3. Give injection ergometrine 0.5mg or syntometrine 1ml i.m.
4. Send for medical Aid or transfer to a Hospital.
5. If placenta can not be expelled give syntometrine 1ml (syntocinon 5 unit + Erg+ 0.5mg) check for contraction and deliver by CCT. If placenta does not separate completely repeat after 10min. that alone will control haemorrhage.
6. If all fail manual removal of the placenta have to be performed.

Bleeding after the Birth of the placenta:

1. Massage the uterus until it contracts.
2. Empty the bladder
3. Expel blood clots
4. Send for medical Aid
5. Give Oxytocin drugs – syntometrine, it acts fast or Ergometrine i.v. (45sec) by Dr. Dext at 40 drops per minute.
6. If bleeding continues – Apply bimanual compression on the placenta site to control bleeding until oxytocin drugs take effect – Do clotting time.
7. Exploration of the uterus under G.A. – for retained product and trauma.
8. Hysterectomy for uncontrollable and severe cases.
9. Blood transfusion if necessary.
10. The uterus should not be packed.
11. Raise the foot of the bed if in shock.
12. Insert indwelling catheter to monitor urinary output.
13. Keep all records of observations meticulously pulse $\frac{1}{4}$ hourly, B/P respirations
14. Give analgesic to relief pains.

3.2.2 Traumatic Post Partum Haemorrhage.

Is due to laceration of the cervix or upper vaginal wall. Bleeding from the perineum is readily controlled but when from

clitoris bleeding may be profused. It may occur in abnormal presentation and instrumental delivery.

Signs & Symptom

1. Start immediately the baby is born.
2. The flow is a continuous heavy trickle.
3. Uterus is firm and well contracted.

Treatment

1. Suture the laceration under General anaesthesia (G.A). –
Cervical laceration
 - a. Use Sims Ferguson's speculum for inspection.
 - b. Sponge holding forceps is used to hold the cervix as tenaculum will tear the cervix the more.
2. Tie bleeding points and suture with catgut.
3. In remote area, pack the vagina to compress the bleeding points – using gauze plug.
4. Remove clots from the vagina, empty the bladder.

3.2.3 Manual Removal of Placenta

Usually done under G.A. The vulva is cleaned and gloved hand is lubricated with an obstetric cream and introduced into the uterine cavity. The left hand controls the fundus per abdomen. The hand follows the cord if present up to the placenta and identifies edge. Using the ulner border the placenta is separated from the uterine wall. The external hand keeps constant manipulation. Ensure that all the placenta tissues have been removed before the hand is withdrawn. The external hand massages the uterus for contraction, ergometrine 0.5mg is given i.v. or i.m. The placenta is examined for completeness.

3.2.4 Bimanual Compression

This is used to control bleeding until oxytocic drugs take effect method:

Place patient in a dorsal position. Clean the vulva. Scrub the hands and wear glove. Insert the right hand into the vagina like a cone, make it into a fist. Place the flat part of the fist in the Anterior

vaginal fornix against the uterine wall. Rest the elbow on the bed between the woman's thighs place the left hand over the uterus abdominally with fingers directed towards the cervix. Bring the uterus forward and compress it on to the fist in the vagina. In this way the uterus is compressed between the two hands and haemorrhage is controlled. It should be maintained until the uterus is well contracted. Early compression is very effective, though it is a tiring procedure – Ergometrine may be repeated i.m to maintain contraction.

3.2.5 Secondary Post Partum Haemorrhage

Bleeding that occurs after 24 hrs hours or more after delivery, within 6 weeks of delivery, usually about the 10th day.

Causes:

Usually due to retained fragment of placenta tissue, chronic membranes, chorionic membranes or blood clots. Frequently complicated by intrauterine infection and pyrexia – myometritis.

1. Separation of septic slough from the cervical or vaginal tear or placenta site or Caesarean Section wound.
2. Rarely from infected and slough from a subendometrial fibromyoma (Fibroid)
3. Some times may not be associated with sepsis.

If associated with sepsis there is usually fever, offensive lochia, or other evidence of infection. The cervix usually remains opened when something is remained in the uterus.

Warning signs

1. Persistent red lochia – evacuation
2. Retained succenturate lobe

Management

1. Ergometrine 0.5mg i.m is repeated.
2. Digital exploration of the uterus
3. Broad spectrum antibiotic
4. Careful light curettage to prevent uterine perforation – if bleeding persists.

5. In profuse bleeding – do bimanual compressions.
6. Call a Doctor
7. Empty bladder, save all linens.

3.2.6 Vulva Haematoma

It may give rise to traumatic haemorrhage . It is caused by ruptured leading to collection of blood in the connective tissue of the vulva and vaginal wall. A small haematoma may be associated with repair of medio lateral episiotomy or laceration. Sign manifest a few hours after delivery and the woman complains of discomfort and pain in the perineum and/or labia. The skin of the labia becomes thin and haematoma may bulge into the vagina.

Management

1. Apply a hot saline pack
2. Incision and drainage
3. Tie the bleeding vessel
4. Blood transfusion if bleeding is severe.

3.2.7 Adherent Placenta

If placenta does not leave the upper segment after 30mins of delivery. This is suspected, usually no bleeding. The midwife should not make attempt to separate the placenta as partial separation will result in bleeding. Doctor will do manual removal under general anaesthesia.

3.2.8 Retained Placenta

Placenta has separated but not expelled.

Causes:

1. Faulty technique
2. Full bladder

Treatment

Empty the bladder, rub up for contractions and deliver the placenta.

3.2.9 Breaking of the cord:

Check that the uterus is firm, if placenta is palpable in the vaginal – separated use manual effort or fundal pressure to deliver the placenta – with care to avoid inversion of the uterus. If possible under anaesthesia – Epidural, to avoid shock.

Blood coagulation disorders may occur following severe pre-eclampsia, APH, Amniotic fluid embolism, IUD or sepsis.

Management

Fresh blood, platelets, factor v, x, viii, fresh plasma and fibrinogen could be given.

Observation of mother following APH

Estimate lost volume of blood, Vital signs e.g. pulse, BP ¼ hourly temperature.

Palpate uterus to ensure contraction, observe lochia for normalcy, replace i.v loss – avoid circulatory overload. Accurate intake and output chart to assess renal functions, Woman to remain in labour ward until condition is satisfactory, in a comfortable room for 24 – 48hr. she should not be discharged home until Hb is normal, Reassure the woman as necessary.

3.3 Puerperal Pyrexia

This is defined as a febrile condition occurring within 14-21 days of delivery. In the developed countries of the world and in some developing countries, puerperal pyrexia is a notifiable condition.

Causes

1. Genital tract infection
2. Urinary tract infection
3. Incidental causes such as malaria, amoebic dysentery, typhoid and pneumonia.
4. Breast engorgement, mastitis or breast abscess
5. Thrombotic condition such as thrombophlebitis and phlebothrombosis.

6. Pyrexia of unknown origin in this case, no cause can be found for the rise in temperature

Investigation

1. If the patient has dysuria or there is cause to suspect, a midstream specimen of urine is collected for investigation
2. A high vaginal swab or cervical swab is cultured to exclude genital tract infection.
3. Blood film for malaria parasite and blood culture in case of septicaemia .
4. A chest x-ray and sputum examination should be done if the patient coughs.

Management

A patient should be made to rest in bed. The temperature should be reduced by fanning and exposure or tepid sponging if the temperature is about 37.9⁰C. Isolate or barrier nurse the patient while investigations are being carried out, the patient should be thoroughly examined for evidence of infection especially in the breast, chest, throat and the genital tract. The type of labour and mode of delivery of the patient are also reviewed.

In Nigeria and other countries where malaria is endemic, anti malaria drugs such as chloroquine 800mg stat then 400mg twice daily for 3 days are given in conjunction with the specific treatment after a film have been sent to the laboratory of evidence of malaria parasites. Nursing care include rest, observation, physical care.

3.4 Thrombotic Diseases

This is a condition when there is clot formation in the veins, usually of the legs and pelvis. It may be due to infection in the vein is referred to as **Thrombophlebitis**. In the absence of infection in the vein, it is described as **Phlebothrombosis**.

3.4.1 Thrombophlebitis

This is the inflammation that occurs in a vein at a site of blood clot. Conditions that lead to clot formation are venous stasis or

diminished flow. Clotting factors change during pregnancy due to hormonal changes

Women at risk include those:

Women who have used contraception before getting pregnant

Women with jobs where they sit for a long period.

Obese women

Prolonged bed rest in pregnancy

Prolonged period of immobility e.g. in Caesarean Section and polyhydramniotic

- Older women than 40 years of age
- Anaemia, heart diseases are also predisposed.

There are two types

- Superficial and
- Deep vein thrombosis.

3.4.2 Superficial Thrombophlebitis:

It occurs in the superficial vein of the legs. It is firmly attached to the vein so not likely to break off and travel occurs more 3-4 days post partum.

Symptoms include – reddened, warm, swollen area over the clot.

The vein is palpable and very tender. It does not require anti coagulant therapy.

3.4.3 Deep Vein Thrombosis (DVT):

It occurs in the large veins often without inflammation clot is much more likely to break off and travel to the lungs and cause pulmonary embolism, which is a fatal complication.

Symptoms include pain in the involved area. Low grade fever, swelling or paleness of the affected leg, Homan's sign (calf pain on dorsiflexion of the foot) is a positive sign. Ultrasound scanning will confirm diagnosis. It is a serious condition that requires anticoagulants, bed rest, analgesia and observation. Early diagnosis and treatment can reduce the incidence of emboli. It takes 4-6 weeks to resolve completely.

3.5 Puerperal Psychosis

This is a severe mental illness in puerperium, which affects the personality of the woman. She loses contact with reality. The incidence is 1:1000 of birth. It is more common in primigravida. The incidence of psychotic disorders may begin in pregnancy, labour or puerperium.

Many women experience a phase of depression known as “maternity blue”

Predisposing Factors

1. Normal pregnancy and labor may impose a degree of emotional strain on a woman of nervous temperament
2. Severe stress in labor may precipitate psychiatric disorders- if there is history of mental instability in the family.
3. Mal-adjusted personality when subjected to gross disharmony is liable to break down- predisposition to mental illness
4. Heredity
5. Infection may lead to confusion

Signs and Symptoms

1. Persistent insomnia – early sign
2. May refuse meal
3. May be depressed and weepy
4. Unusual sadness, anxiety or irritability may be elated and talkative, there maybe confusion or delusion
5. Excessive self doubt – may hate husband, baby or the nurse
6. Idea of guilt or self blame
7. Hallucination – visual and auditory
8. Suicidal tendencies – self and baby
9. Disorientation and liability of mood – sudden laughter or depression
10. Unwarranted suspicion and persecutory ideas
11. Odd way of handling baby

Management

Prevention:

1. Help your patient to overcome fear by dispelling false information.
2. Create confidence in your patient
3. Recognize early signs and give appropriate care in mild cases and refer to Dr.
4. Proper screening and selection of predisposed cases for Dr's management
 - i. History of mental illness in family
 - ii. Previous history of depression in Puerperium
 - iii. Undue anxiety in 1st trimester
5. Give good care and love to women in Puerperium

Active Treatment:

1. Sedation – Chlopromazine (Largactil) 50mg
Librium 10-20mg
Barbiturate-phenobarb 30-60mg
2. Take baby away
3. Isolate in a single room
4. Remove harmful objects from surrounding
5. Encourage to eat – Nourishing diet
6. General Nursing care
7. Suppress lactation if necessary
8. Electrol convulsive therapy
9. Induction of hypoglycaemia – insulin
10. Antibiotic in case of infection
11. Transfer to psychiatric hospital if necessary

Prognosis is good if well managed

4.0 Conclusion

This unit calls for your vigilant and close observation of women in puerperium especially in areas of physical assessment as well as observation in the behavior of the puerperal woman. A few hours

after delivery are potentially dangerous for the mother because of the risk of excessive bleeding from the raw placental site .A normal labour with successful delivery may suddenly turn to disaster .Therefore, it is never assumed that all is fine after delivery. The vital signs especially, the temperature, the pulse, emotional state of the woman must be closely observed and all recorded in her folder. The woman must be properly supervised during breastfeeding.

5.0 Summary

In this unit we have learnt that a woman is susceptible to complication during the post partum period.Post partum haemorrhage is a serious complication after delivery. She is vulnerable to invasions of micro organisms; such include malaria, urinary tract infection and sometimes pyrexia of unknown origin. She is equally prone to venous thrombosis and mental breakdown.

6.0 Tutor Marked Assignment

- Identify four causes of sub-involution.
Describe the management of a primigravida with sub involution in puerperium

7.0 Reference

Henderson C. and Macdonald s. (2004) Mayes' Midwifery, A textbook for Midwives. 13th ed, Bailliere tindal New York.

Unit 17: Obstetric Interventions

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1.0 Introduction

Normally a baby should be delivered spontaneously per vaginam with little assistance from the attendants, but this is not always the case. Sometimes the baby has to be delivered through surgical assistance with the use of forceps, vacuum extractions or by Caesarean section. The needs for this operation intervention are multifactorial as you shall discover as we go into discussion in this unit. The techniques involved in each of the methods and the midwife's role will be highlighted.

2.0 Objectives

By the end of the discussion in this unit you will be equipped with skills to be able to

- Assist in operational procedures in obstetrics
- Counsel these women on the need for surgical intervention when the needs arise
- Reduce the risk of likelihood of caesarean section .

- Ensure that appropriate post delivery care for both mother and baby
- Provide psychological support for women who had instrumental deliveries

3.0 Main Content

3.1 Episiotomy /Perineal Laceration

An episiotomy is a deliberate surgical incision made into the perineum to enlarge the vaginal orifice (inritus) to facilitate the birth of the baby. It is a planned surgery but often, it is performed as an emergency, because the need for it may not be apparent until the second stage.

Indication:

1. To minimize severe spontaneous maternal trauma.
2. Delay 2nd stage – Tear is imminent, Disproportion, Rigid perineum, Contracted outlet, abnormal positions e.g. opp; face to pubes delivery.
3. Fetal distress – e.g. prolapse cord. To hasten the delivery of the head.
4. To facilitate vaginal and intrauterine manipulation e.g. forceps and intrauterine manipulation e.g. forceps delivery, ventouse extraction, breech delivery.
5. Preterm babies – to avoid intracranial damage.
6. Previous complete perineal tear
7. Primipara with big baby.

3.1.1 Types

1. Media: This is a midline incision which follows the line of insertion of the perineal muscle. It begins in the centre of the fourchette and directed posteriorly for about 2.5cm.

Advantages:

1. Causes less bleeding, because it does not cut through any big blood vessels.
2. It is easy to repair and it heals better. It is more convenient for the woman.

Disadvantage

1. It may extend and damage the anus (third degree tear) or to the rectum (fourth degree tear).
2. It does not give enough room as medio-lateral for instrumental delivery and rotation used mainly in USA.

2. Medio-lateral: The incision begins in the centre of the fourchette and directed to the right or left of the lateral margin of the anal-sphincter, diagonally in a straight line, at an angle of 45° between the tuberosity and the anus. It should not be more than 4-5cm long and about 2.5cm away from the anus. This line avoids damage to the anal sphincter and Bartholin's gland.

Advantage:

1. Can not lead to 3° tear-recommended for midwives. Use more in U.K.

Disadvantage

1. It is more difficult to repair. Bilateral mediolateral episiotomy are not recommended, because it can cause excessive bleeding.

3. J-Shaped or Schuchardt incision

The incision begins in the centre of the fourchette and directed posteriorly in the midline for about 2cm and then directed laterally (at 7.O'clock) to avoid the anus. It helps in difficult deliveries e.g. large head, shoulder dystocia or difficult breech. It is difficult to suture and the wound tend to wrinkle.

4. Lateral Episiotomy

The incision begins about 1-2cm away from the centre of the fourchette. It cut across the labia majora, large blood vessel and Bartholin's duct may be damaged.

Disadvantage

1. Causes profuse bleeding ,difficult to repair ,causes a lot of discomfort to the woman .It has been abandoned.

3.1.2 Timing of the Incision

Episiotomy must be properly timed to achieve the desired goal. It is given when the presenting part is directly applied to the tissue. If given too early it will fail to release the presenting part and causes profuse bleeding.. If given too late, there will be not enough time to infiltrate with local anaesthesia or the tear might have occurred. The purpose is then defeated. The woman should be in dorsal or lithotomy position.

Give local anaesthecia.

3.1.3 Infiltration

The perineum should be adequately anaesthetized prior to the incision. Xylocaine or lignocaine 0.5% 10mls or 1% 5mls is used. It takes 3-4 minute to take effect and last for about 1 hour. So proper time is very important.

Making the incision

A straight, blunt-ended pair or major's episiotomy scissors is usually used. The blade must be sharp to ensure a straight clean incision. Insert two fingers as before and position the blades and cut one straight line during a contraction.. Delivery of the head should follow immediately. If thereis any delay pressure should be applied on the wound to minimize bleeding.

3.1.4 Repair of Episiotomy

Early suturing is recommended as this prevents sepsis and poor union. The local anaesthesia should be effective so she may not require another one for repair. She should be in dorsal position or Lithotomy position with legs well apart and thighs abducted buttocks at the edge of the bed or couch. The vagina is packed to prevent obstruction by the uterine bleeding. Sterility must be

maintained. An episiotomy is equivalent to 2^oc tear so it is repaired in 2 layers.

- i. the vaginal wound
- ii. the pelvic floor muscles and perineal body and the skin,

Touch the cut area to ensure that the effect of anaesthesia has not worn off. If she feels pains there is need to give more anaesthesia. Adjust the light for clearer view.

Use 2-2 or 3-0 chronic catgut is preferable because it is flexible, strong and last long enough for healing to occur. 0-1 may also be considered in the absence of none. Generally absorbable catgut is less painful, less tissue reaction. A curved round body needle is used for the tissue. Continuous or uninterrupted stitches are better, starting from the apex of the vaginal wound to the fourchette. This is followed by the pelvic floor muscles and the perineal body. Care must be taken not to suture the anus. Ensure that wound is properly aligned. The sutures should not be too tight which can cause oedema, haematoma and prevent healing. Now close the subcutaneous tissue. The skin may be sutured with chromic 0 or 1 or non-absorbable suture with cutting edge needle. Then remove vaginal pack insert a gloved finger into the anus to feel top of the rectum of suture. If non-absorbable suture is made on the skin, the number should be recorded for removal. Double check to ensure no pack or instrument is left in the woman's vagina. Clean her with antiseptic lotion and apply sterile pad and make her comfortable. Advise the woman to keep her perineum clean and dry. Use sanitary pad wash the vulva with soap and water as necessary. She should report a week later for inspection of the wound.

Advantages of Episiotomy

1. Prevents over stretching of pelvic floor muscles.
2. Reduces maternal exhaustion and incidence of PPH.
3. Reduces the risk of cerebral damage to infant resulting from acidosis and hypoxia.

4. Heals faster than ragged tear.
5. Prevents damage to the urethra
6. Prevent 3rd degree tear.
7. Does not extend to involve the anus-mediolateral episiotomy.
8. Easier to suture

Care in the Puerperium

1. Analgesia in the first 48-72hrs.
2. Perineal toilet with savlon 1:100, 4hrly.
3. Empty bladder and bowel regularly.
4. Keep wound surface dry.
5. Sitz bath – Hibitane for 5 minutes or radiant heat lamp for 5 minutes 2-3 times a day.
6. Inspect daily for signs of infection and healing.
- 7 If wound breaks down, re-suture with non-absorbable suture after thorough cleaning.
- 8 Avoid strain / constipation
- 9 Good diet – protein and roughages

Complications

1. Haemorrhage, Haematoma, Infection, Dyspareunia, Temporary loss of Libido.
The scar may necessitate episiotomy in subsequent deliveries.
2. An unnecessary injury if given without good cause.

3.1.5 Perineal Lacerations

Perineal laceration is a tear of the perineum which occurs during the second stage of labour . Incidence of perineal laceration can be reduced by given maximum control of the expulsion of the infants but it is inevitable at times.

Sign that the perineum is liable to tear.

A midwife should anticipate tear in cases of abnormal presentation and position which result in larger diameter to descend the perineum and with an uncooperative mother.

Warning

- i. Cracking or tearing of the fourchette before the head is crowned.

- ii. Trickling of blood from the vagina
- iii. Excessive thinning and stretching of the perineum.
- iv. Oedematous rigid perineum.

3.1.6 Types

1st degree tear: Skin and the fourchette only – midwife

2nd degree tear: skin, fourchette posterior vaginal wall, pelvic floor muscles .

3rd degree tear: skin, fourchette, vaginal wall, pelvic floor muscles, anal sphincter, anal canal. Repair is done by Doctor under G.A, epidural or spinal anesthesia.

4th Degree tear: when the trauma extends to the rectal mucosa.

Management of perineal laceration

Prevention

1. Obtaining the woman's cooperation.
2. Having control of the advancing head.
3. Getting small diameters to distend the vaginal orifice.
4. Preventing active extension before crowing.
5. Keeping hand off the perineum – allow to stretch.
6. Delivering the head and the end or between contractions.
7. Allowing the woman to breathe the head out.
8. Taking care in delivering shoulders and body
9. Timely Episiotomy

The principle of repair is the same as episiotomy.

Active management: Refer to episiotomy above.

Removal of Perineal sutures

1. Stitches are removed 6-7 days. Alternate ones first.
2. The number of stitches should be checked with the number of record.

3.2 Induction of Labour

Definition: Induction is the initiation of uterine contractions by artificial means after 28 weeks of gestation before the onset of labour with purpose of effecting a birth of the baby.

Indication

Induction of labour should be done if the health and wellbeing of the mother or the fetus would be affected if the pregnancy should continue.

Indications

- Prolonged pregnancy, Diabetes mellitus – Big baby , Pre-eclampsia and Essential Hypertension , Diminished fetal well being , Placental insufficiency , Rubella in current pregnancy, Early rupture of membranes – Draining of liquor after 12hrs, Cardiac conditions , APH types 1 & II anterior – Abruption Placenta , Acute hepatitis , Previous precipitate labour, Chronic Nephritis , Fetal conditions – Big baby, intrauterine growth retardation, Anencephaly, Fetal Death in utero – previous still birth , unstable lies , Polyhydramnios , Bad Obstetric history – elderly Primigravida, Social reasons, Rhesus incompatibility .

Types

1. Surgical Induction
2. Medical Induction

It is always good to combine the two.

Methods

Surgical Induction includes

1. **Stimulation of the cervix** – stripping of the membranes. It is enough to commence labour – PG E₂ is rapidly produced as fetal membranes are detached from the decidua.
 - a. It can lead to removal of operculum
 - b. It can lead to infection if labour does not start 2-3 days.
2. Artificial Rupture of membranes – (ARM) Amniotomy.
 - i. Forewater Rupture of membranes – using Amniotomy forceps or Amniohook, Kocher's forceps Danger – Cord prolapse, Infection.
 - ii. Hindwater Rupture of membranes – using Drew's catheter.

- iii. Danger – Placenta separation, can puncture chorion, Infection, cord prolaps may occur.

Medical Induction

1. Oil, Bath, Enema – OBE

Oil – castol oil

Bath – Hot Bath

Enema – Hot, High and a lot.

This enough can stimulate uterine contraction if pregnancy is term and ready.

2. The use of Oxytocin:

Intravenous infusion of syntocinon or pitocin can be used.

Technique of Administration: the lie, presentation, fetal heart rate are checked, CPD excluded.

- Enema is given.
- Assess the condition of the cervix – dilatation and consistency using the Bishops score 5-10
- Membranes are ruptured.

Preparation

Preparation of the Patient

1. Explain the procedure to the woman .
2. Patient's health must be ascertained.
3. Shave the vulva and wash, ensure the woman empties her bladder
4. ARM is done in the morning of the procedure
5. Inform specialists – paediatrician, haematologist

Role of midwife

1. Label the bottle – unit, time of starting
2. Monitor the drops
3. Monitor the strength, consistency and frequency of contractions and vital signs quarter hourly.
4. Monitor the progress of labour and fetal condition
5. Intake and output chart is kept
6. Give Psychological support
7. Make patient aware of progress of labour.

8. Notify Dr. Early and stop drip in case of any complications.
9. Relief pains as necessary.

Indication for stopping the drip

1. Over stimulation of the uterus
2. Strong contractions
3. Tonic uterine contractions
4. Deterioration in the woman's condition – e.g. increased B/P, maternal or fetal distress, pre-eclampsia if due to over stimulation or tonic contraction give 2 puffs of ventolin inhaler before Doctor's arrival.

Bucal Pitocin

It is given in form of tablet. It brings out erratic absorption and contraction is uncontrollable. It can cause uterine spasm and fetal anorexia. Dosage 10 unit in each bucal and another ½ hourly 2, 50, 50, 100, 100 units. If there is fetal distress or hypertonic uterine action the tablets are removed.

3. Prostaglandin

This is a hormone in the prostate gland but present in females. It causes contraction of the uterine muscles. It is useful in ripening of the cervix prior to induction by oxytocin or Amniotomy.

- It may be used in form of pessaries, tablets, or gel.

Favourable Factors

1. Ensure fetal maturity
2. Consider the gestational age, it is better when pregnancy is at term above 38 weeks.
3. Ripening of the cervix – Bishops score: A score of 6 and above is favourable with level of presenting part at 3/5 or less above the brim. (good prognosis). Must ascertain the lie, is longitudinal presentation, cephalic, Fetal Heart Rate are checked. Exclude CPD – obtain consent from the husband or the woman.

5 Features are considered, each is awarded 0-3. A score of 6 above is favourable and of good prognosis – Referred to as “Ripe cervix”.

Bishop's Score

		0	1	2	3
1.	Dilatation of cervix in cm	Closed	1-2cm	3-4cm	5-6cm
2.	Consistency of cervix	Firm	Medium	Soft	
3.	Position of cervix	Posterior	Mid line	Anterior	
4.	Effacement of cervix %	>2 0-30%	1-2 40-50%	0.5-1 70-70%	<0.5 80%
5.	Station of the head to the level of the ischial spines	-3	-2	-1	+ 1+ 2

Favourable score 6-10

Unfavourable 0 – 5 score

3.3 Vacuum Extraction – Ventouse

This is a procedure performed to aid extraction of the fetus by suction cup applied to the scalp. It is an alternative instrument to forceps and it was introduced by Malstrom. Hence the name ‘Malstrom vacuum Extractor’.

The apparatus consist of a suction cup attached by a chain, running through a rubber tube to a metal handle connected by a rubber tubing to a glass containing pressure gauge and a hand or electric pump. The mental cup is in four sizes 30, 40, 50 and 60mm in diameter. Depending on the dilatation of the cervix the biggest is used because the longer the cup the greater the suction area and the extractive force that can be applied.

Indication

1. Delay in 2nd stage of labour
2. Delay with the 2nd twin.

3. Deep transverse arrest of the head.
4. To rotate head in occipito-posterior position.
5. To facilitate full dilatation of the Cervix in prolonged labour and mild fetal distress and maternal exhaustion, maternal conditions like – Diabetes, cardiac disease hypertension.

Procedure: Requirement

The presentation is determined by abdominal examinations. Head should be engaged. Local anaesthesia is got ready, Episiotomy tray, Resuscitation tray, Vaccum Extrator set is ready.

Contraindication

1. Face or breech presentation
2. Urgent fetal distress in 2nd stage.
3. Disproportion
4. Premature baby

Danger: Necrosis of the scalp, cephalhaematous ,cerebral trauma , tentorial tear. Intracranial haemorrhage due to prolong application of the cup:

Trauma to the bladder neck or vaginal wall.

3.4 Forceps Delivery

This is a means of extracting the fetus with aid of obstetric forceps when it is impossible for the mother to complete the delivery by her effort.

It can also be used to aid the delivery of the after-coming head in breech delivery and to withdraw the head out of the pelvis during caesarean section.

Classification

- i. High forceps
- ii. Mid-cavity
- iii. Low-cavity

The last one is one commonly used while the former two have been replaced by caesarean section due to its traumatic complications.

Types of obstetric forceps

1. Ungley's forceps: short handle used for low forceps deliveries, after – coming head and at caesarean section.
2. Simpson's forceps; standard, low cavity forceps.
3. Neville – Bornes: anderson's forceps. Haigfergusons, Miler Murray. These are all for high and mid-cavity deliveries.
4. Kielland's forceps: for rotation of the head from OP or OL. It has no cephalic curve it is for rotation.

Indications for forcep delivery

1. Delay in 2nd stage of labour – e.g. Poor contraction or maternal effort, mal-rotation rigid perineum, use of epidural anaesthesia.
2. Fetal distress in 2nd stage
3. Mal-position – OPL & OPP.
4. Maternal distress or exhaustion – when pushing is undersirable: Hypertension, Cardiac disease, emotional over-stressed.
5. Breech presentation – After coming head.
6. Preterm babies – To protect the delicate fetal head.

Favorable conditions for forceps delivery

1. Full dilatation of the cervix.
2. Membranes must be ruptured.
3. Presentation & Position must be accertained
4. Suitable presenting part – vertex, (b) Face, after-coming head in breech. – No CPD.
5. Head must be engaged and bladder empty.
6. Suitable anesthesia

Preparation

1. Patient & husband must be informed of the progress of labour.
2. Appropriate analgesia must be offered.
3. Place in lithotomy position.
4. Minimise discomfort and embarrassment to the woman.
5. Preparation for resuscitation must be available.

A midwife must always be with the woman for full attention and support .

Fetal heart rate must be monitored throughout

3.5 Symphysiotomy

This is enlargement of the pelvis by cutting of the symphysis pubis fibre to allow vaginal delivery in the presence of moderate disproportion. It is done when facilities for Caesarean Section are not available or to avoid rupture of uterus at a previous Caesarean Section scar. The fetus must be alive. It is done late in labour. Usually for a primigravida.

- Make a stab incision on the symphysis pubis.
- Deliver the baby immediately by vacuum to.

After care:

1. The pelvis is supported with broad strips of elastoplast.
2. The legs are strapped together for 12 hours.
3. Patient is kept in bed, nursed on her side for 3 days.
4. Catheter remains for 4 – 5 days, the catheter is then removed and she is allowed to sit out of bed.
5. Ambulation starts on the 5th day with walking sticks.
6. She should avoid undue muscular effort and lifting of weight for at least one month.

Complications

1. Soft tissue damage – bladder neck and urethra.
2. Vesico Vaginal Fistula –VVF.
3. Pelvic joint and back pains
4. Difficulty in walking may persist for a long time.
5. Sepsis and haematoma at the site of operation.
6. Pelvic instability during subsequent pregnancies causing pubic and back pains.
7. The procedure is outdated and has been replaced by C/S.
- 8.

3.6 Caesarean Section

This is an operation by means of which the fetus is delivered through an incision on the abdominal wall and uterus after 28

weeks of gestation. A similar procedure before 28th week is referred to as hysterotomy.

Indications for Caesarean Section

1. Cephalo-pelvic disproportion/contracted pelvis
2. Obstructed pelvic tumour, fibroid.
3. Stenosis of the vagina- Gynaetresia
4. Major placenta praevia
5. Failed induction of labour, trail of labour or failure to progress
6. Fetal and maternal distress.
7. Severe pre-clampsia/Pregnancy induced hypertension.
8. Previous successful repair of VVF.
9. Previous two or more caesarean section.
10. Abnormal presentations: Breech, brow, face shoulder presentations.
11. Elderly primigravida with minor problems.
12. Abnormal uterine action.
13. Medical conditions – Diabetes, nephritis etc.
14. Placenta insufficiency.
15. Bad obstetric history
16. Locked twins/conjoined twins.
17. Uterine rupture.

3.6.1 Types of Caesarean Section

Elective Caesarean Section

This is the operation which is planned because the need is apparent before labour. The woman is admitted a day or two prior to operation at 38th week or at term.

Lower segment Caesarean section

The abdomen is opened through a midline or paramedia incision from above the level of the symphysis pubis to about 2.5cm below the umbilicus. Sometimes Pfannenstiel Or Bikini – line incision (transverse line) is preferred by some for cosmetic reason.. The danger of damage to the bladder is high in on inexperienced hands.

Classical Caesarean Section (upper segment Caesarean Section) a paramedial incision is made (16cm) extending from slightly above the umbilicus is used when the fetus lies transversely or Placenta praevia is anterior 32 weeks before the lower segment is formed. Healing process is delayed because the contraction of the upper segment in Puerperium and rupture may occur with subsequent pregnancies. The woman must always be delivered by C/S. Danger of damage to the bladder is low.

Advantages of Lower Segment Caesarean Section over the others

1. Slight bleeding and little damage to the uterine musculature.
2. Formation of adhesion is reduced and loss intestinal obstruction.
3. Infected case hardly lead to peritonitis because the uterus is on its own.
4. The tranquility of the lower segment favours good healing which decrease the risk of subsequent rupture of the scar.

Pre-Operative preparation and post Operative care are similar to that for any other major abdominal operation.

3.7 Amniocentesis

This is withdrawing of fluid from the amniotic sac through abdominal wall using a transabdominal needle. With the aid of ultrasound the location of the placenta can be seen. It is performed between 16 to 18 week to diagnosis fetal abnormality. It may be performed later for ;

- a. Polyhydramnios
- b. Intrauterine transfusion

Dangers

1. Abortion in early pregnancy.
2. Abruptio Placenta – APH.
3. Damage to fetal vessels
4. Trauma to the fetus.
5. Rhesus isoimmunisation may be induced

6. Fetal Death.

3.8 Cordocentesis

This is a method technique of sampling fetal blood during pregnancy to screen for chromosomal abnormalities, haemoglobinopathy and other blood and cell disorders.

3.9 Fetoscopy

This is a technique whereby the fetus is visualized directly via the endoscope. Blood can be taken for screening for abnormalities e.g. haemophilia inborn errors of metabolism, fetal anaemia, fetal skin biopsy and liver biopsy.

3.10 Destructive Operations (Embryotomy)

Craniotomy: This is perforation of the skull to allow drainage of the cerebral spinal fluids (CSF) and brain tissue causing collapse of the skull bone and allow vaginal delivery. It is performed when the fetus is dead and labour is obstructed by hydrocephaly, cephalopelvic disproportion and malpresentations. In head presenting a pointed instrument is used such as a wide-bore tracer and cannula, cranioclast and cephalotribe Simpson's perforator or oldhorn's perforator. The skull sutures are perforated and the head collapsed. This is followed by extraction, crochet obstetric forceps may be applied if the head is still too large to pass.

Decapitation: This is severing of the head from the trunk.

Indication :

1. Impacted shoulder presentation
2. Locked twins.
3. Double headed monsters.

The instrument used is blunt- Heidler thinble and wire saw or sharp and serrated decapitation hooks (Ramabothams), embryotomy scissors.

Cleridotomy: This is cutting of one or both clavicles to reduce the width of the shoulder girdle in big babies, postmature, anencephalic, monster, shoulder dystocia, contracted pelvis with a

dead baby. Embryotomy scissors are used. Heavy, long straight scissors can be used as well.

Evisceration: This is incision of the abdomen to remove the abdominal or thoracic content in cases of tumour or excessive ascitis obstructing labour. Occasionally it is done in impacted shoulder when the neck can not be reached. The abdomen or chest is opened using a perforator and the content removed manually. The pre and post operative care is as for any vaginal obstetric operations. Most of these have been replaced with caesarean section because of injury to the mother .

4.0 Conclusion

Instrumental delivery is said to be the last resort when a woman is unable to deliver her baby by herself. These means have helped to reduce maternal and fetal mortality rates even though it increases the morbidity rates. When considering these alternative methods of delivery, the risks and benefits as compared with vaginal delivery should be made specific to the woman and her pregnancy. The midwife has significant roles to perform to prepare the woman both physically and psychologically before the procedure.

5.0 Summary

Obstetric operations include all those procedures during labour that involve obstetrician and midwife's active intervention, mainly through the use of instruments to deliver the baby. Indicators vary widely and these dictate the method to be used for a particular woman. Caesarean section is mainly used where there is obstruction along the pelvic canal or there is a problem with the mother, fetus or the contraction. With forceps method, the passage is adequate, but the power or passenger is weak. Indication for induction is to artificially initiate labour. Episiotomy is the widening of the birth canal. In all these, there are post-operative complications to both the mother and the baby, so the woman require vigilant care pre and post the procedures.

6.0 Tutor Marked Assignment

List 10 reasons why a woman may need to be delivered by caesarean section.

Explain how you would prevent perineal laceration during delivery.

7.0 References

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