

LECTURE NOTES

For Nursing Students

Obstetric and Gynecological Nursing



**Ethiopia Public Health
Training Initiative**

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Preface

This lecture note offers nurses comprehensive knowledge necessary for the modern health care of women with up-to-date clinically relevant information in women's health care. It addresses and contains selected chapters and topics which are incorporated in the obstetrics and gynecology course for nurses. However, a major focus is provided on the role of the nurse in providing quality maternal and newborn care.

The obstetric nurse does a three or four month course of obstetrics part as part of an integrated training. The nurse is part of the health team expected to be able to deal with midwifery. The nurses work among the community and they bear the great responsibility of having to deal with mothers in remote areas and far away from hospitals. The nurses must do their best to educate mothers in prevention of complications.

This lecture note is prepared to relieve the shortage of reference materials in the country even though it does not represent the text books. It is organized in a logical manner so that students can learn from the basics to the complex. It is divided in to chapters and subtopics. Each chapter contains learning objectives, descriptions and exercises in the form of discussion, case studies. Important abbreviations and

glossaries have been included in order to facilitate the teaching learning process. The learning objectives are clearly stated to indicate the required outcomes.



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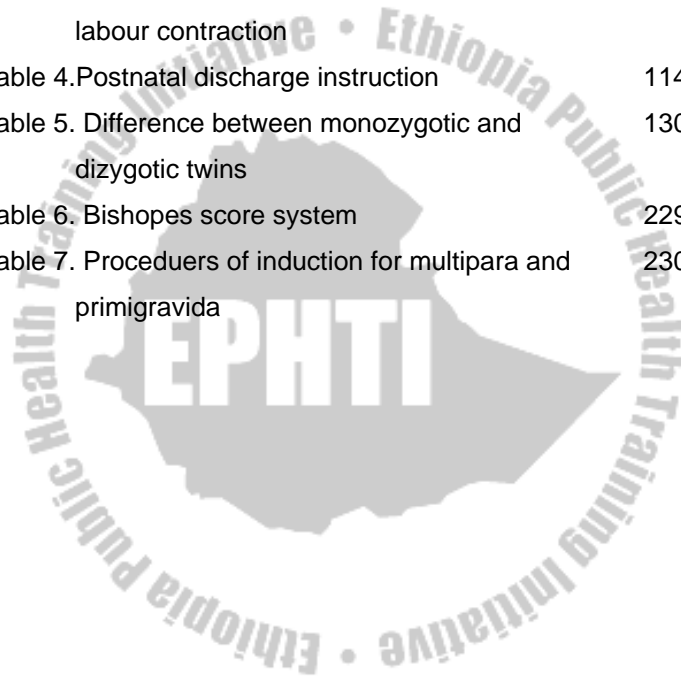
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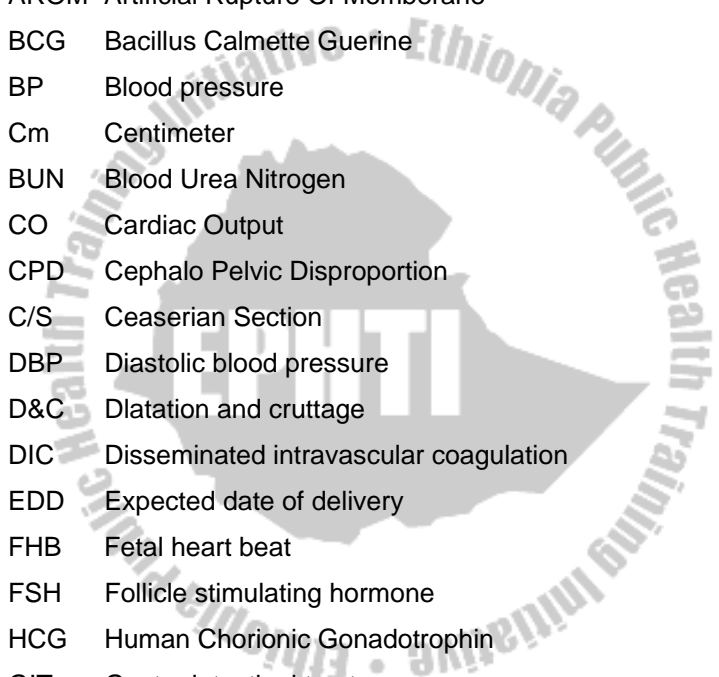
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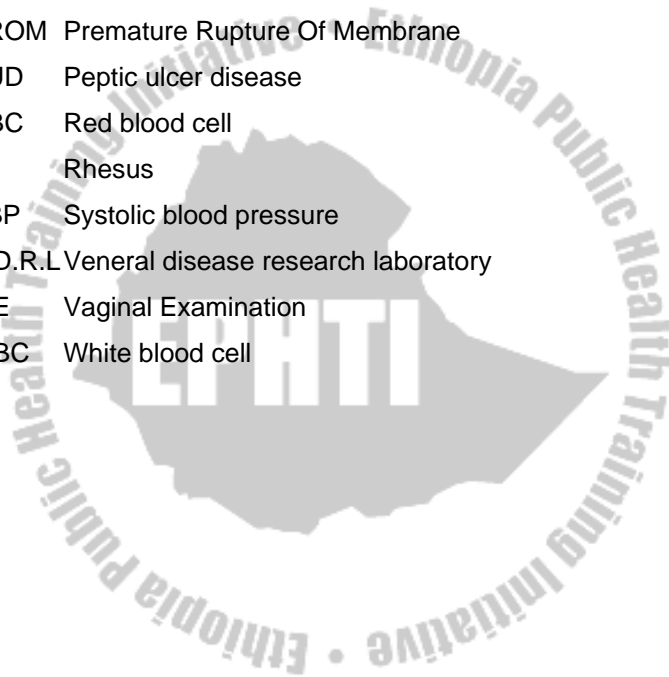


ABBREVATIONS



ACTH	Adreno cortico trophic hormone
ADH	Anti diuretic hormones
APH	Anti Partum Heamorrhage
AROM	Artificial Rupture Of Memberane
BCG	Bacillus Calmette Guerine
BP	Blood pressure
Cm	Centimeter
BUN	Blood Urea Nitrogen
CO	Cardiac Output
CPD	Cephalo Pelvic Disproportion
C/S	Ceaserian Section
DBP	Diastolic blood pressure
D&C	Dlatation and cruttage
DIC	Disseminated intravascular coagulation
EDD	Expected date of delivery
FHB	Fetal heart beat
FSH	Follicle stimulating hormone
HCG	Human Chorionic Gonadotrophin
GIT	Gastro intestinal tract
HPLH	Human Placental Lactogenic Hormone
Hr/s	Hour/hours
IgG	Immuno globuline G
IU	International unit
IUCD	Intra uterine contraceptive device

IV	Intra venous
Kg	Kilogram
PF2	Prostaglandin Factor 2
P.I.H	Pregnancy induced hypertension
PO	Per os/through mouth
PPH	Post partum hemorrhage
PROM	Premature Rupture Of Membrane
PUD	Peptic ulcer disease
RBC	Red blood cell
Rh	Rhesus
SBP	Systolic blood pressure
V.D.R.L	Veneral disease research laboratory
V.E	Vaginal Examination
WBC	White blood cell



CHAPTER ONE

INTRODUCTION

Care of childbearing and childrearing families has become a major focus of nursing practice today. To have healthy children, it is important to promote the health of the childbearing women and her family from the time before children are born until they reach adulthood. Prenatal care and guidance is essential to the health of women and fetus and to the emotional preparation of a family for childbearing.

1.1 Historical development of obstetrics

Usually women have cared for other child bearing women through out much of human history. Birth practices in ancient cultures of the world that did not develop written language and relied only on oral transmission of knowledge have been lost or can be reconstructed only by examining current "Primitive" practices. The routes of maternity care in the Western world are also ancient; the first recorded obstetric practices are found in Egyptian records dating back to 1500 B.C Practices such as vaginal examination and the use of birth aids are referred to in writings from the Greek and Roman empires, but

much of their information was lost in the dark ages. Advance in medicine made during the renaissance in Europe led to the modern “Scientific” age of obstetric care. Significant discoveries and invitations by Physicians in the 16th and 17th centuries let the stage for scientific progress.

1.2 Magnitude of Maternal Health problem in Ethiopia

Maternal mortality is one of the health indicator which shows the burden of disease and death; the greatest differential between developing and developed countries. More than 150 million women become pregnant in developing countries each year and an estimated 500, 000 of them die from pregnancy related causes. Other than their health problems most women in the developing countries lack access to modern health care services and increase the magnitude of death from preventable problems. Lack of access to modern health care services has great impact on increasing maternal death. Most pregnant women do not receive antenatal care; deliver with out the assistance of trained health workers etc. The life time risk of death as a result of pregnancy or child birth is estimated at one in twenty – three for women in Africa, compared to about one in 10,000 for women in Northern Europe 75% of Maternal morbidity and mortality related to pregnancy and child birth are due to five obstetric causes.

Hemorrhage, sepsis (infection), toxemia obstructed labor and complications from unsafe abortion.

As Ethiopia is one of the developing countries with inadequate facilities and resources having highest maternal morbidity and mortality and poor coverage of maternal is estimated to be 1000/100,000 live birth. In Ethiopia women get antenatal care are around 905, 283 and overall the national antenatal care coverage in 34.7%. Among this pregnant woman only 259,083 are attended institutional delivery making the national coverage of 10%. Unwanted and unplanned pregnancies are important determinants of maternal in health. So from 1,769,171 of women child bearing age expected to use family planning 635,105 of them use family planning and the national coverage is only 18.7%. Abortion, HIV/AIDS and STIs are also another conditions that increase maternal morbidity and mortality. These all indicated that the maternal health care is too less in Ethiopia.

1.3 Importance of Obstetrics and Gynecology nursing

Ensuring healthy antenatal period followed by a safe normal delivery with a healthy child and an uneventful post partum period. Prompt and efficient cares during obstetrical

emergencies also prevent so many of complications. The importance of the obstetric and gynecology nursing are:

- Equip the nurse with the knowledge and understanding of the Anatomy and physiology of reproductive organ be able to apply it in practice
- With a good knowledge of obstetric drugs including, the effect of diseases their Complications and know how to deal with them.
- Develop skills in carrying out antenatal care and be able to detect any abnormality, recognize and prevent complications.
- Select high risk cases for hospital delivery and provide health education.
- Develop skills in supporting the women in labour, maintain proper records, and deliver her safely and resuscitate her new born when necessary.
- Be able to care for the mother and baby during the post partum period and be able to identify abnormalities and help them to get-over it.
- Be able to educate them on care of the baby, immunization, family guidance and family spacing.
- Be ready to offer advice to support the mother and understand her problems as a mature, kind and helpful nurse.

CHAPTER TWO

ANATOMY OF FEMALE PELVIS AND THE FETAL SKULL

Learning Objectives

At the end of this chapter the students will be able to:

- Describe anatomy of the Female pelvis and Female external genitalia
- Mention parts of fetal skull with its features.
- Differentiate organs contained in the pelvic cavity.
- Describe characteristic of menstrual cycle and its disorder
- List anatomy of female breast
- Define puberty and its features.

2.1 Female Pelvic Bones

The female pelvis is structurally adapted for child bearing and delivery.

There are four pelvic bones

- innominate or hip bones
- Sacrum
- Coccyx

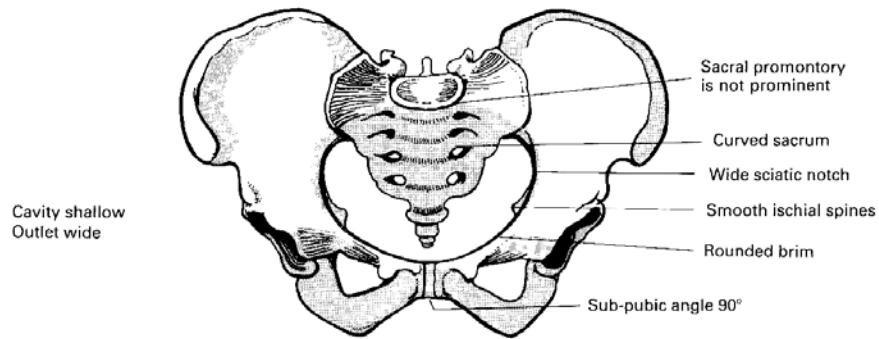


Figure 1. Structure of the pelvis (Adele Pilliter, 1995)

A. Innominate bones

Each innominate bone is composed of three parts.

1. The ilium the large flared out part
2. The ischium the thick lower part. It has a large prominence known as the ischial tuberosity on which the body rests when sitting. Behind and a little above the tuberosity is an inward projection, the ischial spine. In labour the station of the fetal head is estimated in relation to ischial spines.
3. The pubis - The pubic bone forms the anterior part. The space enclosed by the body of the pubic bone the rami and the ischium is called the obturator foramen.

B. The sacrum - a wedge shaped bone consisting of five fused vertebrae. The upper border of the first sacral vertebra is known as the sacral promontary. The anterior surface of the

sacrum is concave and is referred to as the hollow of the sacrum.

C. The coccyx: - is a vestigial tail. It consists of four fused vertebrae forming a small triangular bone.

Pelvic Joints

There are four pelvic joints

- One Symphysis pubis
- Two Sacro iliac joint
- One Sacro coccygeal joint
- The symphysis pubis is a cartilgeous joint formed by junction of the two pubic bones along the midline.
 - The sacro iliac joints are the strongest joints in the body.
- The sacro coccygeal joint is formed where the base of the coccyx articulates with the tip of the sacrum.

In non pregnant state there is very little movement in these joints but during pregnancy endocrine activity causes the ligaments to soften which allows the joints to give & provide more room for the fetal head as it passes through the pelvis.

Pelvic ligaments

Each of the pelvic joints is held together by ligaments

- Interpubic ligaments at the symphysis pubis (1)

- Sacro iliac ligaments (2)
- Sacro coccygeal ligaments (1)
- Sacro tuberos ligament (2)
- Sacro spinous ligament (2)

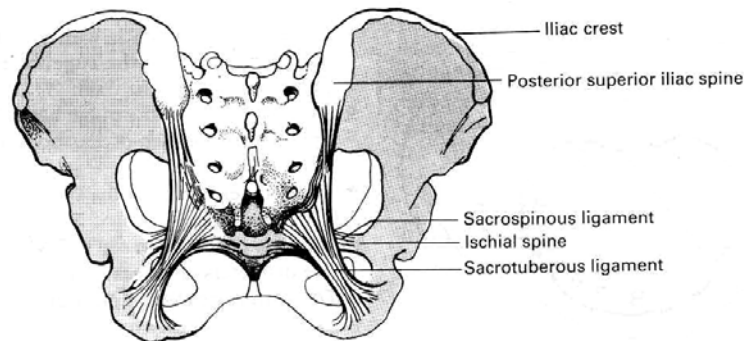


Figure 2: Pelvic Ligaments on posterior view
(Derexllewlyn, 1990)

The True Pelvis

The true pelvis is the bony canal through which the fetus must pass during birth. It has a brim, mid cavity and an out let. The pelvic brim is rounded except where the sacral promontory projects into it. The pelvic cavity is extends from the brim above to the out let below. The pelvic out let are two and described as the anatomical and the obstetrical. The anatomical out let is formed by the lower borders of each of the bones together with the sacrotuberous ligament. It is

diamond in shape. The obstretrical out let is of the space between the narrow pelvic strait and the anatomical outlet.

Important land marks of female pelvis

A. Pelvic brim

- Sacral promontory posteriorly
- Superior ramus of the pubic bone antro lateral
- Upper inner boarder of the body of the pubic bone
- Upper inner boarder of the symphysis pubis anteriorly

B. Mid pelvis

- Ischial spine

C. Out let

- Inferior pubic rami antero laterally
- Sacrotuberous ligament postro laterally
- Ischial tuberosity laterally
- Inferior border of symphysis pubis anteriorly.
- Tip of coccyx

Important diameters of the pelvis

Inlet

Diagonal conjugate - a line from the sacral promontory toward the lower boarder of the symphysis pubis and measures 12.5 centimeter. It is measured by pelvic examination.

Mid cavity

Interspinous diameter-a line between the two ischial spines and measures 11 centimeter.

The pelvic out let

- Pubic arch
- Intertuberous diameter

Table 1. Measurements of the pelvic canal in centimeters

	Anteroposterior	Oblique	Transverse
Brim	11	12	13
Cavity	12	12	12
Out let	13	12	11

The four types of female pelvis

1. The gynecoid pelvis (female type)
2. The android pelvis (male type)
3. The anthropoid pelvis
4. The platypelloid pelvis

Table 2 .Features of the four types of female pelvis

Features	Gynaecoid	Android	Anthropoid	Platypelloid
Brim	Round	Heart shaped	Long oval	Kidney shaped
Fore- pelvis	Genrous	Narrow	narrowed	Wide
Side walls	Straight	convergent	divergent	Divergent
isctial spines	Blunt	Prominent	blunt	Blunt
sciatic notch	Rounded	Narrow	wide	Wide
sub- pubic angle	90°	< 90°	>90°	>90°
Incidence	50%	20%	25%	5%

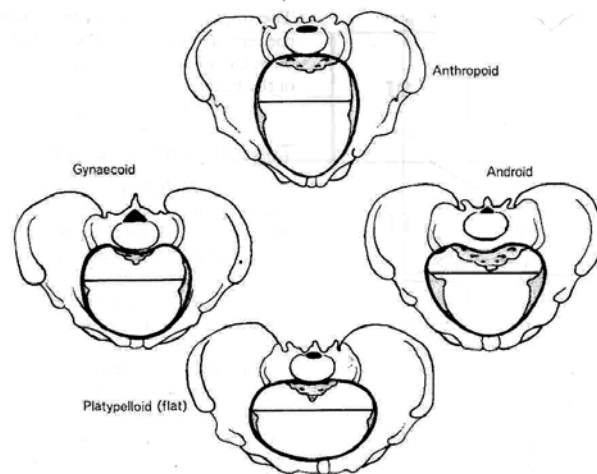


Figure 3 Types of female pelvis (Alan H. Decherney I. pemoll, 1994)

Pelvic floor Or Pelvic diaphragm

The pelvic floor or diaphragm is a muscular floor that demarcates the pelvic cavity and perineum. Its strength is reinforced by its associated condensed pelvic fascia, therefore, it is important for pelvic organs protection.

Functions: -

It supports the weight of the abdominal and pelvic organs

The muscles are responsible for the voluntary control of micturition, defecation and play an important part in sexual intercourse.

It influences the passive movement of the fetus through the birth canal and relaxes to allow its exit from the pelvis.

The main important muscles of pelvic floor are:

- Levator ani muscles are arising from the lateral pelvic wall and decussate in the midline between the urethra, the Vagina and rectum. It contains pubococcygeous muscle, ileo coccygeus and pubo rectalis.
- Pubococcygeous muscle is constructed in such a way that it can expand enough for child birth and contract the pelvis supported

The Fetal Skull

The fetal head is the most difficult part to deliver whether it comes first or last. It is large in comparison with the true pelvis and some adaptation between skull and pelvis must take place during labour. An understanding of the landmarks and measurements of the fetal skull enables to recognize normal presentation and positions and to facilitate delivery with the least possible trauma to mother and child. The skull is divided into the vault, the base and the face. The vault is the large dome shaped part above the imaginary line drawn between the orbital ridges and the nape of the neck.

The base is composed of bones which are firmly united to protect the vital centres in the medulla.

The face is composed of 14 small bones which are also firmly united and non-compressible.

Bones of the Vault

There are five main bones in the vault of the fetal skull.

- A. The occipital bone lies at the back of the head and forms the region of the occiput.
- B. The two parietal bones lie on either side of the skull.
- C. The two frontal bones form the forehead or sinciput.

Sutures and fontanelles

Sutures are cranial joints and are formed where two bones adjoin. Where two or more sutures meet, a fontanelle is formed.

Types of sutures

- A. The lambdoidal suture is shaped like the Greek letter lambda and separates the occipital bone from the two parietal bones.
- B. The sagittal suture lies between the parietal bones
- C. The coronal suture separates the frontal bones from the parietal bones, passing from one temple to the other.
- D. The frontal suture runs between the two halves of the frontal bone

Types of fontanelle

- A. The posterior fontanelle or lambda is situated at the junction of the lambdoidal and sagittal sutures. It is small triangular in shape and can be recognized vaginally.
- B. The anterior fontanelle or bregma is found at the junction of the sagittal, coronal and frontal sutures and recognized vaginally.

The sutures and fontanelles, because they consist of membranous spaces, allow for a degree of overlapping of the skull bones during labour and delivery.

Regions of the Skull

- A. The occiput lies between the foramen magnum and the posterior fontanelle. The part below the occipital protuberance is known as the suboccipital region.
- B. The vertex is bounded by the posterior fontanelle, the parital eminences and the anterior fontanelle. Of the 96% of the babies born head first, 95% present by the vertex.
- C. The sinciput or brow extends from the anterior fontanelle and the coronal suture to the orbital ridges.
- D. The face is small in new born baby. It extends from the orbital ridges and the root of the nose to the junctions of the chin and the neck. The point between the eye brows is known as the glabella. The chin termed the mentum and is an important land mark.

Land Marks of the Fetal Skull

- Sinciput
- Occiput
- Glabella
- Anterior fontanelle
- The vertex
- Posterior fontanelle
- Occipital protuberance
- The mentum

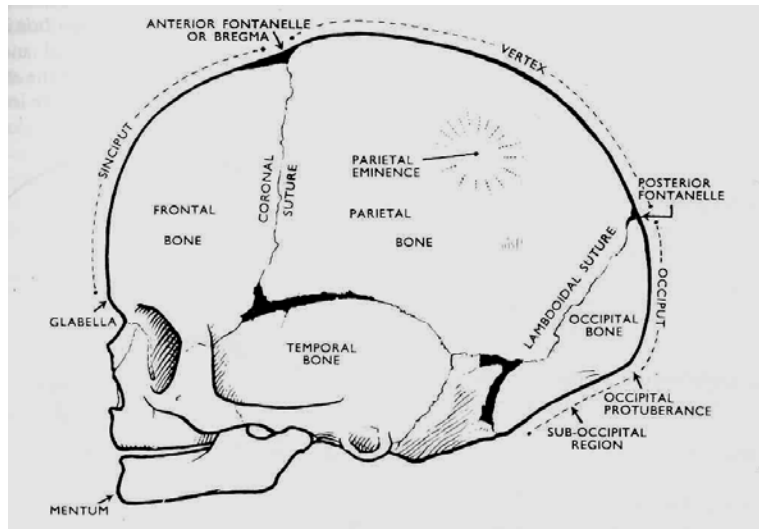


Figure 4. Fetal skull (V.RUTH BENNETT. LINDA K. BROWN, 1993)

Diameters of the Fetal Skull

The measurement of the skulls are transverse, anteroposterior or longitudinal.

- Transverse diameters
 - . Biparietal diameter 9.5 cm between the parietal eminence
 - . Bitemporal diameter 8.2cm between the furthest points of the coronal suture at the temples.
- Anteroposterior or longitudinal diameters
 - . Suboccipitobregmatic 9.5 cm from below the occipital protuberance to the center of the anterior fontanelle or bregma

- Suboccipitofrontal 10cm from below occipital protuberance to the center of the frontal suture.
- Occipitofrontal 11.5 cm from the occipital protuberance to the glabella.
- Mentovertical 13.5cm from the point of the chin to the highest point on the vertex slightly nearer to the posterior than to the anterior fontanelle.
- Submentovertical 11.5 cm from the point where the chin joins the neck to the highest point on the vertex.
- Submentobregmatic 9.5cm from the point where the chin joins the neck to the center of the bregma.

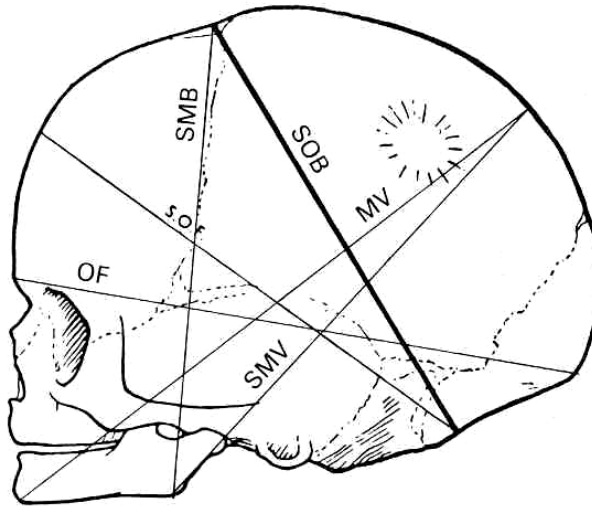


Figure 5. Anteroposterior or longitudinal Diameters of Fetal Skull (V. RUTH BENNETT. LINDA K. BROWN, 1993)

2.2. Anatomy of the female external genitalia

2.2.1 The vulva

This term applies to the external female genital organs. It consists of the following structures. **The mons pubis or mons veneris** - 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 lips)

The labia minora (lesser lips) anteriorly encloses clitoris and posteriorly forms furchette.

The clitoris is a small rounded organ of erectile tissue at the forward junction of the labia minora.

The vestibule is the flattened, smooth surface inside the labia
The vaginal orifice

Bartholin's glands (vulvovaginal glands) are located just lateral to the vaginal opening on the sides.

The furchette is a ridge of tissue formed by the posterior joining of the two labia minora and the labia majora.

The vulval blood supply comes mainly from the pudendal arteries and a portion of the inferior rectal artery. The blood drains through the pudendal veins.

Lymphatic drainage - inguinal glands

Nerve supply - branch of pudendal nerve

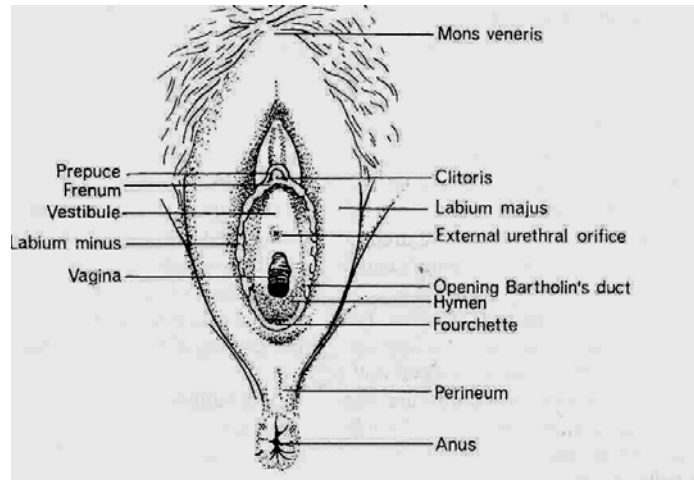


Figure 6 . Female external genitalia (Adele pillitteri,1995)

The vagina

Position –

is a canal running from the vestibule to the cervix.

Relations:-

A knowledge of the relation of the vagina is essential for the accurate examination of the pregnant woman and her safe delivery. It is found in front of the rectum and behind the bladder and urethra.

Structure

- the posterior wall is longer than the anterior

- the vaginal walls are pink in appearance and thrown into small folds known as rugae. These allow the vaginal wall to stretch during intercourse and child birth.

Layers

- squamous epithelium, vascular connective tissue, weak inner coat of circular fibers and stronger outer coat of longitudinal fibers. Pelvic fascia surrounds the vagina forming a layer of connective tissue.

Contents

- the vaginal fluid is strongly acidic (PH 4.5)

Blood supply

- from branches of the internal iliac artery and drains through corresponding Veins.

Lymphatic drainage

- via the inguinal, the internal iliac and the sacral glands drains the lymphatic fluid.

2.3. Contents of the pelvis cavity

2.3.1 The bladder

The bladder is the urinary reservoir which stores the urine until it is convenient for it to be voided.

Position:- In the non-pregnant female, the bladder lies immediately behind the symphysis pubis and in front of the uterus and vagina. The bladder when empty is of similar size to the uterus but when full of urine it becomes, much larger. Its capacity is around 600ml but it is capable of holding more, particularly under the influence of pregnancy hormones.

2.3.2 The Ureters

The tubes which convey the urine from the kidneys to the bladder are the ureters.

Function – They assist the passage of the urine by the muscular peristaltic action of their wall.

The upper end is funnel shaped and merges in to the pelvis of the kidney where the urine is received from the renal tubules.

2.3.3 Urethra

The female urethra is about 4cm long and courses downward and anterior to the bladder neck. It terminates in the vestibule of the vagina between the labia minora and about 2.5cm posterior to the glans of the clitoris.

2.3.4 The uterus

The uterus is a hollow, muscular, pear shaped organ situated in the true pelvis.

Function:- exists to shelter the fetus during pregnancy. It prepares for this possibility each month and following pregnancy it expels the uterine contents.

Position - It leans forward, which is known as anteversion, it bends forwards on itself, which is known as anteflexion

Relation- anteriorly the bladder and posteriorly rectum

Inferior - Below the uterus is the vagina

Superior - above the uterus lie the intestine

Lateral- on both sides of the walls are the broad ligaments, the fallopian tubes and the ovaries.

Supports - supported by the pelvic floor and maintained in position by several ligaments. Ligaments are;

- Peritoneal ligament
 - Broad ligament
- Genito inguinal ligament

- Round ligament
- Ligaments formed by pelvic fascia
 - Transverse cervical ligament
 - Utero sacral ligament

Structures - the non pregnant uterus 7.5 cm long, 5cm wide and 2.5cm in depth, each wall being 1.25 cm thick. The Cervix forms the lower third of the uterus.

Parts of the uterus

- The body or corpus - the upper 2/3 of the uterus and is the greater part.
- The fundus - the domed upper wall between the insertions of the fallopian tubes.
- The cornua - are the upper outer angle of the uterus where the fallopian tubes join.
- The cavity - is a potential space between the anterior and posterior walls.
- The isthmus - is a narrow area between the cavity and the cervix, which is 7mmlong. It enlarges during pregnancy to form the lower uterine segment.
- The cervix or neck - protrudes in to the vagina.
- The internal os (mouth) is the narrow opening between the isthmus and the cervix
- The external os is a small round opening at the lower end of the cervix.

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

The endometrium: - forms a lining of ciliated epithelium (mucous memberane) on a base of connective tissue or stroma. It is constantly changing in thickness through out the menstrual cycle.

The myometrium or muscle coat: - is thick in the upper part of the uterus and is sparser in the isthmus and cervix. It has three parts: Outer longitudinal, middle oblique and inner circular.

The perimetrium is a double serous memberane, an extension of the peritoneum, which is dragged over the uterus.

Blood supply – The uterine artery arrives at the level of the cervix and is a branch of the internal iliac artery. The blood drains through corresponding veins.

Nerve supply – from the autonomic nervous system, sympathetic and para smpathetic via pelvic plexus.

2.3.5 Fallopian tube or uterine tube

Function-Propels the ovum towards the uterus

- Receives the spermatozoa as they travel up wards

- provides a site for fertilization
- It supplies the fertilized ovum with nutrition during its continued journey to the uterus

Position - extend laterally from the cornea of the uterus towards the side walls of the pelvis

Supports - are held in place by their attachment to the uterus.

Structure - Each tube is 10cm long. It has four portions

- The interstitial portion is 1.25cm long and lies within the wall of the uterus. Its lumen is 1 mm wide.
- The isthmus is another narrow part which extends for 2.5cm from the uterus
- The ampoule is the wider portion where fertilization usually occurs. It is 5 cm long.
- The infundibulum is the funnel - shaped fingered end which is composed of many processes known as fimbriae. One fimbria is elongated to form the ovarian fimbria which is attached to the ovary.

2.3.6 The ovaries

Function: - produce ova and the hormones estrogen and progesterone

Position: - they are attached to the back of the broad ligament near the fimbriated end of the fallopian tube.

Blood supply: - Supplied by 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 is to the lumbar glands

Nerve supply is from the ovarian plexus.

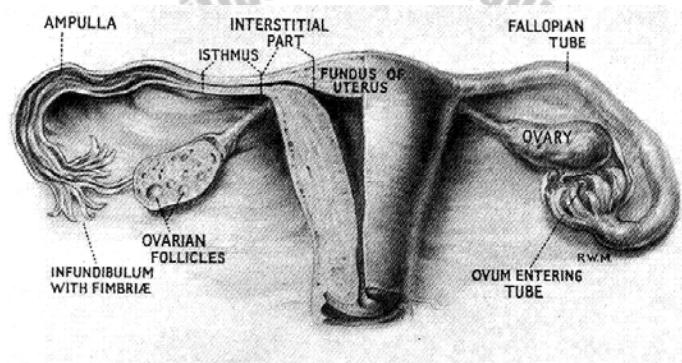


Figure 7. Anterior view of female reproductive organs

(Adele Pillitteri, 1995)

2.4 Physiology of the Female Reproductive Organs

2.4.1 Puberty - the age of sexual maturation

This is the stage of life at which secondary sexual characteristics appear. Girls begin dramatic development and

maturation of reproductive organs at approximately age 12 to 13 years, Although the mechanism that initiates this dramatic change is not well understood, the hypothalamus under the direction of the central nervous system may initiate or regulate mechanism set to “turn on” gonadal functioning at this age.

There is a wide variation in the times that adolescents move through developmental stages; however the sequential order is fairly constant. In girls pubertal changes typically occur in the order of:

- Marked physical growth
- Increase in the transvers diameter of the pelvis
- Breast development
- Growth of pubic and axillary hair
- Vaginal secretion /Menarche

2.4.2 The menstrual cycle

A menstrual cycle (also termed a female reproductive cycle) can be defined as periodic uterine bleeding in response to cyclic hormonal changes or a series of changes that occur on the ovary, uterus, and cervix in response to hormonal change. The average age at which menarche (the first menstrual period) occurs at the average age of 12.8 years. This may occur as early as age 9 or as late as age 17 years.

The purpose of a menstrual cycle is to bring an ovum to maturity and renew a uterine tissue bed that will be responsive to its growth should it be fertilized.

The average age of onset of menstrual cycles is 21 to 35 days. The accepted average length is 28 days. The length of the average menstrual flow is 1-9 days and the average length is 5 days. Amount of flow is from spotting to 80 ml on average.

Four body structures that are involved in the normal physiology of the menstrual cycle are:

- The hypothalamus
- The pituitary gland
- The ovaries and
- The uterus.
- Cervix

For a menstrual cycle to be complete, all four structures must contribute their part, inactivity from any part will result in an incomplete or ineffective cycle.

Some women have symptoms of anxiety, fatigue, abdominal bloating, headache, appetite disturbance, irritability and depression in pre-menstrual period. Some women may experience abdominal pain during ovulation and the release of accompanying prostaglandins. Some even notice irritation when a drop or two of follicular fluid or blood spills in to the abdominal cavity.

This pain, called mittelschmerz may range from a few sharp cramps to several hours of discomfort. It is typically felt on either side of the abdomen (near an ovary) and may be accompanied by scant vaginal spotting. It is known as Mittelschmerz.

2.4.3 Phases of menstrual cycle

Proliferative phase: - Immediately following a menstrual flow (occurring the first 4 or 5 days of a cycle), the endometrium, or lining of the uterus is very thin, only approximately one cell layer in depth. As the ovary begins to form estrogen (in the follicular fluid, under the direction of the pituitary FSH), the endometrium begins to proliferate, or grow very rapidly, increasing in thickness approximately eight fold. This increase continues for the first half of the menstrual cycle (from approximately day 5 to day 14). This half of a menstrual cycle is termed interchangeably as the proliferative, estrogenic, follicular, or postmenstrual phase.

Secretory phase: - What occurs in the next half of in a menstrual cycle depends on whether the released ovum meets and is fertilized by spermatozoa.

If fertilization does not occur, the corpus luteum in the ovary begins to regress after 8 to 10 days. As it regresses, the production of progesterone and oestrogen decreases. With the withdrawal of progesterone stimulation, the endometrium

of the uterus begins to degenerate (at approximately day 24 or day 25 of the cycle). The capillaries rupture, with minute hemorrhage, the endometrium sloughs off, and menstruation starts.

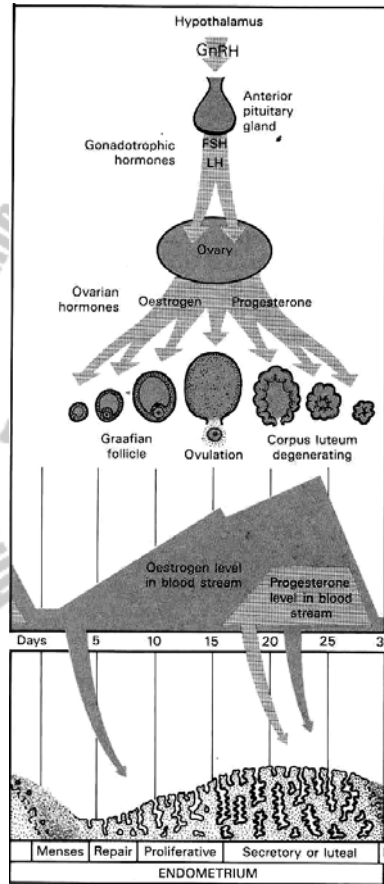


Figure 8 .The menstrual cycle (Derexllewlyn, Jones,Vol.1. 1990)

2.5. The Breast Anatomy

The female breasts

The female breasts, also known as the mammary glands, are accessory organs of reproduction.

Situation One breast is situated on each side of the sternum and extends between the levels of the second and sixth rib. The breasts lie in the superficial fascia of the chest wall over the pectoralis major muscle, and are stabilized by suspensory ligaments.

Shape Each breast is a hemispherical swelling and has a tail of tissue extending towards the axilla (the axillary tail of spence).

Size The size varies with each individual and with the stage of development as well as with age. It is not uncommon for one breast to be little or larger than the other.

Gross structure

The axillary tail is the breast tissue extending towards the axilla.

The areola is a circular area of loose, pigmented skin about 2.5 cm in diameter the centre of each breast. It is a pale pink colour in a fair-skinned woman, darker in a brunett, the colour deepening with pregnancy. Within the area of the areola lie

approximately 20 sebaceous glands. In pregnancy these enlarge and are known as Montgomery's tubercles.

The nipple lies in the centre of the areola at the level of the fourth rib. A protuberance about 6mm in length, composed of pigmented erectile tissue. The surface of the nipple is perforated by small orifices which are the openings of the lactiferous ducts. It is covered with epithelium.

Microscopic structure The breast is composed largely of glandular tissue, but also of some fatty tissue, and is covered with skin. This glandular tissue is divided into about 18 lobes which are completely separated by bands of fibrous tissue. The internal structure is said to resemble as the segments of a halved grape fruit or orange. Each lobe is a self-contained working unit and is composed of the following structures

Alveoli: Containing the milk-secreting cells. Each alveolus is lined by milk-secreting cells, the acini, which extract from the mammary blood supply the factors essential for milk formation. Around each alveolus lie myoepithelial cells, sometimes called 'basket' or 'spider's cells. When these cells are stimulated by oxytocin they contract releasing milk into the lactiferous duct.

Lactiferous tubules: small ducts which connect the alveoli.

Lactiferous duct: a central duct into which the tubules run.

Ampulla: the widened-out portion of the duct where milk is stored. The ampullae lie under the areola.

Blood supply Blood is supplied to the breast by the internal mammary, the external mammary and the upper intercostals arteries. Venous drainage is through corresponding vessels into the internal mammary and axillary veins.

Lymphatic drainage This is largely into the axillary glands, with some drainage into the portal fissure of the liver and mediastinal glands. The lymphatic vessels of each breast communicate with one another.

Nerve supply The function of the breast is largely controlled by hormone activity but the skin is supplied by branches of the thoracic nerves. There is also some sympathetic nerve supply, especially around the areola and nipple.

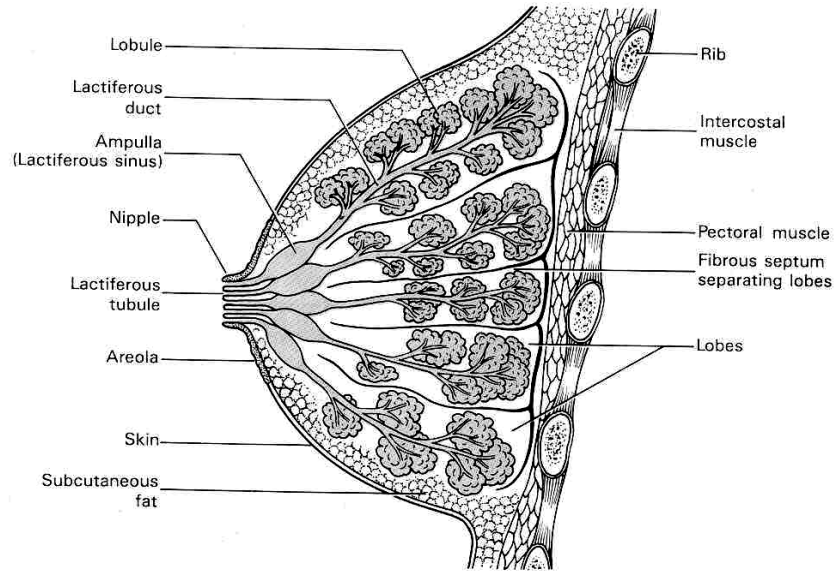
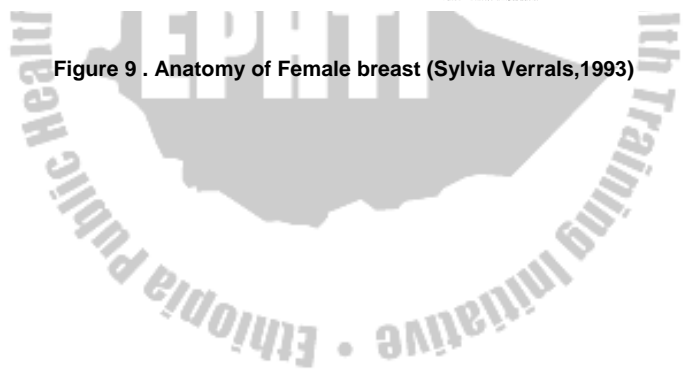
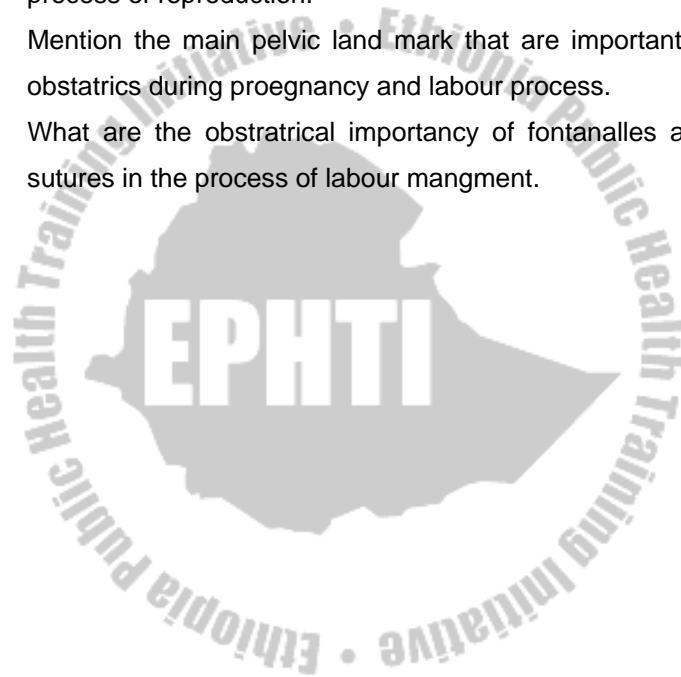


Figure 9 . Anatomy of Female breast (Sylvia Verrals,1993)



Review Questions

1. List different menastrial disorder and responsablitiies of the nurse in their management:
2. List the main femal gentail orgns that are important in the process of reproduction.
3. Mention the main pelvic land mark that are important in obstatrics during proegnancy and labour process.
4. What are the obstratrical importancy of fontanalles and sutures in the process of labour mangment.



CHAPTER THREE

NORMAL PREGNANCY

At the end of this chapter the students will be able to

- Describe the physiology of pregnancy
- list the methods of diagnosis of pregnancy
- Describe stage of embryological development
- Describe placental abnormalities and its consequences
- Enumerate the functions of placenta
- Describe placental abnormalities and its consequences
- Identify major care given for pregnant women during pregnancy

3.1 Conception

Other terms used to describe this phenomenon are fertilization, impregnation or fecundation.

Definition -Fertilization is the union of the ovum and a spermatozoa.

Fertilization must occur fairly quickly after release of the ovum because it usually occurs in the outer third of a fallopian tube,

the ampullar portion. The functional life span of aspermatozoa is about 48 hours / may be as long as 72 hours or longer. Therefore, sexual coitus during this time may result in fertilization /pregnancy.

3.2 Development of the Fertilized Ovum

After fertilization the ova passes through the fallopian tube and reaches the uterus 3 or 4 days later. Division takes place and the fertilized ovum divides into two cells, and then into four, then eight, and sixteen and soon until a cluster of cells is formed known as the morula.

These divisions occur quite slowly about once every 12 hours. Next, fluid filled the cavity or blastocele appears in the morula which now becomes known as the blastocyst.

Around the out side of the blastocyst there is a single layer of cell known as the trophoblast while the remaining cells are clumped together at one end forming the inner cell mass. The trophoblast will form the placenta and chorion, while the inner cell becomes the fetus, umbilical cord and the amnion. Embedding of the blastocyst is normally completed by the 11th day after ovulation and the endometrium closes over it completely.

The Decidua

This is the name given to the endometrium during pregnancy.

Three layers are found in decidua.

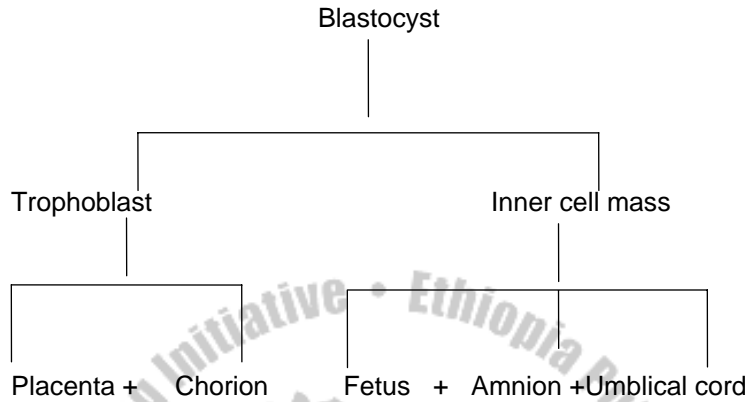
- The basal layer lies immediately above the myometrium.
- The functional layer consists of tortuous glands which are rich in secretions.
- The compact layer forms the surface of the decidua and is composed of closely packed stroma cells and the neck of the glands

The Trophoblast

Those trophoblastic cells differentiate into layers, the outer syncytiotrophoblast (syncitium), and inner cytotrophoblast and below this, a layer of mesoderm or primitive mesenchyme.

The syncytiotrophoblast is composed of nucleated protoplasm which is capable of breaking down tissue as in the process of embedding.

The cytotrophoblast is a well defined single layer of cells which produces a hormone known as human chorionic gonadotrophin (HCG).



The inner cell mass

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

- The ectoderm mainly forms the skin and nervous system
 - The mesoderm forms bones and muscles and also the heart and blood vessels, including those which are in placenta.
 - The endoderm forms mucous membranes and glands.
- The three layers together are known as the embryonic plate.

The amniotic cavity- lies on the side of the ectoderm; the yolk sac lies on the side of the endoderm and provides

nourishment for the embryo until the trophoblast is sufficiently developed to take over.

3.3. Functions of Placenta

Respiration - As pulmonary exchange of gases does not take place in the uterus the fetus must obtain oxygen and excrete carbon dioxide through the placenta

Nutrition - Food for the fetus derives from the mother's diet and has already been broken down into forms by the time it reaches the placenta site. The placenta is able to select those substances required by the fetus, even depleting the mother's own supply in some instances.

Storage - The placenta metabolises glucose and can also store it in the form of glycogen and reconverts it to glucose as required. The placenta stores iron and the fat soluble vitamins.

Excretion - The main substance excreted from the fetus is carbon dioxide; bilirubin will also be excreted as red blood cells are released relatively frequently.

Protection - It provides a limited barrier to infection with the exception of the treponema of syphilis and, few bacteria can

penetrate. Viruses, however, can cross freely and may cause congenital abnormalities as in the case the rubella virus and HIV virus.

Endocrine - Human chorionic gonadotrophin (HCG) is produced by the cytotrophoblastic layer of the chorionic villi.

- Oestrogens as the activity of the corpus luteum declines, the placenta takes over the production of oestrogen, which are secreted in large amounts throughout pregnancy.
- Human placental lactogen (HPL) has a role in glucose metabolism in pregnancy.
- Progesterone

3.4. The Fetal Circulation

At the birth there is a dramatic alteration in this situation and almost instantaneous change must occur. Besides this all, the postnatal structures must be in place and ready to take over. There are several temporary structures in addition to the placenta itself and the umbilical cord and these enable the fetal circulation to take place while allowing for the changes at birth.

The Umbilical vein Leads from the umbilical cord to the underside of the liver and carries blood rich in oxygen and

nutrients. It has a branch which joins the portal vein and supplies the liver.

The ductus venosus (from a vein to a vein) connects the umbilical vein to the inferior vena cava. At this point the blood mixes with deoxygenated blood returning from the lower parts of the body. Thus the blood throughout the body is at best partially oxygenated.

The foramen ovale (oval opening) is a temporary opening between the atria which allows the majority of blood entering from the inferior vena cava to pass across into the left atrium. The reason for this diversion is that the blood does not need to pass through the lungs since it is already oxygenated.

The ductus arteriosus (from an artery to an artery) leads from the bifurcation of the pulmonary artery to the descending aorta, entering it just beyond the point where the subclavian and carotid arteries leave.

The hypogastric arteries branch off from the internal iliac arteries and become umbilical arteries when they enter the umbilical cord. They return blood to the placenta. This is the only vessel in the fetus which carries unmixed blood.

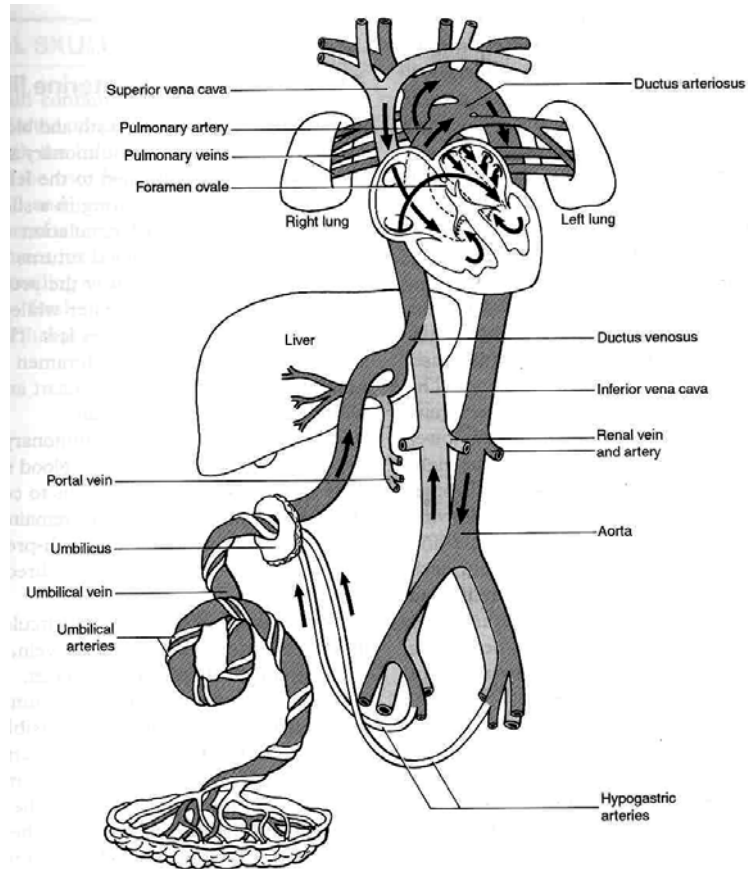


Figure 10 . The fetal circulation (V.Ruth Bennett. Linda k. Brown,1993)

Adaptation to extra Uterine life

At birth the baby takes a breath and blood is drawn to the lungs through the pulmonary arteries. It is then collected and returned to the left atrium via the pulmonary veins resulting in

a sudden inflow of blood. The placental circulation ceases soon after birth and so less blood returns to the right side of the heart. In this way the pressure in the left side of the heart is greater while that in the right side of the heart becomes less. This results in the closure of a flap over the foramen ovale which separated the two sides of the heart and stops the blood flowing from right to left.

The cessation of the placental circulation results in the collapse of the umbilical vein, the ductus venosus and the hypogastric arteries. These vessels after collapse change to the following structure.

The umbilical vein → the ligamentum teres

The ductus venosus → the ligamentum venosum

The ductus arteriosus → the ligamentum arteriosum

The foramen ovale → the Fossa ovalis

The hypogastric arteries → the obliterated hypogastric arteries

The Placental Circulation

The placenta is completely formed and functioning from 10 weeks after fertilization. Between 12 and 20 weeks gestation the placenta weighs more than the fetus. Fetal blood, low in oxygen, is pumped by the fetal heart towards the placenta along the umbilical arteries. Having absorbed oxygen the blood is returned to the fetus via the umbilical vein.

Appearance of the Placenta at Term

The placenta measures about 20 cm in diameter and 2.5cm thick from its center. It weighs approximately one sixth of the baby's weight at term. It has two surfaces.

1. The maternal surface maternal blood gives this surface a dark red colour and part of the basal decidua will have been separated with it. The surface is arranged in about 20 lobes which are separated by sulci
2. The fetal surface. The amnion covering the fetal surface of the placenta gives it a whitish, shiny appearance. Branches of the umbilical veins and arteries are visible and spreading out from the insertion of the umbilical cord which is normally in the center.

The amniotic sac consists of a double membrane.

Chorion – Outer layer adheres to the uterine wall.

Amnion.-The inner layer of the amniotic sac containing amniotic fluid and covers the fetal surface of the placenta and are what give the placenta its typical shiny appearance.

Protects the fetus from any infection and the amniotic fluid is a clear, pale straw in colour. It is secreted by the amnion and fetal urine also contributes to the volume from the 10th weeks of the gestation onwards. The total amount of amniotic fluid is

about 1 liter and diminished to 800ml at 38 weeks of gestation (term). If the total amount exceeds 1500 ml, the condition is known as polyhydramnios and if less than 300ml it is known as oligohydramnios. It constitutes 99% water and the remaining 1% is dissolved organic matters including substances and waste products.

Function

- Allows for free movement of the fetus
- Protects the fetus from injury
- Maintains a constant temperature for the fetus
- During labour it protects the placenta and umbilical cord from the pressure of uterine contraction
- Aids effecient of the cervix and dilation of the uterine

3.5. Anatomical Variations of the Placenta and the Cord

Succenturiate lobe of placenta:

A small extra lobe is present, separate from the main placenta and joined to it by blood vessels which run through the membrane to reach it.

The danger is that this small lobe may be retained in utero after delivery, and if it is not removed it may lead to haemorrhage and infection.

Identification On inspection, the placenta will appear torn at the edge, or torn blood vessels may extend beyond the edge of the placenta.

Circumvallate placenta In this situation an opaque ring is seen on the fetal surface. It is formed by a doubling back of the chorion and amnion.

Danger may result in the membranes leaving the placenta nearer the center instead of at the edge as usually.

Battledore insertion of the cord The cord in this case is attached at the very edge of the placenta in the manner of the table tennis bat.

Danger Likely it is detached up on applying traction during active management of the third stage of labour.

Velamentous insertion of the cord It is inserted into the membranes some distance from the edge of the placenta. The umbilical vessels run through the membranes from the cord to the placenta.

Danger The vessels may tear with cervical dilatation and would result in sudden blood loss.

Bipartite Placenta Two complete and separate lobes are present, each with a cord leaving it. The bipartite cord joins a short distance from the two parts of the placenta.

Danger-The extra lobe may be retained during delivery.

A tripartite Placenta is similar but with three distinct lobes.

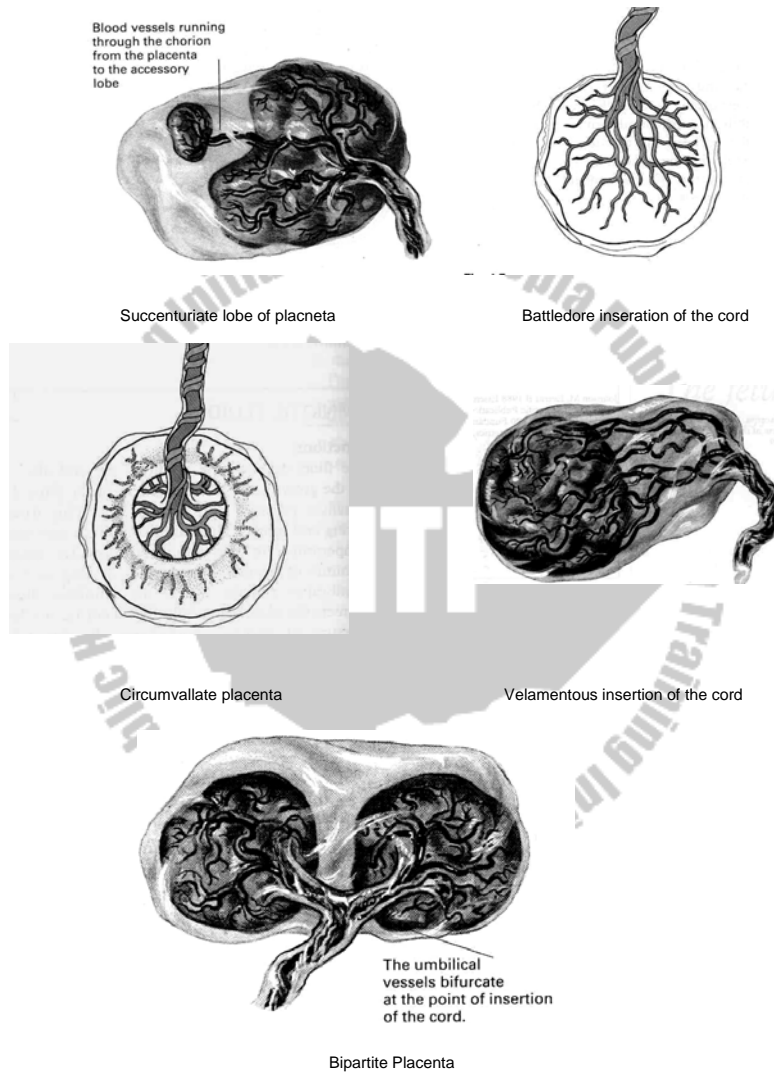


Figure 11 .Anatomical variations of placenta and cord insertion (Adele pillitteri,1995)

Placenta infarction

Placental infarction occurs when the blood supply to an area of the placenta is blocked and tissue necrosis results. It appears most commonly on the maternal surfaces and most often associated with vascular disease of the utero-placental unit secondary to maternal hypertension.

As the infarcted area becomes necrotic, fetal circulation is reduced because blood flow through the placenta will decrease. However, if the circulation through the rest of the organ is sufficient, a fetus may survive when as much as 20% to 30% of the placenta is infarcted. Placental infarctions can be treated.

Placental tumors (Haemangiomas of the Placenta)

These tumors are relatively common, being found in approximately 1 percent of all placentas. Most tumors are small and without clinical significance but a few are large and associated with hydramnios, antepartum hemorrhage and premature labour.

The Umbilical Cord

The umbilical cord or funis extends from the fetus to the placenta and transmits the umbilical blood vessels, two arteries and one vein. These are enclosed and protected by Wharton's jelly, (a gelatinous substance formed from

mesoderm). The whole cord is covered in a layer of amnion continuous with that covering the placenta. The length of the average cord is about 50cm. A cord is considered to be short when it measures less than 40cm.

3.6 Physiological Changes of Pregnancy

- There are physiological biochemical and anatomical changes that occur during pregnancy. These changes may be systemic or local.
- Most of the systemic changes return to pre pregnancy status 6 weeks after delivery.
- These changes occur during pregnancy to maintain a healthy environment for the fetus with out compromising the mother's health. And prepare for the process of delivery and care of the newborn.
- Understanding of the normal changes helps to understand coincidental disease processes.

3.6.1 Gastro Intestinal Tract (GIT)

- Nutritional requirements including for vitamins and minerals are increased so usually mother's appetite increase
- Pregnant women tend to rest more often conserving energy and there by enhancing fetal nutrition

Oral cavity feels salivation

Gums- hypertrophic and hyperemic easily bleed (2^o to increased systemic estrogen)

Gastrointestinal motility May be reduced due to increased progesterone (w/c decreased the hormone motility stimulate smooth muscles in GI) hence gastric emptying is slowed and similarly in other part of GIT constipation (due to increased water absorption)

Stomach Production of gastrin increase increased gastric volume and decreases PH, mucous production increased PUD usually improve or disappear because of these changes during pregnancy, However during the pregnancy because of the enlarging uterus heart burn is common due to gastric reflux

Enlarging uterus slower emptying time, increase intragastric pressure increase acidity and increased gastric reflux

The anatomical position of small and large intestine as well as appendix will shift because of the enlarging uterus

3.6.2 Gallbladder

Progesterone decreased motility → decreased emptying time of bile → stasis → stone formation and infection.

3.6.3 Liver

No morphological changes but functional changes

Decreased plasma protein (albumen) and globulin (synthesized by liver) increases serum alkaline phosphatase activity.

3.6.4 Urinary systems

- Each kidney increase in length and weight
- The renal pelvis and ureter dilate and lengthen

Thus there is an increase urinary stasis increase risk of infection and stone formation

- Renal function
 - Change occur due to increased maternal and placental hormones
 - (ACTH, ADH, cortisol, etc.) and increase in plasma volume
 - Glomerular Filtration Rate increase by 50% (begins early and last up to term)
 - Renal blood flow rate increase by 20-25% (early to midtrimester) after the end of 2nd trimester remain constant.
 - Urine volume does not increase although glomerular filtration rate increase because of reabsorption.

- Creatinine and BUN decrease because of increased clearance
- rate
- Glycosuria is not necessarily as normal
- Protein uria changes little during pregnancy

3.6.5 Bladder

Is displaced upward and anteriorly by enlarged uterus as a result it increases pressure leading to and urinary urgency and frequency

3.6.6 Hematological system:

- Increase in blood volume – most striking change
- The change occurs until term and the average increase in volume is 45-50%
- The mechanism for increase the volume of blood is not well understood (aldestrone related factor during pregnancy may contribute to this effect) increase water and salt retention.
- RBC increased by 33%
- Iron need increases because of increase in red blood cell mass.This is why Iron suplimentation is necessary during pregnancy.
- WBC total count usually increase
- Platlates increase in production

- Clotting factors - Several factors increase- F- I, F-VIII mainly
 - To lesser extent, F-VII, IX, X and XII
 - Decrease- F- XI, F-XIII

3.6.7 Cardiovascular System

Heart slightly shift in position

Enlarging Uterus → diaphragm → displace up ward → shift of apex beat Cardiac capacity increase by 70-80ml

Cardiac out put

- increase a 49% during pregnancy reach may at 20-24 weeks of gestation the constant until term
- During early pregnancy SV increase by 25-30 % with lengthening of systole HR increase (but increase by 15 b/min than non pregnancy) CO=

Blood Pressure

Systemic blood pressure declines slightly during pregnancy

There is little change in SBP but DBP decrease by 5-10 mmHg from 12-26 weeks, then increase to non pregnant level by term.

Venous pressure

- No change in the upper body

- Increase in the lower extremities enlarged
- Decrease venous return to the heart increases pressure and results in edema.

3.6.8 Plumunary system

- Capillary dilatation occurs in the respiratory route (Nasopharynx, larynx, trachea, bronchi) → make breathing difficult through nose, enlarged Uterus pushes the diaphragm and the lungs as well.

Summary of Pulmonary changes

Changes to volume

Tidal volume increase by 35-50%

Residual volume decreased by 20%

Expiratory reserve volume decrease by 20%

So increase Tidal volume and decrease Residual volume → increased alveolar ventilation by 65%.

Functional respiratory changes include

A slight increase in respiratory rate

50% increase in minute ventilation

40% increase in minute tidal volume

Progressive increase in oxygen consumption (15-20% above non pregnant level by term)

3.6.9 Changes in the Breast

Breast increases in size with enlargement of the nipple and increased vascularity and pigmentation of areola.

3.6.10 Change in Skin

Hyperpigmentation over some part of the body

Face (forehead, cheek) - chloasma

Abdomen –subumbilical midline dark purplish pigmentation of linea alba- linea nigra Stretch mainly

- Striae gravidarum

Enlarging abdomen → stretch on collagen fibers of the skin and effect of ACTH

3.6.11 Change in Vagina and Uterus

Vagina – increase in capacity and length secondary to the hypertrophy of the lining epithelium and muscle layer. Increased glycogen content in the wall secondary to the effect of estrogen Increases vascularity and change the colour to purple Fold increases by term

Uterus – Upper part fundus and body change in to upper uterine segment

- Lower part cervix and isthmus change in to lower uterine segment
- Weight increases from 60gm to 1 kg at term, volume 10ml to 5 litres.

3.7 Minor Disorders of Pregnancy

Minor disorders are only disorders that occur during pregnancy and are not life threatening.

1. Nausea and vomiting- This presents between 4 and 12 weeks gestation. Hormonal influences are listed as the most likely causes. It is usually occurs in the morning but can occur any time during the day, aggravated by smelling of food.

Management:

- Reassure the mother
- Small frequent meals (dry meals)
- Reduce fatty and fried containing foods.
- Rest

2. Heart burn: - is a burning sensation in the mid chest region. Progesterone relaxes the cardiac sphincter of the stomach and allows reflex of gastric contents into esophagus. Heart burn is most troublesome at 30-40 weeks gestation because at this stage is under pressure from the growing uterus.

Management:

- Small and frequent meal, sleeping with more pillows than usual.
- For persistence/sever case/ prescribe antacids.

3. Pica: - This is the term used when mother craves certain foods of unnatural substances such as coal, soil...etc. The cause is unknown but hormones and changes in metabolism are blamed.

Management:

- Seek medical advice if the substance craved is potentially harmful to the unborn baby.

4. Constipation: - Progesterone causes relaxation and decreased peristaltic activity of the gut, which is also displaced by the growing uterus.

Management:

- Increase the intake of water, fresh fruit, vegetables and rufhages in the diet.
- Exercise is helpful especially walking

5. Backache - The hormones sometime soften the segments to such a degree that some support is needed.

Management:

- Advice the mother to sleep on firm bed.
- Advice support mechanisms of the back.

6. Fainting: - In early pregnancy fainting may be due to the vasodilation occurring under the influence of progesterone before there has been a compensatory increase in blood volume. The weight of the uterine contents presses on the inferior vena cava and slows the return of blood to the heart.

Management: Avoid long period of standing

- Sit or lie down when she feels slight dizziness
- She would be wise not to lie on her back except during abdominal examination

7. Varicositis- Progesterone relaxes the smooth muscles of the veins and result in sluggish circulation. The valves of the dilated veins become insufficient and varicositis result. It occurs in legs, anus (hemorrhoids) and vulva.

Management:

- Exercising the calf muscles by rising on the toes
- Elevate the leg and rest on the table
- Support thighs and legs
- Avoid constipation and advise adequate fluid intake.
- Sanitary pad give support for vulva varicositis

Most minor disorders can be advanced into a more serious complication of pregnancy. The disorders require **immediate actions are as follows (Danger signals of pregnancy)**

- Vaginal bleeding
- Reduced fetal movements
- Frontal or recurring headaches
- Sudden swelling
- Rupture of the membrane
- Premature onset of contractions
- Maternal anxiety for whatever reason

3.8 Diagnosis of Pregnancy

Pregnancy is mainly diagnosed on the symptoms reported by the woman and signs elicited by a health care provider.

Signs and symptoms of pregnancy

These signs and symptoms are divided in to three classifications; presumptive, probable, and positive.

Possible (presumptive) signs

- Early breast changes-increase in size, darkening of areola, Montgomery's tubercles
- Amenorrhea-a women having regular cycle with out the use of hormonal contraceptives
- Morning sickness
- Bladder irritability like frequency of micturation
- Quickening -the date of the first fetal movement felt by the mother provides an indicator of pregnancy. A primigravid

women feels it at 18-20 weeks the multi gravida at 14-16 weeks

Probable signs

Presence of HCG in

- blood
- urine

Uterine growth

Braxtonhicks contractions

Ballottement

Positive signs

Visualization of fetus by

Ultrasound 6 weeks of gestation

X-ray after 12 weeks of gestation

Fetal heart sounds by

- Ultrasound
- Fetal stethoscope or fetoscope (20th to 24th weeks of gestation)

Fetal movements by

- Palpation
- Visible

3.9 Antenatal Care

Definition: - Antenatal care is the care given to a woman during her pregnancy.

Objectives:

1. To promote and maintain good health of the mother and fetus during pregnancy
2. To ensure that the pregnancy result in healthy infant and healthy mother.
3. To detect early and treat appropriately 'high risk' conditions (Medical or Obstetrical).
4. To prepare the woman for Labour, Lactation and the subsequent care of the baby.

Early antenatal care is important as soon as possible after pregnancy has been confirmed (after one or two missed periods)

Definitions

Gravidity: Pregnancy

Primigravida = a woman pregnant for the first time

Multigravida = a woman who has had two or more pregnancies

Parity- refers to delivery,

Nullipara = a woman who has not given birth to a child (birth)

Multipara a woman who has given birth to more than one child

Grandmultipara woman who has given birth to or more children

Lie: is the relationship of the long axis (spine) of the fetus to the long axis of the mother's uterus, and the normal lie is longitudinal Abnormal are transverse, oblique and variable.

Attitude: is the relationship of the fetal parts to one another, and the normal attitude is flexion, abnormal are extension and deflection

Presenting part: is the part of the fetus felt at the lower pole of the uterus and felt on abdominal examination and on vaginal examination.

Presentation: is the part of the fetus in the lower pole of the uterus and the normal presentation is vertex, abnormal are breech, face, brow and shoulder.

Position: is the relationship of the denominator to the six areas of the mother's pelvis, normal position is anterior or lateral abnormal is Malposition is Occipital posterior position.

Crowned: When the Bi-parietals pass the ischial spines and the head no longer recedes between contractions.

Denominator: The part of the fetus which determines the position. (Vertex- occipute, breach -sacrum. Face- mentum).

Engaged: when the Bi-parietal diameters of the fetal head passes through the pelvic brim.

3.9.1. History Taking

History taking:- Is a means of assessing the health of the woman to find out any condition which may affect child bearing.

1. Social History

Name, age, address, occupation; Age less than 18 years or greater than 35 years are considered as high risk mothers.

2. Family History

To know the genetic predisposition to certain diseases

3. Medical History

Former illnesses may have damage certain structures or organs which could give rise to complications during pregnancy and labour.

4. Surgical History:-

- Operations on the genital tract.
- Any abdominal operations

The Obstetric History

1. Past Obstetrical History.

Record of previous pregnancies and labour

Was labour premature or postmature, spontaneous or induced, history of instrumental deliveries, previous obstetric complications and previous babies?

2. History of the Present Pregnancy

Ask the last normal menstrual period and then calculate the gestational age of the pregnancy and expected date of delivery.

3.9.2 Examination of the Pregnant Woman at First Visit

Objective:

To diagnose pregnancy

To identify high risk pregnancy

To give advice for pregnant mother

General Appearance

As she walks in, observe any deformity, stunted growth, limp etc. does she look well or pale and tired?

Clinical Observation

Height; - 150 cm or less needs special care.

Weight:- The average weight gain during pregnancy is about 12-14 kg in the first trimester a woman should gain 0.4 kg per month and in the second and third trimester she should gain 0.4 kg per week. It is considered as excessive if it is more than 3 kg a month during the second and third trimester; it is less than normal if it is less than 1 kg per month during the second and third trimester. Women who are underweight coming in to pregnancy should gain more weight than the average (0.5 kg per month or week rather than 0.4 kg). And may gain less than average (0.3 kg). Sudden increase in weight that suggests fluid retention or a loss of weight that suggests illness should be carefully evaluated at prenatal visits.

Blood pressure: - Checked and recorded at each visit,

Physical Examination:-

Appearance: - The hair of a healthy woman is shining and glossy, her eyes bright and clear,

Face: - Oedema, sign of anaemia

Neck - Swollen glands

Breast Examination

Asses the size, any Lumps in the breast

Nipples are they inverted or flat?

- Teach the mother self - examination of the Breast

Heart and lungs are examined as usual to exclude diseases.

Abdominal Examination

AIMS

- To observe signs of pregnancy
- To assess fetal size and growth
- To assess fetal health
- To diagnose the location of fetal parts.
- To detect any deviation from normal.

Steps for Abdominal Examination

1. Inspection
2. Palpation
3. Auscultation

Inspection (5s)

a) Shape:-

- Note contour -is it round, oval, irregular or pendulous?
- Longtudinal, ovoid in primigravida
- Round in multipara.
- Broad in transuerse lie.

- b) **Size:-** Should correspond with the supposed period of gestation
- c) **Skin:** - The dark line of pigmentation which is lineanigra is seen any rash?
- d) **Strae gravidarum**
- e) **Scar** - Any operation scar(c/s)

On Palpation:

1. Fundal height and fundal palpation (1st Leopold Maneuver)

1.1 Fundal Height

At about 12 to 14 weeks of pregnancy, the uterus is palpated above the symphysis pubis as a firm globular sphere; it reaches the umbilicus at 20 to 22 weeks, the xyphoid process at 36 weeks, and then often returns to about 4 cm below the xyphoid due to “**lightening**” at 40 weeks.

Method: Measure distance of fundus with points on abdomen and assessing the fundal height in finger breadth below the xiphisternum or measure by centimeter.

1.2 Fundal Palpation

Purpose- To know lie and presentation.

Method: - Use 2 hands using palms of hands palpate on either side of the fundus. Fingers held close together, palpate the upper pole of then uterus and feel that as it is hard or soft or irregular.

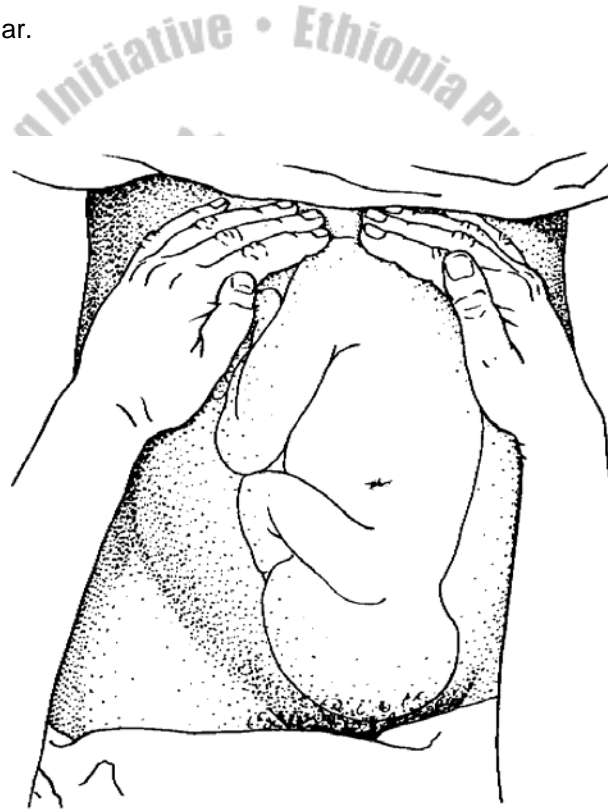


Figure:12 Fundal palpation (Derex llewlyn-Jones,vol.1,1990)

2. Lateral Palpation: (2nd Leopold maneuver)

Purpose-To know lie and position

Method: - always facing the mother, fix the hand on the center of the abdomen, fix the right hand and palpate with left hand and vice versa. Note the regularity; the regular side is the back.

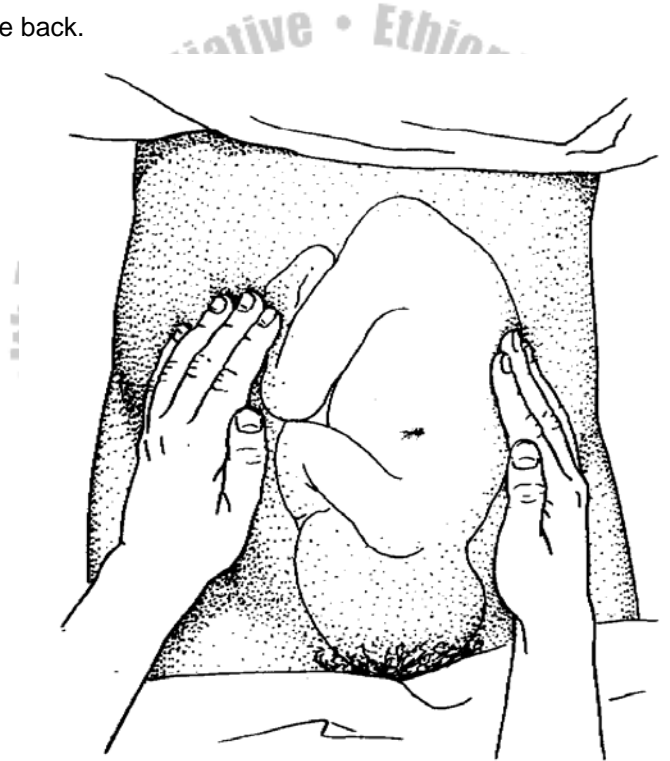


Figure ; 13 Lateral palpation (Derex llewlyn Jone, vol.1, 1990)

3. Deep pelvic Palpation: (3rd Leopold Maneuver)

Purpose -To Know Presentation & Attitude

Method: - Feel presenting part, is it hard or soft while palpating for the presenting part feel for eminences on back side.



Figure 14: Deep pelvic palpation (Derexllewllyn-Jone, Vol.1,1990)

4. Pawlick's Grip: (4th Leopard Maneuver)

The lower pole of the uterus is grasped with the right hand the midwife facing the women's head, feel the occiput and sinciput, note which is lower.

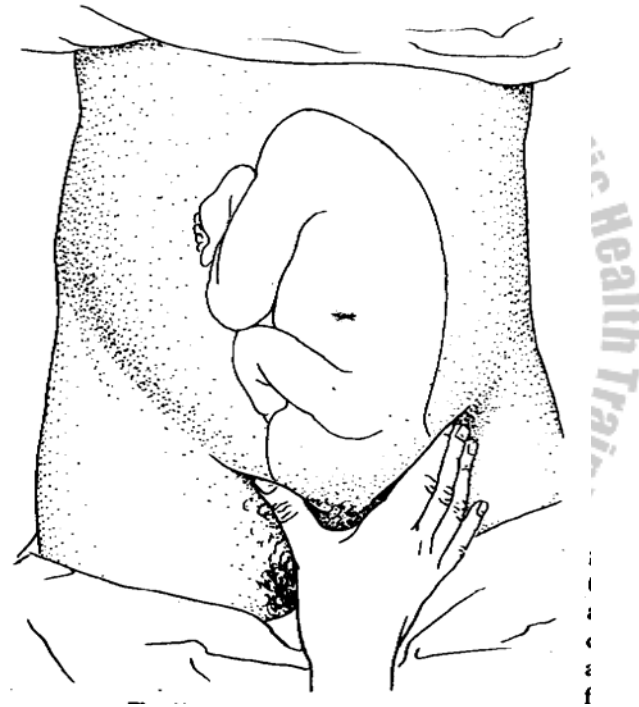


Figure 15. Pawlick's grip (Derexllewlyn-Jone, Vol.1, 1990)

Auscultation: Check Fetal heart, rate and rhythm, count for one minute if regular.

Method: Use Pinards stethoscope

- hand should not touch it while listening,
- ear must be in close from contact with stethoscope,

Pelvic assesement

- By x-ray of the pelvis
- Clinical (assessing sign of contracted pelvis)
- Head fitting

Head fitting

The head is the best pelvimeter

METHOD 1: Head fitting, sitting patient, Method

Let her lie on a couch, place hand on the Symphysis pubes and get the woman to sit up by her own effort. The effort should force the head in to the pelvis.

METHOD 2 : Left hand grip method Grasp the fetal head with left hand and push it down wards and backwards if a sense of give is felt the head has entered and there is no over and no cephalo pelvic disproportion.

Genito-Urinary System

- Frequency of micturation
- Check for abnormal discharge

Circulatory System

Varicosities: - Varicose veins may occur in the legs, anus (hemorrhoids) and vulva. Vulval varicosities are rare and very painful.

The Vulva

- Vulval warts
- Purulent irritating discharge

The Lower Limbs

Examine for bones alignment and deformities.

Check pitting oedema in the lower limbs by applying fingertip pressure for 10 seconds over the tibial bone.

3.9.3 Laboratory test

Urine:- For Protein and glucose

Blood Tests:-V.D.R.L.

- Rhesus and blood grouping.
- Hemoglobin

3.9.4 Points to Be Advised On

- The advantages of antenatal check up
- The use of tetanus toxoid vaccine.
- The danger of lifting heavy loads (exercise).

- Rest at least 10 hrs at night and 2 in the afternoon, clothing should be comfortable
- Breast care
- Diet - Rich in Iron and protein

Report the following

- Vaginal bleeding
- Reduced fetal movements
- Frontal or recurring headaches
- Sudden swelling
- Rupture of the membranes
- Premature onset of contractions etc.

Booking for Confinement

Women should attend: - Monthly upto 28 weeks

- Every 2 weeks up to 36 weeks
- Weekly 36 weeks there after.

N.B. High risk mothers eg. multiple pregnancy, suspected disproportion etc. should attend weekly.

At subsequent Visits:-

- Blood pressure, weight (edema)
- Abdominal examination (all steps of abdominal examination)
- Hematocrit test should be repeated at 28 and 36 weeks of gestation
- Health Education
- Listening and managing any complaint

Review Questions

1. Mention the high risk factors that should be ruled out during ANC.
2. State at least two physiological changes in the following body system; Gastro intestinal and urinary system.
3. List the techniques for pregnancy diagnosis.

Case Study

W/o Marta, a 28 years old lady who is amenorrhic for the last five months came to health center for antenatal health services for the 1st time.

1. What are the basic assessments and investigations will be done for W/o Marta?
2. What are the important advices that you give for W/o Marta?

CHAPTER FOUR

NORMAL LABOUR

At the end of this chapter students will be able to:

- Define labour
- Describe – mechanism of labour
- List the stages of labour with their features
- Identify the false sign of labour
- Mention management of second stage of labour
- Mention care of mother during labour
- Identify types of episiotomy with its indications.

Definition- Labour is described as the process by which the fetus, placenta and membrane are expelled through the birth canal.

Normal labour occurs at term and is spontaneous in onset with the fetus presenting by the vertex. The process should be completed with acceptable time within 24 hours vaginally. With no complications arise.

Cause of the Onset Of Labor

Hormonal, Biochemical and mechanical changes that occur around term may trigger labour.

Hormonal

- release of oxytocin
- Altered Oestrogen progesteron ratio

Biochemcial

- Prostaglandin

Mechanical

- Prssure from the presenting part
- Over stretched uterus

Table 3 Differentiation between the true and false labour contractions

False contractions	True contractions
Begin and remain irregular	Begin irregularly but become regular and predictable
Felt first abdominally and remain confined to the abdomen	Felt first in lower back and sweep around to the abdomen in a wave
Often disappear with ambulation	Continue no matter what the women's level of activity
Do not increase in duration, frequency or intensity	Increase in duration, frequency, and intensity.
Do not achieve cervical dilatation	Achieve cervical dilatation

- Labour is said to be established with regular painful uterine contraction occurs and effacement of cervix with 2 cm dilated.

4.1 Mechanism and Stages of Labour

It has three stages. These stages are described as:

The first stage of labour it begins with regular rhythmic contraction and is complete when the cervix is fully dilated.

The second stage is begins when the cervix is fully dilated and is completed when the baby is completely born.

The third stage begins with the delivery of the baby and ends with delivery of placenta. It also involves the control of bleeding.

4.1.1 Management of 1st Stage of Labour

Is the care given through out the 1st stage of labour

A. Admission procedure

Well coming the mother and her partner

- On Arrival
- Greet the mother
 - Introduce your self
 - Inform relative to wait

B. Admission criteria

- Check- show
- rupture of membrane
- regular uterine contraction with progressive cervical dilatation

History

- Information from the mother
- Ask the mother on set of contraction
- Rupture of membranes / passage of liquor
- Show or any other bright red bleeding

Physical examination

- The general condition

Exhausted, anemic, pain, dehydrated general edema

Vital sign: Blood Pressure, Temperature, pulse, respiration

Abdominal examination

1. Inspection
2. Palpation lie, presentation, attitude engagement
3. Fundal height
4. Auscultation fetal heart rate & rhythm

Vaginal examination

To check if the mother is in labour

- . cervical dilatation
- . Membrane intact or not

To assess progress of labour

- Station, Position
- presenting part; moulding, caput and station

Investigations

- . Hematology
 - . Hematocrit
 - . Hemoglobine
 - . Blood Group, Rh, cross- match
- . Urine analysis
 - . Protein (Albumin)
 - . Sugare
 - . Ketone

Write on patient chart and inform relatives. Use partograph and record on it.

Emotional support

1. A good nurse will give confort, relieve pain, make strength, prevent exhaustion. Maintain cleanliness, asepsis & antisepsis during labour.

Prevent complications, recognize early & promptly act when complication occurse unutil the arrival of the docter.

These principles are not confined to labour only, for the management of labour begins during the AnteNatal period, by building woman's health gaining her confidence, promoting encourage & supervise. Detect abnormalities which may adversely affect labour. The nurse must handle child birth with sensitivity and compassion because the emotions of the woman in labour deeply influence her reaction to discomfort & pain with are a contrn butany factor in determining the amount of physical and mental exhaustion she will experience.

Fear of labour

Child birth and bring occasion - the husband is encouraged to stay with his wife this gives comfort with happiness to both, she needs the companionship, love with sympathy of those who are dean to her. Influence of the mid wife.

The qualities of a good mid wife are sympathetic understanding, patient & kind because women in labour are sometimes irritable not only must the midwife desire to give emotional support, she must demonstrate for her compassion by words & actions.

Companionship is melded - the companionship of the woman in labour needs the professional presence of the nurse. ExampleCommunication style eg. No loud talking & noise

Relief of pain & promotion of comfort

Pain exhausts the woman physically & emotionally so it must be relieved by every obstetrically safe means. The midwife by her kindly confident bearing & professional proficiency has an assuring beneficent influence. Back rub and explanation of the labour process is very much important in pain relieving.

Fewer drugs are now being prescribed during labour. Eg. pethidine, analgesia.

Drug choice - if apprehensive a tranquilezer, if tired a hypnotic, for discomfort & pain an analgesic & sedative.

Diet during labour

During early labour tea & digestive biscuit can be served.

Avoid dehydration. Prolonged labour can present serious problem. If dehydration present give I.V infusion 5 or 10 % Dextrose in water and also Glucose 40%.

Attention to the bladder

A full bladder will prevent the head from engaging, empty bladder every 2 hours.

Recordings:-

1. Half hourly- maternal pulse, contractions for length, strength and frequency, FHB

2. Every 1 1/2 - 2 hours check bladder
3. Every 4 hours – B/P. Temperature, abdominal examination for descent, V.E, urine test acetone, albumin

Psychological methods of pain relief

The personality of the mid wife is of paramount importance in handling women in labour. Many midwives have by their sympathetic understanding manner unknowingly used psychological methods of pain relief.

Cleanliness Antisepsis, Asepsis

The woman must be protected by every available means from infection which may cause ill-health with loss of life.

The woman is vulnerable to infection at this time.

The Partograph

PARTOGRAPH – Managerial tool for the prevention of prolonged labour:- Measuring progress of labour in relation to time.

Observations charted on partograph

- a) The progress of labour with time
 - Cervical dilatation
 - Descent of fetal head

Descent: abdominal palpation of fifth of head felt above the pelvic brim.

Uterine contraction

- Frequency per 10 min
- Duration /shown by different shading/

b) The fetal condition

- Fetal heart rate
- Membranes & liquor
- Moulding of the fetal skull

Grading:

- 1) **normal**- space felt between the edges of parietal bone in the sagittal suture.
- 2) **mild** - the edge of parietal bone comes very close at the sagittal suture.
- 3) **moderate**- the edge of the parietal bone overlaps at sagittal suture but can be easily separated.
- 4) **severe**- overlap of the bones and not separable.

c) The maternal condition

- Pulse, B/P temperature
- Drug and IV fluids
- Urine /volume, protein, acetone/
- Oxytocin regime

The progress of labour

The 1st stage is divided into the latent and active phases

Latent phase- slow period of cervical dilatation from 0-2cms and also it is the period of gradual shortening of the cervix.

Active phase- faster period of cervical dilatation from 3-10cms or full cervical dilatation.

Starting the partograph

A partograph chart must only be started when a woman is in labour you must be sure that she is contracting enough to start a partograph.

In the latent phase contraction must be 2 or more in 10 minute each lasting 20 second or more.

In the active phase contractions must be 2 or more /10minutes each lasting 20 second or more. There difference is in dilatation of cervix.

In the center of the partograph there is a graph. Along the left side are numbers 0-10 against squares. Each square represents 1cm dilatation. Along the bottom of the graph are numbers 0-24: each square represents 1 hour. Dilatation of the cervix is measured in centimeter. The dilatation of the cervix is plotted with an "x". The 1st V.E on admission includes a pelvic assessment & the findings are recorded. The V.E are made ever 4 hrs unless contraindicated. However in

advanced labour women may be assessed more quickly, particularly the multipara.

Plotting cervical dilatation when admission is in the active phase. When a woman is admitted in the active phase the dilatation of the cervix is plotted on the alert line and the time written directly under the X in the space for time. If progress is satisfactory, the plotting of cervical dilatation will remain on or to the left of the alert line.

The latent phase normally should not take longer than 8hrs. When admission is in the latent phase, dilatation of the cervix is plotted at 0 time.

Transfer from latent to Active phase

Plotting cervical dilatation when admission is in the latent phase & goes in to active phase. When labour goes in to the active phase plotting must be transferred by a broken line to the **alert line**.

The recordings of cervical dilatation and time are plotted 4 hrs after admission then transferred immediately to the alert line using the letters "TR" leaving the area between the transferred recording blank. The broken transfer line is not part of the process of labour.

Points to remember

1. The latent phase is from 0-2cm dilatation & is accompanied by gradual shortening of cervix. It should normally not last longer than 8 hrs.
2. The active phase is from 3-10cms & dilatation should be at the rate of at least 1cm/hr.
3. When labour progresses well, the dilatation should not move to the right of the alert line.
4. When admission to hospital takes place in the active phase the cervical dilatation is immediately plotted in the **alert line**
5. When labour goes from latent to active phase plotting of the dilatation is immediately transferred from the latent phase to the alert line.

Descent of the Fetal Head

For labor to progress well, dilatation of the cervix should be accompanied by descent of the head. However, descent may not take place until the cervix has reached about 7cms dilatation. Descent of the head is measured by abdominal palpation and expressed in terms of fifths above the pelvic brim.

Method – by abdominal palpation identify the anterior shoulder of the fetus. The distance between this point and the pelvic brim is measured in fingers and expressed in terms of fifth.

E.g 3 finger between the two points indicates
Recording contractions on the partograph

Key points on plotting the partograph

Membrane:

I - Intact

R-Ruptured

A.R.M - Artificial Rupture of membrane

Colour of liquor:

M- Meconium stained

C-clear

A - Absent

Moulding - degree of overlap

Normal separation /can feel sutures/ -

Bones meeting +

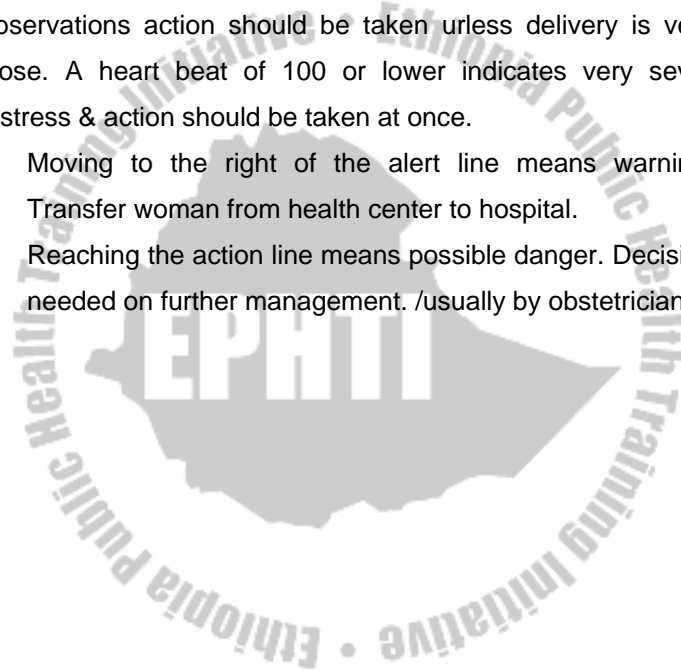
Overlapping can be pushed back ++

Overlapping can't be separated +++

Abnormal fetal heart rates

A heart rate greater than 160/minute is tachycardia and a heart rate less than 120/minute is bradycardia and these conditions may indicate fetal distress. If abnormal FHB is heard, listen it every 15 minutes for at least 1 minute immediately after contraction. If the fetal heart remains abnormal over 3 observations action should be taken unless delivery is very close. A heart beat of 100 or lower indicates very severe distress & action should be taken at once.

- Moving to the right of the alert line means warning. Transfer woman from health center to hospital.
- Reaching the action line means possible danger. Decision needed on further management. /usually by obstetrician/.



Eg. Partograph

Name _____ gravida _____ para _____ Reg No _____

Date of admission _____ Time of admission _____ ruptured memberane _____ HRS

Contraction	Frequency																							
	Duration																							
	Intensity																							
10	Latent phase						Active phase																	
9																								
8																								
7																								
6																								
5																								
4																								
3																								
2																								
1																								
0																								
Hrs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Time																								
Pulse																								
B,P																								
Temp°C																								
Drugs Given and I.V Fluids																								
FHB																								

Vaginal Examination in Labour

When Doing Vaginal Examination Always Remember:-

1. The vaginal is not a sterile cavity, - the Uterus is. Every vaginal examination increases the danger of intrauterine infection, if carelessly performed.
2. A vaginal examination is uncomfortable and embarrassing for the patient.
3. Careful abdominal examination gives a lot of information. Do it always before vaginal examination.
4. When doing a vaginal examination, find out all the information you can, this may save it having to be repeated.

Indications

1. When in doubt about the presentation, dilatation, or position and to assess progress.
2. To assess the shape and size of the pelvis.
3. To know the cause in fetal or maternal distress.
4. When the membranes rupture and the head is high or there is Malpresentation, to make sure there is not prolapsed cord.

Information: To be got on Vaginal Examination

1. Presenting Part

- Presentation
- Level of presenting Part

- Caput
- Sutures and Fontanelles.
- Overlapping or moulding

2. Membrens

Intact - Bulging or flat?

Ruptured - Colour of liquor

3. Cervix:

RIPE - firm or soft

EFFACEMENT - long or short - taken up.

OEDEMATOUS- thick or thin

APPLIED to the presenting part- Loose or well applied.

DILATION- Measure in cm.

4. Vagina:

Lax or tight, Warm or hot, Moist or Dry

5. Pelvis:

Cavity, sacral promontory

Curve of the sacrum, ischaecal spine

Lateral pelvic side walls- parallel or convergent

Now Co-relate your findings, after recording them and determine the stage of labour.

4.1.2 The Second Stage of Labour

Definition:

It is the stage from full dilatation of the cervix (i.e no cervix felt on V.E) until the Baby is born:-

Duration:

Primigravida 45 min – 1 hour, as long as 2 hrs

Multigravida 1/2 hour can be as little as 5 minutes.

N.B. there should always be advance or descent in this stage

Signs of Second Stage:

1. No cervix felt on Vaginal examination
2. Contractions are much stronger, and last 30-50 seconds
3. The patient wants to push (Urge to push)
4. Sometimes head can be seen at the vulva

Mechanism of the second stage:

Before we deliver a baby we must understand the mechanics or mechanisms of how the baby passes down through the pelvis. We also must know the pelvis, and certain definitions.

Mechanism: Is the series of movements of the fetus in its passage through the birth canal.

Echanism of Labour in a Normal Vertex Presentation

Position- Left OcciputoTransverse

Lie -Longitudinal

Attitude- Flexion

Presentation-Vertex

Position- Left occiputo transverse

The head engages the pelvis with the Sagital suture in the transverse diameter of the pelvic brim

1. Flexion and descent of the head: The head descends with increasing flexion; the occiput reaches the pelvic floor first.
2. Internal Rotation of the head: (Whatever reaches the pelvic floor first must rotate forwards). As the occiput reaches the pelvix floor it rotates anteriorly.
3. Crowing of the head: The occiput escapes under the symphysis put and the head no longer recedes between uterine contractions.
4. Extension of the head: The face sweeps the perineum and the head is born by extension.
5. Restitution of the head: This is the turning of the head to undo the twist in the neck that took place during internal rotation of the head.
6. Internal rotation of the shoulders: Meanwhile the shoulders have entered the brim in the oblique diameter,

and descend. The anterior shoulder reaches the pelvic floor and rotates forward, this cause.

7. External rotation of the head:
8. Lateral flexion of the body: The shoulders escape under the symphysis, and the rest of the body is born by lateral flexion.

NOTE: The mechanism in any other position follows the same principles of
ENGAGEMENT – DESCENT – INTERNAL ROTATION,
BIRTH AND EXTERNAL ROTATION.

MANAGEMENT OF THE SECOND STAGE

Once the patient is in the second stage the nurse must not LEAVE HER, and a constant and careful supervision must be kept on her:

1. General condition, pulse, uterine contractions & Vulva
2. Bladder should be empty
3. Fetal heart more frequently (after every second contraction)
4. Descent of the presenting part and programs is soon.
5. Membrane should be ruptured

Preparation for Delivery:

A. Equipment: have ready

Delivery: Set with 2 clamps, scissors, sterile towels, cord tigh,
Bowl and kidney dish

ERGOMETRINE: 0.5mgs. in a syringe with swab ready to be given

SUCTION APARATUS, READY AND WORKING

SAVLON 1 – 80 or any antiseptic lotion

IDENTIFICTIONS: with name and number of mother

EMPTY CONTAINER

B. Patient: - Position the mother, watch descent of head fetal heart and mothers condition.

- Encourage the mother & place her in position
- Explain to her what is happening
- Gloves on.
- Arrange and check equipment,
- Keep constant contact with mother

Conduct of Delivery

1. SWAB VULVA: Drape delivery area with sterile towels. A sterile pad is used to cover the anus.
2. If necessary do episiotomy on contraction
3. When the Head Bulges: The perineum and the head is crowned, place one hand over it to control it and prevent it coming out quickly. The other hand is on a pad or gauze over the rectum to keep away stool and help control the head.
4. When the head is born, keep one hand on it and wide the eyes with the other hand using dry cotton swab.

Remove excess mucus from mouth, with gauze wrapped around finger look for cord a round the neck, if there and it is tight, clamp it twice & cut in between.

5. Wait for rotation of the shoulders: Then with two hands graspe over the parietals, deliver them downwards, then upwards. And slide one hand under the body and lift it out
6. Note Time of Birth and sex of baby, APGAR
7. Lay baby down
Clear Airways: Make sure baby is breathing
 - Make sure baby is breathing put on identification.
Then clamp cord about 10cm from the umbilicus in two places near each other and cut in between.
8. Dry baby well and wrap in a fresh warm towel .then place him in a cot and continue with the third stage of labour.

4.1.3 The Third Stage of Labour

It begins immediately after the baby is born, until the placenta is delivered. The third stage lasts between 5-15 minutes but any period upto 1 hour is normal. If it lasts more than 1 hr it is considered as retained placenta.

Physiology of the third stage of labour

1. Separation of the placenta
2. Descent of the placenta
3. Expulsion of the placenta
4. Control of bleeding

1. Separation of the placenta

Mechanism of placental separation

It is brought by the contraction and retraction of the uterine muscles. Separation usually begins in the center of the placenta. At the area of the separation the blood sinuses are torn across. 30 to 60ml of blood is connected between maternal surface of the placenta and the decidua basalis. The uterine contractions detach the placenta from the uterus and the placenta is forced out of the upper uterine segment into the lower uterine segment.

1. Central separation

Advantage – Centrally retro placental clot is formed

Aids separation by exerting pressure at the mid point of placental attachment and helps to strip the adherent lateral borders to peel the membranes off the uterine wall

2. Separation begins at the level of the deep sponge layer of the decidua. If the placenta is embedded deeply separation will be difficult.

3. Separation occurs at the lower edge of placenta

Signs for placental separation

1. Gush of blood
2. The fundus rises at the level of umbilicus
3. Uterus becomes globular
4. Cord lengthen

The uterus contracts during & after the birth of the baby. This causes the uterus to become smaller, the placenta remains the same size & is pushed off the uterine wall.

2. Descent of the placenta

When the placenta has completely separated, the contracting uterus pushes it down into the lower uterine segment and into the vagina. The weight of the placenta itself pulls the chorion of the uterine wall.

Sign of placental descent

1. The uterus becomes hard, round and movable.
2. The fundus rises to the level of the umbilicus.
3. The cord seems to lengthen.
4. There is a gush of blood
5. When you apply suprapubic pressure the cord will not be received back
6. Placenta can be felt on vaginal examination.

3. Expulsion of the placenta

Method of placental expulsion

1. Using the fundus as a piston
The contracted fundus is used as apposition to push the placenta out.
2. Controlled cord traction with oxytocin drugs

3. Controlled cord traction with out oxytoin drugs (Brandit Andreivs method)
4. Fundal pressure
5. Traditional method/Bearing down by the woman/

1. Controlled cord traction with oxytocic drugs

/Active management of third stage of labour/

Definition -Adminstration of oxytocic drugs with birth of the anterior shoulder and application of controlled cord traction with first uterine contraction.

Advantages:

- Shorten the third stages
- Reduce blood loss and the incidence of hemorrhage in risk cases

Methods

- An oxytocic drug is given /if pregnancy is not multiple/ as soon as anterior shoulder is delivered.
- The cord is clamped and cut, wait for contraction.
- Donot wait for the sign of placental separation and descent
- As soon as the uterus contracts the left hand is placed above the symphysis pubis push and the uterus upwards to words the umbilicus. At the same time the right hand grasps the umbilical cord and apply traction in “a down ward direction” out ward when the placenta is visible

traction is exerted in an upward direction following the curves of then birth canal and then deliver the placenta.

If the membranes are not complete twisting the placenta to form the membranes in to a rope or grasping the membranes with artery forceps and move gently up and down to remove it. It is done for high risk mothers.

Recommendations – When active management of the third stage is used clamp the cord.

2. Controlled cord traction with out oxytocic drugs /Brandit Andrews method/ passive management of third stage of labour

Signs of placental separation and descent are awaited. The left hand is placed above the symphysis pubis push the uterus upwards towards the umbilicus. At the same time the right hand grasps the umbilical cord and apply traction in “a down ward direction” out ward when the placenta is visible traction is exerted in an upward direction following the curves of the birth canal then deliver the placenta.

Cord traction should not be applied when the fetus is macerated or if the baby is preterm.

Danger: Breaking of the cord. If the cord is snap manual removal is indicated.

Advantage: It allows the placenta to separate and descend with out interference

Danger: The third stage may be longer

Haemorrhage and infection may happen

3. Maternal effort: When the uterus is well contracted ask the mother to push as she did during the birth of the baby. If she is not successful, the midwife or nurse may put a hand flat on the abdomen while the mother pushes, thus provides counter pressure to compensate the poor abdominal muscle tone.

4. Fundal pressure: The midwife or nurse puts her left hand on the fundus of the well contracted uterus and pushes down wards and back wards. The uterus is pushed against the placenta and the placenta emerges from the vagina, receive the placenta, massage the uterus to make it contract, and give Ergometrine.

Indication:- Preterm labour, still birth

Danger- Pain

N.B Fundal pressure and cord traction must never be combined because of the risk of inversion of the uterus.

5. Traditional method

Up right kneeling/ squatting positions should be recommended when the third stage is passively managed.

Gravity and intra abdominal pressure aid & speed the process

Advantage – Blood loss can be easily observed

About 500-.800ml blood flows through the placental site each minute. Following delivery of the placenta the oblique muscle fibers of the myometrium contract very strongly to compress the blood vessels.

All average blood loss after the delivery of the placenta is 150ml.

Blood loss should never be more than 500ml. All blood should be measured including clots from the placental surface.

Examination of the placenta, membrane and umbilical cord

Inspect the fetal side:-

- a) Check the location of the insertion of the cord /central, marginal or velamentous
- b) Trace blood vessels on the periphery to detect any torn vessels. It indicates a succentarete or extra lobe of the placenta.
- c) Check second hole on the memberane

Inspect the umbilical cord

- a) Check the number of blood vessels /two artery and one vein/
- b) Check the length of the cord.(Long-50-55cm or short)
- c) Check for the presence of a true knot or abnormalities

Inspect the maternal side:

- a) Check the cotyledons
- b) Observe for areas of Abruptio, infarction or calcification

4. Control of bleeding

Methods:-

- Contraction & relaxation of uterine muscles
- The actions of living ligatures
- Extra clotting power in the blood

The third stage is the shortest and easiest but the most dangerous stage. Bleeding after third stage of labour stops spontaneously, because of:

1. "Living ligatures" The oblique muscles fibers of the uterus run in and out between the blood vessels when the uterus is contracted they clump the blood vessels very securely and the bleeding stops.
2. Extra clotting power: The mother has extra clotting power in her blood at this time the clotting mechanism is very powerful.

At the end of the third stage

1. The uterus should be hard, round and movable
2. The uterus should be mid way between the umbilicus and symphysis pubis
3. There should be no bleeding
4. The bladder should be empty

The Oxytocic Drugs

These drugs stimulate the uterus to contract. It is used before, during & after the third stage of labour.

Advantages:

1. It speeds up the delivery of the placenta
2. Lessen the blood loss
3. Contract the uterus

The oxytocin drugs are:-

1. Syntocinon, orastinon, pitocin, oxytocin one ampule contains 5 or 10 units
2. Ergometrine ampules – 0.5 mg or 0.25mg
Ergometrine 0.25 or 0.5mg tablet form
3. Syntometrine 1ml contains 0.5mg Ergometrine and 5 units of oxytocin.

Ergometrine:- It is given during or after the third stage of labour

Ergometrine

Route	Time to act	Duration
Intramuscular	5 to 7min	2-4hrs
Intravenously	45 second to 1 min	1hr
Oral (PO)	8 to 10 minutes	–

Indications

- To prevent or treat PPH
- To prevent bleeding in inevitable complete or incomplete abortion
- To treat sub involution during the puerperium

Contraindications: - It should not given for pre-eclamptic, cardiac and hypertensive mothers

Pitocin /oxytocin syntocinon, orastinon/

Actions: - To contract the smooth muscle

Advantages – It can be given before or at any stage of labour (1st, 2nd or 3rd of labour) It has a rapid action

Indication:

1. To induce /start/ labour
2. To accelerate /increase/ the contractions in labour
3. To prevent or treat post partum haemorrhage

Caution – The uterine contractions and fetal heart are continuously monitored

Contraindications- In the presence of malpresentation or C.P.D it is not start.

Danger

- Rupture of the uterus
- Tachycardia & an increased stroke volume increases the cardiac out put.
- Fetal distress

Syntometrine

It is a combined preparation of Ergometrine and oxytocin

Action:

1 ampule of syntometrine contains

Egometrine 0.5mg

Syntocinon 5 units

Action 2 ½ minutes when given intramuscular

Advantage- It has the quick action of the oxytocin and the long action of ergometrine

Indication - to prevent or treat post partum haemorrhage

Management of third stage of labour

Good management begins during prenatal period. In the 1st, 2nd and 3rd stage of labour to prevent prolonged labour Skill full management reduces the risk of hemorrhage, retained placenta, shock and infection

The guiding principles is to watch and wait and not to interfere
Rubbing the fundus causes irregular uterine activity which partly separate the placenta and allows bleeding

Position of the mother – the dorsal position

Advantages

- more comfortable to the mother
- cord traction is applied more effectively
- injuries to the birth canal is observed

Bleeding before placental delivery is due to:-

- Partial separation of the placenta
- Uterine relaxation

Prolonged third stage is due to:-

- Weak uterine contraction which causes failure of the placenta to separate
- Adherent placenta
- Full bladder

Danger: - Post partum hemorrhage and shock

If the fundus is more than 2.5cm above the umbilicus four cases must be considered.

- a. There is another baby in uterus
Palpate for fetal parts, auscultate for a fetal heart beat
- b. The placenta is unduly large

- causes- Rh negative baby suffered from hydrops fetalis
- c. Blood clot is present in the uterus
This will prevent strong contraction of the uterus and cause post partum haemorrhage (contraction of oblique muscles of myometrium)
 - d. Full bladder

Clamping and cutting of the umbilical cord

The choices:

- A. Clamp the cord soon after birth /1-3 minutes/ before it stops pulsation or
- B. Wait until cord has stopped pulsating before clamping
leave the maternal end of the cord unclamped when cord is cut.

A. Early cord clamping

Advantages: The length of the third stage of labour is reduced

Disadvantages: preterm babies have an increased incidence of respiratory distress.

Early cord clamp is associated with lower haematocrit and levels in the baby. It increases the risk of Feto – maternal transfusion – Rhesus negative mothers caring rhesus positive babies are more likely to develop Antibodies

B. Delayed cord clamping

The cord clamp should be delayed for preterm babies and rhesus negative mothers

Advantages- Preterm babies will benefit from resulting increase in circulating blood, and higher neonatal haematocrit and hemoglobin should be obtained

Disadvantages – over loading the baby's system

C. Leaving maternal end of the cord unclamped when cord is cut

Before allowing the maternal end of the cord to remain unclamped, a second twin must be excluded.

- Advantages

There is less blood loss

- Lower incidence of manual removal of the placenta

- Rhesus negative mothers carrying rhesus positive babies are less likely to develop antibodies

Disadvantages – A second twin may die when it is unclamp

4.2. Immediate Care of Mother and Baby

The mother and the baby has to remain in the delivery room for an hour after delivery.

Immediate care of mother:

Give Ergometrine or pitocin, massage the uterus and expel the clot

The vulva is swabbed and a sterile pad placed in position
Buttocks should be dry and any wet sheet is removed the
sterile towel is laid over the lower abdomen and thighs and
cover with warm blanket.

Careful observation

- Check the maternal pulse /60-70/minute is the normal range
- Take body temperature – subnormal due to loss of body heat, as high as 37.2⁰C due to reactions of prolonged labour.
- Encourage her to pass urine
- Blood pressure is taken ½ hourly.

Immediate care of baby

Observe:

The general well being of the baby

Check the security of the cord clamp

Check APGAR score

Promote bonding and breast feeding

Put on ID (identification) band

Check weight, height, head circumference and any drug (s)
given to the baby

Record keeping

Record your observations during labour

- Method of delivery- spontaneous or accelerated, forceps, cesarean section or vacuum.
- Anaesthetic – General, epidural, local
- Blood loss- amount
- Placenta and membranes- complete, incomplete
- Perineum- laceration, episotomy

- Drugs given for the mother
- Baby – Sex, weight, APGAR score, alive or stillbirth. Date and time of delivery

N.B .The chart should present a clear, concise, reliable record.

The legal aspect of record keeping is also important during labour.

4.3 Discharge Planning (Instructions)

Before the post partal discharge, the women will be given instructions by her physician or nurse midwife concerning her care at home. These instructions are summarized as follows.

Table 4. Post natal discharge instructions

AREA	INSTRUCTIONS
Work	All women should avoid heavy work (lifting or straining) for at least the first three weeks following birth
Rest	The women should plan at least one rest period a day and try to get a good night sleep
Exercise	The women should limit the number of stairs she climbs to 1 flight/day for the first week at home. Beginning the second week, if her lochia discharge is normal, she may start to expand this activity. She should continue with muscle-strengthening exercise, such as sit-ups and leg raising
Hygiene	The women may take either tub baths or shower, and continue to cleanse her perineum from front to back
Coitus	Coitus is safe as soon as the women's lochia has turned to alba and if she has an episiotomy, it is healed (about the third week after delivery)
Contraception	The women should begin contraception measures with the initiation of coitus (if she desire contraception). If she wishes an IUD, this may be fitted immediately following delivery or at the first postnatal check up. A diaphragm must be refitted at a 6-week check up. Oral contraception are begun about 2-3 weeks after delivery
Follow up	The women should notify her physician or nurse-midwife if she notices an increase, not decrease, in lochia discharge, or if lochia serosa or lochia alba becomes lochia rubera

4.4. Episiotomy

Definition: The making of an incision into the perineum to enlarge the vaginal orifice.

Indications for Episiotomy

1. Delay due to rigid perineum, disproportion between fetus and vaginal orifice.
2. Fetal distress due to prolapsed cord in second stage.
3. To facilitate vaginal or intra uterine manipulation
Eg. Forceps, breech delivery
4. Preterm baby in order to avoid intracranial damage
5. Previous 3rd degree repaired on the perineum.

Advantages of episiotomy

1. Fetal acidosis and hypoxia are reduced
2. Over stretching of the pelvic floor is lessened
3. Bruising of the urethra is avoided.
4. In severe pre – eclampsia or cardiac disease to reduce the effort bearing down.
5. A previous third degree tear which may occur again because of the scar tissue which does not stretch well is prevented.

Types of Episiotomy

1. Medio- lateral
2. Median

3. J- shaped
4. Lateral

1. Medio – lateral

The incision is begun in the center of the fourchette and directed posterio laterally, usually to the woman's right. Not more than 3cm long & directed diagonally in straight line which runs 2.5cm distance from the anus.

Advantages - Bartholin glands are not affected
- Anal sphincters are not injured

2. Median: The incision begun in the center of the fourchette and directed posteriorly for approximately 2.5cm in the midline of the prepuce.

Advantage:

- Less bleeding
- More easily and successfully repaired
- Greater subsequent comfort for the women

3. J – shaped : The incision is begun in the center of the fourchette and directed posteriorly in the midline for about 2cm and then directed towards 7 on the clock to avoid the anus.

Disadvantage

- The suturing is difficult
- Shearing of the tissue occurs
- The repaired wound tends to be puckered.

4. Lateral: The incision is begun one or more in distant from the condomed.

Disadvantages

- Bartholins duct may be served
- The levatorani muscle is weakened
- Bleeding is more profuse
- Suturing is more difficult
- The woman experiences subsequent discomfort

Local analgesia for Episotomy

Lignocaine /lidocaine/ 0.5 percent of 10ml is safe and efficient. It takes effect rapidly with in 1 & 2 minutes.

Timing the incision

1. The head should be well down on the perineum, low enough to keep it stretched and thinned
2. In breech presentation the posterior buttock would be distending the perineum
3. It must be made neither too soon nor too late

Making the incision

1. Avoid incision on the previous episiotomy scar
2. Not more than 3 cm from fourchette and 2.5 cm from anus
3. Position the mother in lithotomy
4. Wait one or two minutes after injection of local anesthesia

5. Insert two fingers between the perineum with the fetal scalp
6. Do the incision during a uterine contraction
7. It should be deliberate cut
8. The cut should be adequate to remove any resistance to fetal head
9. May straight blunt pointed scissors 17.5cm commonly used.
10. Must be sharpened at frequent intervals

Hints on repairing the perineum

1. Should be sutured with in one hour after local analgesia given
2. The area is cleansed with savalon solution
3. For any leakage from the uterus, vaginal tampon or pack should be inserted
4. Good light is essential
5. The two extent of the laceration is determined

Controlling methods of bleeding after episiotomy

1. Applying gauze swab on the area
2. The pressure exerted by the fetal head
3. If bleeding occurs after delivery – two Spencer wells forceps should be applied to the bleeding vessels.

Layers to be repaired

1. Vaginal wound a) Deep and superficial tissue
 b) Vaginal mucosa
2. Perineal muscles and fascia
3. Perineal skin and subcutaneous tissue
4. The first stitch inserted at the apex of the incision

The most commonly used suturing material is 2/0 chromic catgut.

Remember:

1. Do not tie the sutures too tightly
2. The last stitches are important for they prevent excessive scar.
3. Press firmly on suture line with a pad to see if bleeding has stopped.
4. Remove perineal pad or suture pack from vagina. Rub up fundus put clean pad on perineum
5. Put gloved finger in to the rectum – to make suture that no stitch has one through the rectum
6. Make the women comfortable, clean and dry.

After care of episiotomy

1. Hot bath, clean wound care
2. If pus or fould smelling discharge develop report to health personnel
3. Advise not to strain and avoid constipation

Review Questions

1. How can you differentiate false labour from true labour?
2. What are the physiological changes during each stage of labour? (1st stage, 2nd stage, and 3rd stage).
3. Discuss the sign of placental separation.

Case study

W/ro Abebech is admitted to the labour ward at 13 hours .On admission the descent of the head is 5/5 above the brim, dilatation of the cervix is 1 cm, and FHB is 124/minute with two uterine contractions per 10 minutes lasting 20 seconds. After 4 hrs the head was 4/5, cervical dilatation is 5 cms; FHB is 136/mint with 3 uterine contractions lasting 35 seconds. After 3 hrs the assessment show that the head is 1/5, cervical dilatation is 10 cms, FHb is 132/mint with 3 uterine contractions lasting 40 seconds.

Exercise

1. Plot these assessments on the partograph
2. What is the length of the first stage of this labour?

CHAPTER FIVE

THE NORMAL PUERPERIUM

At the end of this chapter students will be able to:

- Define puerperium
- State physiological changes during puerperium
- Describe postnatal care given for mother and baby.

Definition - Puerperium is period from the expulsion of the placenta to the time the reproductive organs return to pregravid state lasts 6 weeks.

Puerperium is characterized by the following features

1. The reproductive organs return to the non pregnant state
2. Other physiological changes occurred during pregnancy are reversed (Involution)
3. Lactation is initiated
4. Recuperation of the mother from the stress of pregnancy and delivery and assumes responsibility for the care & nurture of her infant.

The care which required during the puerperium should be based up on 3 main principles

1. Promoting the physical well being of mother and baby

2. Encouraging sound methods of infant feeding and promoting the development of good maternal and child relationship.
3. Supporting and strengthens the mother's confidence in herself and enabling her to fulfill her mothering role with in her particular, personal, family and Cultural situation.

5.1. Physiology of Puerperium

Involution of the uterus

Definition: the uterus returns to its normal size, tone & position of non pregnant state
Mechanism:

1. Ischemia: After the birth of the baby & placenta, the uterine muscle & blood vessels contracts so the blood circulation decreases. /A localized anemia/
2. Autolysis: muscle fibers are digested by proteolytic enzyme, waste product then pass in to the blood stream and are eliminated by the kidneys.
3. Lining of the uterus is cast off and is replaced first by granular tissue and then by endometrium.

Progress of change in the uterus after delivery

	Weight of uterus	Diameter of placental site	Cervix
End of labour	900Gms	12.5cms	Soft,
End of 1 WK	450gms	7.5cms	2cms
End of 2 WKS	200gms	5cms	1cm
End of 6 WKS	60gms	2.5cm	

Lochia- discharge from the uterus during puerperium. Reaction of lochia is alkaline which favors growth of organisms

Amount – varies with each woman

Odour- heavy and unpleasant but not offensive

The lochia undergo sequential change as involution progresses.

1. **Lochia Rubra** – Red in colour last 1-4 days consists of blood, chorion, decidua, amniotic fluid, lanugo, vernix caseosa and meconium.
2. **Lochia serosa** – purple, lasts 5-9 days contains less blood more serum as well as leukocytes & organisms.
3. **Lochia alba** – creamish pale discharge lasts 9-12 days

N:B: It is important that midwife/nurse realize the danger of retained products which is indicated persistent red lochia .

Changes in other body system

Urinary tract – Physiological changes which occurred during pregnancy are reversed. The urinary tract is revived from pressure of delivery.

Alimentary canal:- Heart burn improves due to hormonal fall and released pressure on the sphincter. Constipation presents for few days; painful perineum inhibits defecation.

Circulatory system:- blood volume decreases to pregravid level & blood regains its normal viscosity. Muscle tone of

blood vessel improves cardiac output returns to normal and blood pressure returns to its usual level. The action takes place within the 1st 24-48hrs after the birth of the baby.

Respiratory system- full ventilation because lungs are no longer compressed by the enlarged uterus.

Endocrine system – Oxytocin – is secreted by posterior pituitary gland and acts upon uterine muscles & upon breast tissue. It continues to act upon uterine muscle fibers that maintain their contractions reducing the placental site & preventing hemorrhage. In women who choose to breast feed their babies, the sucking of the infant stimulates further secretion of oxytocin and this aids the continuing involution of the uterus and expulsion of milk. After the placenta is expelled the circulatory level of human chorionic gonadotrophin, HPL, estrogen and progesterone fall rapidly and this brings about a number of physiological changes.

Musculoskeletal system:- The softened pelvic joints and ligaments of pregnancy gradually return to normal over a period of about 3 months. The abdominal and pelvic floor muscles gradually regain their tone with the assistance of postnatal exercise.

Psychological state:- emotional lability /swinging of mood/ is very common during the early days of the puerperium. After delivery most women experience mood elation but a few days later they may be depressed and tearful. It is probably a reaction to the physical and mental stress of child birth.

5.2 Management of the Puerperium

An important aspect of the midwife/nurse works whether in hospital or at home is her educational role. Advice the mother to care for her self and for her baby covering a wide range of subjects like hygiene nutrition, immunization, family planning, etc.

Admission to post natal ward

The mother and baby are usually transferred to the post natal ward within an hour or 2 after delivery. The midwife/nurse should well come the mother and help her to settle in the ward. She will observe her general condition, palpate the uterus to note whether it is contracted or not and observe the lochia.

Sleep and rest

The mother should have sufficient sleep and rest. Keep a quiet comfortable atmosphere with out disturbance. Inability to sleep must be regarded with concern and Doctor should be consulted. Hypnotics may be needed and it is given with out hesitation. Undue anxiety, sleepless ness and loss of appetite should be rewarded as serious. Rest is usually encouraged during the day preferably in prone position as this aids drainage from the uterus and vagina.

Ambulation: - mothers benefit a feeling of well being from this early activity and this reduces the incidence of thromboembolic disorders.

Diet: - a good balanced diet should be taken as advised in pregnancy the woman's appetite usually returns very quickly after labour is ended & has had some sleep. Protein foods are important particularly if she is breast feeding. Excess fruit should be avoided as substances from this will pass to the baby in the milk & may cause diarrhea. The daily fluid intake should be from 2.5-3 liters of which at least 600ml should be milk.

postnatal exercises – Advantages

1. Gives the women a sense of wellbeing
2. Maintains good circulation, lessens possibility of venous thrombosis.
3. Restores muscle tone of the abdominal wall & pelvic floor.
4. Promotes for normal drainage of lochia
5. Prevents hypostatic pneumonia
6. Helps in emptying the bladder, bowels and uterus
7. Permits her to enjoy a daily bath
8. Enables her to take early care of her baby.
9. Restores her body figure

The role of the nurse:- during this period now a days is largely for advice and educate the mother in the care of her baby and herself, to listen patiently to her fears and expression, to

answer her questions and through out to given her encouragement and reassurance. This is an exchanging & highly responsible task for a competent and thoughtful midwife/nurse.

5.3 Postnatal care (Daily care)

Care of the mother

After the birth of the baby & expulsion of the placenta

1. Clean perineum & apply sterile pad
2. Make her comfortable
3. Give her a cup of tea and something light to eat (immediate)
4. Allow her to rest
5. Record vital sign
 - a) 4 times daily for the 1st & 2nd day
 - b) then twice daily
 - c) if elevated as doctor ordered
6. Check for any bleeding

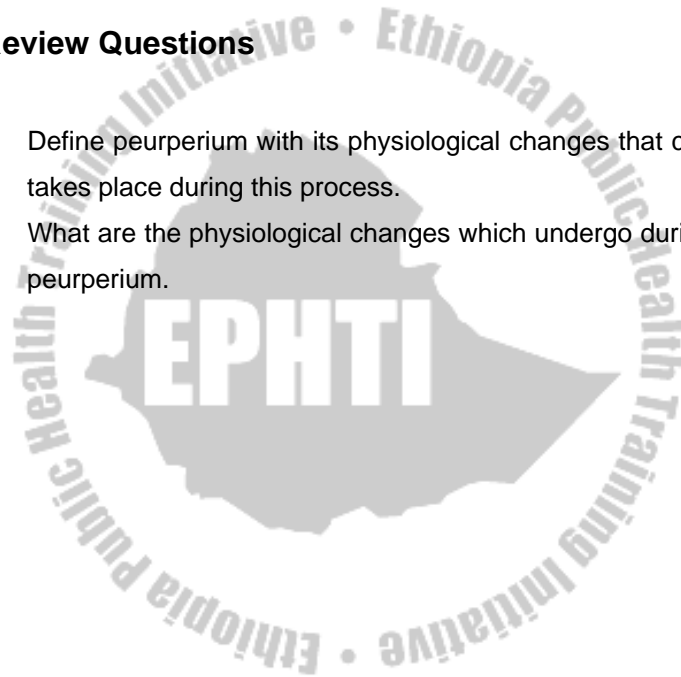
Care for the baby

1. Check frequently for bleeding. Give baby bath at birth and daily
2. Change napkin whenever wet or soiled have mother do it.
3. Take temperature twice daily or & hourly if necessary

4. If the baby's condition is good mother should be allowed to feed, as often as she wishes to do so.
6. Test breast feeding and body activity of the child.
7. Bring up baby's wind often feeds.
8. Check cord for bleeding and signs of infection,

Review Questions

1. Define puerperium with its physiological changes that can take place during this process.
2. What are the physiological changes which undergo during puerperium.



CHAPTER SIX

ABNORMAL PREGNANCY

At the end of this chapter students will be able to:

1. List the major complications of pregnancy
2. Identify managements given for a mother who is diagnosed to be RH-ve during pregnancy and labour.
3. Describe the characteristics of stages of eclamptic fit

6.1 Multiple Pregnancy

Definition:- When there is more than one fetus in utero, the term, plural or multiple pregnancy is applied.

Twin pregnancy occurs approximately 1 in 100 pregnancy

Triplets occur 1 in every 8000- 9000 pregnancies.

Types:- 1. Monozygotic (Uniovular)

2. Dizygotic (Binovular)

6.1.1 Monozygotic (Uniovular)

Monozygotic or single ovum twins are known as identical twins. Monozygotic twins develop from one ovum which has been fertilized by one spermatozoon, always of same sex,

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. Errors in development are more likely in monozygotic twins and conjoined twins are more common.

6.1.2 Dizygotic (Binovular) Twins

Dizygotic or double ova twins develop from the fertilization of two ovum and two spermatozoa and are more common than monozygotic twins.

These twins have two placenta may be fused to form one amniotic sacs, two chorions and no connection between fetal circulations. The babies may or may not be of the same sex and their physical and mental characteristics can be as different as in any members of one family.

Table 5. Difference between monozygotic and dizygotic twins

Monozygotic(Uniovular) twins	Dizygotic(binovular) twins
One ovum	Two ovum
One spermatozoa	Two spermatozoa
One placenta	Two placenta(may be fused)
One chorion(few have two)	Two chorions
Two amnion	Different sexes or same sex
Same sex	

One fetus may be died and be retained in uterus until term, when it will be expelled with the placenta as a flattened paper like fetus called a fetus papyraceous. Twin babies are small and often preterm.

Diagnosis of twin pregnancy

Diagnosis of twin pregnancy may be difficult, although a family history of twins should alter the midwife to the possibility.

Ultrasound: -it will demonstrate two heads at 15 weeks when the outline of the head will be noted

X-ray- may be used after the 12th week of gestation.

Abdominal examination

Inspection:- the size of the uterus may be larger than expected for the period of gestation after the 20th week.

Palpation:- The fundal height may be greater than expected for the period of gestation.

- The presence of two fetal poles (head or breech) multiple fetal limbs.
- Lateral palpation may reveal two fetal backs or limbs on both sides.
- Pelvic palpation one fetus may lie behind the other and make palpation difficult.

Auscultation:-Hearing two fetal hearts is not diagnostic.

Comparison of the heart rates should reveals difference of at least 10 beats per minutes.

Effect of Twins on Pregnancy

- Exacerbation of minor disorder
- Nausea, Morning Sickness and heart burn may be more persist.
- Anaemia
- Iron deficiency or folic acid deficiency anaemias are common. Early growth and development of the uterus and its contents make greater demands on maternal iron stores. In later pregnancy (after the 28th week) fetal demands for iron deplete those stores further.
- Pregnancy induced Hypertension
 - More common in twin pregnancies May be associated with the larger placenta site or the increased hormonal out put the incidence tends to be greater in monozygotic twin pregnancies.
- Polyhydraminos
 - It is common and associated with monozygotic twins and with fetal abnormalities. If acute polyhydraminos occurs it tends to lead to abortion.
- Pressure symptoms
 - . Tendency to oedema of ankle and varicose veins is increased
 - . Dyspnoea and indigestion are more marked, backache is common.

Management of Pregnancy

- Early diagnosis is important so as to provide dietary advice on iron folic acid and vitamins which help to keep her haemoglobin level normal
- Frequent antenatal check up to detect P.I.H.
- Admission to hospital for relief discomfort in later pregnancy.

Labour and Delivery of multiple pregnancy

Effect on labour: - Labour occurs spontaneously before term due to over stretching of the uterus or may be induced early if complications arise. Preterm labour, babies light for dates and malpresentation.

Management of delivery

1st stage of labour: - should be conducted normally, preparation should be made for the reception of two immature babies. Good nursing care to alleviate minor discomfort. If fetal distress occurs during labour, delivery will need to be expedited, often by caesarean section. If the uterine activity is poor the use of intravenous oxytocin may be required. If the pregnancy is preterm neonatal care unit should be informed. Two incubators should be in readiness. The room should be warm.

2nd stage of labour: - An obstetrician, anesthetist and paediatrician should be present during this stage of labour because of the risk of complication.

Resuscitation equipment should be prepared. The delivery trolley should include equipments for episiotomy, amniotomy forceps, and extra cord clamp and equipment for delivery.

An elective episiotomy may be considered if there are complications like preterm labour and fetal distress. The second stage is conducted as usual up to the birth of the first baby. After delivery of the first twin an abdominal examination is made to ascertain the lie, presentation and position of the second fetus and to auscultate the fetal heart. If the lie is not longitudinal, an attempt is made to correct it by external cephalic version.

If the presenting part is not engaged it should be pushed in to the pelvis by fundal pressure before the second sac of membranes is ruptured. Stimulate the contraction with IV syntocinon. When the presenting part became visible the mother is encouraged to push with contraction to deliver the second twin.

With three or four good contractions and effective pushing the 2nd baby has to be delivered within 15 minutes. The babies

are labeled as 'Twin one' and 'Twin two' a note of the time of delivery and the sex of the child is made.

3rd Stage of Labour:- An oxytocic drug has taken effect, controlled cord traction is applied to both cords simultaneously and delivery of the placenta should be effected without delay. Emptying the uterus enables the control of bleeding and the prevention of post partum haemorrhage.

The placenta should be examined for completeness and to detect deviation from the normal. The umbilical cords should be examined for the number of cord vessels.

Complications associated with multiple pregnancy

Delay in the birth of the second twin

After delivery of the 1st twin, contraction has to start within 5 minutes.

Causes of Delay

- Poor uterine action
- Malpresentation of the second twin

Dangers (risk of) Delay

1. Intra uterine hypoxia, IUFD
2. Birth asphyxia following premature separation of placenta
3. Sepsis- an ascending infection may result from the first umbilical cord which lies outside of the vulva.
4. The cervix closes to certain extent and will have to dilate again

Managements of closed cervix

Stimulate the contraction put the baby on the breast. If the lie is longitudinal the doctor will rupture the membranes and give an oxytocic drug. When the uterus begins to contract he may apply forceps. If there appears obstructed caesarean section may be necessary.

5. Transverse lie of the second twin

If the lie is transverse call the doctor and he/she attempts external version between contraction if the membranes are intact. Also after internal version may be a breech extraction may be done with intact membrane.

6. Premature expulsion of the placenta or bleeding before the birth of the second twin results in hypoxia of the unborn twin.

Management - Massage the uterus and expel the 2nd twin by fundal pressure

7. Post partum haemorrhage

8. Premature rupture of the membrane

9. Prolapse of the cord

10. Prolonged labour - malpresentation, poor uterine action

2. Locked Twins

In the second stage of labour the after coming head of the first twin may be prevented from descending into the pelvis by the head of the second twin.

Occurs in case of :-

- a) Both twins presenting by the vertex
 - b) Twin one - breech presentation
Twin two - vertex presentation
- Danger - Obstructed labour
Management - caesarean section

Complication of Multiple Pregnancy

- Abortion
- Polyhydramnious,
- Fetal abnormality
- Malpresentaion
- Premature rupture of membrane
- Prolapse of cord
- Prolonged labour
- Locked twin
- Post partum hemorrhage

Management of Puerperium

General care is the same as the care given in single delivery. Involution of uterus may be slow. After pain are more troublesome. Information, education and service of family planning should be given.

Care of the babies maintenances of body temperature, hygiene to prevent infection.

6.2. Hyper Emesis Gravidarum

Excessive vomiting in pregnancy is a rare condition found in approximately 1 in 500 pregnancies. Nausea and vomiting exists and dehydration and keto-acidosis escalate with the result that the serum electrolyte balance is disrupted.

Cause:- It is unclear but it is known to be associated with:

1. Multiple pregnancy
2. Hydatidiform mole
3. A history of unsuccessful pregnancies

A proportion of women who experience this condition will have a recurrence in subsequent pregnancies.

Assessing the mother's condition

- Ask the woman whether normal diet has been resumed and tolerated.
- Identify any events producing stress or anxiety, as these may exacerbate any vomiting.
- Ascertain whether the nausea and vomiting are accompanied by pain; the location of any pain should be elicited.
- Dryness or inelasticity of the skin
- The mother's weight will be less than expected for gestation.
- The pulse rate will be weak and rapid and the blood pressure will be low.

- The urine will smell of acetone, be scant and dark in colour
- It is usual for a mother suffering from hyper emesis gravidarum to be admitted to hospital.

Treatment

- Calm, reassurance and giving sensitive information should be accompanied by competent attention to physical needs.
- The potassium and sodium levels will be corrected by intravenous therapy.
- The infusion will be continued until hydration and electrolyte return to normal.
- Vitamin B12 and C, folic acid and iron will be required to correct the anaemia.
- Observe the blood pressure, pulse rate and temperature at least 4-hourly.
- Measure the intake and out put of fluids, including vomitus,

Once vomiting has ceased for a period of 24 hours oral fluid may be commenced and if these are tolerated a light diet may follow. Normal food is gradually introduced and intravenous therapy discontinued.

6.3. Pregnancy Induced Hypertention

Pregnancy induced hypertension (PIH) is spasm of arterial vessels during pregnancy manifested by hypertension, edema, and albuminuria

6.3.1 Preeclampsia

Aetiology

It remains obscure. It only occurs after 20 weeks of gestation & is uncommon before the 30 weeks.

Pathological changes

Whilst cardiac output appears to decrease as preeclampsia worsens, generalized vasoconstriction occurs when it affects much of the physiological activity of the tissues within the body.

Capillary permeability increases and the fluid which escapes contributes to the oedema within the tissues. The presence of excessive fluid retention produces generalized oedema.

The uterus is also affected, particularly the vessels supplying the placental bed. Vasoconstriction and DIC reduce the uterine blood flow and vascular lesions occur in the placental bed. Placental abruption can be the result.

The liver is affected in severe cases where intracapsular hemorrhages and necrosis occur. Oedema of the liver cells produces epigastric pain and impaired liver function may result in jaundice.

The brain becomes oedematous and this, in conjunction with D/C, can produce thrombosis and necrosis of the blood vessel walls resulting in cerebrovascular accident.

The lungs become congested with fluid in severe cases oxygen is impaired and cyanosis occurs.

Diagnosis of pre eclampsia

Symptoms are rarely experienced by the mother until the disease has arrived at an advanced state. It is possible to identify the onset by the following which are known as the cardinal signs.

Blood pressure – A rise of 15-20 mmHg above the normal diastolic pressure or an increase above 90 mmHg on two occasions.

Proteinuria in the absence of urinary tract infection is indicative of renal damage. The amount of protein in the urine is frequently taken as an index of the severity of pre eclampsia.

Oedema It may appear rather suddenly and be associated with a rapid rate of weight gain. Generalized oedema is significant and be classified as occult or clinical. Occult oedema may be suspected if there is a marked increase in weight. Clinical oedema may be mild or severe in nature and the severity is related to the worsening of the pre-eclampsia.

The oedema pits on pressure and may be found in:

- Feet, ankles and pre-tibial region
- The hands –it may be noticed by that the mother's rings are tight.
- The lower abdomen
- The vulva
- Sacral oedema

Facial oedema – may be mild resulting in puffiness of the eye lids In the presence of two of the cardinal signs a provisional diagnosis of pre eclampsia may be made. Proteinuria is considered to be the most serious manifestation.

Classification

Mild – is diagnosed when, after resting, the mother's diastolic blood pressure rises 15-20 mmhg above the basal blood pressure recorded in early pregnancy or when the diastolic blood pressure rises above 90 mmHg. Oedema of the feet, ankles and pretibial region may be present.

Moderate – Preeclampsia is usually diagnosed when there is a marked rise in the systemic and diastolic pressure, when proteinuria is present in the absence of a urinary tract infection and when there is evidence of a more generalized edema.

Severe – Preeclampsia is diagnosed when the blood pressure exceeds 170/110mmhg, when there is an increase in the proteinuria and where oedema is marked. The mother may complain of frontal head aches and visual disturbances.

Effects on the mother

- The condition may worsen and eclampsia may occur
- Placenta abruption may occur with all the complications
- Hematological disturbance can occur and the kidneys, lungs, heart and liver may be seriously damaged.
- The capillaries within the fundus of the eye may be irreparably damaged and blindness can occur.

Effects on the fetus

- Reduced placental function can result in low birth weight.
- There is an increased incidence of hypoxia in both the antenatal and intranatal periods
- Placental abruption, if minor, will contribute to fetal hypoxia, if major, intra uterine death will occur.

Management

Depending up on the severity of the disease a mother may be admitted to the hospital. Treatment is symptomatic because the cause of pre eclampsia is unknown.

Bed rest

Diet: As for any pregnant woman a diet rich in protein, fiber and vitamin may be recommended fluid should be encouraged.

Weight: Should be estimated and recorded twice weekly if the mother is ambulant and oedema should be observed daily.

Urine: should be tested for protein and ketenes.

Fluid intake and out put should be continuously measured.

Blood pressure is ascertained 4- hourly in moderate pre eclampsia but will be taken 2 hourly or more frequently if the mother is severely affected.

Abdominal examination will be carried out, any discomfort, tenderness or pain experienced by the mother should be recorded and reported immediately. The fetal heart rate and fetal wellbeing is also recorded.

Sedation – may be prescribed

Management during labour

The nurse/midwife should remain with the mother throughout the course of labour. Preeclampsia can suddenly worsen at any time and it is essential to document the presence of oedema, the blood pressure, and urinary output. Positioning the mother on her left side will prevent supine hypotension.

Care of the bladder is essential and the mother should be encouraged to void urine regularly.

When the second stage commences the obstetrician and paediatrician should be notified. The latter will be present at the delivery in case the baby requires resuscitation.

Occasionally a short second stage is prescribed and in this instance the obstetrician will perform a forceps (vacuum) delivery.

Care after delivery

The blood pressure will be recorded after delivery and at least 4-hourly for 24 hours. If proteinuria has been present the urine should be tested once or twice daily until it is clear and urinary output should be recorded.

Postnatal care will be as needed strict follow up especially first 24-48 hours.

Signs of impending eclampsia

The nurse must be vigilant in monitoring the maternal condition and be alert to the following signs and symptoms which signal the onset of eclampsia:

- A sharp rise in blood pressure
- Diminished urinary out put (oliguria)
- Increase in protein uria
- Head ache which is usually sever, persistent and frontal or occipital in location
- Drowsiness or confusion
- Visual disturbances such as blurring of vosition or flashing lights due to retinal oedema
- Nausea and vomiting
- Epigastric pain

The midwife/nurse who observed any one of these signs in a woman with pre-eclampsia must make a full examination in order to establish if other are present and report for urgent action.

6.3.2 Eclampsia

Eclampsia is rarely seen. Usually pregnancy induced hypertension is diagnosed and treatment is instituted in order to prevent eclampsia. The incidence of eclampsia is approximately 1 in 1500 pregnancies and of these about 20% occurs in the antenatal period, 25% occur intrapartum and

35% within the first few hours after delivery. Eclampsia is characterized by convulsions and coma.

The stages of an eclamptic fit

Premonitory stage (lasts 10-20 seconds)

The mother is restless and rapid eye movements can be noted.

- The head may be drawn to one side and twitching of the facial muscles may occur
- The mother has no perception of the impending fit and shows altered awareness.

Tonic stage (lasts 10-20 seconds)

- The muscles of the mother's body go into spasm and become rigid and her back may become arched.
- Her teeth will become tightly clenched and her eyes staring

The clonic stage (lasts 60-90 seconds)

- Violent contraction and intermittent relaxation of the mother's muscles produces convulsive movements
- Salivation increases and foaming at the mouth occurs.
- The mother's face becomes congested and bloated and the features become distorted.

- She is unconscious, her breathing deteriorates and her pulse full and bounding. -Gradually the convulsion subsides.

Stage of coma

- Stertorous breathing continues and coma may persist for minutes or hours.
- Further convulsions may occur before the mother regains consciousness.

Emergency Care of a mother with eclampsia

- Clear and maintain the mother's air way (suction)
- Administer oxygen and prevent severe hypoxia
- Prevent the mother from being injured during the clonic stage.
- Monitor vital signs

Treatment may be given as follows:

Intravenous therapy will be commenced to maintain adequate hydration. The regimen will be prescribed according to the mother's needs and ketoacidosis must be prevented. Dextrose 5% will be used for intravenous drug administration.

- Sedatives to control convulsion

Where the hypertension is severe and requires rapid reduction, intravenous hydralazine may be given.

- The volume of urine and the albuminuria need to be monitored.
- Monitor intake and output
- Avoid disturbance (noise, light, etc)
- Keep emergency drugs ready

N.B. General management of eclampsia

- control convulsion
- Control blood pressure
- Deliver the baby

Complications of eclampsia

- **Cerebral:** hemorrhage, thrombosis and mental confusion
- **Renal:** acute renal failure
- **Hepatic:** liver necrosis
- **Cardiac:** myocardial failure
- **Respiratory:** asphyxia, pulmonary oedema, broncho-pneumonia
- **Visual:** temporary blindness
- **Injuries:** bitten tongue, fractures
- **Fetal:** hypoxia and still birth

6.4. Antepartum Haemorrhage

Antepartum haemorrhage is bleeding from genital tract in late pregnancy, after the 28 week of gestation till the end of second stage of labour.

Effect on the fetus

Fetal mortality and morbidity are increased as a result of severe vaginal bleeding in pregnancy.

Still birth or perinatal or neonatal death may occur

Premature placental separation and consequent hypoxia may result in the birth of a child who is mentally and physically handicapped.

Effect on the mother

If bleeding is severe, it may be accompanied by shock, disseminated intravascular coagulation and renal failure. The mother may die or be left with permanent ill-health.

Types of ante partum hemorrhage

Vaginal bleeding in late pregnancy is confined to placental separation due to placenta praevia or placental abruption.

6.4.1 Placenta praevia

The placenta is partially or wholly implanted in the lower uterine segment on either the anterior or posterior wall.

The lower uterine segment grows and stretches progressively often the 12th week of pregnancy. In late weeks this may cause the placenta to separate and severe bleeding can occur. Incidence- placenta praevia occurs in 0.5% of all pregnancies.

Type 1 placenta praevia

- The majority of the placenta is in the upper uterine segment
- Vaginal delivery is possible
- Blood loss is usually mild
- The mother and the fetus remains in good condition

Type 2 placenta praevia

- The placenta is partially located in the lower uterine segment near the internal cervical os (marginal placenta praevia).
- Vaginal delivery is possible particularly if the placenta is implanted anteriorly
- Blood loss is usually moderate
- Fetal hypoxia is more likely to be present

Type 3 placenta praevia

- The placenta is located centrally over the internal cervical os
 - Bleeding is likely to be severe particularly when the lower segment stretches and the cervix begins to efface and dilate in late pregnancy
 - Vaginal delivery is inappropriate.

Type 4 placenta praevia

- The placenta is located centrally over the internal cervical os and severe haemorrhage is very likely

- Vaginal delivery should not be considered
 - Caesarean section is essential in order to save the life of the mother and fetus.

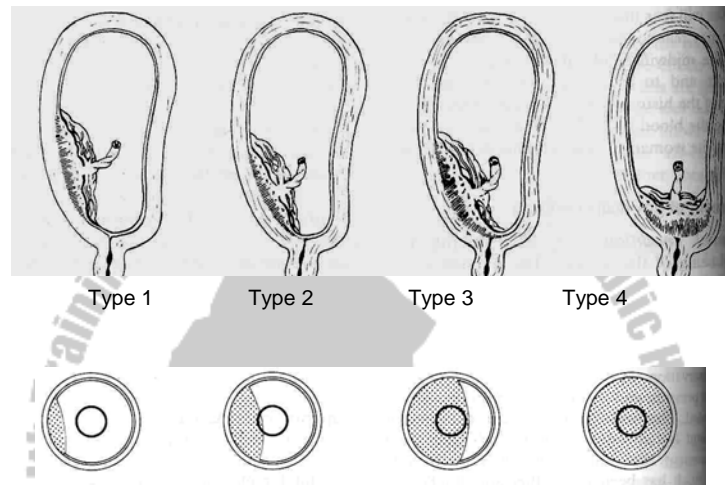


Figure 16 . Types of placenta praevia and relation of implantation with cervical os (V.Ruth Bennett. Linda k.rowen,1993)

Sign and symptom of placenta praevia

- Painless bleeding per vagina occurs at night
- The uterus is not tender or tense on palpation
- The fetal head remains unengaged
- There is malpresentation
- The lie is oblique or transverse
- The lie is unstable, usually in a multigravida.

Diagnosis

- Using ultrasonic scanning will confirm the existence of placenta praevia and establish its degree.
- The colour of the blood is bright red, denoting fresh bleeding.

Assesement

If the haemorrhage is slight the mothers blood pressue, respiratory rate and pulse rate may be normal

In severe hemorrhage;

- The blood pressure will be low and the pulse rate raised
- Respirations is also rapid
- The mother's skin colour will be pale and her skin will be cold and moist
- Vaginal examination should not be attempted

Assessing the fetal condition

The mother should be asked whether fetal activity has been normal. Excessive or cessation fetal movement is another indication of sever fetal hypoxia.

Management of placenta praevia

The managements of placenta praevia depends on:

- the amount of bleeding
- the conditions of mother and fetus
- the stage of the pregnancy

Conservative management it is appropriate if bleeding is slight and mother and fetus are well.

- The woman will be kept in hospital at rest until bleeding has stopped.
- A speculum examination will have ruled out incidental causes.
- Ultrasound scans are repeated at intervals in order to observe the position of the placenta in relation to the cervical os.

If bleeding should occur or when the fetus is mature, an examination per vagina will be carried out under general anesthetic at operation room. If the placenta is felt, caesarean section will be performed with out delay.

The nurse /midwife should be aware that even if vaginal delivery is achieved, there remains a danger of postpartum haemorrhage because the placenta has been situated in the lower segment.

Active management- sever vaginal bleeding will necessitate immediate delivery by caesarean section. This should take place in a unit with facilities for special area of the new born especially if the baby will be preterm.

Complications

- Post partam haemorrhage

Oxytocic drugs should be given as the baby is delivered.

Occasionally uncontrolled haemorrhage may continue and a caesarean hysterectomy may be required.

- Maternal shock
- Maternal death
- Fetal hypoxia due to placental separation
- Fetal death

6.4.2 Placental Abruption

Placental abruption is premature separation of a normally situated placenta occurring after the 28th week of pregnancy. The etiology of this type of haemorrhage is not always clear, but it is often associated with pregnancy induced hypertension or with a sudden reduction in uterine size. Rarely, direct trauma to the abdomen may partially dislodge the placenta. Placental abruption is an accidental occurrence of haemorrhage in 2% of all pregnancies. Partial separation of the placenta causes bleeding from the maternal venous sinuses in the placental bed. Further bleeding continues to separate the placenta to a greater or lesser degree.

Types of placental abruption

The blood loss from a placenta abruption may be defined as revealed, concealed or mixed haemorrhage. An alternative classification, based on the degree of separation and therefore related to the condition of mother and baby is of mild, moderate and severe haemorrhage.

Concealed haemorrhage is

- Blood is retained behind the placenta.
- The mother will have all the signs and symptoms of hypovolaemic shock.
- Causes uterine enlargement and extreme pain.
- The uterus appears bruised & edematous

Revealed haemorrhage-blood flow to the external and no blood is accumulated behind the placenta.

A combination of these two situations where some of the blood drains via the vagina and some is retained behind the placenta is known as a mixed haemorrhage

Assessment of the mother's condition

There may be history of pregnancy induced hypertension, external cephalic version. If there is placental separation after the birth of a first twin or loss of copious amounts of amniotic fluid during rupture of amniotic membrane.

If the blood loss is revealed;

More severe degrees are associated with abdominal pain

The uterus has a hard consistency and there is a guarding on palpation of the abdomen. Fetal parts may not be palpable the fetal heart is unlikely to be heard with a fetal stethoscope.

Management

- Any women with a history suggestive of placenta abruption needs urgent medical attention. She should be transferred urgently to a consultant obstetric unit after securing interavenous infusion.
- Pain exacerbates shock and must be alleviated
- Secure interavenous infusion

Observation

- Vital sign should be recorded
- Urinary output is accurately assessed
- Fluid intake must also be recorded accurately
- If the fetus is alive, the fetal heart rate should be monitored continuously
- Any deterioration in the maternal or fetal condition must be immediately reported to the obstetrician.

If the mother is not in labour and the gestation is less than 37 weeks she may be cared for in an antenatal area for a few days and assessed for the risks.

Mothers who have passed the 37th week of pregnancy will have an amniotomy to induce labour. Further bleeding or evidence of fetal distress may indicate that a caesarean section is necessary.

Moderate separation of the placenta up to 1000ml of blood may be lost and in severe separation of the placenta about 2000ml of blood or more are lost from the circulation.

Complications

- Coagulations defects
- Renal failure and pituitary failure.
- Postpartum haemorrhage
- Intra uterine fetal death

6.5 Polyhydramnios

Polyhydramnios is defined as being a quantity of amniotic fluid which exceeds 1500ml. It may not be clinically apparent until it reaches 3000ml. It occurs in 1 in 250 pregnancies.

Causes

- Oesophageal atresia of the fetus
- Open neural tube defect of the fetus
- Multiple pregnancy, especially in the monozygotic twins
- Maternal diabetic mellitus

- Rarely, Rhesus- isoimmunization
- Chorioangioma, a rare tumour of the placenta

Types:

Chronic polyhydramnios is gradual in onset, usually from about the 30th week of pregnancy. It is the most common type.

Acute polyhydramnios is very rare. It occurs at about 20 weeks and comes on very suddenly. The uterus reaches the xiphisternum in about 3 or 4 days. It is frequently associated with monozygotic twins or severe fetal abnormality.

Sign and symptoms

The mother may complain of breathlessness and discomfort

If it is acute one, she may have severe abdominal pain

The condition may cause exacerbation of symptoms associated with pregnancy such as indigestion, heart burn and constipation.

Oedema and varicosities of the vulva and lower limbs may be present.

Diagnosis

Abdominal examination

On inspection – the uterus is larger than expected for the period of gestation and is globular in shape the skin appears

stretched and shiny with marked strike gravidarum and obvious superficial blood vessels.

On palpation- the uterus feels tense and it is difficult to feel the fetal parts but the fetus may be balloted between the two hands. A fluid thrill may be elicited.

Auscultation auscultation of the fetal heart is difficult because the quantity of fluid allows the fetus to move away from the fetoscope.

- Ultrasonic scan may be used to confirm the diagnosis and may reveal a multiple pregnancy or fetal abnormality.

Management

The cause of the condition should be determined if possible the mother will usually be admitted to a consultant obstetric unit.

Subsequent care will be depending on:

- the mother's condition
- cause of the polyhydramnios
- the stage of pregnancy

The general condition of the fetus will be taken in to consideration in choosing the mode and timing of delivery.

The mother should rest in bed. An upright position will help to relieve any dyspnoea and she may be given antacids to relieve heart burn and nausea.

The mother may need to have labour induced in late pregnancy if the symptoms become worse. The membrane will be ruptured cautiously, allowing the amniotic fluid to drain out slowly in order to avoid altering the lie and to prevent cord prolapse placental abruption is also a hazard if the uterus suddenly diminishes in size.

Complications

During pregnancy

- Increased fetal mobility leading to unstable lie and malpresentation
- Premature labour
- Cord presentation

During labour

- cord prolapse
- Premature rupture of the membranes
- Placental abruption when the membranes rupture
- Postpartum hemorrhage

6.6. Rhesus Incompatibility

The Rhesus (Rh) factor is an antigen carried on red blood cells of 83% of the population, these people are said to be Rhesus positive. The 17% of the population who do not have this antigen are said to be Rhesus negative. Those who are Rh positive carry the D antigen.

When there is Rhesus incompatibility between a mother and her fetus, hemolytic disease of the new born may occur. This incompatibility occurs when the mother is Rh negative and her fetus is Rh positive, having inherited the gene for the Rhesus factor from his father.

Rhesus iso-immunisation

An individual who is Rh negative does not naturally carry antibodies to the Rhesus factor. If by some means Rh positive red blood cells enter her circulation they alert the immune system and antibodies may be produced in order to destroy the foreign protein.

There is normally no mixing of fetal and maternal blood during pregnancy and labour but when the placenta begins to separate and the chorionic villi tear, the risk of a fetomaternal transfusion increases.

The first encounter may not result in actual antibody formation but the woman will be sensitised; on a second encounter, antibodies are produced in abundance. Once formed, these antibodies are permanent.

Other occasions on which a fetomaternal transfusion may occur are at abortion, amniocentesis, external cephalic version or ante partum haemorrhage.

Prevention of maternal iso-immunisation

There are three ways of preventing a woman from producing Rhesus antibodies:

- avoiding transfusion of Rh positive blood
- prevention of avoidable fetomaternal transfusion
- administration of anti- D immunoglobulin

Avoiding transfusion of Rh positive blood

Even if a small amount of Rh positive blood introduced in to the circulation of a Rh negative person will result in sensitization. Rh positive blood should never be administered if the individual's blood group is unknown and whenever possible cross matching should be undertaken prior to blood transfusion.

Administration of anti-D immunoglobulin

This will coat the fetal red cells that contain Ag and destroy them before the woman's immune system has time to recognize the foreign protein and react to it. The

immunoglobulin must be given within 72 hours of the leak if it is to be effective.

The normal dose of anti-D immunoglobulin is 500 IU after delivery or following an abortion which takes place after 20 week's gestation. In case of earlier abortion, 250 IU is given.

Antenatal management

The possible courses of action are:

- To allow pregnancy to continue but to repeat the amniocentesis at intervals in order to assess bilirubin levels. If the bilirubin level rises, intervention may be necessary
- To deliver the fetus if it is dangerous to continue pregnancy
- To administer an intra-uterine transfusion to the fetus in order to prolong life until he is mature enough to survive.

Care at delivery to avoid transfusion

Immediately the baby is born, the cord must be clamped in order to prevent any further Rhesus antibodies from entering the circulation.

Rhesus haemolytic disease

Transference of maternal Rh antibodies to the fetus during pregnancy will result in haemolysis and consequently in anemia and jaundice.

The degree of haemolysis and the number of maternal antibodies remaining in his circulation determine the condition of the baby.

Degree of haemolytic disease:

Congenital haemolytic anemia

This arises when haemolysis is minimal. It causes anemia of slow onset but little jaundice. The liver and spleen are enlarged. The baby's haemoglobin level must be monitored and if necessary a small transfusion of 30ml packed cells is given.

Icterus gravis neonatorum (severe jaundice of the new born)

Haemolysis has been taking place in the fetus and the baby is born with a low haemoglobin level. After delivery the baby can not cope with the large amount of bilirubin from red cell breakdown and he rapidly becomes jaundiced.

Treatment must restore the haemoglobin level, reduce the bilirubin level and remove maternal Rh antibodies.

Hydrops fetalis

This condition is one of congestive heart failure due to gross haemolytic anaemia. At birth the baby is extremely pale, has sever oedema and ascites and may be stillborn.

Post natal management

All babies whose mothers have Rh antibodies should be transferred to a neonatal intensive care unit.

ABO incompatibility

In this condition the mother is blood group O and the baby is group A or B. The mother has naturally occurring antibodies anti-A anti-B. These are of type Igm and are too large to cross the placenta. If the immune system produces small antibodies (IgG) similar to anti-A and anti-B, these will be able to cross the placenta and become attached to fetal red cells and destroy them. The condition may affect the first born as much as a subsequent child.

The jaundice is usually mild but may appear within the first 24 hours of life. If this happens, blood must be taken for grouping and coombs' test. Bilirubin levels are estimated. Treatment depends on the serum bilirubin level and its rate of rise.

6.7 Disease Associated With Pregnancy

6.7.1 Infection

Pregnancy produces a degree of altered immune responsiveness which helps to prevent fetal rejection but predisposes the woman to infection. Infection in pregnancy will affect the fetus as well as the mother.

Transmission of infection to the fetus can occur as:

- Via the transplacentally for example the human immunodeficiency virus (HIV) and rubella
- By ascending via the vagina after rupture of the membranes
- As the baby passes through the birth canal

Care of the woman with an infection

If the woman contracts an infection investigations of the cause of infection include blood culture and culture of a high vaginal swab should be assessed.

Treatment

Antimicrobial therapy is undertaken with care over use of broad – spectrum antibiotics has produced resistant organisms and some antibiotics are contraindicated in pregnancy because of their effect on the fetus

6.7.2 Pulmonary tuberculosis

Effects on the Woman

The over all effect is to debilitate the woman, making her less able to cope with pregnancy and her existing family.

Transplacentally, infection of the fetus is rare but possible and there is a suggestion that the risk of abortion may be

increased. The woman's poor state of health may affect fetal growth.

Management

If there are clinical signs of tuberculosis or the woman is known to have been in contact with tuberculosis a chest x-ray is performed during the third month, at term and 6 months after delivery. Sputum specimens are taken and any plural effusions may be aspirated to help identify the organism.

Most treatment is given on an out patient basis although the woman may be admitted to an isolation unit if her sputum test is positive as the disease is communicated by droplet infection. Treatment is usually with isoniazid and ethambutol during the first trimester; rifampicin may be used after that.

Intrapartum care

If the mother is infectious she should be allocated a single room during her stay in hospital. Problems in labour stem from fatigue and reduced lung function.

Episiotomy and forceps delivery may be advocated to reduce the strain of the second stage. Unnecessary blood loss can be avoided by careful management of the third stage.

Post natal care

Separation of the baby from his family is not always necessary. The baby can be vaccinated with an isoniazid resistant BCG while being protected from the disease by the prophylactic use of isoniazid. Family planning advice.

6.7.3 Cardiac Disease

The work load of the heart increases quite significantly during pregnancy. These changes commence in early pregnancy and gradually reach a maximum at the 30th week, where they are maintained until term. Oestrogens and prostaglandins are thought to be the mediators of the alterations in haemodynamics during pregnancy. These changes are associated with several clinical signs.

Classification

Based on exercise tolerance is useful for describing the extent of the immediate problem but has little predictive value:

1. No symptoms during ordinary physical activity
2. Symptoms during ordinary physical activity
3. Symptoms during mild physical activity
4. Symptoms at rest

Antenatal care

Diagnosis of cardiac disease in some women may only make during antenatal visits. The aim of management is to maintain or improve the physical and psychological well being of mother and fetus. This involves keeping a steady haemodynamic state and preventing complication.

Intrapartum care

The first stage of labour

The least stressful labour for a woman with cardiac disease will be spontaneous in onset and result in a vaginal delivery. Blood may be cross-matched in case of need. Oxygen and resuscitation equipment should be available and functioning.

- Pulse, blood pressure and fetal condition should be monitored and recorded
- Administration of prophylaxis antibiotic to prevent endocarditis
- Positioning – encouraged to adopt a position in which she is comfortable
- Maintain fluid balance

The second stage of labour

The second stage should be short and without undue exertion on the part of the mother. She is advised to avoid holding her breath and follows her natural desire to push;

giving several short pushes during each contraction. Provide oxygen if necessary.

The third stage of labour

Syntocinon may be used in order to prevent haemorrhage as it has less effect on blood vessels than ergometrine.

Post natal care

During the first 48 hours following delivery the heart must cope with the extra blood from the uterine circulation and it is important to monitor the woman's condition closely.

When the woman has discussed the implications of future pregnancies, she will decide on her condition with the cardiologist and obstetrician.

6.7.4 Diabetes Mellitus

The extra demands on the pancreatic beta cells can precipitate glucose intolerance in women whose capacity for producing insulin was only just adequate prior to pregnancy. If a mother was already diabetic before pregnancy, her insulin needs will be increased.

The effect of diabetes on pregnancy

When it is well controlled its effect in one pregnancy may be minimal. If the control is inadequate there may be complications.

- Maternal haemoglobin can be irreversibly bounded to glucose
- There is an increased risk of spontaneous abortion, stillbirth and fetal abnormality
- The perinatal mortality rate is 2 or 3 times higher for diabetic mother
- Diabetic mother are more prone to urinary tract infection
- Diabetic mother has a greater susceptibility to candida albicans.
- The incidence of preeclampsia and polyhydraminous is increased.
- Neural tube defects in babies of diabetic mothers

Antenatal care

- Should be seen at a combined antenatal and diabetic clinic
- Should attend (visit) antenatal clinic every tow week until 28 weeks gestation and then weekly until term
- Fetal growth and anomaly must be observed for the risk of either growth retardation, macrosomia or fetal abnormality
- Should be assessed for any sign of diabetic complication

Managemnt of Labour and delivery

- Labour should be allowed to commence spontaneously at term in well controlled diabetic

- Maternal hyperglycemia should be controlled thus leads to an increase in fetal insulin production which will cause neonatal hypoglycemia
- Monitor fetal condition through out the labour
- A pediatrician should be present during delivery especially if labour has been induced or labour is premature

Post natal care

Carbohydrate metabolism returns to normal very quickly after delivery of the placenta and insulin requirements will fall rapidly, often she needs no insulin during the immediate post natal period then she will return to her non pregnant insulin requirement

- Careful observation for PPH if there is polyhydramnios
- A diabetic mother who is breast feeding may need to increase her carbohydrate intake
- Since diabetic mother is prone to infections advice her, to change her pads frequently keeps any wound clean and dry.
- The woman with gestational diabetes will usually demonstrate normal glucose values by 24 hours after birth and need no further diet or insulin therapy
- Be certain the woman has contraceptive information as appropriate

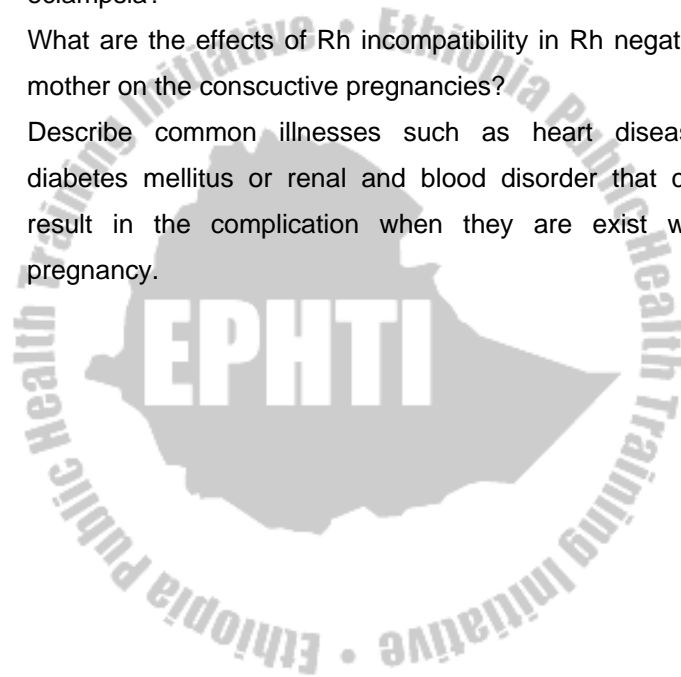
Care of the baby

- Examine carefully as there is an increased risk of congenital abnormality
- The baby should be fed soon after delivery to prevent hypoglycemia as the baby continues to produce insulin than he needs.



Review Questions

1. List the different degrees of placenta previa along with their features.
2. What are the diagnostic criteria of pre- eclampsia and eclampsia?
3. What are the effects of Rh incompatibility in Rh negative mother on the consecutive pregnancies?
4. Describe common illnesses such as heart disease, diabetes mellitus or renal and blood disorder that can result in the complication when they exist with pregnancy.



CHAPTER SEVEN

ABNORMAL LABOUR

At the end of this chapter students will be able to:

- Define malpresentation and malposition
- Identify causes of Post partum Hemorrhage. (P.P.H).
- Define prolonged labour
- Diagnose Cephalo pelvic disproportion (C.P.D).
- List the cause of rupture of uterus
- Differentiate degrees of laceration with their managements.

7.1. Malpresentation and Malposition

Mal-presentation - A presentation other than vertex

Eg. Shoulder, face, brow and breech

Mal-position and mal-presentations have ill fitting presenting parts compared to a well flexed vertex presentations in a normal pelvis.

- Causes: - polyhydraminous
 - Abnormality of pelvis
 - Abnormal shape of uterus
 - Laxcity of uterine muscles
 - Multiple pregnancy

All ill fitting part is associated with (results in):

1. Early rupture of membrane with risk of cord prolapsed
2. Premature labour
3. Slow, irregular, short-lived contractions
4. Uncoordinated and excessively painful labour after rupture of membranes
5. Prolonged and obstructed labour
6. Post partum hemorrhage
7. Fetal and maternal distress

7.1.1 Breech Presentation

Definition: When the fetus lies with his buttock in the lower pole of the uterus.

It occurs in 1: 40 cases of labor after 34 weeks

1. Breech with extended legs or frank breech- in this type of breech the thighs are flexed and the legs are extended along the fetal abdomen. It is the common one.
2. Complete breech the fetus lies in a flexed attitude and the legs are flexed on the abdomen. The presenting part is bulky and consists of buttocks external genitalia and both feet.
3. Footling- one or both feet present because neither hips nor knees are fully flexed.
4. Knee presentation. On this case both the hips are extended with the knees flexed.

Example

Lie-Longitudinal

Attitude-complete flexion

Presentation- Breech

Position- Left sacro Anterior

Donominator- Sacrum

Presenting part- is anterior buttock

Causes:- often no cause is identified but the following circumstances favor breech presentation.

- Poly hydromnios
- Prematurity
- Multiple pregnancy
- Placenta preveia
- Contracted pelvis
- Uterine abnormalities
- Hydrocephalus
- Extended legs

Diagnosis

On palpation

- Lie is longitudinal
- The fundus contains a firm, smooth and rounded mass which dependently moves with the back.
- On pelvic palpation no head is palpated pelvic has a soft and irregular mass.

On auscultation

The fetal heart beat is heard above the umbilicus if the breech is not engaged below the umbilicus if it is engaged.

Vaginal examination

No sutures and fontanelles are felt. When the membranes are ruptured the anal sphincter grips the finger when fresh meconium is seen on the examining finger.

Antenatal management

The presentation may be confirmed by ultrasound scan or X-ray of abdomen. The obstetrician may decide to do an external cephalic version before 36 weeks of gestation.

Management in labor

The method of delivery is chosen depends on

1. Parity of the mother if she is primigravida
2. Size of the baby
3. Other obstetrical complications

The Principles of Management

- Intelligent observation
- Avoidance of unnecessary interference
- Prompt action carried out with manual dexterity when assistance is needed
- Avoidance of fetal injury and hypoxia

Mechanism of breech delivery

Descent takes place by increasing compaction due to increased flexion of the limbs. Bitrochantric diameter which is 10cm enters the pelvis in the oblique diameter.

- Internal rotation of the buttocks
- Lateral flexion of the body
- Restitution of the buttock
- Internal rotation of the head.
- External rotation of the body
- Birth of the head the chin face and sinciput sweep the perineum and the head is born in a flexed attitude.

N.B. Labor in breech is always considered as a trial

Management of Labor in Breech Delivery

It is managed depending on types of presentations

Types of delivery

- Spontaneous breech delivery
- Assisted breech delivery-assistances for delivery of extended legs arms and the head.
- Breech extraction this is the manipulative delivery to extract the breech when the mother is unable to deliver.

First Stage

- Careful observation
- Warn mother not to push
- Vaginal examination when membrane ruptures (to rule out

cord prolapse).

- Sedation often necessary
- Be prepared for the delivery

Delivery of Flexed Breech

- Full dilatation of the cervix should be confirmed by vaginal examination before allowing the woman to push to prevent the breech slipping through incompletely dilated and the head may be trapped by the cervix.
- Active pushing is not commenced until the buttocks are distending the vulva.
 - Encourage her to push with the contraction and the buttocks are delivered spontaneously episiotomy may be necessary
 - The hands off the breech get mother to push when the buttocks are born pull down a loop of cord feel for pulsation put in to the hollow of the sacrum to prevent pressure and traction.
 - Fell for the elbows on the chest the shoulder should be born easily with the arms flexed across the chest if not help them out by flexing the arm.
 - Grasp the baby by iliac crest with the thumbs held parallel over his sacrum and tilt the baby towards the maternal sacrum to free the anterior shoulder.
 - Wrap small towel around the baby hip to preserve the warmth and improve the grip on the slippery skin.

- When the anterior shoulder is born lift the buttocks towards the mother's abdomen to enable the posterior shoulder to pass over the perineum.

Delivery of the head

Delivery of flexed head (Burn's Marshal Method)

After the shoulder is born the baby is allowed to hang unsupported. Within one minute the nape of the neck (hair line) appears. The baby is now grasped by the ankle and maintains traction while supporting the head on the perineum with the right hand. Hold the baby on a stretch and slowly bring the feet up to an angle of 180 degrees.

When the face appears get someone to clean the air ways then delivery the head very slowly taking 2 to 3 minutes to allow the vault of the head to be expelled. The mother should breathe out the head.

Delivery of extended head (mauriceau smelle's veit method)

- When the baby is allowed to hang and hair line is not visible, it indicates that the head is extended.
- Pick up the baby by the feet and lie him astride on the right forearm put the middle finger of the right hand in the baby's mouth far back to the roof of the tongue. With the other hand on the head and flex it down towards the floor applying traction. When the head is down bring it

up gently delivery slowly taking 2 to 3 minutes to deliver it and so prevent cerebral damage

Delivery of extended breech

Get mother to push, when legs are seen it may be necessary to apply slight pressure in the popliteal space beyond the knee. This will flex the legs and then they can be easily delivered. Pull down a loop of cord to prevent traction, feel for pulsation, and place it in the hollow of the sacrum to prevent pressure.

Delivery of extended arm

Get mother to push, when the axilla is seen it means that the arms are extended. So place the cord sacrum and fingers below the iliac crest, rotate shoulder in to the anterior posterior diameter of the pelvis, then rotate the posterior shoulder anteriorly keeping the back on top, now flex the arm over the face and deliver it, splint it, and now bring the other arm anteriorly, and deliver it by flexing it across the chest now the shoulders are born.

Dangers of breech presentation

1. Delay of the after coming head
2. Cerebral damage due to hypoxia
3. Asphyxia (fetal or neonatal), prolapsed of cord or pressure on cord.

4. Prematurity
5. Intracranial hemorrhage due to trauma
6. Injuries to liver spleen adrenal glands or kidney
7. Erb's palsy due to damage of the brachial plexus
8. Facial nerve paralysis due to the twisting of the neck.
9. Fracture to femur, tibia, humerus or clavicle
10. Damage to spinal cord due to wrong handling
11. Pneumonia due to premature inspiration.

7.1.2 Brow Presentation

Definition:- When the sinciput or the area between the face and vertex is in the lower pole of the uterus.

Attitude – Between flexion and extension (mid way) engaging diameter mentovertical 13:5cm. It occurs 1 in 1000 deliveries

Causes:

1. Lax uterus, multiple pregnancy, hydraminous
2. Deflexed fetal head
 - Hypotonus of the neck muscle
 - Thyroid tumor
3. Anencephaly
4. Abnormal shape of pelvis

Diagnosis

On palpation – the head is big and high & does not enter the pelvis

On vaginal examination

- It is difficult to touch the presenting part
- A smooth hair less area is felt, with part of the bergman at one side
- The orbital ridges may be felt.

Management

If brow presentation is diagnosed early in labour, it may be converted to a face presentation by fully extension or it may be flexed to a vertex presentation, however, brow presentation will lead to obstructed labour.

- Cesarean section is the management for alive baby
- Craniotomy if baby is dead.

7.1.3 Shoulder Presentation

Definition- When the shoulder of the fetus lies in the lower pole of the uterus in labour. A transverse lie becomes a shoulder presentation in labour.

Incidence-Occur once in 250-300 deliveries.

Causes

- Laxity of uterus
- Placenta previa, hydraminous,
- Multiple pregnancy
- Uterine abnormality
- Preterm pregnancy

Diagnosis

- The uterus appear broad and the funds height is less than expected for the period of gestation
- Easily seen on abdominal examination. When labour progresses, the hand can be felt or the ribs on V.E.
- Arm may prolapsed when membrane rupture ultrasound

Management

- When diagnosed at antenatal clinic after 36 weeks external version will be attempted
- In labour caesarian section is method of choice when attempt of external version have failed.
- When membrane have ruptured before; if there is cord prolepses if arm prolepses even with dead fetus ceaserian section is mandatory.

Complications

Maternal

- Obstructed labour
- Uterine rupture
- Death
- Puerperal sepsis
- PPH

Fetal

- Fetal death (cord prolapsed)
- Prematurity
- Malformation
- Arm prolapse

7.1.4 Face Presentation

Definition: When the attitude of the head is extension and the face lies in the lower pole of the uterus.

Cause

- Lax uterus, multiple pregnancy
- Hydraminous
- Deflexed fetal head
- Ancephaly
- Abnormal shape of pelvis

Diagnosis

Abdominal examination

Inspection- irregular abdomen and the shape of the fetal spine is that of an "S."

Palpation

- prominent occiput is felt on one the same side as the sinceput which is lower than the occiput. A deep groove is felt between fetal back and head Auscultation- the fetal heart is heard clearly at midline

Vaginal examination

- The presenting part is high
- A soft irregular mass is felt, the gums are felt and the fetus may examining finger - diagnostic
- Noting the position of mentum is important i.e Anterior, transverse or posterior

Mechanism of face delivery

- Instead of an increase in flexion there is an increase in extension
- The chin rotate instead of occput
- The engaging diameter is sub mentobregmatic 9.5 cm face presentation can be born normally except when the chin is posterior and gets caught in the hollow of the sacrum, when it develops into obstructed labour.

Management in labour

- Encourage and perhaps sedate because she will have extra discomfort.
- When membranes ruptures do vaginal examination to

make sure no cord prolapsed and to note the position

- Rotation occurs below the level of spines
- If the chin is anterior let labour continue, if transverse, watch that it rotates anteriorly. When the face distends the perineum, perform an episiotomy, then hold back the sinciput and allow the chin to be born, when the chin is born flex the head and allow the occiput to be born.
- Always be careful not to damage the baby's eyes with fingers or antiseptic

Complications

- Obstructed labour
- Cord prolapse
- Facial bruising
- Cerebral haemorrhage & Maternal trauma

7.1.5 Unstable lie

Definition:-When the lie is found to vary, breech, vertex or shoulder, presenting from one examination to another after 36th weeks of pregnancy.

Causes

- Lax uterine muscles
- Multiparity
- Poly hydraminous

Management

Admission in hospital at the 36-37 week and remain in the hospital until delivery.

Attempts are made by the obstetrician to correct the abnormal presentation by external version. If unsuccessful, caesarian section is considered. Some times AROM is done after correcting the transverse lie to ensure that the woman goes into labour with vertex presentation. An oxytocic drip is usually given after version.

- Extreme caution and close observation is mandatory throughout labour.
- Monitoring of Fetal Heart Beat frequently is very important
- The bladder and the rectum should be emptied to facilitate
- preservation of the longitudinal lie.

7.1.6. Compound or Complex Presentation

Definition: - When a hand or occasionally of foot, lies along side the head. This tends to occur with a small fetus or roomy pelvis seldom is difficulty encountered except in cases where it is associated with a flat pelvis. On rare occasions head, hand & foot are felt in the vagina, a serious situation which usually occurs with a dead fetus.

If diagnosed during the first stage of labour, attempt could be made to push the arm up words over the baby's face. If during the second stage hold the hand back directing it over the face.

7.1.7 Occupition Posterior Position

It is a malposition of the head, occurs in 13% of the vertex presentations. Head is deflexed-larger diameter present.

Causes

Direct cause is unknown but associated with

- Pendulous abdomen
- Abnormal pelvis, Android, Anthropoid, flat sacrum
- The placenta is in anterior wall

Diagnose

Inspection

Deep hollow between head and lower limbs

Palpation

The fetal head is found on one side

The limbs are infornt and give hollowing above the head.

There is a saucer like depression around the umbilicus. There is a bulge like full bladder occiput and sinciput are at the same level. Limbs are found on both sides.

Auscultation

Fetal Heart is heard in the flanks and descends down

Vaginal examination

- Membranes may rupture early
- If infant may protrude through cervix as a finger like fore water or fill up the upper vagina
- Due to deflection, anterior fontanel is felt in the anterior part of the pelvis near ileo pectineal eminence

Out Come

- If the flexion of the head increases the occiput strikes the pelvic floor and rotates anteriorly (ROP) to 45 then to 90° rotation and delivered normally.
- If the flexion remains incomplete, the rotation of the head takes place posteriorly brings the occiput in the hollow of the sacrum. This is known as short rotation. In this case the baby is born by face to Pubis.
- Some times the long rotation of occipitoposterior is arrested and the head is left in the Occipito- lateral position in the cavity of the pelvis.

Occipito frontal diameter is caught at the narrow spinous diameter of the outlet. This is known as deep transverse arrest or persistent occipitoposterior. The delivery could be by rotation of the head to anterior or by cesarean section.

Management

Encourage the mother to lie on the side where the fetus lies. Patient may have severe back pain analgesics may be given. Retention of urine is common catheterization is necessary. Patient feels the need to bear down before fully dilation. Two-third of cases will deliver normally. 12% will deliver face to pubis. If the ischial spines are prominent the internal rotation may interrupted caesarian section is recommended.

Identifying the ear by the root of the pinna (right or left) manual rotation can be done by, keep the right hand on the head and left on the abdomen and rotate than forceps delivery is performed.

7.2. Post partum Hemorrhage

Definition:- Post partum hemorrhage is bleeding from the genital tract during the 3rd stage of labour, or within 24 hours after delivery of the placenta to the amount of 500ml or any amount that will change the patient's condition

It is responsible for maternal deaths and is one of the emergencies in which if the Nurse/ mid wife does not know how or fails to play the part the doctor may be Unable to save the mother's life as shock gets in quickly and can become irreversible.

The rate of flow that is more important than the amount
Anaemia is a predisposing cause.

It occurs within 24 hours at delivery it is caused primary
while after 24 hrs of Delivery is secondary PPH.

Cause of Primary PPH

- Retained Placenta
- Retained Cotyledon
- Genital trauma
- Disseminated intramuscular coagulation (DIC)
- Inversion of uterus

Cause of secondary PPH

- Chorioamnionitis
- Retained products

Type of PPH

1. Atonic postpartum hemorrhage
2. Traumatic postpartum hemorrhage
3. Hypofibrinogenaemia

Management of PPH

Three basic principle are applied

1. Call an obstetrician
2. Stop the bleeding
3. Resuscitate the mother

7.2.1 Atonic Postpartum Hemorrhage (80% of PPH)

This is bleeding from the placental site when the uterus is not well contracted. This is a failure of a myometrium at the placental site to contract and retract and to compress torn blood vessels and control blood loss by a living ligature action.

Cause

- Incomplete separation of placenta
- Retained cotyledon, placental fragments or membranes
- Prolonged labour & obstructed labour resulting in uterine inertia
- Rapid expulsion of large body
- Poly hydraminous, multiple pregnancy-over stretching of the uterus
- Anteportum hemorrhage
- Adherent placenta that has partially separated
- Precipitate labour
- Full bladder
- Mismanagement of the ill state of labour
- Prolonged anesthesia
- Fibroids
- Grand mult

Management of atonic PPH

- Massage uterus
- Give pitocin or ergometrine
- Baby to breast
- Empty bladder
- Empty uterus
- Bimanual compression

Bimanual Compression

It can be done externally or internally

Method

Place one hand on the fundus and the other above the Symphysis pubis (external) or in anterior fornix (internally) and squeeze until clotting occurs usually clotting takes place 7-10 minutes later. Remove the external hand to check whether the bleeding is stopped or not

Dangers: - Hemorrhage
Shock
Infection

7.2.2 Traumatic Post Partum Hemorrhage (20% of PPH)

This is bleeding from a laceration of the cervix, vaginal wall, and perineum episiotomy or even from ruptured uterus.

Cause

- Delivery through partially dilated cervix
- Instrumental delivery-bruised
- Difficult delivery- Face to pubes, after coming head of breech

Management of traumatic PPH

When bleeding is due to the tear, explore the area for the tear, clamp the bleeding point and suture. Make sure that the uterus is not ruptured. If the laceration is sutured and bleeding stop make sure that the uterus is well contacted.

If bleeding is from bruised cervix place a pack against it for a few minutes to an hour, if so leave catheter in situ.

If bleeding is from ruptured uterus, transfer to the hospital as soon as possible; go with patient or send a full written report with date, time of departure and Signature.

7.2.3 Hypo Fibrinogenaemia

This is bleeding due to a clothing defect and the patient continuous to bleeding in spite of treatment for the other types of postpartum hemorrhage.

Causes

- Placental abruption

- Intrauterine death which is prolonged
- Amniotic fluid embolism
- Pre- eclampsia, eclampsia
- Intra uterine infection
- Hepatitis

Management of hypofibrinogenaemia (DIC)

The best treatment is

- Fresh blood transfusion
- Fibrinogen or triple strength plasma transfusion
- Give oxygen and resuscitate with IV dirp
- Drugs as prescribed

E.g Morphine for pain

- IV syntocinon if uterus is lax

The patient will respond quickly to this treatment if given quickly. Advice Hospital delivery for the next time and warm her to explain to doctor or nurse.

It is important to be able to differentiate between a tonic and traumatic post part hemorrhage.

Atonic

Uterus is lax or soft

Bleeding starts after a few minutes of birth

Blood is dark red in colour

Traumatic

Uterus is contracted firmly

Bleeding starts immediately after delivery and continues

Blood is bright red in colour

Management of Severe PPH in a Health Center

1. Massage the uterus to stimulate contraction and expel the placenta if possible
2. Stay with your patient and shout for help
3. Give ergometrine 0.5 ml I.V and put up a drip
4. Empty bladder
5. If placenta is already expelled, expel clots if not try to expel it with the contraction caused by ergometrine. If not and she is still bleeding severely in order to save the patient's life manual removal is done.
6. If still the uterus is lax as a last reason, bimanual compression method is done.

Consequences of PPH

- 1) Shock and collapse- death
- 2) Puerperal anemia – weakness & low resistance to infection
- 3) Fear of the further pregnancy
- 4) Sheehan's syndrome- due to anterior pituitary necrosis
- 5) Infection

Prevention of PPH

Good antenatal care

- Careful history taking to find out if she had PPH in previous delivery.

- Bring hemoglobin as high as possible and treat anemia. Book high risk for hospital delivery. Group & cross match high-risk mother in labour
- Try to prevent prolonged or obstructed labour
- Make sure that the mother rests as much as possible during 1st stage and prevent dehydration.
- Keep bladder empty
- Delivery head slowly and control it
- Active management of third stage

7.3. Prolonged Labour

Traditionally labour is prolonged if it exceeds 24 hours. When labour is activity managed, It is termed prolonged if delivery is not imminent after 12 hrs of established labour.

NB. The sun should not set twice in woman in labour

The first Stage

The latent phase considered prolonged over 20hrs in primigravidae or over 14 hrs in multigravidae.

Primary dysfunctional-labour progress in active phase of labour is slow and the cervix dilate less than 1 cm on hour.

Secondary arrest:- After normal progress in early labour, cervical dilation is arrested in active phase.

Cause in 1st stage

- 1) In-efficient uterine contraction (Power) is the most common cause of prolonged labour. The cervix dilates slowly or not at all.
- 2) Pelvic abnormalities (Passage). A contracted pelvis and pelvic tumors prevent normal progress in labour.
- 3) The fetus (Passenger):- a large fetus malposition of the occiput or malpresentation inhibit the progress of labour.
- 4) Psychological cause:- Abnormally tense or apprehensive women tend to have prolonged labors. The primigravidae more often affected than multigravidae

Management

When progress in labour is slow the cause must be identified week uterine action can be rectified with a syntocinon infusion Caesarian section if no progress despite good uterine contraction Obvious disproportion or malpresentation of the fetus indicate the need for operative deliveries.

Nursing Care

Maternal condition: She may be exhausted, dehydrated and ketotic and may be suffering severe pain

- Encourage and reassure the mother
- Help to adopt a comfortable position
- Adequate analgesia should be offered because it will enable her to rest.

- Administer IV infusion
- Empty bladder regularly
- Test urine for ketoses
- Record intake and out put
- Allow sips of water
- If membrane ruptured 24 hours before high vaginal swab is taken for culture and sensitivity and antibiotic is started

Fetal Condition: -

- Monitor the fetal heart beat
- Observe amniotic fluid (meconium)
- Avoid aspiration at delivery

The Second Stage

The exception in this phase should be continuous descent and advance of the fetal head.

Causes of a prolonged 2nd stage of labour:

1. Hypnotic uterine contractions
Management – syntocinon infusion is commenced in order to stimulate adequate contraction
2. Ineffective maternal effort.
Fear, exhaustion or lack of sensation may inhabit woman's ability to push and cause delay, especially in primigravida.
3. A rigid perineum.
A forceps delivery is performed under local anesthesia.

4 Reduced pelvic outlet.

A forceps delivery is performed if possible or, in severe cases, Caesarian section.

5 Large fetus

An operative delivery will be necessary.

Complications of Prolonged labour

Maternal:

- edema
- Laceration
- Uterine prolapsed, PPH
- Cystocele or rectocele- over stretching of pelvic floor muscles
- Retention of urine
- Urinary tract infection during peripartum.

Fetal:

- Difficult instrumental deliveries
- Hypoxia
- Intracranial hemorrhage

7.4 Prolapse of Cord

Prolapse of umbilical cord can be classified as:

1. Occult prolapse in which the cord lies over the face or head of the fetus but can not be felt on vaginal examination

2. Forelying in which the cord precedes the presenting part and usually palpated through the membranes if the cervix is dilated
3. Complete prolapse in which the cord descends in to the vagina in front of the presenting part

Obstetric factors which favors prolapse of umbilical cord are:

- Abnormal presentation (Face, Breech, Shoulder, Brow and Transverse)
- Multiple pregnancy
- Premature rupture of membrane prior to engagement of the presenting part
- Contracted pelvis
- Hydraminous
- Low implantation of placenta
- Abnormally long cord

Management: - It depends on the fetal condition and presentation.

If the fetus is alive:

- Position the mother in the knee chest position or deep trendelenberg position
- Manually pushing the presenting part backward by gloved finger vaginally to relieve off the pressure on the cord till the baby is delivered
- The best method of delivery in this case is caesarean section

- If the fetus is not alive and the presentation and position is normal vaginal delivery is possible

Complications

Fetal

- Birth trauma
- Prematurity
- Metabolic acidosis
- Hypoxia

Maternal

- Lacerations of birth canal if rapid vaginal delivery is carried out
- Rupture of uterus (malpresentations)
- Uterine atony (prolonged labour)

7.5 Cephalopelvic Disproportion

When the head of the fetus does not fit in to the mother's pelvis or a delivery condition in which the mother's pelvis is too small or too misshapen to allow the fetal head to pass through. It can be classified as mild, moderate or severe.

Causes

- Contracted pelvis
- Big baby

- Occipito posterior position
- Pelvic tumors
- Malpresentations: Face, brow

7.6 Contracted Pelvis

Definition-When the one or more pelvic diameters are reduced by 1 centimeter or more centimeters.

Signs of contracted pelvis

- In multigravida Prolonged and difficult labour with history of still births, instrumental delivery and neonatal deaths
- In primigravida - pendulous abdomen
- Woman is small - under 150 cm with short fingers and small feet
- Bony deformity of spine , hip & leg
- Pelvic assessment will reveal contracted pelvis

Degrees of contracted pelvis -

Mild - Where the anterior parietal bone is at level with symphysis pubis.

Moderate - The head slightly overlaps at the edge of the pubis

Severe - The head bulges over the symphysis pubis

Methods of determining C.P.D.

1. Determining the degree of overlap by placing the fingers on the symphysis pubis while pressing the head down and with the other.
2. Head fitting - Sitting patient up method - patient lies on the bed. Place the patient to set up by her own effort. The effort should force the head into the pelvis and the midwife will feel its slip past her hand.
3. Head filling - left hand grip method - Grasp head with left hand and push it downward and backward if a sense of giveness felt there is no overlap or C.P.D.

Management

For mild and moderate C.P. D- Trial of labour is given
Sever C.P. D. Cesarean section will be performed.

7.7 Retained Placenta

Definition: - When the placenta remains undelivered after a specified period of time usually half to one hour following the boy's birth having left the upper uterine segment.

Cause

- Poor uterine contraction
- Hours glass contraction: a contraction ring in the third stage caused by giving ergometrine and not expelling the placenta in time

- Full bladder
- Mismanagement of third stage of labour.

Management of retained placenta

1. Careful observation - check pulse
 - Vaginal bleeding
 - Check bladder
2. Gently try to deliver by controlled cord traction
3. If not manual removal followed by antibiotics

Manual removal of Placenta

Method:-Place one hand on the fundus to support the uterus, let the other hand follow the cord until it reaches the placenta move hand up to the edge of placenta and find where it is partially separated (remember it would not be bleed if it is not separated) then move your hand up and down, until you have it, completely separated then bring it out in your hand, examine it.

7.8 Adherent Placenta

When the placenta one-hour after delivery still has not speared and left the upper uterine segment. This occurs when the placenta has grown into the uterine muscle.

Types:-

- 1 Placenta accreta- into muscles
- 2 Placenta increata- deep in muscle

3 Placenta percrata- through muscle

Management

- Is usually hysterectomy
- Some times doctors can remove it as a piecemeal under general anesthesia or leave it to be absorbed.

7.9 Rupture of the Uterus

Definition: When there is a tear or cut in the uterus. It is one of the obstetric emergencies.

Causes

- 1 Weak caesarian section scar
- 2 Trauma during operative manipulation per vagina
- 3 The unwise use of oxytocic drug
- 4 Obstructed labour.

1. Weak Caesarian Section Scar

Cause: -

- Wound healed by secondary or more of stage
- If another pregnancy occurs within six months
- Over distension as in subsequent twin or polyhydramnios

Occurrence- During 1st stage of labour or the last four weeks of pregnancy.

Sign and symptoms

- Constant abdominal pain accompanied by vomiting even when the pulse below 100.
- Vaginal bleeding
- Shock

Management

- Labour should be conducted in hospital
- Reduced abdominal palpation to a minimum and perform with great gentleness.

Observation: - Record and Report

- Increased tenderness over the scar
- Constant pain in the abdomen
- Slight or no advance, with good contractions during 1st stage
- Insufficient advance during 2nd stage
- Arise pulse rate
- Vaginal bleeding
- Shock

2. Due to obstructed labour

Cause- When labour is obstructed it causes excessive thinning of the lower uterine segment during labour. It is more common during 2nd stage of labor

Signs and Symptoms

1. Rising pulse rate

2. Tonic contraction and Bandl's ring
3. Tenderness of the lower uterine segment
4. Vaginal bleeding

In case of actual rupture

- Mother feel separate mass & some thing has given way and contraction cease
- Cessation of FHB
- Abdominal or shoulder pain

Management:

On district:

- Lay the patient flat, put IV drip
- Pethidine 50mg for pain reliving
- Treat for shock
- Transfer to the hospital quickly

On Hospital

- Lie flat, prepare blood for transfusion
- Prepare for operation

3. Due to trauma

Cause:

- Operative procedure
e.g internal version, craniotomy

- Extraction of the after coming head of the hydrocephalus baby:
e.g Cervical tear

4. Due to unwise use of oxytocic drugs

Cause - Using intravenously or intramuscularly to induce labour

Types of rupture

- **Incomplete** rupture the myometrium and endometrium are ruptured and the perimetrium remains intact.
- **Complete** rupture all uterine layers are torn.

Management of a ruptured uterus away from hospital

1. Lie patient flat
2. Take blood for grouping and cross matching
3. Put up Intravenous drip & give pethidine 50 mg
4. Transfer to the hospital

Management of a ruptured uterus in the hospital

1. Lie patient flat
2. Blood group and cross match
3. Put Intravenous drip
4. Get patient to sign consent form
5. Give pre medication
6. Carry out doctor's order

Condition of the baby

- Usually still born
- In case of incomplete rupture and if it happens in the hospital it is possible to have a live baby.

Management

1. Hysterectomy
2. Repair of the uterus if it is torn anteriorly

Postoperative care is the same with other postoperative cases.

7.10 Lacerations

A tear is called laceration. The tear can occur in the vaginal wall or in the perineum or in the cervix. Tears of the perineum are graded according to their severity. Other areas of trauma may be the cervix and extended tears of the vagina.

Causes

1. Not controlling the head at delivery
2. Precipitate labour
3. Big baby
4. Face to pubis and after coming head of breech
5. Instrumental delivery
6. Old scar tissue and face presentation

Type of perineal lacerations

First degree

Involves the vaginal mucous and the skin of the perineum.

Second degree

Involves the deeper layer of perineal muscle

Third degree

Also called complete tear is a perineal laceration passing through/ involves/ the anal sphincter lying open the birth canal.

First and second degree laceration can be repaired by nurses midwife but third degree or complete tear is repaired/ sutured/ by a doctor in hospital under anesthesia. This type of tear is very serious and must be avoided. The repair must be watertight. The repair will be done within 24 hours. Transfer patient to Hospital after the repair, the laceration care should be taken in order to avoid infection. The suture line must heal well. The patient is kept on low residue diet and the doctor usually orders liquid paraffin to keep the stool soft. Stool should not be passed for 7-8 days. Vulva swabbing should be done each time patient passes urine and later stool.

Prevention of Lacerations

1. Gain the woman's co-operation
2. Get patient to delivery at the end of a contraction

3. Control head, keep it flexed, so small diameter is emerges.
4. Get mother to breath the head out
5. Delivery the shoulder in anterior- posterior diameter and lift up the posterior shoulder.
6. Perform episiotomy when the perineum is very tight

7.11 Premature Rupture of the Membrane (PROM)

Premature rupture of the membranes (PROM) is defined as the rupture of the chorion and amnion one hour or more before the onset of labour. With PROM amniotic fluid leaks form the vagina in the absence of contractions. If prolonged, presents risks for both mother and fetus.

Etiologic and predisposing factors

The precise cause of PROM is unknown, and specific predisposing factors have not been identified. However it is known to be associated with

- Malpresentations
- Weak areas in the amnion and chorion
- Vaginal infection
- Incompetent cervix

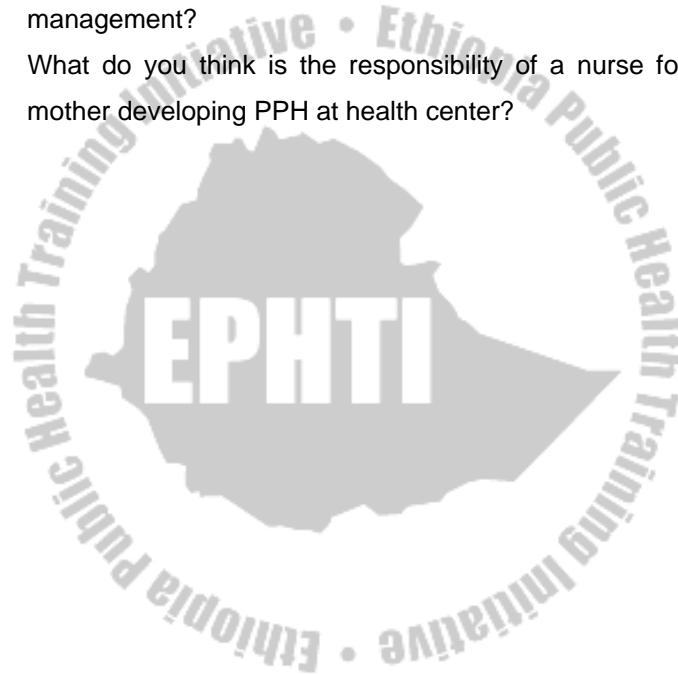
Treatment

The obstetric management of PROM is based on the assessment of the risks to mothers and fetus.

- Active management of PROM involves induction of labour or caesarean delivery if labour doesn't begin within 24 hours.
- Expectant or conservative management involves careful observation without intervention unless signs of amnionitis or fetal distress are seen.
- When the risk of morbidity associated with PROM is greater than that associated with pregnancy termination, active management is indicated.
- When risk associated with terminating the pregnancy is considerable, as in the case of premature, conservative management is indicated.
- In management of PROM with signs of advanced infection, delivery of the infant is the first priority. In such cases the mother will be given antibiotics and labour induction will be attempted.
- Prophylactic administration of antibiotics has been tried in order to prevent maternal infection when PROM has occurred
- Vaginal examinations should be kept to a minimum
- The patient's temperature, pulse, and respiration rate should be assessed on admission and hourly
- The color, amount, and odor of fluid from the vagina should be noted.

Review Questions

1. What are the common causes of bleeding during and after 3rd stage of labour ?
2. What are the complications of 3rd stage of labour?
3. Define PROM, its effect on the mother and fetus and its management?
4. What do you think is the responsibility of a nurse for a mother developing PPH at health center?



CHAPTER EIGHT

ABNORMAL PUERPERIUM

At the end of this chapter the students will be able to:

- Describe complication of the puerperium.
- Define puerperal sepsis
- State breast problems during puerperium

8.1 Urinary Complications

Urinary tract infection is a common problem during pregnancy. Its cause lies in the stasis of urine which occurs during pregnancy and encourages the formation of a reservoir of organisms. Trauma during labor or inadequate Vulval hygiene leading to an ascending infection predisposes to its recurrence during the puerperium. Such recurrent infections may lead to chronic pyelonephritis.

Cause - usually Escherichia coli

Sign and symptom

- Malaise
- ache and pains in the back and flank
- pain on micturation in some cases

More severe infection may consist of either acute cystitis characterized by scalding on micturation, or pyelonephritis which causes a raised temperature, pain over the kidney and haematuria.

Investigation

- A midstream specimen of urine for bacteriological investigation

Treatment - Antibiotic ampicillin, nitrofurantion or nalidixic acid

8.2 Breast Infections

8.2.1 Acute Puerperal Mastitis

Is inflammation of the breast and externally painful and may lead to abscess formation.

The most common infectious organism is staphylococcus aureus. The most likely source of the infection is the baby and out breaks of skin and eye infections among babies are frequently due to staphylococcus aureus. Organisms are transmitted by cross infection and can easily affect a whole part.

Sign and symptoms

- Occurs after the 8th postnatal day
- The onset is rapid with a sharp rise in temperature which can reach as high as 40⁰C.

- Rapid pulse
- Throbbing pain and tenderness in the affected breast.
- A wedge shaped, indurated and reddened area of the breast is seen on examination

Investigation and treatment

- A sample of breast milk is sent for bacteriological examination and broad spectrum antibiotic is given until the causative organism is known
- Breast feeding should be suspended if pus is found in the milk and the pump or hand expression.
- The breast must be gently supported and large pads of cotton wool used to protect the painful infected area.
- If the infection is mild, breast feeding may be continued as the anti infective properties of the milk protect the baby.

8.2.2 Breast Abscess

Acute puerperal mastitis may lead to abscess formation. If this occurs the affected breast is extremely painful, edema` is usually present and the breast becomes tense and red. The axially glands become tender and enlarged. The abscess must be incised and drained to prevent spread into other areas of breast which would cause damage.

Prevention

The best method of treatment lies in prevention. Attention to hand washing and hygiene will both lower the incidence of infection among babies and reduce risk of breast infection in mothers. Nurses, mid wives and doctors must maintain cleanliness and wash their hands before attending to a mother or a baby.

8.3 Puerperal Sepsis

Infection of the genital tract that occurs at any time between the rupture of membranes in labour and 42 days following delivery or abortion with the following symptoms.

- Pelvic pain
- Fever 38.5°C or more
- Abnormal smell, foul odour of vaginal discharge
- Delay in the rate of reduction of the size of the uterus.(sub involution)

Cause

- a. Endogenous bacteria
- b. Exogenous bacteria

Risk factors for puerperal sepsis

- Poor hygiene
- Poor aseptic technique
- Manipulations in birth canal

- Presence of dead tissue in the birth canal due to IUFD
- Retained fragments of placenta or membranes shedding of dead tissue from vaginal wall following obstructed labour.
- Insertion of unsterile hand, instrument or packing / traditional practices should also be examined/
- Pre existing anemia and malnutrition
- Prolonged of obstructed labour
- Prolonged rupture of membrane
- Frequent vaginal examinations
- Caeserean section and other operative deliveries
- Unrepaired vaginal or cervical lacerations
- Preexisting sexually transmitted disease
- Post partum hemorrhage
- Not being immunized against tetanus diabetes

Site of infection

1. Placental site
2. Perineum
3. Vagina
4. Cervix
5. Uterus

Women are vulnerable to infection in the proportion because the placental site is large, warm, dark moist, rich to grow very quickly. During delivery traumatized tissue of tear in the vagina or perineal area is susceptible to infection.

Managing Puerperal sepsis

1. Isolation and Barrier nursing of the woman

Nurse the woman in a separate room, use gloves only when attending her keep one set of equipment, dishes and other utensils for the use of this woman, wash hands carefully before & after attending this woman.

2. Administration of high doses of antibiotics / Broad spectrum/

3. Give plenty of fluids:- the aim of this is to correct or prevent dehydration and help to lower the fever. In severe cases it is necessary to give IV fluids at first.

4. Ruling out Retained placental fragments:- suspect this if the uterus is soft and bulky, if lochia are excessive and contain blood clots, it can be a sign of puerperal sepsis. The woman should be referred to a facility that has the equipment and health care personnel trained to perform curettage.

5. Providing skilled nursing care:- Careful attention to the comfort of the woman. It is important for the woman to rest, monitor uterine size, measure in take and out pout, keep accurate recurs, prevent spread of infection and cross infection .Accurate observation, recording and reporting.

8.4. Puerperal Psychosis

This severe form of mental illness affects approximately one or two mothers in every 1000.

The onset is rapid and usually occurs within the first few days after delivery. The symptoms are those of depressive psychosis, manic illness or in some cases schizophrenia. This illness most often affects primipara.

Sign and symptoms

The affected woman shows bizarre behavior, loses touch with reality and may suffer from hallucinations. The onset of these symptoms may be heralded by a time of acute restlessness and inability to sleep. Frequently the mother may deny that her baby belongs to her and in rare cases she may harm the baby.

Treatment

The illness must be treated promptly by admission to a psychiatry unit under the care of a consultant. In most cases the baby will be able to accompany his mother into hospital and this should be encouraged if at all possible. Prompt psychiatric care is vital and skilled psychiatric nursing care is required including medical treatments. With prompt treatment the prognosis is good but, unfortunately, it is likely that further episodes of the illness will occur throughout the woman's life. There is a high risk of recurrence in subsequent pregnancies.

8.5 Subinvolution

Sub involution is incomplete return of the uterus to its pre pregnant size and shape. With subinvolution, at a 4 or 6 week post partum risk, the uterus is still enlarged and soft and the woman still has a lochia discharge. Sub involution may result from.

- A small retained placental fragment
- A mild endometritis or
- An accompanying problem such as a myoma that is interfering with complete contraction.

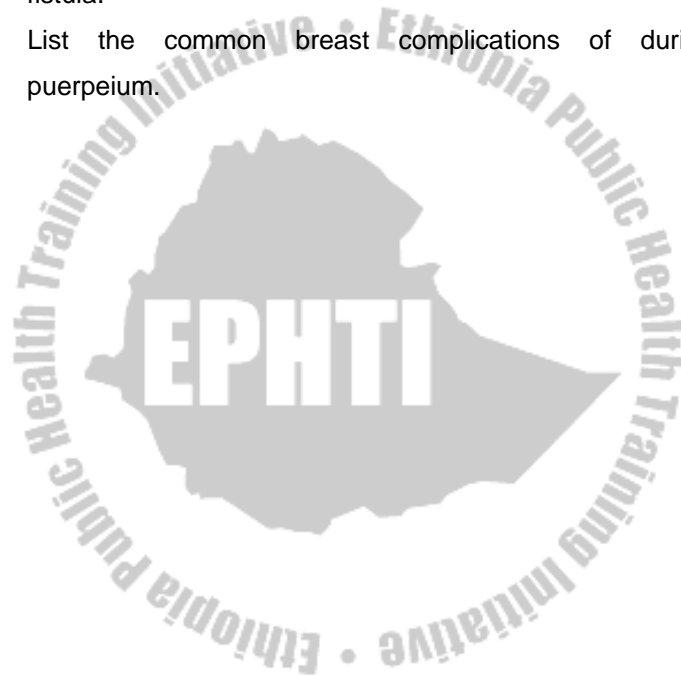
Treatment

- Oral administration of methyl ergotamin 0.2mg Q 10 hours to improve uterine time and complete involution.
- An oral antibiotic if the uterus is tender on palpation

N.B. Be certain that women know at discharge from a health care facility the normal process of involution and lochial discharge.

Review Questions

1. Identify the nursing care that is important to prevent puerperial sepsis and breast infection.
2. Discuss the possible predisposing factors for the cause of fistula.
3. List the common breast complications of during puerpeium.



CHAPTER NINE

INDUCTION OF LABOUR

At the end of this chapter the students will be able to:

- Identify indications of induction of labour
- Mention standard protocol of induction
- Define Augmentation
- List indicators of failure of trial of labour

Definition: Induction is the initiation of labour by artificial means Labour should be induced for medical or obstetrical reasons.

Type

1. Medical - using drugs alone Syntocinon & prostaglandin E₂
2. Surgical-amniotomy or membranes sweep
3. Combined - medical & surgical.

Indications for Induction

- Prolonged pregnancy (post term pregnancy)
- Pre eclampsia, eclampsia and diabetes
- Evidence of diminished fetal well being or growth
- Elderly primigravida
- Poor obstetric history

- Spontaneous / premature rupture of membrane
- Previous large baby
- Rhesus iso - immunization
- Unstable lie
- Genital herpes
- Previous precipitate labour
- Placenta abruptio
- intrauterine death

Contraindication

- Unreliable EDD
- Malpresentation
- Cephalopelvic disproportion
- Fetal distress
- Psychological distress

Factors which affect induction of labour

A .Fetal maturity and viability

B .Favorability of cervix

Favorability of cervix is assessed by a score system called "Bishop"score.It has to be done before induction. The score is scored out of 20.Score of greater or equal to 7is favorable. There are four factors considered, each accounts a score of 0-3.

Table 6 .Bishops Score System

Inducibility features	0	1	2	3
Dilatation of cervix in cm	Closed	1-2cm	3-4cm	5cm
Consistency of cervix	Firm	Medium	Soft	
Position of cervix	Posterior	Medline	Anterior	
Effacement of cervix %	0-30	40-50	60-70	80
Station in cm / above	-3	-2	-1	+1

Preparations

1. Admit 24 hrs before hand
2. Sedate at night no breakfast
3. Vulval preparation
4. Psychological preparations

Methods

Medical method

1. Prostaglandin E₂
 - Vaginal prostaglandin
 - Endocervical prostaglandin
 - Extra amniotic prostaglandin
 - Oral
2. Intravenous oxytocin / syntocinon/ infusion

Aim - To achieve 3 contractions per 10 minutes lasting 40-60

Table 7. Procedure of induction for multipara and primigravida

Multipara	Primigravida
A. Start with 2.5 IU oxytocin in 1000 D/w running at 20 drops / min . If no contraction double every 20 minutes. Always stops at 80 drops (20, 40, 60, 80).	A. Start with 5 IU Oxytocin in 1000 D/w running at 20 drops per / min. If no contraction double every 20 minutes. Always stop at 80 drops
B. If no contraction add 2.5IU of oxytocin and start with 60 drops (60,80)	B. If no contractions add 5 IU of oxytocin and start with 40 drops
C. If no contractions add 2.5IU oxytocin and start with 40 drops (40, 60, 80) [Maximum 7.5 units].	C. If no contractions add 5 IU of oxytocin and start with 60 drops. [Maximum 15 units]

In induction

- delivery interval doesn't exceed 18 hours; if not cesarean section is indicated.
- If no labour starts in 6 hours- consult
- If contractions are very strong and tetanic stop drip, sedate and consider cesarean section.

Observation of mother and fetus

- The fetal heart rate
- Uterine contractions

- Fluid balance chart
- Urine test for ketoses
- Progress in labour
- Abdominal & cervical examination every 2-4 hours

After delivery continue oxytocin drops for one hour to prevent PPH.

Complications of medical induction

- Over stimulation of the uterus causing fetal distress, precipitate labour or uterine rupture.

Amniotomy (Surgical induction)

Amniotomy is artificial rupturing of amniotic bag or membranes. Rupturing these if they do not rupture spontaneously allows the fetal head to contact the cervix more directly and may increase the efficiency of contractions. The membranes are torn and amniotic fluid is allowed to escape.

Complications:

- Cord prolapse
- Placental separation
- Intrauterine infection if labour is not completed within 24 hours of rupture of membrane and prophylactic antibiotic is not given.

Contraindications:

- High head
- Unripe cervix

- Malpresentations
- Intrauterine death

9.2 Augmentation (Stimulation) Of Labour

Augmentation of labour refers to the process of promoting more effective uterine contractions when labour has already begun spontaneously but then becomes weak, irregular or ineffective (hypotonic) that assistance is needed to strengthen them. The most commonly used methods of labour augmentation are also methods for induction of labour:

- Amniotomy
- Intravenous oxytocin infusion and nipple and breast stimulation to increase endogenous oxytocin secretion.

Amniotomy is not as predictable or effective stimulator of labour as oxytocin induction. It may lead to increased incidence of fetal head trauma and increase the risk of cord compression and prolapse and of caesarean delivery.

Precautions regarding oxytocin assist are the same as for primary induction of labour. A uterus may be very responsive to oxytocin when it is used as augmentation. Be certain that the drug is increased in small increments only, and fetal heart sounds are well monitored during the procedure.

Nipple stimulation, which releases naturally occurring oxytocin, may be used as augmentation in labour. Unfortunately, because the breasts in most women become tender after only a few minutes, the procedure can not be continued long enough to be effective.

9.3 Trial of Labour

Definition: - A test given to a woman with mild or moderate CPD to see if she can deliver her baby with least damage to her self & baby.

The out come of a trial of labour depends on :-

1. The trenght of uterine contraction
2. The stretch of the pelvic joints & ligaments
3. The degree of moulding
4. The attitude of the midwife

Management of a trial of labour

- The trial of labour must be carried out in the hospital where there is a service for caeseraen section at any time.

1. The Pregnancy is allowed to go to term
2. Careful observation are kept. Descent of the head assessed frequently. Strict asepsis is maintained as there is possibility of caeserean section FH and mother's pulse and B/P is also observed

N.B:- Desent is the most important observation

3. Keep fasting as patient may need anesthetic, she may be allowed sips of water.
4. Keep her as comfortable and as dry as possible
5. Stay with patient, talk to her have the labour is progressing, and help her to be relaxed.

The following conditions should be reported to doctor:-

- a) Head still high after 6-8 hrs of good contraction
- b) Rupture of membrane before full dilation.
- c) Un satisfactory uterine action
- d) Change of vertex to face or brow
- e) Fetal distress
- f) Maternal distress

A trial of labour has failed when one of the following occurs

1. Fetal distress
2. Maternal distress
3. Failure to advance after 6-8hrs of good contraction

When any of the three complications occurs cesarean section will be done

A trial of scar

When a woman has had a scar of cesarean section or hysterotomy is given chance to deliver vaginally. This trial is given to see if the scar is strong enough to withstand the labour. Like trial of labour it has to be conducted in hospital.

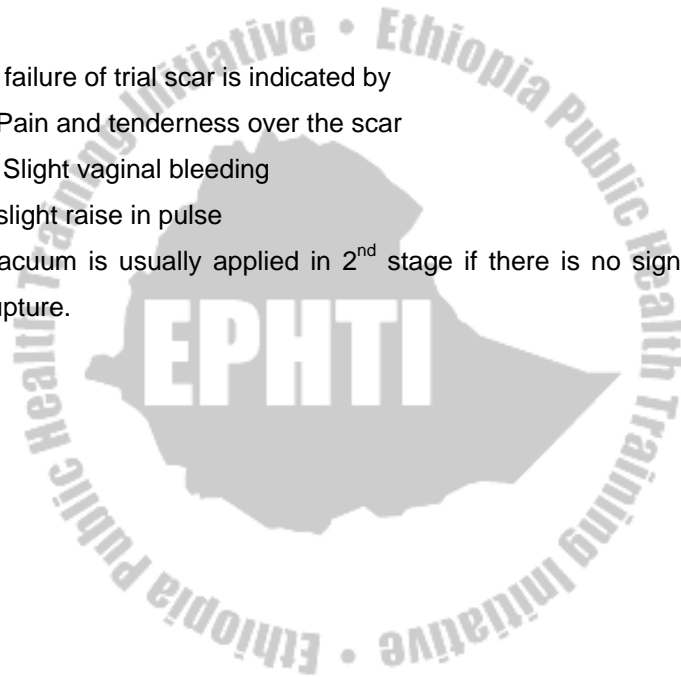
Conditions in which trial of scar is considered are:

- spontaneous labour
- only one cesarean section scar
- vertex presentation
- No cephalo pelvic disproportion
- No doubt about the presentation.

A failure of trial scar is indicated by

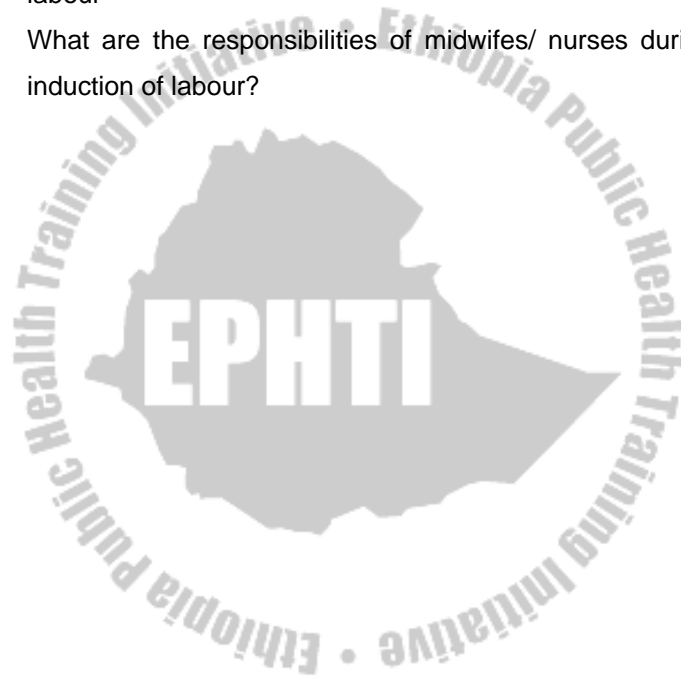
- Pain and tenderness over the scar
- Slight vaginal bleeding
- slight raise in pulse

Vacuum is usually applied in 2nd stage if there is no sign of rupture.



Review Questions

1. What are the difference between augmentation and induction?
2. List the indications and contraindications of induction of labour
3. What are the responsibilities of midwives/ nurses during induction of labour?



CHAPTER TEN

OBSTETRIC OPERATIONS

At the end of this chapter the students will be able to:

- Mention different types of obstetric operations
- List complication of forceps delivery
- Describe absolute indication of caesarian section
- Differentiate type of destructive delivery
- Mention procedures of vacuum delivery.

Maternal and fetal risk in the intrapartal period may also be reduced by modifying the mode of delivery. Common obstetric interventions that modify mode of delivery include version, forceps and vacuum extraction, and cesarean birth, or operative abdominal delivery. And also allows prompt emergency delivery when either the mother or fetus is in danger.

10.1 Forceps Delivery

Forceps delivery is a means of facilitating the birth of the baby's head by providing traction and rotation with the aid of obstetric forceps when it is impossible for the mother to complete the delivery by her own effort.

Forceps deliveries are classified by the level of the head at the time the forceps were applied i.e. high-cavity, mid-cavity or low-cavity.

Low-cavity or out let forceps applications are done when the fetal head is visible on the perineum.

Mid-cavity or Mid forceps applications are for those in which the head is at the level of ischial spines and engaged.

High-cavity or High forceps applications are those in which forceps are applied through the cervix before the head is engaged in the bony pelvis.

Pre requisites of forceps delivery

There are certain conditions which must exist before forceps application including those conditions that require a shortened second stage labour: when mother or fetus is in jeopardy or when assistance with maternal bearing-down is needed.

- The fetal head must be engaged in the maternal pelvis.
- The cervix must be fully dilated.
- The membrane should be ruptured
- The bladder and bowel should not be distended to avoid trauma
- Positive identification of presentation and position
- Absence of cephalo pelvic disproportion, sacral or pelvic out let abnormalities.
- Adequate anesthesia must be used

Indication for forceps delivery

- Fetal distress in the second stage of labour
- Delay in the second stage of labour – if the duration of the second stage exceeds 1 1/2 hours or more than one hour of pushing, or if the fetal head is delayed on the perineum for more than 30 minutes.
- Malposition: occipeto lateral, occipito posterior position
- Maternal exhaustion or distress
- For the delivery of the after coming head of a breach presentation.
- Preterm delivery: this is still a matter of debate, but some obstetricians and pediatricians like to protect the fetal head, with its soft skull bones, if delivery occurs before about the 36th week of gestation.
- Conditions in which pushing is undesirable, such as cardiac conditions or moderate to severe hypertension.

Preparation of the woman

A woman about to be delivered with forceps will often be get fully explanation about the procedure itself and the need for it is likely to result in greater retrospective satisfaction and relief. Once the decision has been made, adequate and appropriate analgesia must be offered.

When such analgesia has been instituted the woman's legs are placed in the lithotomy position. Both legs must be

positioned simultaneously to avoid strain on the woman's lower back and hips. This is uncomfortable position, especially for a tired woman with a weighty gravid uterus who is in advanced labour. The woman's legs should not be placed in the stirrups for longer than is necessary, and the vulval area should remain covered whenever possible. The minimum number of staff should be present, and interruptions should be discouraged she should be tilted towards the left at an angle of 150 to prevent aortocaval occlusion. Preparations must also have been made for the baby and resuscitation equipment checked and in working order.

Procedure

The woman's vulval area is thoroughly cleaned and draped with sterile towels using aseptic technique; the bladder is emptied. The obstetrician will perform a vaginal examination in order to confirm the station and exact position of the fetal head. It is to positively identify the forceps blades by assembling them briefly before proceeding.

Complications

Failure- Undue force should never be used. If the head does not advance with steady traction the attempt is abandoned and the baby is delivered by cesarean section.

In the infant:

Bruising: Severe bruising will cause marked jaundice which may be prolonged

Cerebral irritability - A traumatic forceps delivery may cause cerebral edema or hemorrhage.

Cephal haematoma - is a swelling on the neonate's skull, an effusion of blood under the periosteum covering it, due to friction between the skull and pelvis.

Tentorial tear- results from compression of the fetal head by the forceps. The compression causes elongation of the head and consequent tearing of the tentorial membrane.

Facial palsy-occasionally the facial nerve may be damaged since it is situated near the mastoid process where it has little protection.

In the mother:

Bruising and trauma to the urethra this may cause dysuria and occasionally haematuria or a period of urinary retention or incontinence.

Vaginal and Perineal trauma the vaginal wall may be torn during forceps delivery and the vagina must be inspected carefully prior to perineal repair. The episiotomy may extend or be accompanied by a further perineal tear and these must be repaired with care. As with any damaged perineum there may be bruising, oedema or occasionally haematoma formation.

Rupture of the uterus with increased risk of infection
Increased risk of uterine atony and excessive bleeding
Fracture of the coccyx and bladder trauma

Implications for nursing care

The nurse must be prepared to locate the appropriate types of forceps when requested. The nurse must support the mother if she is awake, explaining what is being done. Maternal comfort level should be observed closely; forceps applications should involve sensations of pressure but adequate anesthesia or analgesia should be established so that no pain results.

The nurse should monitor the FHR closely during application and traction. Fetal bradycardia may be observed as a result of head compression and is transient. The neonate delivered with forceps should be carefully examined for cerebral trauma or nerve damage.

The nurse must be alert for possible sequelae of forceps deliveries. The mother should be observed carefully for excessive bleeding, severe perineal bruising and pain, difficulty in voiding, and cervical or vaginal lacerations.

10.2 Caesarean Section

Caesarean section is an operative procedure in which the fetus is delivered through a surgical incision in the maternal abdominal wall and uterus. The primary goal of caesarean delivery is the preservation of the life and well-being of both mother and fetus.

There are two major types of caesarean section: the lower segment and classical caesarean section.

A. The lower segments caesarean segment – the skin incision is made horizontally, suprapubic called a Pfannenstiel incision or the "bikini cut" and incision is made in the lower segment of the uterus after about 32 weeks of gestation and is less muscular than the upper segment of the uterus. Since skin incision is low it is latter hidden by pubic hair.

Advantage

This heals more rapidly and successfully

Blood loss is minimal, few post delivery complications occur

The incision is easy to repair.

Less chance of rupture from the uterine scar in future pregnancies.

Disadvantage- the procedure takes longer to perform and thus is not useful in an emergency.

B. Classical caesarean section is a vertical mid line incision is made in the skin and also in to the wall of the body of the uterus. Indication for this approach are gestation of less than about 32 weeks.

Indication- preferred when there are abdominal adhesions from previous surgery

- when the fetus is in a transverse lie
- In an emergency delivery

Disadvantage- blood loss is increased
There is a greater chance of rupture of the uterine scar in subsequent pregnancies and labour

Indications for cesarean section

Elective caesarean section- Decision to deliver the baby by caesarean section has been made during the pregnancy and before the onset of labour.

Definite indications include

- Cephalopelvic disproportion
- Major degrees of placenta praevia
- Multiple pregnancy with three or more fetuses
- Malpresentation

Possible indications include:

- The primigravida and often the multigravida with a breech presentation
- Moderate to severe pregnancy induced hypertension
- Diabetes mellitus
- Intrauterine growth retardation
- Antepartum hemorrhage
- Previous caesarean delivery

Emergency caesarean section- is performed when adverse conditions develop during labour.

Definite indications include:

- Cord prolapse
- Uterine rupture (dramatic) or scar dehiscence (may be less acute)
- Cephalo pelvic disproportion diagnosed in labour
- Eclampsia
- Failure to progress in the first or second stage of labour
- Fetal distress, if delivery is not imminent

Contra indications

- The presence of dead fetus
- An immature fetus that could not survive outside the uterine environment.

Complications

- The immediate complications are hemorrhage from the placental site, or the wound; gut distention and ileus; infection; pulmonary collapse and thrombo embolism.
- The late complications are abdominal hernia, intestinal obstruction due to adhesions, and vague abdominal pain.

10.3 Destructive Operations /Embryotomy/

It may occasionally be necessary, in the interest of saving the mother's life, to destroy the fetus. These drastic measures will only be undertaken if there is gross fetal abnormality causing fetal pelvic disproportion. The alternative is caesarean section. The fetus may be equally difficult to deliver abdominally and may still need to be destroyed first. Whatever the situation it is traumatic for all concerned and calls for sensitive support of both the family and the staff.

The instruments used for destructive operations are of necessity brutal and must be used with great care to avoid injuring the mother.

The main operations are; Decapitation, craniotomy, evisceration and cleidotomy.

Decapitation – may be necessary when a shoulder presentation has become impacted. There are also various

types of decapitating hooks and knives which may be encountered. The operation consists of severing the fetal head from the trunk, followed by extraction, per vaginam, of the trunk and finally of the head. The procedure is done when the child is dead and the cervix fully dilated.

Craniotomy – By perforating the fetal head allowing the brain to escape the volume of the skull is reduced, and the cranial bores collapse, permitting delivery. Performed most commonly for hydrocephalus or of disproportion due to an unfavorable position of the child, such as brow or mentoposterior position in which death of the fetus has occurred.

Evisceration – It may be necessary to remove the abdominal or thoracic contents in some cases of gross fetal abnormality. If the presentation is cephalic this is difficult but it is more feasible in a breech presentation. The abdomen or chest is opened using a perforator and the contents removed manually.

Cleidotomy – In this procedure the clavicles are cut to reduce the width of the shoulder girdle and may be required when large shoulders prevent delivery of the child, which has died during the attempt.

10.4 Version

Version is the manipulation of the fetus to obtain a more favorable presentation of the baby.

E.g. From breech to vertex

Type of Version

External version- Used to change the presentation in to cephalic.

Internal version- Used to make the presentation in to breech and extract the baby.

10.4.1 Internal Version

It is the direct manipulation of the fetus inside the uterus. It is usually done to convert the malpresentation of second twin. Internal version poses significant risk to the fetus and is now done only in extreme emergencies, such as profound fetal distress with a prolapsed cord or the need for the immediate delivery of a second twin when there is not enough time for caesarian delivery.

In this procedure the physician reaches up into the uterine cavity grasps feet of the fetus and draws them through the cervix and delivers the fetus as in breech presentation. This

procedure is extremely rare in contemporary obstetric practice.

10.4.2 External Cephalic Version

External version is turning the fetus from a breech to a cephalic presentation after 34 weeks & before 37 weeks of gestation.

Danger of External Version

- a. Separation of placenta
- b. Rupture of membrane
- c. One set of premature labor
- d. Knotting of the umbilical cord
- e. Rupture of uterus

Contra indications for external versions

- a. Ante partum hemorrhage
- b. Rh negative mother
- c. Previous caesarian section
- d. Hydrocephalus
- e. Hypertension or pre-eclamsia
- f. Premature labor
- g. Multiple pregnancy

10.5 Vacuum Extraction / Ventouse delivery/

Vacuum extraction is accomplished by use of a specialized vacuum extractor, which has a cap like suction device that can be applied to the fetal head to facilitate extraction. Traction is applied by means of a chain and the fetal head is drawn out of the vagina.

Indications

Indications for use of vacuum extraction are similar to those for forceps application. In addition, vacuum extraction can be safely used through a partially dilated cervix to shorten first-stage labour in some cases.

- Mild fetal distress
- in the second stage of labour or late first stage.
- Malposition; occipito lateral and occipito posterior positions
- Maternal exhaustion

Contra indications

- Profound fetal or maternal distress requiring rapid delivery
- Evidence of cephalopelvic disproportion
- Face or breech presentation

The Procedure

- The pre requisites are as for forceps delivery with the possible exception of full dilatation of the cervix.

- The head must be engaged.
- The woman is positioned and prepared as for forceps delivery.
- The position of the fetal head is determined
- An appropriately sized cup selected. The cup is placed against the fetal head as near to the occiput as possible, ensuring that no cervix is trapped beneath it.

The vacuum is then built up gradually, usually starting at 0.2 kg/cm² is reached after 5-10 minutes once this pressure has been obtained the operator exerts steady gentle traction on the fetal head, in conjunction with uterine contractions and the mother's expulsive efforts. The suction device should be kept in place no larger than 20 to 30 minutes, and slippage or "pull off" should be avoided because it can cause trauma to fetal scalp or maternal tissue.

Complications

- Failure
- Maternal – trauma to the mother is rare, if the cup is applied carefully.
- Fetal – The most common complication of ventouse delivery is trauma to the fetal scalp and some obstetricians prefer not to use it for this reason.

Chignon –this is an area of oedema and bruising where the cup was applied. Cerebral trauma



Figure 17. The application of the ventouse cup and the chignon which usually results. (Derexllewlllyn –Jones Vol.2, 1990)

Review Questions

1. What prequation should be full-filed before the application of vacuum extraction
2. Discus the indication for forceps delivery
3. What are the different types of destructive operation

CHAPTER ELEVEN

CONGENITAL ANOMALIES OF THE FEMALE GENITAL ORGANS

At the end of this chapter the students will be able to:

1. Mention the effect of female congenital anomalies on pregnancy
2. List different type of uterine abnormality.

The female genital tract is formed in early embryonic life when pair of ducts develop. These paramesonephric or mullerian ducts come together in the midline and fuse in to a Y-shaped canal. The open upper ends of this structure open in to the peritoneal cavity and the fused portions become the uterine tubes. The fused lower portion forms the uterovaginal area which further develops in to the uterus and the vagina.

Anomalies arise primarily from the alteration of the fusion process. Failure of the ducts to fuse normally results in two partially or completely separated tracts. Failure of one duct to mature results in a one-sided tract. Incomplete fusion of one or both ducts causes faulty canalization and formation of a transverse vaginal septum, or more very, absence of the

vagina. The cause of these disruptions in embryonic development is usually not known; however, some patterns of vaginal and cervical abnormalities have been identified in daughters born to women who received diethylstilbestrol (DES) during pregnancy.

11.1 Uterine Abnormalities

Are manifested in variety of forms, but four simplified types are generally recognized.

The septate uterus:- appears normal from the exterior, but it contains a septum that extends partially or completely from the fundus to the cervix, dividing the uterine cavity in to two compartments.

The bicornuate uterus is roughly Y-shaped. The fundus is notched to various depths, and the patient may even appear to have a “double uterus”; however, there is only one cervix.

A true double uterus results from a lack of mid line fusion and two complete uterine, each with its own cervix, are formed. When both are fully formed, this is normally referred to as uterus didelphys. Occasionally, one of the uteri will not fully form, remaining as a rudimentary organ with out a cervix or a uterine cavity.

A single remiuterus results when one mullerian duct fails to develop during embryonic growth, resulting in one uterine cavity and one oviduct.

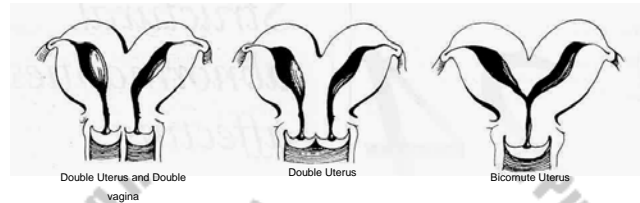


Figure 18. Common congenital Abnormalities of genital organs Derexllewlyn –Jones Vol.2,1990)

11.2 Cervix Abnormalities

May also affect the course of labour and birth. Three general types of cervical abnormalities have been identified.

The septate cervix consists of a ring of muscular tissue partitioned by a septum that either extends down ward from the uterus or up ward from the vagina or is contained completely with in the cervix itself.

A single hemi cervix or half-cervix results from incomplete and asymmetrical development in which only one mullerian duct matures.

A double cervix has two separate cervixes in one uterus vaginal abnormalities also occur. The most common abnormality is the presence of vaginal septa and some time there is an absence of vagina.

Causes

A. Errors of sinus canalization

- Imperforated hymen
- Complete or partial vaginal atresia
- Parital transvers membrane (occurs in the upper vagina)

B. Failure of re-canalization of the Mullerian ducts. This will head to atresia of the upper vagina or of the cervix.

C. Failure of fusion of the mullerian ducts- Lead to a double uterus, a double cervix and two vagina opening in to a common vulva, or into two vulvae.

D. Failure of development of one or both mullerian ducts

- Absence of one duct- unicrnuate uterus with single oviduct
- Incomplt development of one duct results in unicrnuate uterus with two ducts
- Half or paricial of vagina (fuction normally)
- Absence of both -ducts means that neither oviducts nor uterus is present

E. Persistence of male (Wolffcan) duct remnants

- Cysts of the hydatid of morgagni in the mesovarium /
leave of broad ligaments in the lateral vaginal wall

Effects of abnormality on pregnancy and labour

The malformations do not usually reduce fertility, and should the woman become pregnant, they may cause complications which lead to their detection.

- Late abortion
- preterm labour
- malpresentations
- obstructed labour ,retained placenta & PPH

Cervical abnormalities affect labour and birth to varying degrees, depending on the ability of the cervix to dilate and efface to permit delivery. It increases risk of cervical rupture and hemorrhage.

11.3 Vaginal Abnormalities

Usually do not present serious problems in terms of normal reproductive function. They are easily accessible and can be easily dilated or removed surgically.

Treatment - treatment depend up on the degree of abnormality and whether it has interfered with coitus or

pregnancy. Surgical treatment for structural abnormalities is generally done before conception, if possible. The nurse should also recognize that women with reproductive tract abnormalities may feel guilt and anxiety about their effect on pregnancy outcome. By carefully assessing the woman's knowledge and feeling about her progress in labour and possible obstetric interventions, the nurse can contribute to a more positive child bearing experience for the patient and her family.

Review Questions

1. Mention types of uterine Malformation
2. What are the complications of uterine abnormalities on pregnancy and labour?

CHAPTER TWELVE

INFECTION OF THE FEMALE REPRODUCTIVE ORGANS

At the end of this chapter the students will be able to:

- Mention causes of pelvic infections
- Diagnose uterine inversion
- Define different type of abortion
- Diagnose ectopic pregnancy
- Mention complications of abortion
- Demonstrate self-examination of the breast

Infection in the human body is the result of complex interactions between pathogenic organisms and host defenses. Infection involving the female pelvis has many unique characteristics. An understanding of the anatomy of the female reproductive organs allows the physician /or nurses to appreciate some of the features influencing the development, manifestation, treatment, resolution, and sequelae of female pelvic infections.

12.1 Pelvic Inflammatory Disease

Definition – the infection of female internal genitalia beyond the internal os of cervix

Pelvic inflammatory disease (PID) continues to be a problem among women of reproductive age group and is one of the most common serious complications of sexually transmitted diseases.

More important than the infection itself is that the women develop PID suffers serious long-term health problems as a result of it.

These includes infertility, ectopic pregnancy, tuboovarian abscess, pyosalpinx, chronic pelvic pain and pelvic adhesive disease

Predisposing factors

Previous PID, Multiple sexual partners, Adolescent (sexually active) and the use of intrauterine contraceptive device

Etiology

- Neisseria gonorrhoeae
- Chlamydia trachomatis
- Mycoplasma hominis
- Facultative and anaerobic bacteria

Sign

Major

Cervical motion
tenderness

A dnexal tenderness

Lower abdominal
tenderness

Minor

Abnormally increased vaginal
discharge

Fever above 38°C

Leukocytosis exceeding 10.000/mm³
Purulent fluid from peritoneal cavity
by culdocentesis or laparoscopy

A cervical gram – stained specimen
positive for gram negative intracellular
diplococci

A pelvic mass on bimanual
examination

An inflammatory complex by
sonography Increased erythrocyte
sedimentation rate

Diagnosis

- history of the patient
- Physical examination
- Cludocentesis
- Laparoscopy
- White blood cell count

Criteria for diagnosis: 3 major or 2 major plus 1 minor

Treatment

The patient could be treated at out patient department or as inpatient in wards depending on the severity of the disease.

Out patient treatment

First drug of choice

Combination of antibiotics

- Metrendazol
- Tetracycline or doxycyclin
- Penicillin

Second drug choice

- Cefoxitin 2 gm in plus progenies 1 g orally concurrently or
- Coftriaxone 200 ng in or other third – generation cephalosporin (eg. Cettizoxime or cefotaxime) plus
- Doxycycline 100ng po BID for 14 days

Inpatient treatment

First drug of choice

- Cefoxitin 2 gm iv every 6 hours or
- Cefotetan 2 gm iv every 12 hours plus
- Doxycycline 100ng po or iv every 12 hours

Second drug of choice

- Clindamycin 900 mg iv every 8 hours plus

- Gentamycin iv or in loading dose (2 mg/ kg of body weight) followed by a maintenance dose (1.5mg/kg) every 8 hours.

The above regimens are given for at least 48 hours after the patient demonstrates significant clinical improvement, then doxycycline 100mg po BID (if treated with regimen B) for 14 days in both cases.

If there is IUCD, remove it.

Partener treatment

To minimize infection, it is recommended that all partners of women with gonococcal or chlamydial PID be cultured and treated with a combination of agents effective against both.

Complications

- Tubo ovarian abscesses
- Infertility
- Ectopic pregnancy etc.

12.2 Vulval Infection

Folliculitis, furuncles, carbuncles

Bacterial infections of the vulva, excluding those caused by sexually transmitted organisms, can be classified as

Pyodermas, which are, subdivided into infections those involvs hair follicles, apocrine glands, the dermis and cellular planes. The most common of these are follicular infections,

which can lead to furuncle or carbuncle formation. Folliculitis can be either a superficial or a deep infection of hair follicle it is characterized by a pustule surrounded by an erythematous papule.

A furuncle is an infection of the deep follicle, involving the tissue beyond the follicle, involving the tissue beyond the follicle. This lesion is hard, tender, and erythematous carbuncles are formed when several follicles become infected and intercommunicate with one another.

Cause:- The most common offending organism is staphylococcus aureus.

If the lesion is single or and a superficial folliculitis, a topical ointment or lotion such as Bactracin or Neosporin G (polymyxin B sulfate, 10,000 units, Neomycin sulfate 5 mg, and gramicidin 0.25 mg)

Deep-seated infections are (eg. Furuncles and carbuncles) require the use of hot compresses to facilitate pointing. This may result in spontaneous drainage. If this does not occur incision and the use of systemic antibiotics may be required.

Treatment can be accomplished with orally administered cephalosporins. (eg. Cephalexin 500 mg every 6 hours; cetadroxil 500 mg every 12 hours or cetactor 500mg every 8 hours for 10days).

In those persons with recurrent lesions, the skin should be cleansed with an antiseptic on a regular basis. In addition, the skin surrounding the area where the lesions are recurring should be treated with repeated applications of a topical antibiotic agent. A specimen should be obtained for isolation and identification of the offending organism.

Vulvovestibulitis

Focal vulvitis, which often attacks the duct opening of the Bartholin gland is characterized by persistent vulvovaginitis and burning or discomfort, often associated with dyspareunia or pain. On close inspection there is usually inflammation or redness located at the gland orifice.

Common infections occur in vulvar vestibulitis include. Trichomonas, candida, Gardnerella, herpes, and human papilloma virus.

The treatment described for this condition has varied from close follow up to surgical excision of the hymeneal ring and contiguous vestibule mucosa and submucosa abscess.

Incidence

Abscesses of the Bartholin gland duct have been found in women of all ages, although they predominate in the reproductive years.

Clinical features

Abscesses of the Bartholin gland duct usually presented with unilateral swelling of the labia and acute pain. The mass is usually tender, red, and warm to the touch and may be accompanied by localized edema in the area(s). It is extremely painful and usually makes intercourse impossible. It becomes fluctuant and warm with thinning of the overlying skin.

12.3 Candidiasis

Candidiasis is the most common fungal infection caused by *Candida albicans* and which accounts for the vast majority of fungal vulvo vaginal infections. *Candida* is a common inhabitant of the mouth, large intestine and vagina in 25-50% of healthy individuals. The particular environmental and biological factors that give rise to clinical infection by *Candida albicans* are not understood, but some women may be more susceptible; predisposition to infection is associated with diabetes, pregnancy and the administration of antibiotics, particularly those like penicillin, that are effective against vaginal lactobacilli.

The rise of sexual transmission in *Candida* infection is not clear; although the organism is often shared by sexual partners. Tight clothes and mild skin abrasions may contribute to clinical presentation of infection.

Presentation Sign and symptom

A woman may complain of vulval pruritus (itchiness) and an examination there may be evidence of vulvovaginitis and /or vulval, vaginal and anal erythema, dyspareunia is a common complaint.

A vaginal discharge is common but not universal, and may be scant or thick and white with a curd like consistency and in some cases white thrush patches may be present on the vulva or walls of the vagina

Half of the babies born to infected women will be infected by candida, generally involving oral or gastro intestinal infection. Such infection is usually mild, but treatment of the mother prior to delivery is clearly desirable.

Diagnosis

History of curd like vaginal discharge

Itching, dyspareunia, etc.

White thrush patches on vulva or wall of vagina

Lab- Microscopy of vaginal smear (detection for spores or mycelia)

Treatment

Vaginal infection is treated by the insertion of vaginal

A number of antifungal treatments are available including:

- Clotrimazole pessaries - 100 mg for 6 nights or 200 mg for 3 nights
- with clotrimazole cream (1%) applied to vulva two or three times daily
- Miconazole pessaries (supp) 150 mg for 3 nights
- Nystatin gel for external use 100,000 iu/g

Signs of clinical infection in a man, usually small red spots or plaques on the glans penis, should be treated with cream applied to the infected area.

Generally it is advised that sexual intercourse be avoided until after treatment is complete, perhaps to avoid local irritation which might provoke re-infection.

12.4 Trichomoniasis

Trichomoniasis is an infection of the lower genital tract in men and women and is caused by an anaerobic, motile protozoan *trichomonas vaginalis*. It is categorized as a sexually transmitted disease (STD) with its transmission felt to be principally by direct intimate contact.

Trichomoniasis vaginalis is significant because of the severe vaginitis and its common association with other sexually transmitted infections, particularly *Neisseria gonorrhoea* and *Chlamydia trachomatis*.

Risk Factor

Studies have indicated that there are multiple risk factors for trichomoniasis

Includes

- low socio economic status
- lack of education
- crowded living conditions
- lack of sanitation
- and poor personal hygiene

However, the principal risk factors, which overrides all others, is multiple sexual partners, as is true for most other STDs.

Signs and Symptoms

Trichomoniasis is a leading cause of vulvovaginitis and occasionally cervicitis and cystitis in women. It is a cause of mild urethritis in men, and may rarely cause prostatitis and epididymitis.

In women-pruritis and burning sensation of vagina

- an increase in vaginal discharge which range from normal to copious, grayish in colour and some what bubbly in character.
- the green, frothy discharge and friable erythematous cervix
- urethritis

- Asymptomatic infection may sometimes be detected on a papanicolau smear
- Dysuria and dysparunia

Diagnosis

- wet smear examination under a microscope
- Culture
- cytological examination

Treatment

A single oral dose of metronidazole 2 gm or a 5-day course of 400mg twice daily is the treatment of choice. Since metronidazole is used in first trimester of pregnancy clotrimazole may be used as local treatment.

A women man's partner should also be treated with metronidazole.(the same as woman dose)

Conventional advice suggests the avoidance of intercourse until treatment is complete.

12.5 Trauma of the female genital tract fistulae

Genital tract fistulae may occur between the vagina or the uterus and any adjacent organ, but the most frequently encountered fistulae are between the bladder and vagina called vesico vaginal fistula or the rectum and vagina called

recto vaginal fistula. Other types may occur, but are rare, and occasionally multiple fistulae may be found in the same woman.

Cause: In developing countries

- about 85% of fistulae follow an obstructed labour
- 15% surgery or radiation for gynecological conditions

Obstetrical and surgical fistulae arise either immediately due to direct trauma, or 5 to 14 days after delivery or operation when the traumatized, ischaemic tissue sloughs. Fistulas following irradiation rarely appear until one or more years after treatment.

- In vesico vaginal fistulae
 - the patient complains incontinence of urine
 - urinary incontinency is continuous night and day
 - If the fistula is large, the defect can be seen, but pin point fistulae may require special tests for diagnosis. One such special test is to place three cotton wool swabs in the vagina, one above the other, and to run methyl lene blue dye into the bladder.
 - if only the lowest swab stains the fistula is urethral
 - if the middle swab stains, it is vesical
 - if no swab stains but the upper most swab is wet, the fistula is ureterial.
 - In recto vaginal fistulae
 - The patient complain incontinence of faeces

- May be obvious or extremely difficult to identify, and photocopy or the introduction of dyes may be required.

Treatment

The treatment of all fistulae, except small fistulae which have formed recently following child birth or operation, is surgical. Some recently formed vesico vaginal fistulae will heal if the bladder is drained continuously for 21 to 28 days and some recto vaginal fistulae will heal if a low residue diet is given for the same period. Most fistulae require operation.

The principles involved are;

- A. the fibrosed edges of the fistulous tract must be excised so that well vascularized viable tissue may be brought in to apposition
- B. the apposition must be effected with out tension on the apposed edges
- C. The tissues must not be placed under tension for at least 3 weeks (this principle implies constant bladder drainage in cases of vesicovaginal fistulae)
- D. The best results are obtained if fistulae are treated in special units, where experience in the operative technique and, more important, the meticulous postoperative management of the case can be offered.

12.6 Prolaps of the Uterus

A descent of the uterus and always it is with parts of upper vagina with it.

Three degrees are recognized.

- First degree prolapse diagnosed when there is slight descent of the uterus but the cervix remains with in the vagina.
- Second degree prolapse indicates that the cervix projects beyond the vulva when the patient strains. Third degree prolapse or complete procidentia, the inside uterus has prolapsed out side the vulva and most it not all of the vagina is averted.
 - Imperfect development of the supportive tissue
 - stretching of the supportive tissues at child birth
 - Atrophy of the supporting tissue

Sign and Symptoms

- A feeling of something falling out
- Dragging pains in the pelvis
- Some protrusion at the vulva
- Difficulty or discomfort in micturation or defecation

Diagnosis

- Types and degree of prolapse can be determined by
 - Observing the vulva when the patient is straining or coughing

- Vaginal examination
- The extent of the prolapse is often revealed more easily if the patient is put in the left lateral position and a Sims' vaginal speculum inserted and cervical and anterior vaginal wall descent can be more readily appreciated.
- Prolapse must be differentiated from
 - Hypertrophy of the cervix with no damage to the uterine supports
 - Tumors or cysts of the vagina
 - Tumors or cysts of the uterus, which project through the cervix
 - Inversion of the uterus

Management

Preventive - Avoidance of pushing by the patient before full dilatation of the cervix

- Avoidance prolongation of the second stage of labour
- Avoidance of fundal pushing in an attempt to expel the placenta
- Careful repair, in accurate layers, of all vaginal wall and perineal tears and incisions
- Early ambulation and pelvic floor exercises in the puerperium
- The treatment of an established symptomatic prolapse is surgical

- If no symptoms are present and there is no chronic urinary infection no treatment is required. The patient is reassessed at intervals.
- The age and marital status of the patient does not alter the principle

In case of complete prolapse or procidentia the patient should be

- Admitted to hospital prior to surgery to reduce the prolapse.
- The vagina being packed with guaze impregnated with oestrodial cream to reduce the prolapse and permit ulcers healing and to subside cervical oedema.
- The operation requires many excisions of the redundant vaginal tissues and repair other damaged tissue (anterior corpporrhaphy or posterior corpporrhaphy).
- If utero vaginal prolapse is present, amputation of the cervix and shortening of the transverse ligament which are stretched to the front of the cervical stump (the Manchester operation) or vaginal hysterectomy is performed.

12.7 Inversion of the Uterus

Inversion means that the uterus has turned inside out partially or completely. In serious cases the inner surface of the fundus

appears at the vaginal outlet. In less severe instances the fundus is dimpled.

Causes

- Exerting controlled cord traction when the uterus is relaxed especially if the placenta is centrally sited in the fundus.
- Foreseeable attempting to expel the placenta by using fundal pressure when the uterus is atonic
- Combining fundal pressure and cord tract in to deliver the placenta
- Precipitate delivery with patient in standing position

The first three of these causes are the result of mismanagement and are therefore avoidable

Types of uterine inversion

Types of uterine inversion are characterized by the degree and the types of force causing the inversion.

Complete inversion collapse of the entire uterus through the cervix into the vagina.

Incomplete or partial inversion of the fundus, with out extension beyond the external cervical

Forced inversion caused by excessive pulling of the cord or vigorous manual expression of the placenta or clots from an atonic uterus

Spontaneous inversion is due to increased abdominal pressure because of bearing down, coughing, or sudden abdominal muscle contraction.

Recognition

Sudden onset of shock is the out standing sign accompanied by sever gain which is caused by the ovaries being dragged in to the inverted fundus.

Bleeding may or may not be present depending upon the degree of placental adherence to the uterine wall.

The cause may not always be readily apparent as only in extreme cases is the fundus visible out side the vagina. Partial inversion may be present where the fundus does not pass through the cervix; it may however have extruded into the vagina.

Up on palpation a concave shape will be feet at the fundus; if the inversion is complete, none of the uterus will be palpable.

A vaginal examination will reveal the inversion.

Management

Pressure is applied first to the part nearest the cervix, working up wards to the fundus on the principle of “last out, first in”. No attempt is made to remove the placenta until the uterus is the right way out, otherwise hemorrhage can not be controlled. If reinvasions not promptly performed, blood loss may be rapid and extreme, resulting in hypovolemic shock.

An inverted uterus can not contract and retract. Urgent assistance must be summoned mean while.

If replacement of a totally inverted uterus is not possible it should be gently placed inside the vagina to relieve traction on the ovaries and fallopian tube. When the uterus is successfully replaced, oxytocin is administered to stimulate uterine tone and avoid recurring inversion. Raising the foot of bed will also help to relieve the tension and alleviate shock.

Hydrostatic pressure method - several litres of warm saline or interavenous solution are run into the vagina via a douche nozzle head in the posterior fornix. The operator's forearm effectively seals the vaginal out let. As the fluid pressure with in the vagina rises, the uterus returns to its normal position.

Intravenous ergometrine 0.25 mg should be given to secure a good contraction before the hand is with drawn. Antibiotic

therapy may be initiated to prevent or minimize risk of infection from exposure of the uterine lining and extensive manipulation.

General anesthesia may be needed to relax the uterus sufficiently to allow late replacement. In rare instances the uterus can not be reintended and emergency hysterectomy is necessary to prevent profound blood loss.

12.8 Abortion

Abortion is the termination of pregnancy or expulsion of the fetus either spontaneously or by induction before it reaches viability i.e before 20 weeks of gestation in developed country and 28 weeks of gestation in developing country.

Between 10 and 15% of all pregnancies terminate as spontaneous abortions, and a further 10-60% are terminated by an induced abortion. The majority of spontaneous abortions occur between the 8th and 12th weeks of pregnancy.

Causes

Spontaneous abortion

The causes of abortion can conveniently be divided in to three groups - ovo-fetal, maternal and paternal.

In the early weeks (0 to 10) of pregnancy, when most abortions occur, ova-fetal factors pre dominant, but in the latter weeks (11 to 19) maternal factors become more common and the fetus is often born fresh and apparently normal, although too immature to survive.

Fetal causes

- Chromosomal abnormality or disease of the fertilized ovum may account for 60% of spontaneous, first trimester abortions.
- Malformation of the trophoblast and poor implantation of the blastocyst may result in placental separation with consequent hypoxia and impaired embryonic development.

Maternal causes

- Disease- acquired during pregnancy such as rubella or influenza, especially if they are accompanied by acute fever, interfere with transplacental oxygenation and may precipitate abortion.
- Chronic disorders, for example renal disease accompanied by hypertension, may have a similar effect.
- Drugs - large doses of any drug are poisonous and should be avoided
- ABO incompatibility between mother and embryo may result in abortion.
- Psychological factors

Local disorders of the genital tract

- A retroverted uterus which is unable to rise out of the pelvis may occasionally predispose to abortion.
- Developmental defects such as a bicornuate uterus and myomas
- Cervical incompetence

Paternal causes

Since the paternal spermatozoon gives to the ovum half of its chromosomes, defects may result in abortions, particularly if both partners share many common HLA antigen sites.

12.8.1 Types of Abortion

A. Spontaneous abortion

Sign and symptoms- many mothers will speak of a period of uneasiness prior to the onset of specific sign and symptoms.

Vaginal bleeding is generally the earliest sign of an impending abortion. The bleeding may consist of a bloodstained discharge, brown spotting or a bright red loss, which may be variable in amount. Pain is usually felt in a central position, low in the abdomen, and is intermittent in character due to uterine contractions. This may be accompanied by backache.

a. Threatened Abortion

It is presumed that a pregnancy is threatening to abort when vaginal bleeding occurs before the 24th week.

- The bleeding is not usually severe
- The cervical os is found to be closed & no effect
- Uterine cramping and pain; occasionally lower abdominal pain and backache.
- The membrane remains intact and no tissue is passed.

Treatment

It is essential that the mother is encouraged to rest in bed with the minimum of disturbance. A mild sedative may be prescribed to aid relaxation and analgesia may be given for pain.

All loss per vagina should be observed and recorded. Temperature and pulse should be taken twice between 24 and 48 hours after the bleeding a speculum examination is performed to exclude local lesions and to note the state of the cervical os.

48 hours after the bleeding ceases the mother can commence gentle ambulation and if in hospital, she may return home.

Out comes of threatened abortion

- 70-80% of all mothers diagnosed as having threatened abortion in the first trimester will continue with their pregnancies to term.

b. Missed abortion

This is the term applied to the fetus which is died and is retained with its placenta in the uterus. Early ultrasonic scan may identify missed abortion before the mother experiences any symptoms.

- Pain and bleeding may cease but the mother may experience a residual brown vaginal discharge as having an odour of decaying matter and it can be offensive and distressing.
- All other physiological signs of pregnancy will regress, uterine enlargement will cease and a pregnancy test will prove negative.

Treatment

Some obstetricians prefers not to treat a missed abortion actively as the dead conceptus will be expelled eventually.

Alternatively prostaglandin E2 may be given to induce expulsion in conjunction with i.v oxytocin or a vacuum aspiration of the uterine contents may be performed.

Blood coagulation disorders may develop in cases of missed abortion which persists for over 6-8 weeks.

Blood mole

Occasionally a missed abortion will progress to form a blood mole. This is a smooth brownish red mass which is completely

surrounded by the capsular decidua. Within the capsular decidua the fetus and placenta are surrounded by clotted blood. The mole is usually formed before the 12th week and if it is retained in utero for a period of months, the fluid is extracted from the blood and the fleshy, firm, hard mass remaining is known as a carneous mole.

Treatment

Prostaglandin E2 pessaries will be inserted into the vagina to soften the collagen fibers of the cervix and aid dilatation. This will be followed by an intravenous oxytocin infusion administered via a calibrated pump.

Analgesia will be required to relieve the pain of induced contractions and the mother will require close observation throughout the whole procedure.

c. Inevitable Abortion

When it is impossible for the pregnancy to continue it is termed as inevitable abortion.

Profuse vaginal bleeding which suggests that a large section of the placenta has separated from the uterine wall.

The abdominal pain becomes more acute and rhythmic in character.

The membranes may have ruptured and amniotic fluid will be seen. Alternatively the fetal sac and its contents, and possibly the placenta, will protrude through the dilating cervical os. Bleeding and uterine contractions will continue and all or part of the conceptus will be expelled vaginally.

I. Complete abortion

A complete abortion is more likely to occur prior to the 8th week of pregnancy and constitutes the expulsion of the embryo, placenta and intact membranes.

There is relief from pain and the bleeding usually stops.

II. Incomplete Abortion

When the products of conception are only partially evacuated during abortion, the abortion is incomplete. This usually occurs in the second trimester.

Bleeding is profuse but the abdominal pain and back ache may cease.

The cervix will be soft and purplish in color and will be partly closed.

Prolonged retention of the tissues predisposes the woman to infection and immediate medical intervention is needed.

Treatment

Specific treatment prior to the 12th week will include the administration of ergometrine 0.5mg i.m to expel the uterine contents and reduce bleeding from the placental site followed by evacuation of any tissue retained. The latter procedure is carried out under general anesthesia. After 12 week an oxytocin infusion will be administered using a pump. A dose of ergometrine will be given on completion of surgery. Uterine aspiration is commonly used but where this is not available the uterus will be evacuated digitally or by dilatation and curettage.

d. Recurrent abortion (habitual)

This term is applied when a mother has had at least two consecutive spontaneous abortions. The risk of further abortion increases with each successive aborted pregnancy. The majority of mothers who encounter this problem will lose their babies in the early weeks of pregnancy. If a pregnancy continues following a mid trimester threatened abortion there is a greater risk of preterm labour.

Induced Abortion

a. Therapeutic abortion

Legal termination of pregnancy is a therapeutic procedure carried out under the acts of abortion. It is important to provide adequate counseling and support prior to and following the

operation. Many mothers do not make the decision to have a pregnancy terminated with out some inner conflict. There are religious, psychological, social and cultural factors, which affect the woman's decision. Important considerations are her economic and marital status, the health and well being of existing children in the family and the presence of an abnormal fetus.

A few may be advised on health grounds to discontinue the pregnancy.

In the United Kingdom the 1967 Abortion act made the following provisions: Two registered medical practitioners should be of the opinion that the pregnancy should be terminated if (myles text book of midwives)

- The continuance of the pregnancy would involve a risk to the life of the pregnant woman or of injury to her physical and mental health.
- The continuance of the pregnancy would be detrimental to the health and well-being of the existing children in the family.
- There is a substantial risk that the child when born would suffer from such physical or mental abnormalities as to be seriously handicapped.

Methods of therapeutic abortion

Before the 12th week of pregnancy vacuum aspiration is the chosen method of termination of pregnancy as there is less blood loss. Alternatively dilatation and curettage may be performed.

After the 12th week a prostaglandin preparation will be used either intra- or extra- amniotically to produce abortion within 48 hours.

All terminations performed after 8 weeks gestation should be carried out in hospital where resuscitation facilities are available. In all instances ergometrine or syntometrine will be administered intravenously to prevent hemorrhage.

b. Criminal abortion

A criminal abortion is one performed in contravention of legal abortion. Such procedures are illegal and are punishable by imprisonment. The abortion is attempted by an unqualified, inexperienced person. Injuries to the birth canal and pelvic organs can occur if implements are inserted. It is usually the subsequent bleeding which causes a mother to seek professional help and care should be given as for threatened abortion until medical assistance arrives.

I. Septic abortion

Infection may occur following any abortion. It may be associated with incomplete abortion but is more commonly found after an induced abortion.

The infection may be limited to the decidual lining of the uterus but virulent organisms may cause the infection to spread and involve the myometrium, fallopian tubes and pelvic organs.

Symptoms and signs

Complaining of feeling unwell

Headache and nausea accompanied by sweating and shivering and shivering

On examination

It looks flushed, her skin will be hot to the touch and it may be clammy.

Spiking pyrexia in excess of 38°C

Steadily rising pulse

After 12th week of pregnancy abdominal examination will identify tenderness of the uterus, which will be bulky and soft in texture. The vaginal discharge will have an offensive odor and may be pinkish in color,

Specific investigations will include vaginal and cervical swabs, full blood culture and hematological investigations.

Treatment

Amoxicillin 500 mg three times daily and metronidazole 200mg 6.hourly is the treatment of choice until bacteriological results are obtained, after which the antibiotic treatment will be more appropriately prescribed.

Dilatation and curettage will be performed preferably after the acute infection subsides.

12.9 Abnormalities of the Menstrual Cycle (Menstrual Disorder)

Because menstruation is ongoing process throughout half of a woman's life, it affects her self-image significantly. An irregularity such as a painful cycle can exert a major influence on daily activities and should never be taken carelessly; it is a health concern requiring as much time and attention as that given to other concerns.

12.9.1 Menstrual Disorders Generally Fall In To:

- Menorrhgia
- Metrorehgia
- Polymenorrhea
- Oligomenorrihea
- Ammenorrhea

Dysmenorrhea

Definition-Dysmenorrhea is painful menstruation. Currently it is recognized that the pain is due to the release of prostaglandins (primarily PF2) in response to tissue destruction, during the ischemic phase of the menstrual cycle. PF2 causes smooth muscle contraction in the uterus.

Dysmenorrhea is primary if it occurs in the absence of organic disease; it is secondary if it occurs as a result of organic disease.

Therapeutic management: - Generally controlled by a common analgesic such as acetylsalicylic acid (asprin) and ibuprofen.

Menorrhagia

Definition-Menorrhagia is an abnormally heavy and prolonged menstrual flow. Usually accompanied by clots. It may occur in girls close to puberty and in woman nearing menopause because of unovulatory cycles.

Symptom: - It is difficult to determine when a flow is abnormally heavy. If a pad or tampon is saturated in less than an hour it indicates a heavy flow.

Refere the woman for further investigation

Metrorrhagia

Definition - Metrorrhagia is bleeding between menstrual periods. It is normal in some adolescents who have spotting at the time of ovulation (“mittelstaining”).

- May also occur in women on hormonal contraceptives (break through bleeding) for the 1st 3 or 4 months.
- Vaginal irritation from infection might lead to mid-cycle spotting.

If metrorrhagia occurs for more than one menstrual cycle and the client is not on hormonal contraceptives, she should be referred to physician for examination, because vaginal bleeding is also an early sign of uterine carcinoma or ovarian cysts.

Amenorrhea

Definition-The absence of menstrual flow for at least three cycles in a woman having a regular cycle of menstruation. It could be primary or secondary.

Primary amenorrhea is the absence of menstruation for a girl or woman who has reached the age of menstruation (who never menstruated)

Secondary amenorrhea is the absence of menstruation for a period for a woman who has menstruated previously. It may

result from tension, anxiety (stress), fatigue, chronic illness, sudden weight gain or loss or strenuous exercise.

In the reproductive age group pregnancy should be always ruled out.

Oligomenorrhea- Infrequent menstruation and is usually defined as occurring when the duration of the cycle exceeds that of normal for the individual.

Polymonorrhea – Excessive bleeding and the length of the cycle is reduced.

12.10 Ectopic Pregnancy

If the fertilized ovum embeds outside the uterus the condition is known as an ectopic pregnancy. Most commonly this occurs in the ampulla portion of the fallopian tube. Other rare implantation sites are the abdomen, cervix, ovary and fallopian tube portions other than ampulla. The incidence of ectopic pregnancy is 1 in 150 conceptions.

Causes

Pelvic inflammatory disease as a result of early and indiscriminate sexual activity.

- Women who have had tubal surgery

- Women who have use the IUCD

The right and left fallopian tubes are involved with equal frequency, and rarely a tubes pregnancy may occur in both tubes.

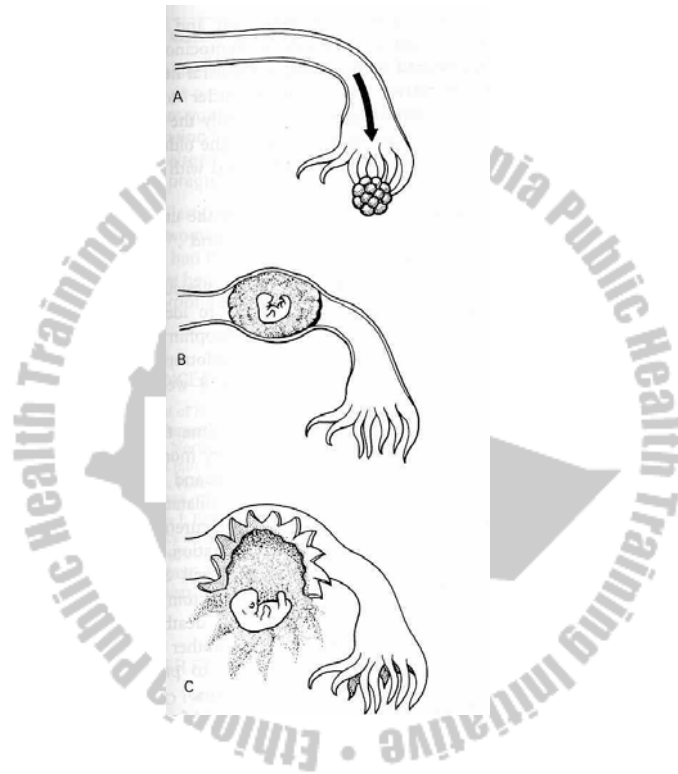


Figure 19. Possible outcomes of a tubal pregnancy. (A) Tubal abortion. (B) Tubal mole. (C) Ruptured tubal pregnancy. (Derexllewlyn-jone, Vol.2, 1990)

Implantation may occur in the fimbriated (17%); the ampulla (55%), the isthmus (25%) the interstitial portion (2%) and rarely the ovarian 0.5% or the abdominal cavity 0.1%. In most cases the pregnancy terminates between the 6th and 10th weeks of pregnancy.

A. Tubal Pregnancy

The main cause is damage and distortion of the fallopian tubes. Implantation can occur at any point along the fallopian tube.

Out come of the pregnancy

Tubal abortion

Tubal rupture

Tubal mole

Secondary abdominal pregnancy

Sign and symptoms

Manifests by mild lower abdominal discomfort with an occurrence of sharp acute attack of stabbing pain accompanied by nausea. This may be sufficiently severe for the mother to seek medical advice.

Usually there is a short period of amenorrhea in ruptured ectopic gestation fainting is usual Vaginal bleeding may be

mistaken for bleeding due to a delayed menstrual period or an abortion.

Slight brownish color and continuous bleeding with rarely present clots.

B. Tubal abortion

This occurs in 65% of the cases and is the usual termination in fimbrial and ampullary implantation repeated small bleeding from the invaded area of the tubal wall separates the ovum, which dies and is either aborted completely or aborted through the tubal ostium into the peritoneal cavity or aborted incompletely so that the clot-covered conceptus distends the ostium or forms a tubal blood mole.

C. Tubal rupture

This occurs in 45% of cases, and is more common when the implantation is in the isthmus. If the implantation is in the isthmus, where the mucosa is thinner and the vessels are larger, penetration of the muscularity and tubal rupture occurs earlier and internal hemorrhage is usually severe, which if the implantation is in the interstitial portion of the oviduct, rupture is often delayed as the myometrium surrounds the growing conceptus; but eventually it does occur and is attended by severe hemorrhage. The rupture is being sudden or gradual. If

the rupture is on the mesenteric side of the tube, a broad ligament haematoma will form.

D. Secondary abdominal pregnancy

Very rarely the extruded ovum continues to grow as sufficient trophoblast maintains its conception with the tubal epithelium and latter the trophoblast covering the ova sac attaches to abdominal organs. A few of these pregnancies advance to term and in a few fetus dies early.

Two clinical patterns occur, and are due to the extent of the damage to the tube wall by the invading trophoblast. The first is sub acute, the second acute.

Sub acute

After a short period of amenorrhea, the patient complains of:

- some lower abdominal discomfort, may be so mild
- occasionally there is an attack of sharp pain and faintness,
- an attack of sharp pain favored by slight bleeding
- Tenderness of a lower abdomen on examination
- Vaginal examination show a tender fornix or a vague mass
- If the patient is observed, further episodes of pain will occur
- Vaginal bleeding, usually brown in color causing acute collapse indicating tubal rupture or incomplete tubal

abortion or the symptoms could indicate complete abortion with or without pelvic haematocole.

Acute

Sudden collapse with little or no warning is more common when the implantation is isthamal, but is not the most frequent events. It is more usual for the acute tubal rupture to supervene upon the sub acute.

As the tube ruptures

- The patient is seized with a sudden acute lower abdominal pain, sufficiently severe to cause fainting
- The associated internal hemorrhage leads to rapid collapse, with pallor, a weak pulse with a rising rate and a falling blood pressure usually the condition improves after a short time, as the hemorrhage diminishes or ceases but abdominal discomfort persists and pain is felt in the epigastrium and referred to the shoulder.
- A further episode of hemorrhage and collapse is likely, and continued bleeding can be suspected from increasing pallor and a falling hemoglobin level.
- On examination the patient is shocked, the lower abdomen is tender with some abdominal muscle guarding
- Vaginal examination, which should only be carried out in hospital, shows extreme tenderness in the fornixes and marked tenderness on movement from side to side.

Diagnosis

- The presence of internal bleeding in acute cases. An immunological pregnancy test is positive in 75 % of cases which is not very specific if the BHCG test is positive, a pelvic ultrasound examination be made.
- If ultrasound examination shows fetus in the fallopian tube and empty uterus the diagnosis is certain and a laparotomy should be made. If the diagnosis remains in doubt a laparoscopy will clear the matter up.

Treatments

When tubal pregnancy is suspected the patient must be transferred to hospital with out vaginal examination provided she is not in shock and intravenous infusion of saline or a plasma expander given.

As soon as the diagnosis of ectopic gestation is made in hospital, laparotomy should be performed at once, even if the patient is collapsed. Blood transfusion should be started as soon as after admission as possible.

Prognosis

Only 60 percent of patients who have had an ectopic gestation become pregnant again. Of the women who do not have a future pregnancy, 75 percent avoid pregnancy voluntarily, and 75 percent are involuntarily infertile. The risk

of a second ectopic gestation is about 10 percent, as compared which 0.4 percent in other women. The chance of delivering a term baby is about 50 percent. Patients who have previously had an ectopic gestation therefore require additional care during pregnancy.

12.11 Infertility

Infertility is defined as the inability to conceive and carry a pregnancy to viability after at least 1 year of regular sexual intercourse with out contraception.

Primary infertility- is an inability to conceive and carry a pregnancy to viability with no previous history of pregnancy carried to alive birth.

Secondary infertility- is an inability to conceive and carry a pregnancy to alive birth following one or more successful pregnancies.

Although often used interchangeably the term infertility and sterility are not synonymous. Sterility denotes a total and irreversible inability to conceive. Broadly defined infertility includes the inability to carry a pregnancy to viability.

Causes of infertility

Female

- Vaginal - abnormalities
 - infectious
 - highly acidic vaginal PH

- Cervical - Hostile environment (insufficient oestrogen or infection)
 - Incompetent cervix
- Uterine - Abnormalities
 - Hostile environmental for implantation and survival of blastocyst
- Tubal
 - Adhesions
 - Scar tissue due to PID
 - Endometriosis
- Ovarian - an ovulation
 - Irregular or infrequent ovulation
 - Secretary dysfunction
 - Inadequate luteal phase

Male

- Anatomical abnormalities / congenital factor
- Inadequate sperm production / Maturation
- Varicose
- Testicular inflammation

- Heat exposure
- Sexually transmitted disease
- Radiation exposure
- Stress
- Certain drugs
- Inadequate motility of sperm
- Blockage of sperm in male reproductive tract

Diagnosis

- History and physical examination
- Semen analysis
- The postcoital test
- Basal body temperature recording
- Serum progesterone test
- Endometrial Biopsy
- Hysterosalpingogram
- Laparoscopy and culdoscopy

Treatment- On a diagnosis of the cause of the infertility, it has been made to involve the male partner, the female partner, or both may be initiated.

12.12 Disorder of the Breast

Disorder of breasts

Breasts are usually affected by three conditions. They are infections, benign and malignant tumours.

Benign

A. Fibrocystic breast disease

It is a common benign breast disease in women of all ages. It can occur as early as puberty when oestrogen level rises to adult levels, but is found most commonly in women between the age of 20 and 45 years.

Sign and Symptom

- Freely movable, well - delineated breast lump on palpation
- Visible lump on the surface of breast
- Often occur on upper outer quadrant of the breast
- Consistency- firm and hard to soft and flexible
- Painful (may) and tender
- Round and fluid filled cyst.

Diagnosis

- Careful palpation
- Mammography
- Biopsy

Management

- Analgesia
- Avoidance of substances contain caffeine, theophylline and theobromine
- Avoid smoking

- Aspiration of cysts under local anesthesia

B. Fibro adenoma

Fibro adenoma are tumors consisting of both fibrotic and glandular components that occur in response to estrogen stimulation. They tend to occur in young women and are rarely seen after menopause and are non malignant.

The tumors may increase in size during adolescence, pregnancy and lactation or when a woman takes an oestrogen source such as oral contraceptive.

Sign and symptom

- No pain (pain less) and freely movable
- Round and well delineated tumors
- Feel firmer and more rubbery
- Occasionally calcify and feel extremely hard
- Not cause skin retraction

Management:- Surgical excision

Carcinoma of breast

The carcinoma of the breast commonly occurs from 30 to 60 years of age.

Sign and Symptoms

- Lump and hard fixed mass

- Pain in the breast
- Blood stained discharge (late stage)
- Retracted nipple ,of cancer has spread to the lymph
- Orange like colour of the skin

Clinical and histological staging of breast cancer

Clinical stage (American Joint Committee)

Stage I

Tumor less than 2 cm in diameter
Nodes, if palpable, not felt to contain metastases
Without distant metastases

Stage II

Tumor less than 5 cm in diameter
Nodes, if palpable, not fixed

Stage III

Tumor less than 5 cm or
Tumor of any size with invasion of skin or attached to
chest wall
Nodes in supra clavicular area with out distant
metastases

Stage IV

With distant metastases

Management - Surgery

- Radiation
- Hormonal therapy
- Cytotoxic agent

The woman should be thought to do self examination of breast to detect, report and be diagnosed early

12.13. Menopause

It is the stopping of menstrual period permanently and ends of a woman's reproductive life. It is said to have stabilized after two years of absence.

It is characterized by the gradual cessation of menstruation, the period first becoming irregular and then ceasing altogether.

The usual age for the menopause is between 45 and 50 years.

Symptoms

- Hot flushes due to sudden release of blood vessels
- Emotional changes
- Excessive / tendency to / gain weight
- Insomnia
- Appearance of signs of aging
- Softening of long bones

Cause: Hormonal changes due to aging of the ovaries takes place during this period and Climacteric changes (hormones) also occurs during this time.

Treatment

- Oestrogen
- Progesterone
- Tranquilizers

Post menopausal bleeding must be investigated for cancer. Artificial menopause may be brought about by hystrectomy, trauma to ovaries by irradiation or deep X- ray exposure of the pelvis.

Duties of nurse

- Support the patient by proper explanation about menopause
- If symptoms are severe advice to see the doctor
- Advice about the diet to be low in carbohydrate and have adequate sleep during the night.

12.13 Self examination of the breast

- Ninety percent of breast cancers are found by the woman or her partner. For this reason it is important that women understand the importance of examining the breast on a monthly basis.
- During pregnancy there is no special time of the month that is best to reform the examination.
- In non pregnant women, 5 days after cessation of menstruation, it is the optimum time to detect changes.

Inspection in the Shower

- It is easier to examine breast when hands are soapy.
- With your right hand behind your head, examine your right breast with your left hand using a grid or circular motion reverse the procedure to examine the other breast.

Inspection in a mirror

Stand in front of a mirror for further inspection

- A. With arms at sides looks for
 - Changes in size and shape of breasts
 - Changes in skin dimpling, puckering, scaling, redness, swelling
 - Changes in nipple inversion, scaling, discharge from nipples pointing in different directions.
- B. Holding arms over the head, inspect closely in the mirror for masses, breast symmetry, puckering.
- C. Press hands firmly on hips, below slightly forward. Inspect in mirror for lumps or pulling of the skin.
- D. Each breast should be a mirror image of the other. If you think you detect a lump in breast, check the other side to see if it feels the same. If so this is undoubtedly normal tissue. Examine using the circular or grid motion as in the shower.

- E. Gently squeeze the nipple of each breast between your thumb and index finger to check for signs of discharge or bleeding.

Inspection on Lying Down

Lying flat on your back, with your right hand under your head and a pillow or towel under your right shoulder, use your left hand to gently feel your right breast, using concentric circles to cover the entire breast and nipple. Repeat on your left breast.

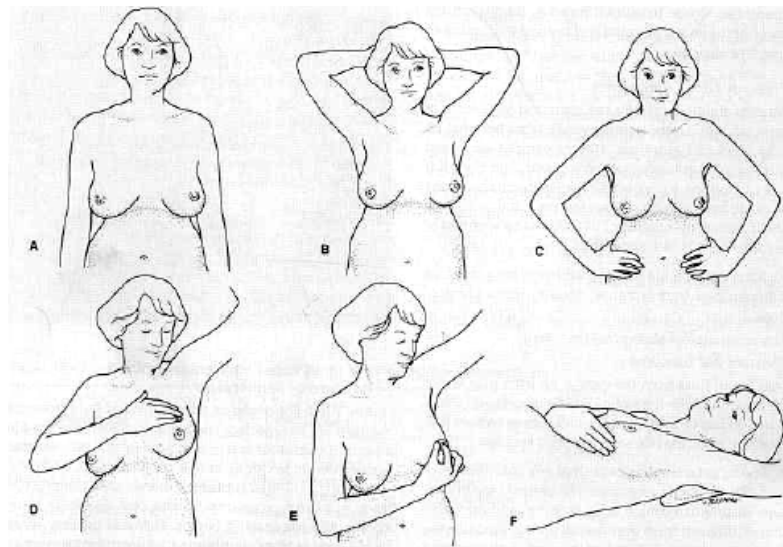


Figure. 20 Breast self examination (Ktharyn A. May, Laura R. Mahlmeister, 1990)

12.14. New growths

Pelvic tumors

A. Fibroids (fibromyoma)

These are firm tumors of muscular and fibrous tissue, ranging from the very small to the very large. They are most frequently found in woman at the older & end of the child bearing age range.

Types: - They are named according to their position.

- a. Sub mucous- when it is situated immediately beneath the surface of the endometrium (decidua)
- b. Subserous - When it is beneath the serous coat of the uterus
- c. Intramural – a fibroid confined to the myometrium.
- d. Pedunculated - occasionally when submucous and subserous fibroids develop stalks.

Effect on pregnancy, labour & puerperium

Depends on the site of the uterus whether it is in the lower or upper segment and layers of uterus they occupy.

- Subfertility
- Abortion
- PPH
- Malpresentation
- Obstructed labour

- Poor uterine contraction
- Subinvolution and prolonged red lochea.

Symptoms

- Painless abdominal swelling
- Menorrhagea
- Rarely pressure on bladder or bowel

Complication

- Menorrhagia
- Torsion of pedunculated fibroid
- Malignancy

Ovarian tumors can be primary and secondary and can be benign or malignant. Secondary tumors are always malignant.

Management

- Myomectomy or removal of fibroid
- Hysterectomy if the women is older

Ovarian cyst

Types: - depending on constitution of the cyst it has 4 types

- Serous cysts- contains serum
- Mucinoid cyst- contains mucin
- Endometrial cysts / chocolate cyst. Its colour looks chocolate

- Dermoid cyst - This is a type of cyst containing hair, teeth or bone. These cysts are said to be originated from the material derived from the ectoderm, endoderm and mesoderm. These are congenital.

Effects on pregnancy and labour

- It occupies pelvic cavity and causes obstruction
- Possibility of infection in the puerperium
- Haemorrhage into the cyst.
- Pressure symptom

Management

- Removal of the cyst (ovarian cystectomy)
- Biopsy- if malignant total hysterectomy

Complication of ovarian cyst

- a. Torsion or twist - of the cyst is pedunculated it may twist.
 - Sever abdominal pain, tenderness, shock
- b. Rupture of the cyst
- c. Sepsis - the cyst may become infected (pain tenderness & fever)
- d. Malignancy

Uterine Polyp

Polyps are small bright red, fleshy, pedunculated, benign growths which may cause bleeding usually originated in the

cervical canal and are multiple. The bigger ones can protrude from the cervix into the vagina.

Diagnosis - Speculum examination

Treatment: - It is usually removed by curettage off the uterus

Cancer of the Cervix

It occurs most commonly between 30 and 45 years of age.

Cause:- unknown

Risk factors

- Early age at first intercourse
- Early child bearing
- Multiple partners
- Chronic cervical infections

Signs and Symptoms

- Metrorrhagia
- Spotting of blood
- Bleeding after intercourse or douching or defecation
- Pain in the back and legs

Diagnosis

- Evaluation of sign and symptoms
- Biopsy
- Colposcopy
- Dilatation and Curettage

Stages of cervical cancer

Stage 0 - is called cancer in situ. It is limited to the epithelial layer.

Stage I - Confirmed to the cervix

Stage II - It has extended to the vagina

Stage III - It has extended up to the vagina & has extended to one or both pelvic walls.

Treatment:

1. Surgery
 - Total hysterectomy
 - Radical hysterectomy (Wertheim) - removal of uterus, adnexa, proximal vaginal and bilateral lymph nodes
 - Radical vaginal hysterectomy
2. Radiation treatment (radiation)
3. Cytotoxic drugs

Vulval Growths

- The growth in the vulva may be benign or malignant
- Benign tumors may be fibromas, adenomas, lipomas, fibroadenomas, moles, and elephantiasis.
- Malignant tumors are squamous cell carcinoma and basal cell carcinoma

Treatment-Benign tumors can be treated by surgical removal of lesion.

- Malignant tumors are treated by vulvectomy

Vulval Cysts

Bartholin's cyst- It arises on the Bartholin's gland at the posterior end of labia minora. It may be asymptomatic. Infection may be due to the gonococcal organisms, escherichia coli or staphylococcus aureus can cause an abscess.

Treatment:

- Incision and drainage
- Antibiotics

Inclusion cyst of the preclitoral area- It develops following circumcision in infancy.

Sebaceous cyst- It can occur in the anterior part of labia minora.

Management-Incision and drainage

Review Questions

1. Mention common complications of PID
2. Identify places of implantation in ectopic pregnancy

Case study

1. Fatuma, a 24 years old mother gave birth to a child and the nurse attending the labour pulled out the placenta 10 minutes after delivery without waiting for sign of placental separation. The nurse immediately saw massive vaginal bleeding and uterus which is turned inside out.
 - a) What is the medical diagnosis of this mother?
 - b) How do you manage is this patient at your level?
 - c) How do you prevent this problem from occurring?
2. A 26 year old house wife came to a health center with amenorrhea of 16 weeks and spontaneous vaginal bleeding of 8 hours. She gave a history of expulsion of conceptus tissue. On physical examination her pulse rate was 12/minute, blood pressure 100/70mmHg, temperature 37. 2⁰_C and fundal height of 14 weeks size. On vaginal examination the cervix was open.

Exercise :

1. What is the medical diagnosis of this patient?
2. How do you manage this patient?
3. What complications are anticipated in this patient?

GLOSSARY

- Abortion** Termination of pregnancy prior to viability of the fetus
- Abscess** localized collection of pus resulting from disintegration of tissue in any parts of the body
- Adolescence** Period of physical, social, and emotional transition between childhood and adulthood
- Amenorrhea** Absence of menstruation
- Amnionitis** Inflammation of the inner layer of the fetal membrane
- Areola** Ring of dark pigment surrounding the nipple
- Ballottement** Technique of palpation used to detect floating (object) in the body. The sensation of an object rebounding after being pushed by an examining hand
- Bartholin's glands** Small, mucus secreting glands located at either side of the base of the vagina
- Bicornuate uterus** Uterus in which the fundus is divided in to two parts
- Braxton Hicks contractions** Painless intermittent contraction of the uterus during pregnancy
- Culdocentesis** Aspiration of fluid from the pouch of Douglas by puncture of the posterior vaginal fornix
- Curettage** Scraping of the inner surface of the uterus with a curette to remove its lining or contents

Delivery Expulsion of the fetus, placenta, and membranes at birth

Dyspareunia Painful intercourse

Dysuria Painful micturation

Eclampsia Toxemia of pregnancy accompanied by increased blood pressure, albuminuria, oliguria, tonic and clonic convulsions and coma

Effacement Thinning and shortening of the cervix that occurs just prior to dilatation

Fetus Infant in utero after completion of the embryonic stage at eight weeks of gestation

Fetoscope A stethoscope used for listening to fetal heart beat

Fistula An abnormal passage or communication between two organs

Fourchette Fold of mucous membrane at the posterior junction of the labia minora

Fundus upper portion of the uterus lying between the points of insertion of the fallopian tubes

Gestational age Estimated age of the fetus calculated in weeks

Hematocrit Volume percentage of RBC in whole blood

Hemolysis Destruction of RBCs

Hysterectomy Surgical removal of the uterus

Infertility the stage of being unable to reproduce

Intra uterine growth retardation Fetal condition characterized by failure to grow

Meconium The first stool of the new born, dark green or black in colour

Precipitate labour Labour that terminates in delivery of the baby in less than three hours

Puberty The stage of development at the reproductive organs mature

Quickening Perception of the first fetal movement by the mother

Residual volume The amount of air remaining in the lungs following normal expiration

Tachycardia Rapid heart rate

Thrombophlebitis Inflammation of a vein with accompanying thrombus formation

Tidal volume The volume of air inspired

Ultrasonography A diagnostic study made by high frequency of sound waves to reveal body organs

Uterine atony Lack of uterus tone that leads to hemorrhage

Uterine prolapse Downward displacement of the uterus

Vaginitis Infection of the vaginal mucosa

Vulvovaginitis Inflammation of the external female reproductive organs

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