MATERNITY & NEWBORN HEALTH NURSING

Lecture 1

Anatomy & Physiology of the Reproductive System

Learning Objectives

Upon completion of the lecture, you will be able to:

1. ***Define the key terms used in this lecture.***
2. ***Describe changes of puberty in males and females.***
3. ***Contrast the structure and function of the major external and internal female genital organs.***
4. ***Outline the phases of the menstrual cycle, the dominant hormones involved, and the changes taking place in each phase.***
5. ***Classify external and internal male reproductive structures and the function of each in hormonal regulation***

KEY TERMS

Breasts, cervix, endometrium, estrogen, fallopian tubes, follicle-stimulating hormone (FSH), luteinizing hormone (LH), menarche, menstruation, ovaries, ovulation, penis, progesterone, testes, uterus, vagina, and vulva.

OVERVIEW

The reproductive system consists of organs that function in the production of offspring.

Nurses need to have a thorough understanding of the anatomy and physiology of the male and female reproductive systems to be able to assess the health of these systems, to promote reproductive system health, to care for conditions that might affect the reproductive organs, and to provide client teaching concerning the reproductive system.

This lecture reviews the female and male reproductive systems and the menstrual cycle as it relates to reproduction.

Assistant Lecturer Abdulrahman Mazin Hashim

Puberty

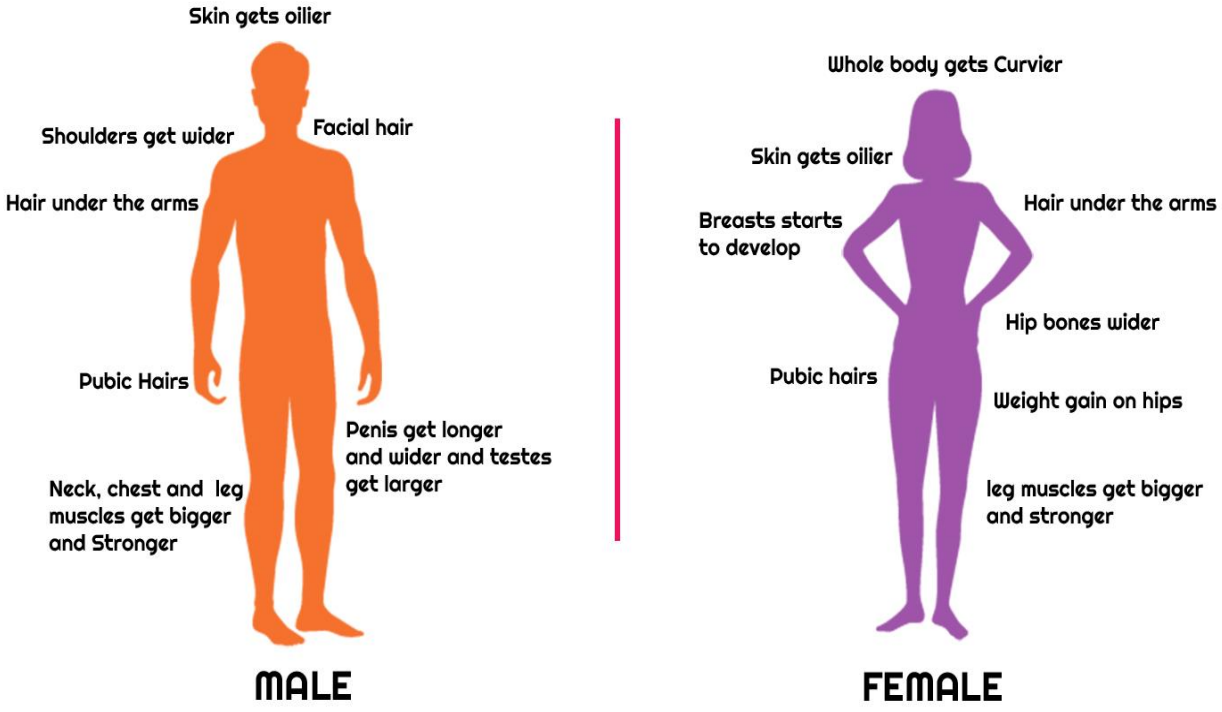
Puberty is a period of rapid change in the lives of boys and girls during which the reproductive systems mature and become capable of reproduction. Puberty ends when mature sperm are formed or when regular menstrual cycles occur.

In girls, the first menstrual period (menarche) occurs 2 to 2 years later (age 11 to 15 years), and pubertal changes typically occur as:

1. Growth spurt
2. Increase in the transverse diameter of the pelvis
3. Breast development
4. Growth of pubic hair
5. Onset of menstruation
6. Growth of axillary hair
7. Vaginal secretions

In boys, male hormonal changes normally begin between 10 and 16 years of age, and pubertal changes typically occur as:

1. Increase in weight
2. Growth of testes
3. Growth of face, axillary, and pubic hair
4. Voice changes
5. Penile growth
6. Increase in height
7. Spermatogenesis (production of sperm)

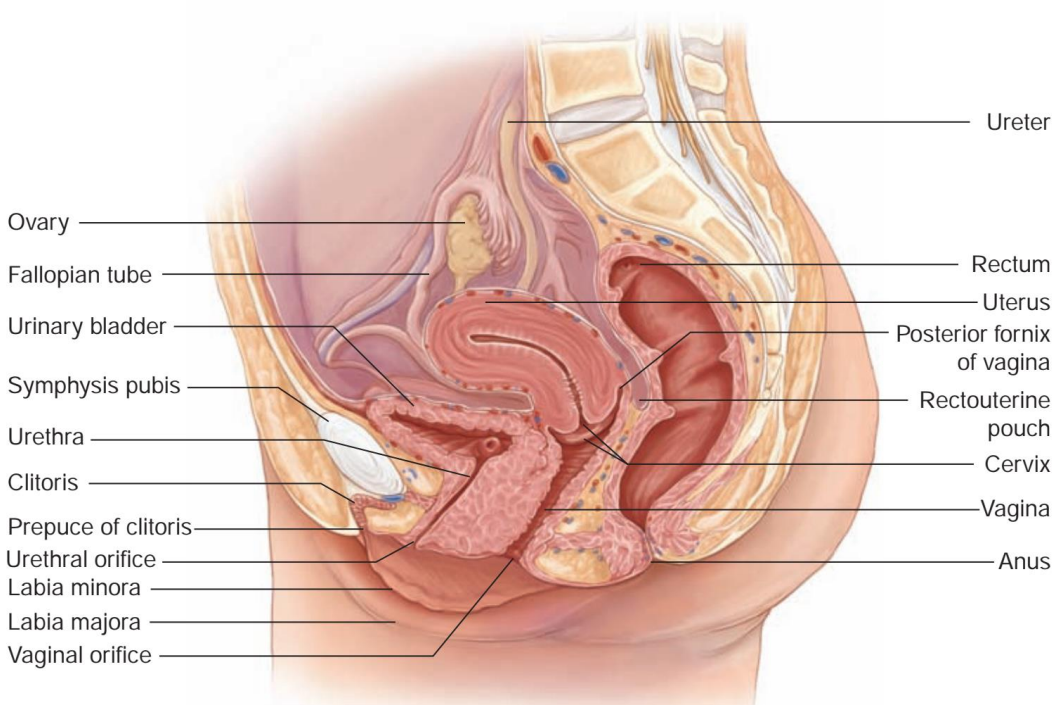


Female Reproductive System

The female reproductive system consists of external genitalia, internal genitalia, and accessory structures such as the mammary glands (breasts).

External Genitalia

The female external genitalia are collectively called the vulva. They include the mons pubis, labia majora, labia minora, fourchette, clitoris, vaginal vestibule, and perineum.



Mons pubis

The mons pubis (mons veneris) is a pad of fatty tissue covered by coarse skin and hair. It protects the symphysis pubis and contributes to the rounded contour of the female body.

Labia majora

The labia majora are two folds of fatty tissue on each side of the vaginal vestibule. Many small glands are located on the moist interior surface.

Labia minora

The labia minora are two thin, soft folds of tissue that are seen when the labia majora are separated. Secretions from sebaceous glands in the labia are bactericidal to reduce infection and lubricate and protect the skin of the vulva.

Fourchette

The fourchette is a fold of tissue just below the vagina, where the labia majora and the labia minora meet. It is also known as the obstetrical perineum.

Clitoris

The clitoris is a small, erectile body in the most anterior portion of the labia minora. It is similar in structure to the penis. Functionally, it is the most erotic, sensitive part of the female genitalia.

Vaginal vestibule

The vaginal vestibule is the area seen when the labia minora are separated and includes five structures:

1. **The urethral meatus** lies approximately 2 cm below the clitoris. It has a foldlike appearance with a slit type of opening, and it serves as the exit for urine.
2. **Skene ducts (paraurethral ducts)** are located on each side of the urethra and provide lubrication for the urethra and the vaginal orifice.
3. **The vaginal introitus** is the division between the external and internal female genitalia.
4. **The hymen** is a thin elastic membrane that closes the vagina from the vestibule to various degrees.
5. **The ducts of the Bartholin glands (vulvovaginal glands)** provide lubrication for the vaginal introitus during sexual arousal and are normally not visible.

Perineum

The perineum is a strong, muscular area between the vaginal opening and the anus. The elastic fibers and connective tissue of the perineum allow stretching to permit the birth of the fetus.

Internal Genitalia

The internal genitalia are the vagina, uterus, fallopian tubes, and ovaries.

Vagina

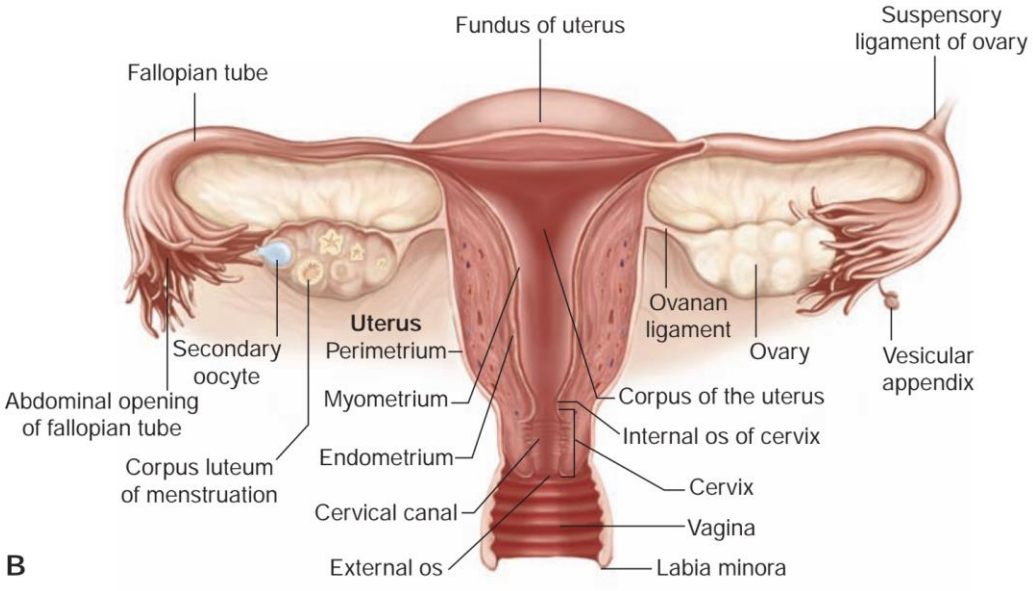
The vagina is a tubular structure made of muscle and membranous tissue that connects the external genitalia to the uterus. An average adult vagina is slightly curved and can range between 7 to 12 cm in length, but everybody is different. The vagina is self-cleansing and during the reproductive years maintains a normal acidic pH of 4 to 5.

The vagina has three functions:

1. Provides a passageway for sperm to enter the uterus.
2. Allows drainage of menstrual fluids and other secretions.
3. Provides a passageway for the infant's birth.

Uterus

The uterus (womb) is a hollow muscular organ in which a fertilized ovum is implanted, an embryo forms, and a fetus develops. It is shaped like an upside-down pear or light bulb. In a mature, nonpregnant woman, it weighs approximately 60 g and is 7.5 cm long, 5 cm wide, and 1 to 2.5 cm thick. The uterus lies between the bladder and the rectum above the vagina.



The uterus is separated into three parts: fundus, corpus, and cervix. The fundus (upper part) is broad and flat. The fallopian tubes enter the uterus on each side of the fundus. The corpus (body) is the middle portion, and it plays an active role in menstruation and pregnancy.

The fundus and the corpus have three distinct layers:

1. **The perimetrium** is the outermost or serosal layer that envelops the uterus.
2. **The myometrium** is the middle muscular layer that functions during pregnancy and birth.
3. **The endometrium** is the inner or mucosal layer that is functional during menstruation and implantation of the fertilized ovum. It is governed by cyclical hormonal changes.

The ***cervix*** (lower part) is narrow and tubular and opens into the upper vagina. The cervix consists of a cervical canal with an internal opening near the uterine corpus (internal os) and an opening into the vagina (the external os).

The mucosal lining of the cervix has four functions:

1. Lubricates the vagina.
2. Acts as a bacteriostatic agent.
3. Provides an alkaline environment to shelter deposited sperm from the acidic pH of the vagina.
4. Produces a mucous plug in the cervical canal during pregnancy.

Fallopian tubes

The fallopian tubes, also called uterine tubes or oviducts, extend laterally from the uterus, one to each ovary. They vary in length from 8 to 13.5 cm.

Each tube has four sections:

1. **The interstitial portion** extends into the uterine cavity and lies within the wall of the uterus.
2. **The isthmus** is a narrow area near the uterus.
3. **The ampulla** is the wider area of the tube and is the usual site of fertilization.
4. **The infundibulum** is the funnel-like enlarged distal end of the tube.

Fingerlike projections from the infundibulum, called **fimbriae**, hover over each ovary and "capture" the ovum (egg) as it is released by the ovary at ovulation.

The four functions of the fallopian tubes are to provide the following:

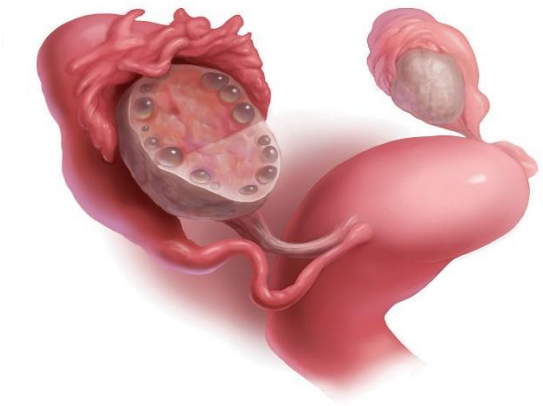
1. A passageway in which sperm meet the ovum.
2. The site of fertilization (usually the outer one-third of the tube).
3. A safe, nourishing environment for the ovum or zygote (fertilized ovum).
4. The means of transporting the ovum or zygote to the corpus of the uterus.

Ovaries

The ovaries are two almond-shaped glands, each about the size of a walnut. They are located in the lower abdominal cavity, one on each side of the uterus, and are held in place by ovarian and uterine ligaments.

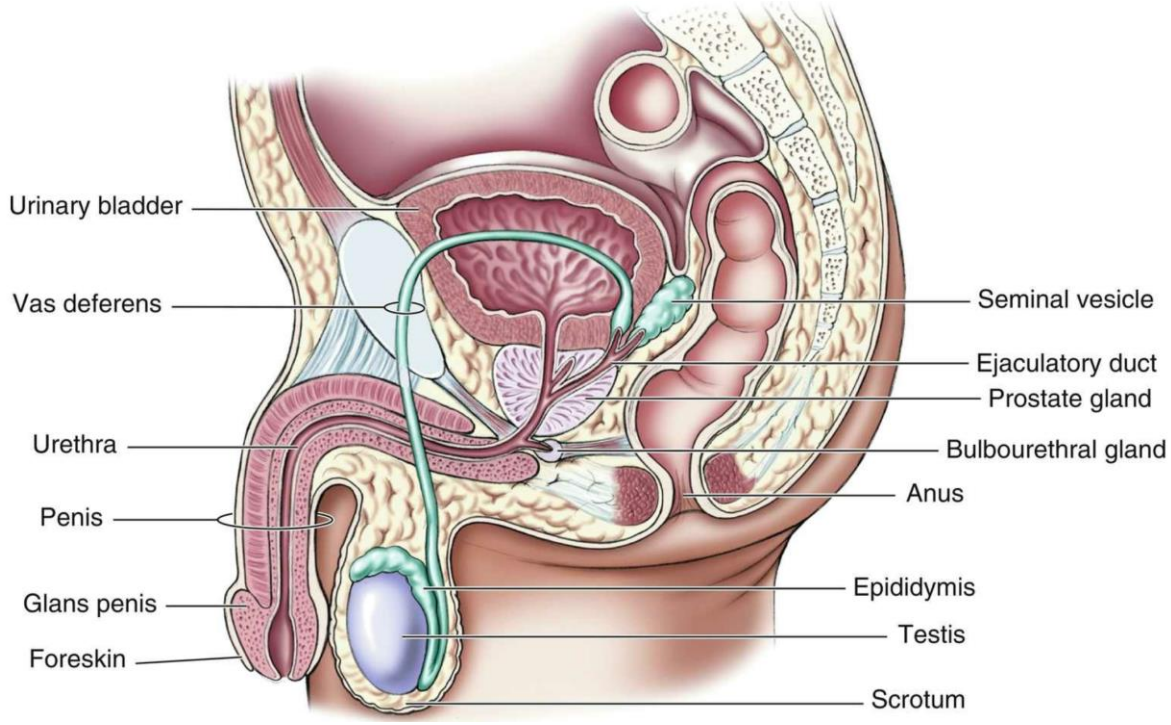
The ovaries have two functions:

1. Production of hormones, chiefly estrogen and progesterone.
2. Stimulation of an ovum's maturation during each menstrual cycle.



Male Reproductive System

The male reproductive system consists of external and internal organs.



External Genitalia

The penis and the scrotum, which contains the testes, are the male external genitalia.

Penis

The penis consists of the glans and the body. The glans is the rounded, distal end of the penis. It is visible on a circumcised penis but is hidden by the foreskin on an uncircumcised penis. At the tip of the glans is an opening called the urethral meatus. The body of the penis contains the urethra (the passageway for sperm and urine) and erectile tissue (the corpus spongiosum and two corpora cavernosa).

The penis has two functions:

1. Provides a duct to expel urine from the bladder.
2. Deposits sperm in a woman's vagina to fertilize an ovum.

Scrotum

The scrotum is a sac that contains the testes. The scrotum is suspended from the perineum, keeping the testes away from the body and thereby lowering their temperature, which is necessary for normal sperm production (spermatogenesis).

Internal Genitalia

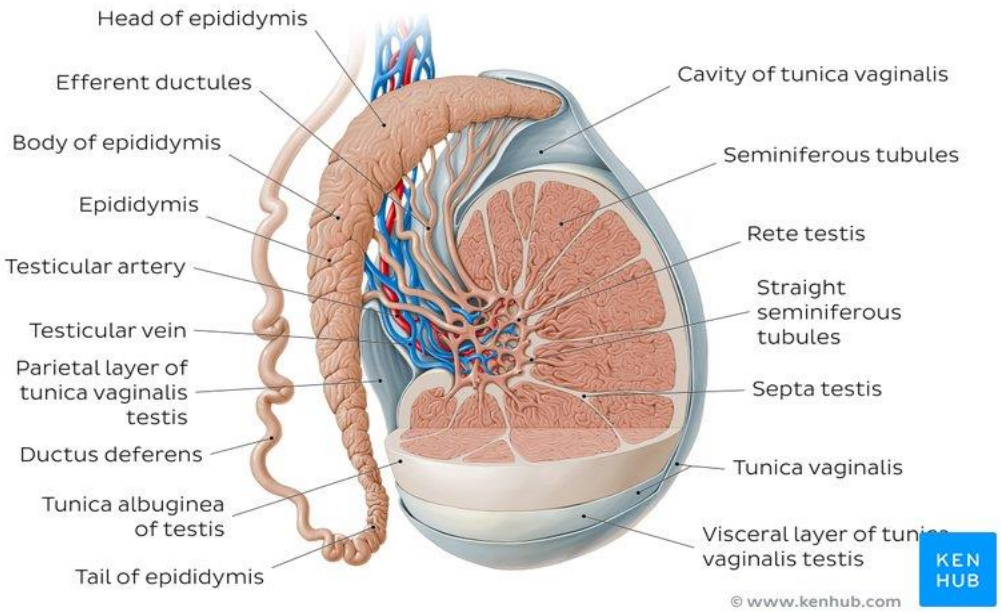
The internal genitalia include the testes, vas deferens, prostate, seminal vesicles, ejaculatory ducts, urethra, and accessory glands.

Testes

The testes (testicles) are a pair of oval glands housed in the scrotum.

They have two functions:

1. Manufacture male germ cells (spermatozoa or sperm).
2. Secrete male hormones (androgens).



Sperm are made in the convoluted seminiferous tubules that are contained within the testes. Sperm production begins at puberty and continues throughout the life span of the male. The production of testosterone, the most abundant male sex hormone, begins with the anterior pituitary gland. Under the direction of the hypothalamus, the anterior pituitary gland secretes follicle-stimulating hormone (FSH) and luteinizing hormone (LH). FSH and LH initiate the production of testosterone in the Leydig cells of the testes.

Testosterone Functions:

1. Increases muscle mass and strength.
2. Promotes growth of long bones.
3. Increases basal metabolic rate.
4. Enhances production of red blood cells.
5. Produces enlargement of vocal cords.
6. Affects the distribution of body hair.

Ducts

Each epididymis, one from each testicle, stores the sperm. The sperm may remain in the epididymis for **2 to 10 days,** during which time they mature and then move on to the vas deferens.

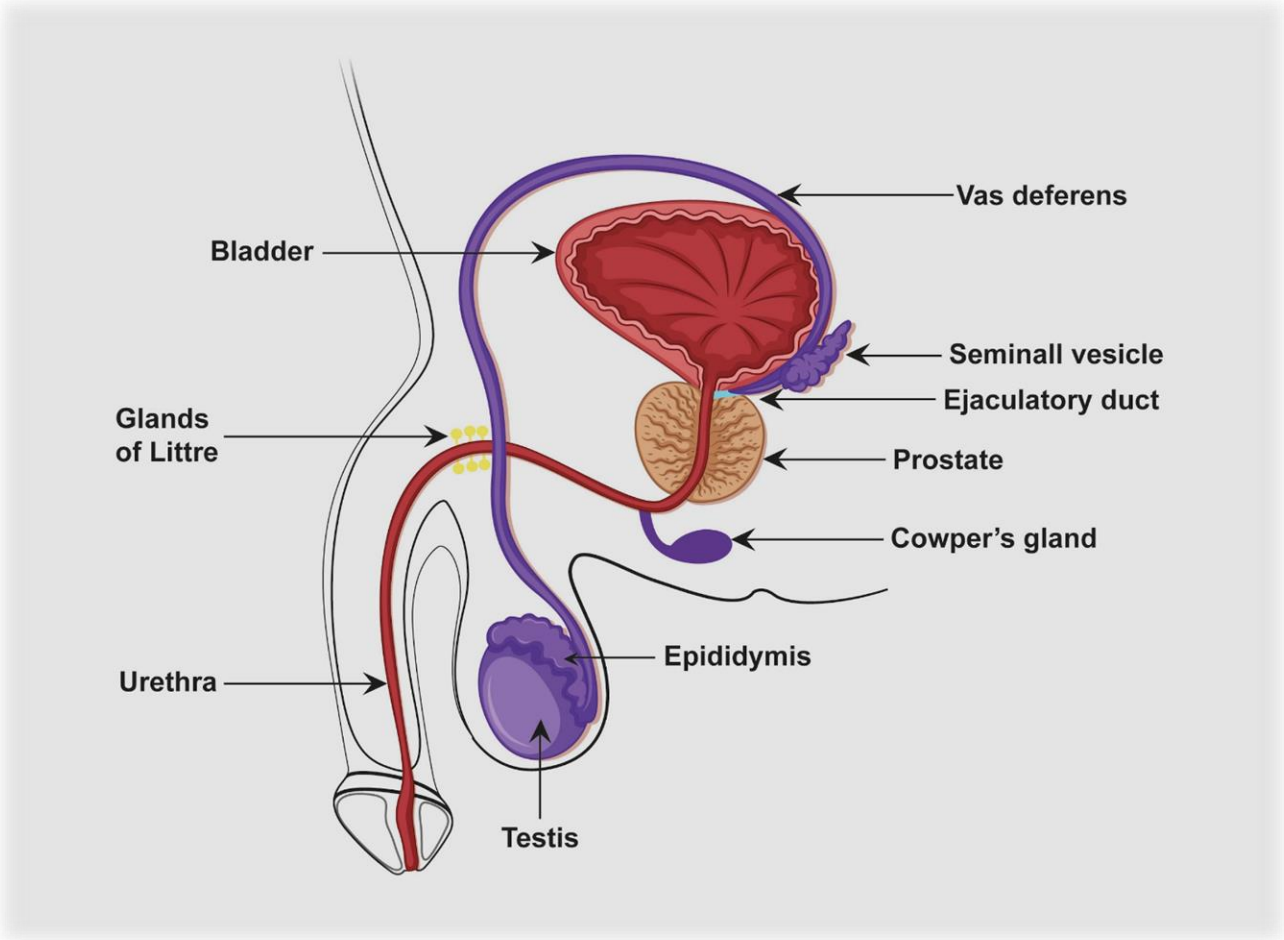
The ejaculatory ducts then enter the back of the prostate gland and connect to the upper part of the urethra, which is in the penis. The urethra transports both urine from the bladder and semen from the prostate gland to the outside of the body, although not at the same time.

Accessory glands

The accessory glands are the seminal vesicles, the prostate gland, and the bulbourethral glands, also called Cowper's glands.

The accessory glands have three functions:

1. Nourish the sperm.
2. Protect the sperm from the acidic environment of the woman's vagina.
3. Enhance the motility (movement) of the sperm.
4. The combined seminal plasma and sperm are called semen. Semen may be secreted during sexual intercourse before ejaculation.



Reproductive Cycle and Menstruation

Stages of the Menstrual Cycle Includes:

A. The ovarian cycle consists of three phases: **follicular (preovulatory) phase, ovulation, and luteal (postovulatory) phase.**
B. The uterine cycle has three phases: **menses, proliferative and secretory.**

The female reproductive cycle consists of regular changes in secretions of the anterior pituitary gland, the ovary, and the endometrial lining of the uterus. The anterior pituitary gland, in response to the hypothalamus, secretes follicle-stimulating hormone (FSH) and luteinizing hormone (LH). FSH stimulates maturation of a follicle in the ovary that contains a single ovum.

Several follicles start maturing during each cycle, but usually only one reaches final maturity. The maturing ovum and the corpus luteum (the follicle left empty after the ovum is released) produce increasing amounts of estrogen and progesterone, which leads to enlargement of the endometrium.

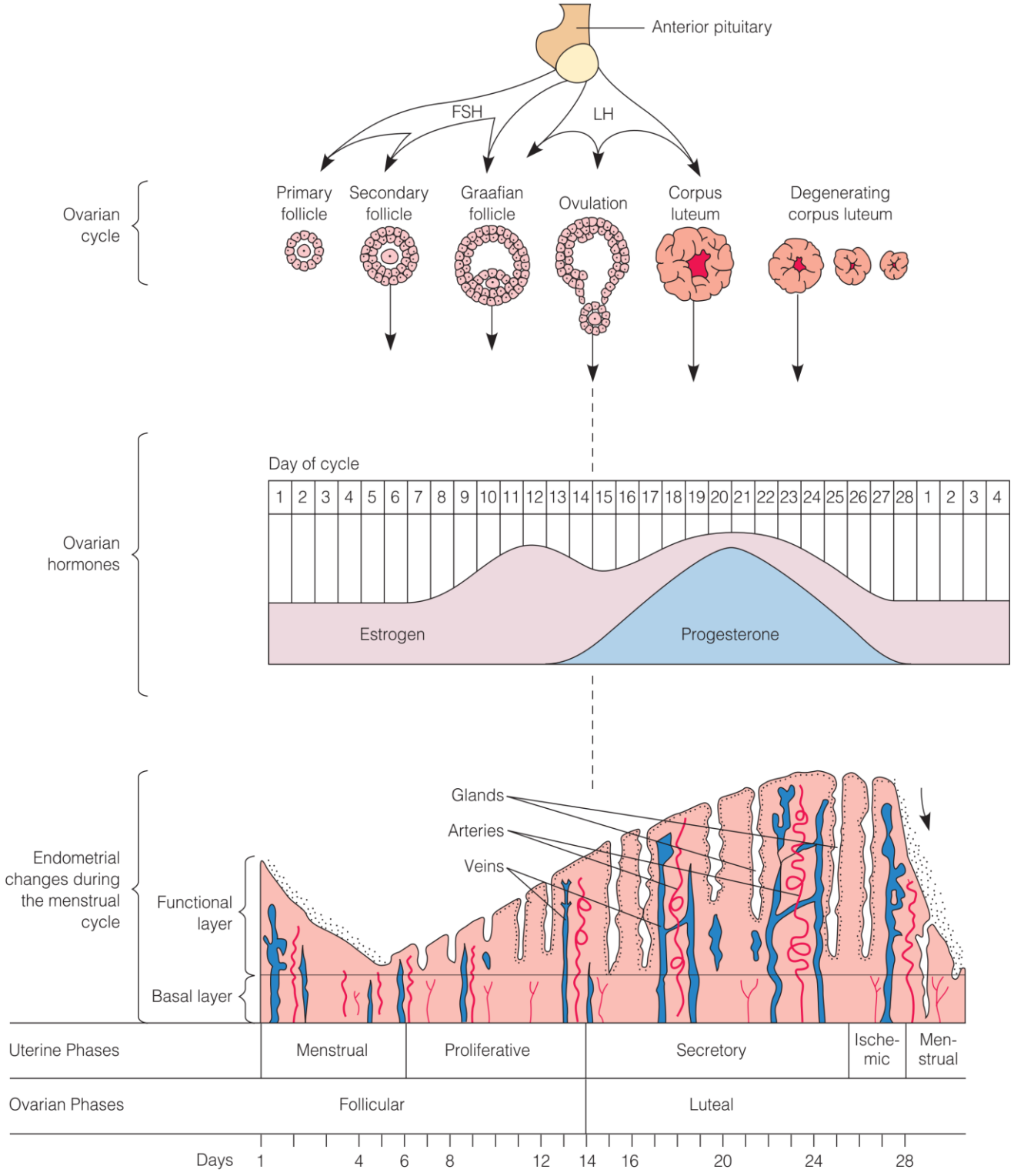
A surge in LH stimulates final maturation and the release of an ovum. Approximately 2 days before ovulation, the vaginal secretions increase noticeably.

Ovulation occurs when a mature ovum is released from the follicle about 14 days before the onset of the next menstrual period. The corpus luteum turns yellow (luteinizing) immediately after ovulation and secretes increasing quantities of progesterone to prepare the uterine lining for a fertilized ovum. Approximately 12 days after ovulation, the corpus luteum degenerates if fertilization has not occurred, and progesterone and estrogen levels decrease. The drop in estrogen and progesterone levels causes the endometrium to break down, resulting in menstruation.

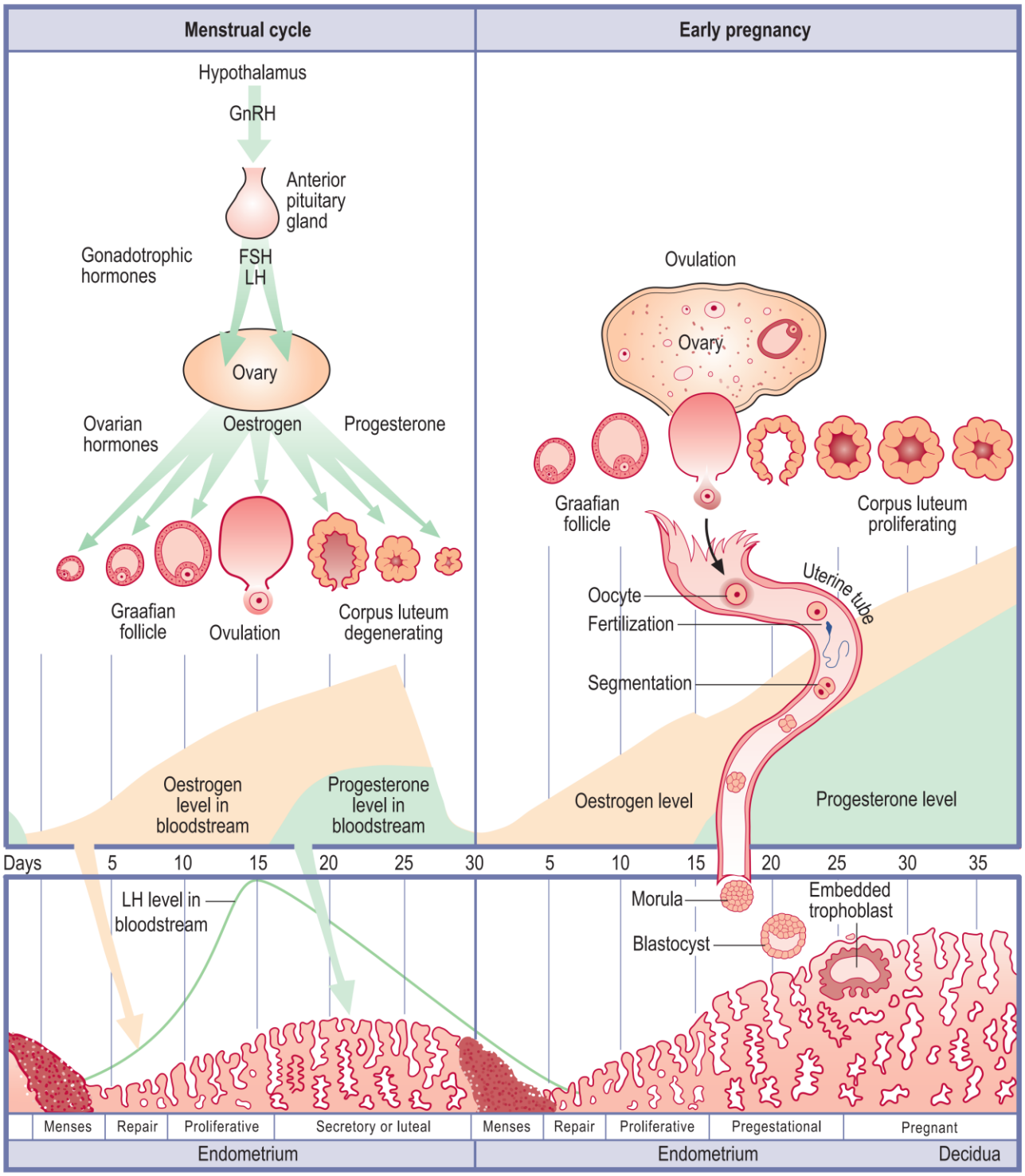
The anterior pituitary gland secretes more FSH and LH, beginning a new cycle. The climacteric is a period of years during which the woman’s ability to reproduce gradually declines.

Menopause refers to the final menstrual period, although in casual use the terms menopause and climacteric are often used interchangeably.

 The study of the female reproductive organs is **Gynecology**, the study of male reproductive organs is **Andrology**, and **Obstetrics** is the field of study concentrated on pregnancy, childbirth and the postpartum period.



Female reproductive cycle: interrelationships of hormones with the four phases of the uterine cycle and the two phases of the ovarian cycle in an ideal 28-day cycle.


Menstrual cycle
Early pregnancy
Hypothalamus
GnRH
Anterior pituitary gland
Gonadotrophic hormones
FSH
LH
Ovary
Ovarian hormones
Oestrogen
Progesterone
Graafian follicle
Ovulation
Corpus luteum degenerating
Ovulation
Ovary
Graafian follicle
Corpus luteum proliferating
Uterine tube
Oocyte
Fertilization
Segmentation
Oestrogen level in bloodstream
Progesterone level in bloodstream
Oestrogen level
Progesterone level
Days
5 10 15 20 25 30
5 10 15 20 25 30 35
LH level in bloodstream
Morula
Embedded trophoblast
Blastocyst
Menses
Repair
Proliferative
Secretory or luteal
Menses
Repair
Proliferative
Pregestational
Pregnant
Endometrium
Endometrium
Decidua

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MATERNITY & NEWBORN HEALTH NURSING

Lecture 2

Fertilization & Fetal development

Learning Objectives

Upon completion of the chapter, you will be able to:

1. ***Define the key terms used in this lecture.***
2. ***Describe the process of gametogenesis in human reproduction.***
3. ***Explain the process of fertilization, implantation, and cell differentiation.***
4. ***Describe the development and functions of the amniotic fluid, placenta, and umbilical cord.***
5. ***Compare fetal circulation with circulation after birth.***

KEY TERMS

Blastocyst, embryonic stage, fertilization, fetal stage, genes, heterozygous, homozygous, morula, mutation, placenta, preembryonic stage, teratogen, trisomies, trophoblast, umbilical cord, zona pellucida, zygote.

OVERVIEW

Human reproduction is one of the most intimate spheres of an individual's life. For conception to occur, a healthy ovum from the woman is released from the ovary, passes into an open fallopian tube, and starts its journey downward. All this activity takes place within a 5-hour time span.

Nurses caring for the childbearing family need to have a basic understanding of conception and prenatal development so they can identify problems or variations and can initiate appropriate interventions should any problems occur.

This lecture presents an overview of fetal development, beginning with conception.

Assistant Lecturer Abdulrahman Mazin Hashim

Cell division and gametogenesis

The division of a cell begins in its nucleus, which contains the gene-bearing chromosomes.

The two types of cell division are mitosis and meiosis.

Mitosis is a continuous process by which the body grows and develops, and dead body cells are replaced. In this type of cell division, each daughter cell contains the same number of chromosomes as the parent cell. The 46 chromosomes in a body cell are called the diploid number of chromosomes.

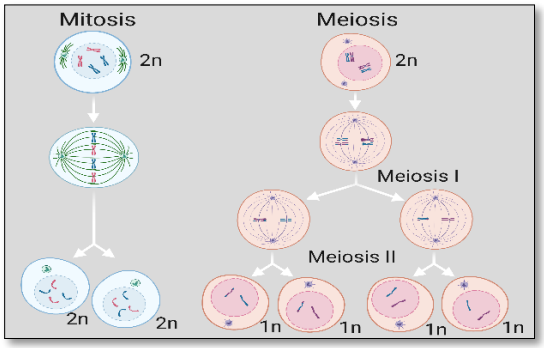
Meiosis is a different type of cell division in which the reproductive cells undergo two sequential divisions.

The process of mitosis in the sperm is called spermatogenesis, and in the ovum, it is called oogenesis.

During meiosis, the number of chromosomes in each cell is reduced by half, to 23 chromosomes per cell, each including only one sex chromosome.

This is called the haploid number of chromosomes.

At the moment of fertilization (when the sperm and the ovum unite), the new cell contains 23 chromosomes from the sperm and 23 chromosomes from the ovum, thus returning to the diploid number of chromosomes (46); traits are therefore inherited from both the mother and the father. The formation of gametes by this type of cell division is called gametogenesis.

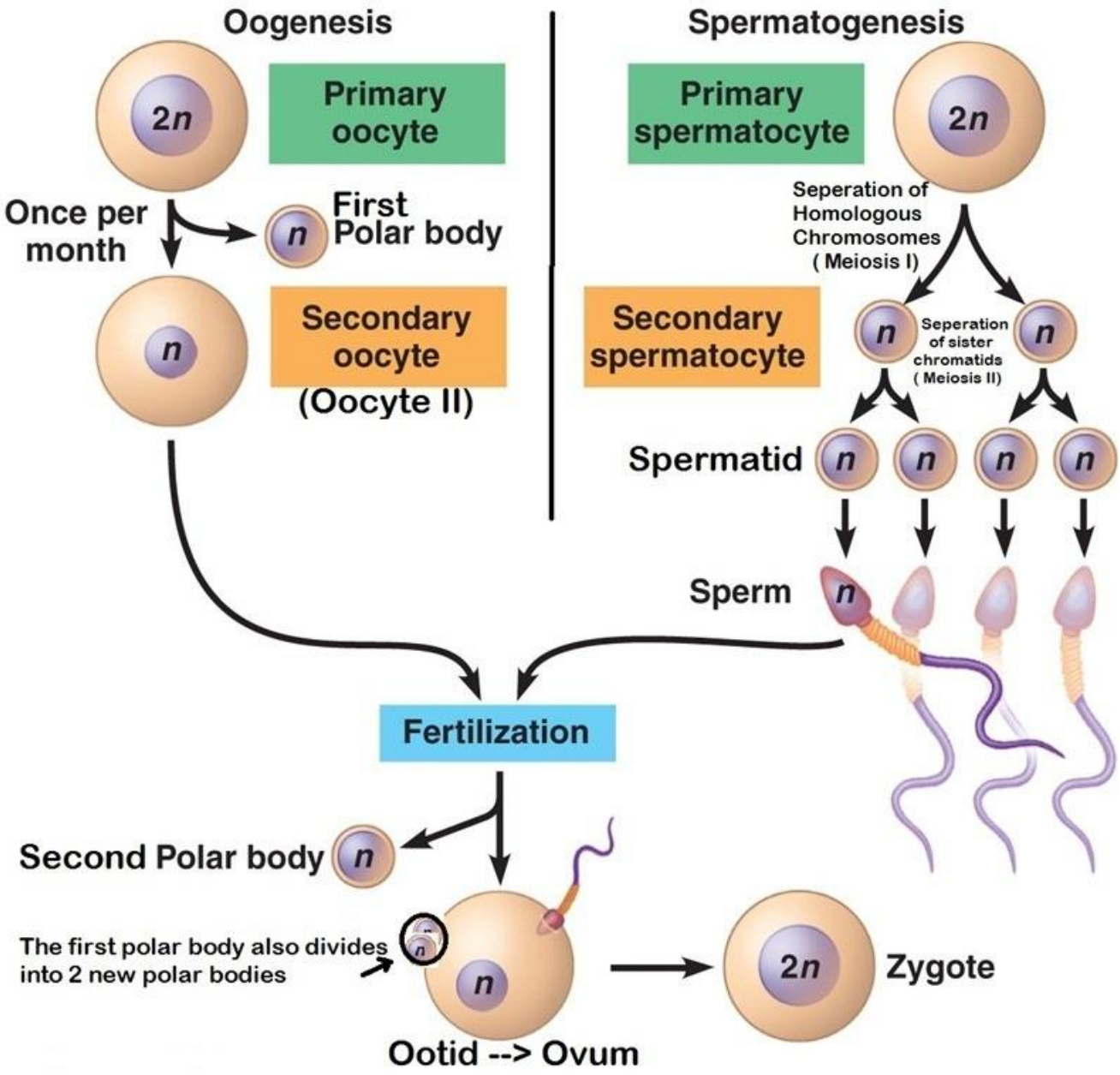


Fetal development

Fetal development during pregnancy is measured in the number of weeks after fertilization. The duration of pregnancy is about 40 weeks from the time of fertilization.

The three stages of fetal development during pregnancy are:

1. Preembryonic stage: fertilization through the second week
2. Embryonic stage: end of the second week through the eighth week
3. Fetal stage: end of the eighth week until birth Fetal circulation is a significant aspect of fetal development that spans all three stages.



Difference between Spermatogenesis and Oogenesis

Fertilization

Fertilization occurs when a sperm penetrates an ovum and unites with it, restoring the total number of chromosomes to 46. It normally occurs in the outer third of the fallopian tube, near the ovary. The sperm pass through the cervix and the uterus and into the fallopian tubes by means of the flagellar (whiplike) activity of their tails and can reach the fallopian tubes within 5 minutes after coitus.

The time during which fertilization can occur is brief because of the short life span of mature gametes. The ovum is estimated to survive for up to 24 hours after ovulation.

The sperm remains capable of fertilizing the ovum for up to 5 days after being ejaculated into the area of the cervix.

Sex determination

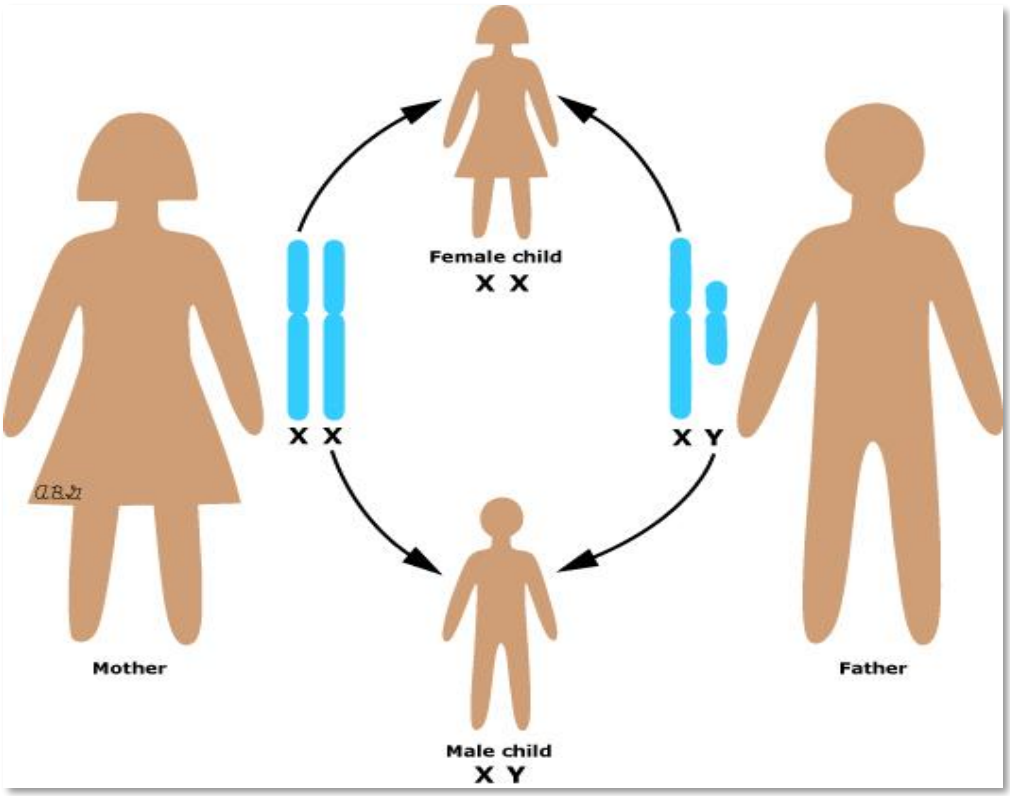
The sex of human offspring is determined at fertilization. The ovum always contributes an X chromosome (gamete), whereas the sperm can carry an X or a Y chromosome (gamete). When a sperm carrying the X chromosome fertilizes the X-bearing ovum, a female offspring (XX) result.

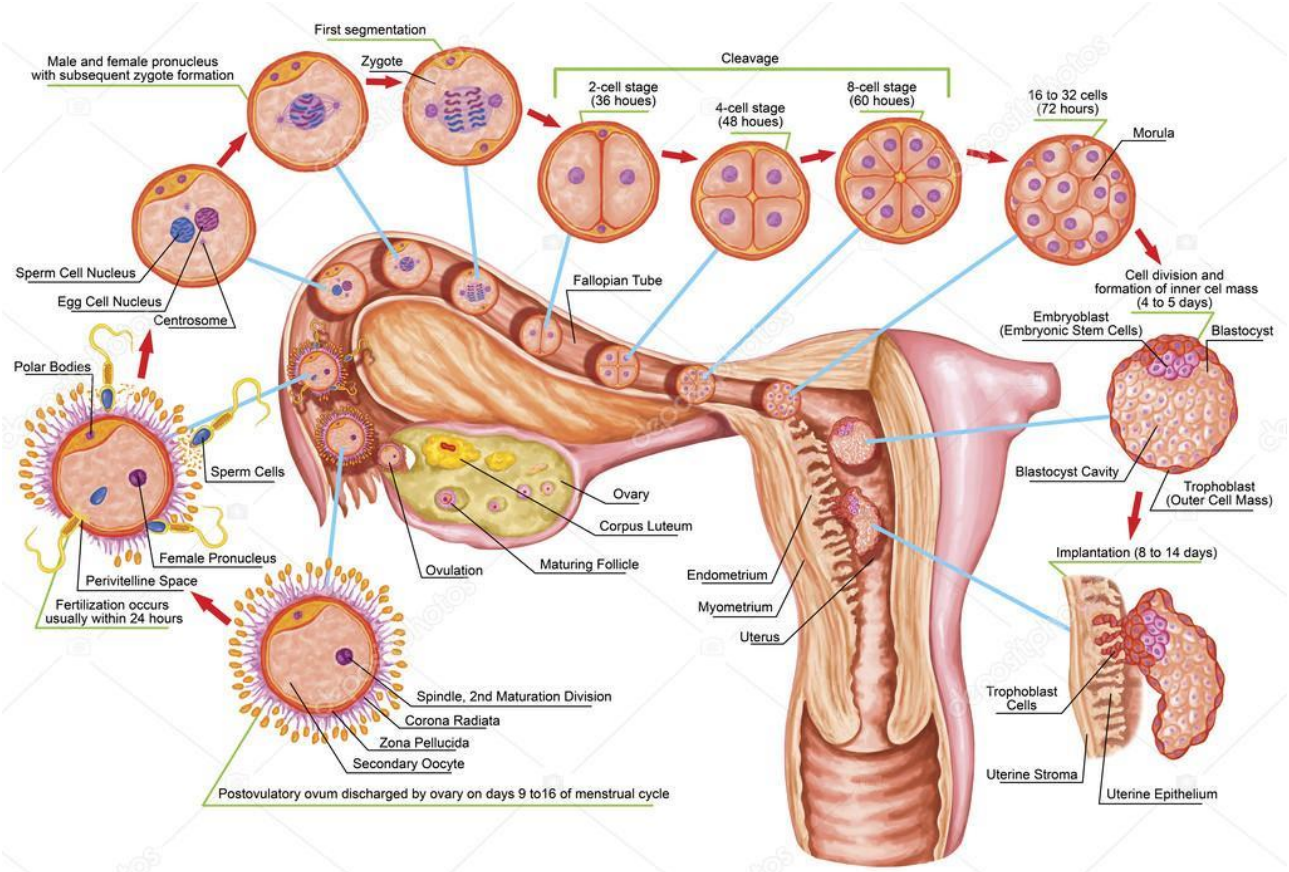
Tubal transport of the zygote

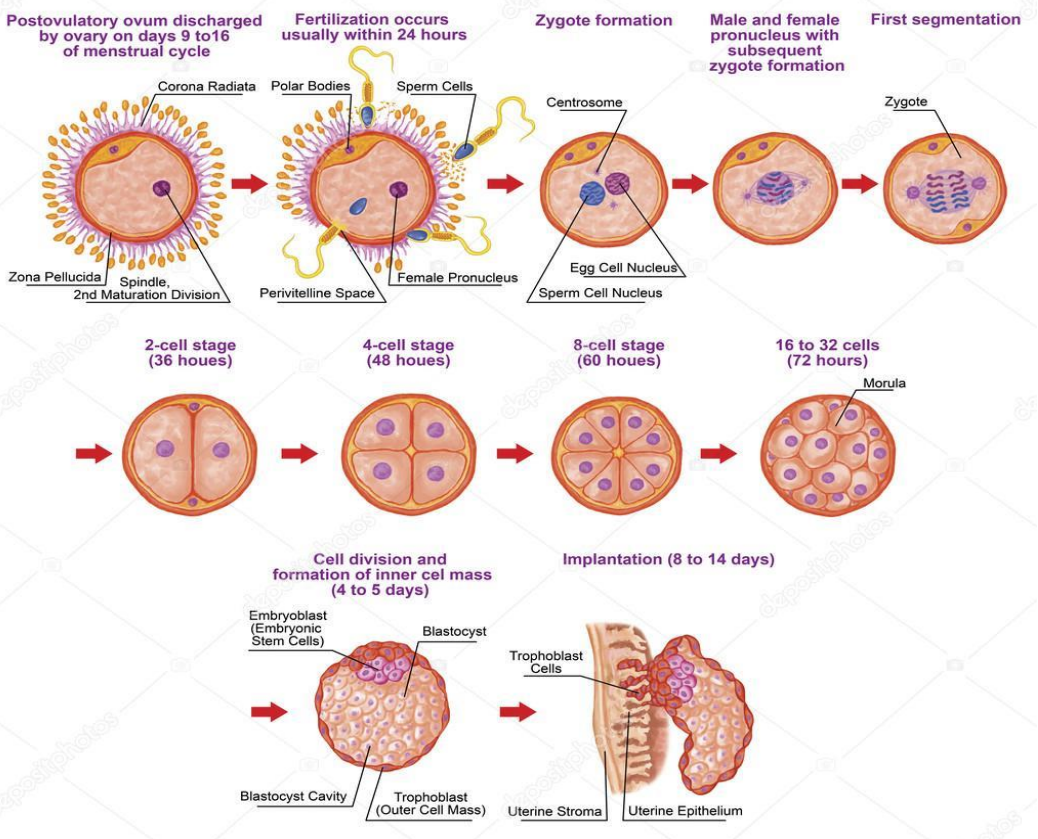
The zygote is the cell formed by the union of the sperm and the ovum, and it is transported through the fallopian tube and into the uterus. Fertilization normally occurs in the outer third of the fallopian tube. During transport through the fallopian tube, the zygote undergoes rapid mitotic division, or cleavage. Cleavage begins with two cells, which subdivide into four and then eight cells to form the blastomere. The size of the zygote does not increase; rather, the individual cells become smaller as they divide and eventually form a solid ball called the morula. The morula enters the uterus on the third day and floats there for another 2 to 4 days. The cells form a cavity, and two distinct layers evolve. The inner layer is a solid mass of cells called the blastocyst, which develops into the embryo and the embryonic membranes. The outer layer of cells, called the trophoblast, develops into an embryonic membrane, the chorion.

Implantation of the zygote

The zygote usually implants in the upper section of the posterior uterine wall. The cells burrow into the prepared lining of the uterus, called the endometrium. The endometrium is now called the decidua; the area under the blastocyst is called the decidua basalis and gives rise to the maternal part of the placenta.




First segmentation
Male and female pronucleus with subsequent zygote formation
Zygote
Cleavage
2-cell stage (36 houes)
4-cell stage (48 houes)
8-cell stage (60 houes)
16 to 32 cells (72 hours)
Morula
Sperm Cell Nucleus
Egg Cell Nucleus
Centrosome
Fallopian Tube
Cell division and formation of inner cel mass (4 to 5 days)
Embryoblast (Embryonic Stem Cells)
Blastocyst
Polar Bodies
Sperm Cells
Ovary
Corpus Luteum
Blastocyst Cavity
Trophoblast (Outer Cell Mass)
Female Pronucleus
Perivitelline Space
Fertilization occurs usually within 24 hours
Ovulation
Maturing Follicle
Endometrium
Myometrium
Uterus
Implantation (8 to 14 days)
Spindle, 2nd Maturation Division
Corona Radiata
Zona Pellucida
Secondary Oocyte
Trophoblast Cells
Uterine Stroma
Uterine Epithelium
Postovulatory ovum discharged by ovary on days 9 to16 of menstrual cycle


Postovulatory ovum discharged by ovary on days 9 to16 of menstrual cycle
Fertilization occurs usually within 24 hours
Zygote formation
Male and female pronucleus with subsequent zygote formation
First segmentation
Corona Radiata
Polar Bodies
Sperm Cells
Centrosome
Zygote
Zona Pellucida
Spindle, 2nd Maturation Division
Perivitelline Space
Female Pronucleus
Egg Cell Nucleus
Sperm Cell Nucleus
2-cell stage (36 houes)
4-cell stage (48 houes)
8-cell stage (60 houes)
16 to 32 cells (72 hours)
Morula
Cell division and formation of inner cel mass (4 to 5 days)
Implantation (8 to 14 days)
Embryoblast (Embryonic Stem Cells)
Blastocyst
Trophoblast Cells
Blastocyst Cavity
Trophoblast (Outer Cell Mass)
Uterine Stroma
Uterine Epithelium

Development and Cell differentiation

After implantation the cells begin to differentiate and develop special functions. The chorion, amnion, yolk sac, and primary germ layers appear.

Chorion

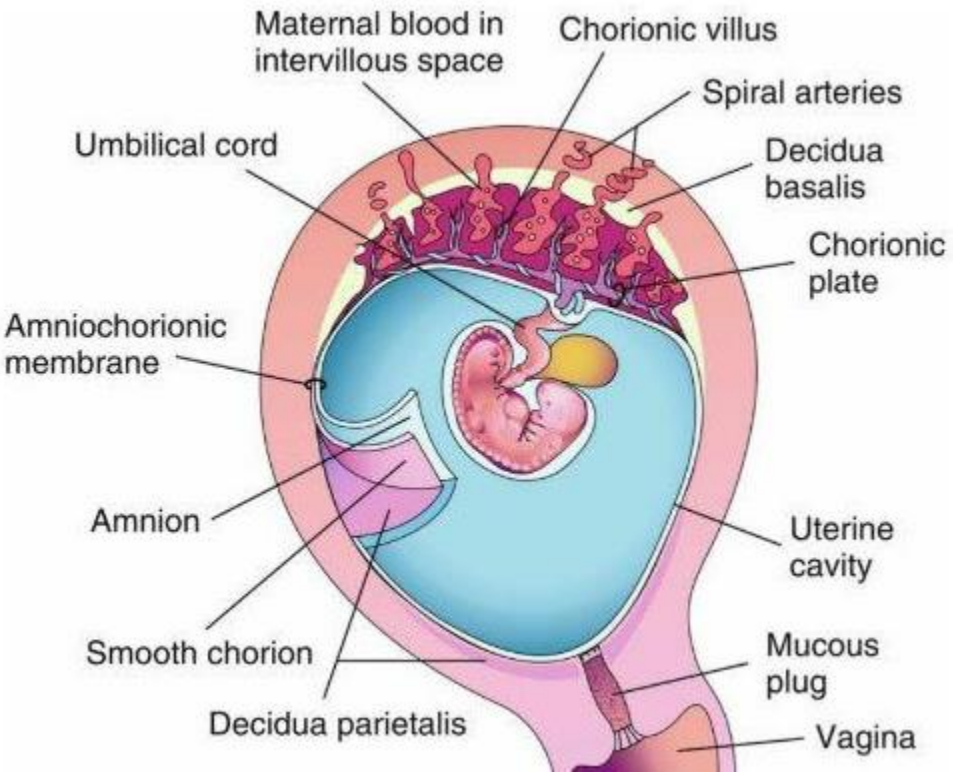
The chorion develops from the trophoblast (outer layer of embryonic cells) and envelops the amnion, embryo, and yolk sac. It is a thick membrane with fingerlike projections called villi on its outermost surface.

Amnion

The amnion is the second membrane; it is a thin structure that envelops and protects the embryo. The chorion and the amnion together form an amniotic sac filled with fluid (bag of waters) that permits the embryo to float freely. Amniotic fluid is clear, has a mild odor. The volume of fluid is about 1000 mL at 37 weeks.

The following are functions of amniotic fluid:

1. Maintains an even temperature
2. Prevents the amniotic sac from adhering to the fetal skin
3. Allows symmetrical growth
4. Allows buoyancy and fetal movement
5. Acts as a cushion to protect the fetus and the umbilical cord from injury



Yolk Sac

On the ninth day after fertilization, a cavity called the yolk sac forms in the blastocyst. It functions only during embryonic life and initiates the production of red blood cells. This function continues for about 6 weeks until the embryonic liver takes over.

Germ Layers

After implantation, the zygote in the blastocyst stage transforms its embryonic disc into three primary germ layers known as ectoderm, mesoderm, and endoderm. Each germ layer develops into a different part of the growing embryo.

Accessory structures of pregnancy

The placenta, umbilical cord, and fetal circulation support the fetus as it completes prenatal life and prepares for birth.

The placenta is a temporary organ for fetal respiration, nutrition, and excretion. It also functions as an endocrine gland.

Umbilical cord

The umbilical cord develops with the placenta and fetal blood vessels and is the lifeline between the mother and fetus. Two arteries carry blood away from the fetus, and one vein returns blood to the fetus. Wharton jelly covers and cushions the cord vessels and keeps the three vessels separated.

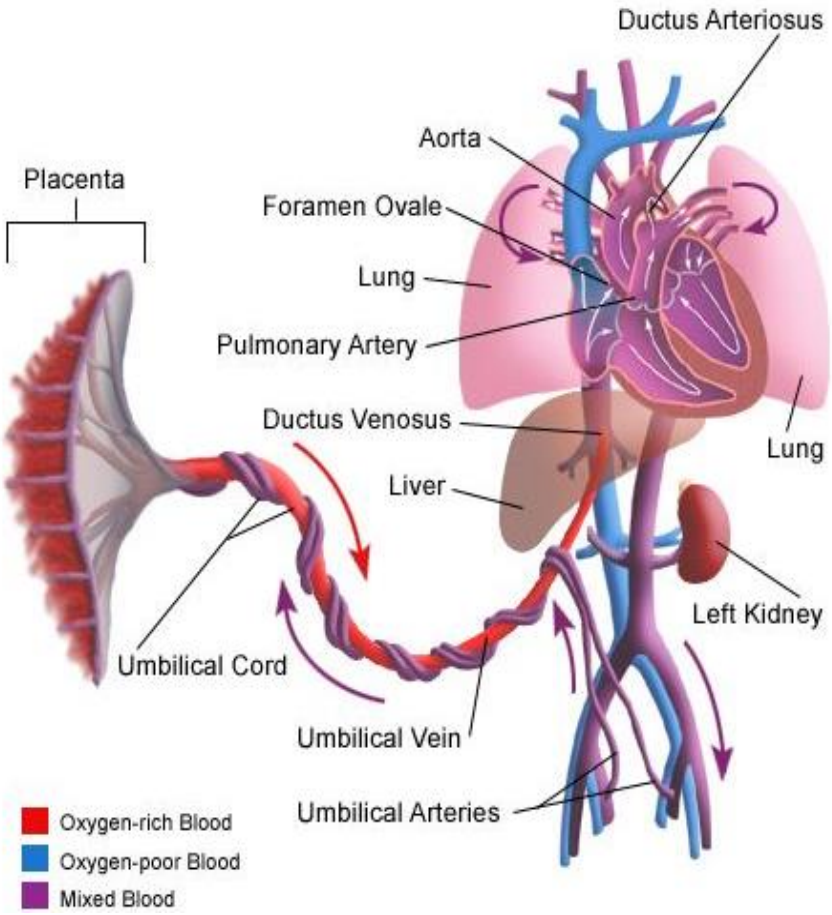
The vessels are coiled within the cord to allow movement and stretching without restricting circulation. The normal length of the cord is about 55 cm (22 inches). The umbilical cord usually protrudes from the center of the placenta.

Fetal circulation

After the fourth week of gestation, circulation of blood through the placenta to the fetus is well established. Because the fetus does not breathe, and the liver does not have to process most waste products.

There are three fetal circulatory shunts:

1. **Ductus venosus:** diverts some blood away from the liver as it returns from the placenta.
2. **Foramen ovale:** diverts most blood from the right atrium directly to the left atrium, rather than circulating it to the lungs.
3. **Ductus arteriosus:** diverts most blood from the pulmonary artery into the aorta.

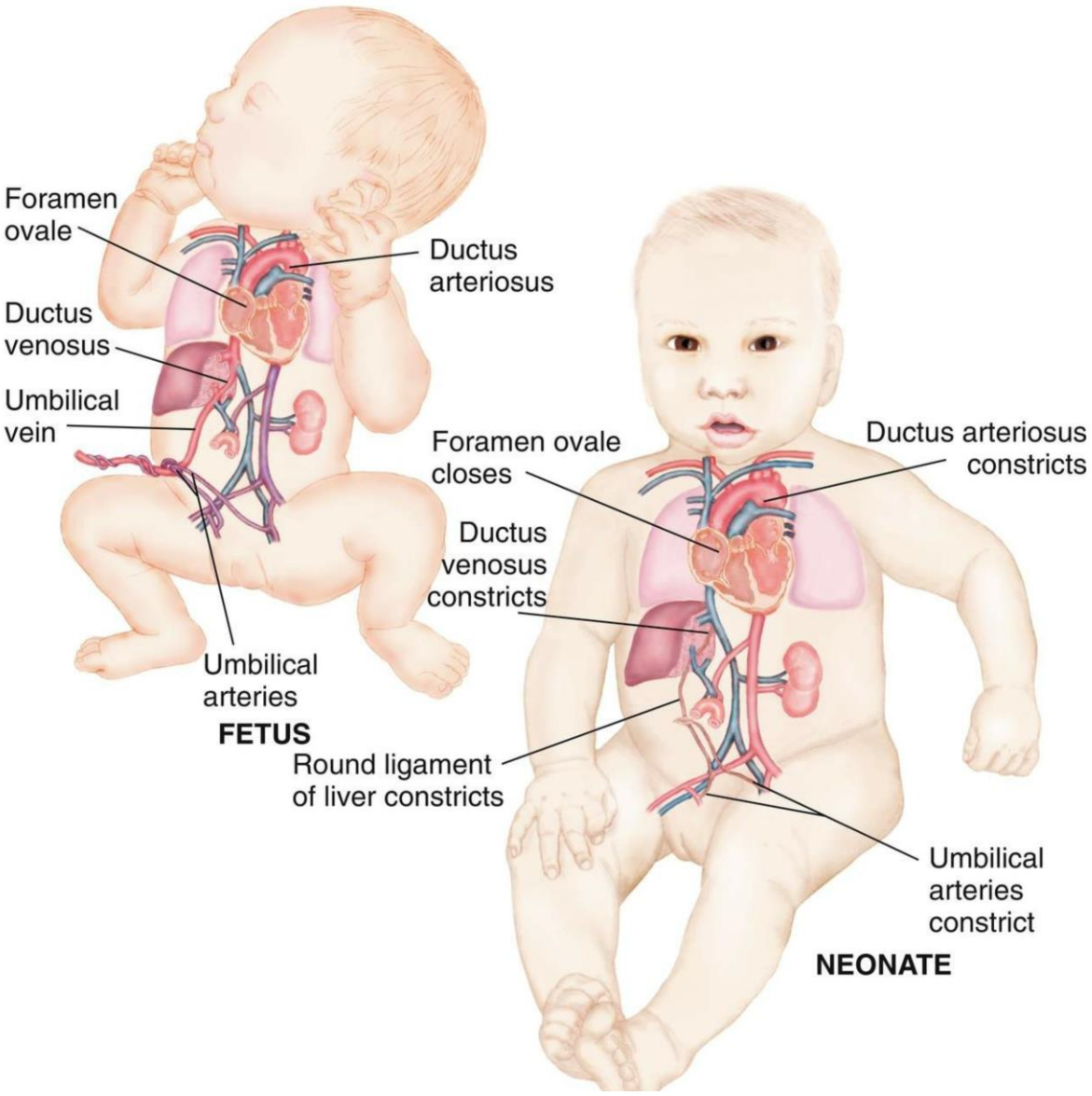


Circulatior

Oxygenated blood enters the fetal body through the umbilical vein. About half of the blood goes to the liver, with the remainder entering the inferior vena cava through the ductus venosus. Blood in the inferior vena cava enters the right atrium, where most passes directly into the left atrium through the foramen ovale. A small amount of blood is pumped to the lungs by the right ventricle. The rest of the blood from the right ventricle joins the blood from the left ventricle through the ductus arteriosus. After circulating through the fetal body, blood containing waste products is returned to the placenta through the umbilical arteries.

Circulation after birth

Fetal shunts are not needed following birth after the infant breathes and blood is circulated to the lungs. The foramen ovale closes because pressure in the right side of the heart falls as the lungs become fully inflated, and there is now little resistance to blood flow. The infant's blood oxygen level rises, causing the ductus arteriosus to constrict. The ductus venosus closes when the flow from the umbilical cord stops



Changes in fetal-newborn circulation at birth. The changes in the circulation of the fetus and the neonate are shown. The ductus arteriosus, ductus venosus, and foramen ovale are shunts that close because of the expansion of the lungs and pressure changes within the heart.

Fetal circulation functions to carry highly oxygenated blood to vital areas (e.g., heart, brain) while first shunting it away from less important ones (e.g., lungs, liver). The placenta essentially takes over the functions of the lungs and liver during fetal life. As a result, large volumes of oxygenated blood are not needed.

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Lecture 3

Maternal Adaptation During Pregnancy

Learning Objectives

Upon completion of the chapter, you will be able to:

1. ***Define the key terms used in this lecture.***
2. ***Differentiate between subjective (presumptive), objective (probable), and diagnostic (positive) signs of pregnancy.***
3. ***Asses the maternal physiologic changes that occur during pregnancy.***

KEY TERMS

Ballottement, Braxton Hicks, contractions, Chadwick's sign, dietary reference, intakes (DRIs), Goodell's sign, Hegar's sign, linea nigra, pica, quickening, trimester.

OVERVIEW

Pregnancy is a normal life event that involves considerable physical and psychological adjustments for the mother. The most obvious are physical changes to accommodate the growing fetus, but pregnant women also undergo psychological changes as they prepare for parenthood.

Nurses caring for the childbearing family need to have a basic understanding of physical and psychological changes, so they can identify problems or variations and can initiate appropriate interventions should any problems occur.

This lecture presents an overview of maternal adaptation

during pregnancy.

Assistant Lecturer Abdulrahman Mazin Hashim

Pregnancy

Pregnancy, also known as **gestation**, is the term used to describe the period in which a fetus develops inside a woman's womb or uterus. Pregnancy usually lasts about 40 weeks, or just over 9 months, as measured from the last menstrual period to delivery.

Pregnancy is a temporary, physiological (that is, normal) process that affects a woman physically and emotionally. All systems of her body adapt to support the developing fetus.

There are three phases of pregnancy: antepartum or prenatal (before birth), intrapartum (during birth), and postpartum (after birth).

Signs and symptoms of pregnancy

Signs and symptoms of pregnancy have been grouped into the following categories: presumptive, probable, and positive as shown in table below.

The only signs that can determine pregnancy with 100% accuracy are positive signs.

BOX 11.1

SIGNS AND SYMPTOMS OF PREGNANCY

Presumptive (Time of Occurrence)	Probable (Time of Occurrence)	Positive (Time of Occurrence)
Fatigue (12 wks)	Braxton Hicks contractions (16–28 wks)	Ultrasound verification of embryo or fetus (4–6 wks)
Breast tenderness (3–4 wks)	Positive pregnancy test (4–12 wks)	Fetal movement felt by experienced clinician (20 wks)
Nausea and vomiting (4–14 wks)	Abdominal enlargement (14 wks)	Auscultation of fetal heart tones via Doppler (10–12 wks)
Amenorrhea (4 wks)	Ballottement (16–28 wks)	
Urinary frequency (6–12 wks)	Goodell's sign (5 wks)	
Hyperpigmentation of the skin (16 wks)	Chadwick's sign (6–8 wks)	
Fetal movements (quickening; 16–20 wks)	Hegar's sign (6–12 wks)	
Uterine enlargement (7–12 wks)		
Breast enlargement (6 wks)		

Adapted from Bope, E. T., & Kellerman, R. D. (2012). *Conn's current therapy 2012.* Philadelphia, PA: Saunders Elsevier; Shields, A. D. (2012). Pregnancy diagnosis. *eMedicine.* Retrieved from http://emedicine.medscape.com/article/262591-overview; and Simpson, K. R., & Creehan, P. A. (2011). *AWHONN's perinatal nursing* (3rd ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Subjective (Presumptive) changes: are the symptoms that woman experiences and reports.

1. **Amenorrhea,** or the absence of menses, is the earliest symptom of pregnancy. The missing of more than one menstrual period, especially in a woman whose cycle is ordinarily regular.
2. **Nausea and vomiting in pregnancy (NVP)** occur frequently during the first trimester and may be the result of elevated human chorionic gonadotropin (hCG) levels and changed carbohydrate metabolism. Because these symptoms often occur in the early part of the day, they are commonly referred to as **morning sickness**.
3. **Excessive fatigue** may be noted within a few weeks after the first missed menstrual period and may persist throughout the first trimester.

4. **Urinary frequency** is experienced during the first trimester as the enlarging uterus presses on the bladder.
5. **Changes in the breasts** are frequently noted in early pregnancy. These changes include tenderness and tingling sensations, increased pigmentation of the areola and nipple, and changes in Montgomery's glands. The veins also become more visible and form a bluish pattern beneath the skin.
6. **Quickening,** or the mother's perception of fetal movement, occurs about 18 to 20 weeks after the last menstrual period in a woman pregnant for the first time but may occur as early as 16 weeks in a woman who has been pregnant before. Quickening is a fluttering sensation in the abdomen that gradually increases in intensity and frequency.

Objective (Probable) changes:

An examiner can perceive the objective changes that occur in pregnancy.

1. Changes in the pelvic organs

- **Goodell's sign:** a softening of the cervix.
- **Chadwick's sign:** is a bluish, purple discoloration of the mucous membranes of the cervix, vagina, and vulva (some sources consider this a presumptive sign).
- **Hegar's sign** is a softening of the isthmus of the uterus, the area between the cervix and the body of the uterus.

2. **Braxton Hicks contractions** can be palpated most commonly after 28 weeks. They are then often called false labor.
3. **Uterine souffle** may be heard when the examiner auscultates the abdomen over the uterus. It is a soft, blowing sound that occurs at the same rate as the maternal pulse and is caused by the increased uterine blood flow and blood pulsating through the placenta.
4. It is sometimes confused with the **funic souffle**, a soft, blowing sound of blood pulsating through the umbilical cord. The funic souffle occurs at the same rate as the fetal heart rate. **Skin pigmentation** are common in pregnancy. The nipples and areola may darken, and the linea nigra may develop. Facial melasma (chloasma) may become noticeable, and striae may appear.
5. **Positive pregnancy tests** detect the presence of hCG in the maternal blood or urine. These are not considered a positive sign of pregnancy because other conditions can cause elevated hCG levels.

Diagnostic (Positive) changes

The positive signs of pregnancy are completely objective, cannot be confused with a pathologic state, and offer conclusive proof of pregnancy:

1. **Fetal heartbeat** can be detected with an electronic Doppler device as early as weeks 10 to 12. The heartbeat can be detected with a fetoscope by weeks 17 to 20.

2. **Fetal movement** is actively palpable by a trained examiner after about week 20 of pregnancy.

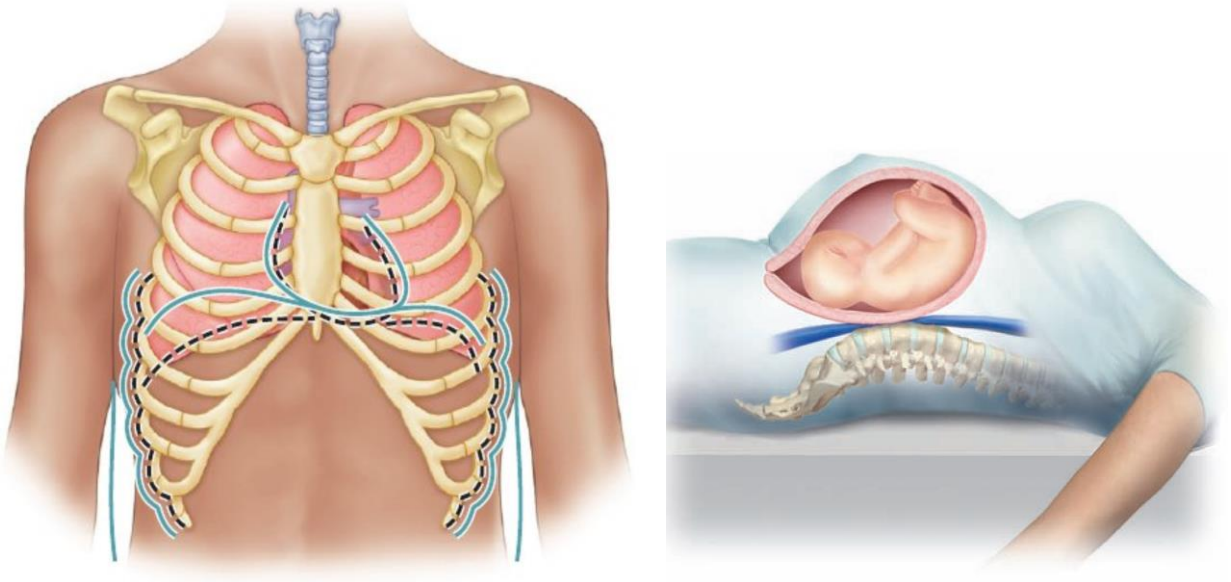
3. **Visualization of the fetus** by ultrasound examination confirms a pregnancy. The gestational sac can be observed by 4 to 5 weeks' gestation. Fetal parts and fetal heart movement can be seen as early as 8 weeks' gestation. More recently ultrasound using a vaginal probe has been used to detect a gestational sac as early as 10 days after implantation.

Changes In Body Systems

Although pregnancy challenges each body system to adapt to increasing demands of the fetus, the most obvious changes are in the reproductive system.

Cardiovascular system

1. Circulating blood volume increases, plasma increases, and total red blood cell volume increases (**total volume increases** by approximately 40% to 50%).
2. Physiological **anemia** occurs as the **plasma increase** exceeds the increase in production of red blood cells, so iron requirements are increased.
3. **Heart size increases**, and the heart is **elevated** slightly **upward** and to the left because of displacement of the diaphragm as the uterus enlarges.
4. When the pregnant woman lies supine, the enlarging uterus may press on the aorta and vena cava, thus reducing blood flow to the right atrium, lowering blood pressure, and causing dizziness, pallor, and clamminess, this condition is called **vena caval syndrome or aortocaval compression.**



Changes in the outlines of the heart, lungs, and thoracic cage

——— pregnant, -------- nonpregnant

Respiratory system

1. **Oxygen consumption increases** by approximately 15% to 20%.
2. **Diaphragm is elevated** because of the enlarged uterus.
3. **Shortness of breath** may be experienced.

Note: During pregnancy, a woman's **pulse rate** may **increase** about 10 to 15 beats/ minute; the **blood pressure** slightly **decreases** in the second trimester, then increases in the third trimester, and the respiratory rate remains unchanged or slightly increases.

Gastrointestinal system

1. **Nausea and vomiting** may occur as a result of the secretion of human chorionic gonadotropin; it typically subsides by the third month.
2. **Poor appetite** may occur because of **decreased gastric motility**.
3. **Alterations** in **taste and smell** may occur.
4. **Constipation** may occur because of an increase in progesterone production or pressure of the uterus resulting in decreased gastrointestinal motility.
5. **Flatulence** and **heartburn** may occur because of decreased gastrointestinal motility and slowed emptying of the stomach caused by an increase in progesterone production.
6. **Hemorrhoids** may occur because **of increased venous pressure**.
7. **Gum tissue** may become **swollen** and easily bleed because of **increasing levels of estrogen**.
8. **Ptyalism** (excessive secretion of saliva) may occur because of increasing levels of estrogen.

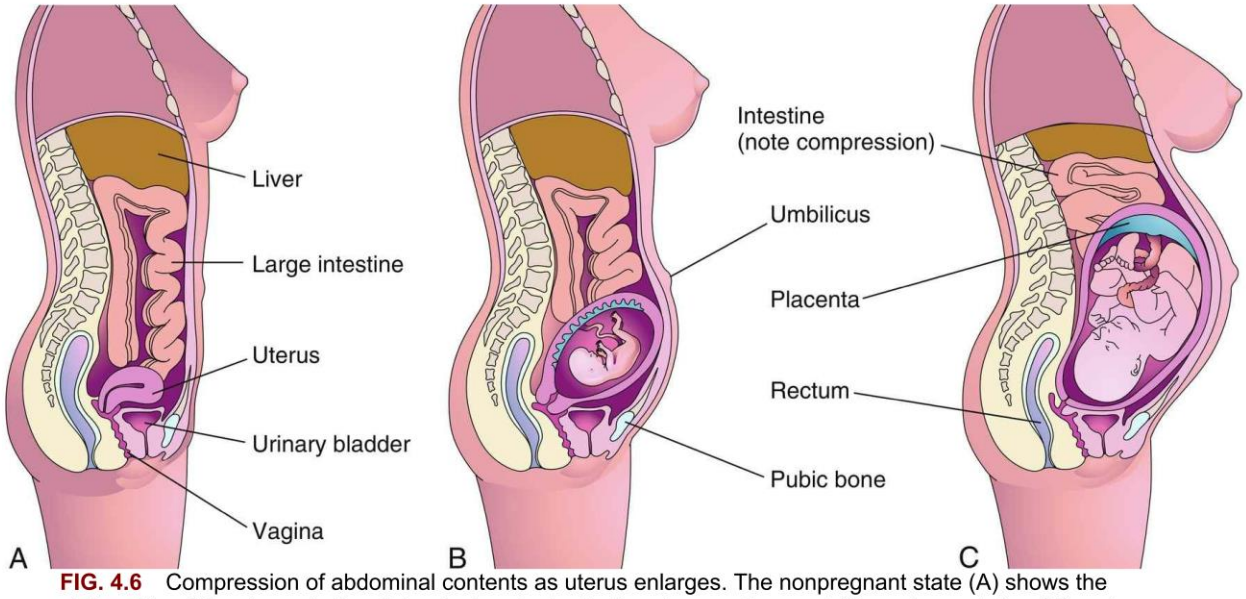


FIG. 4.6 Compression of abdominal contents as uterus enlarges. The nonpregnant state (A) shows the relationship of the uterus to the abdominal contents. As the uterus enlarges at 20 weeks gestation (B) and 30 weeks gestation (C), the abdominal contents are displaced and compressed. (From Moore KL, Persaud TVN, Torchia MG: *The developing human: clinically oriented embryology,* ed 10, Philadelphia, 2016, Saunders.)

Renal system

1. **Frequency of urination** increases in the first and third trimesters because of increased bladder sensitivity and pressure of the **enlarging uterus on the bladder**.
2. **Decreased bladder tone** may occur and is caused by an increase in progesterone and estrogen levels; bladder capacity increases in response to increasing levels of progesterone.

Endocrine system

1. Basal **metabolic rate increases** and metabolic function increases.
2. The **anterior** lobe of the **pituitary gland enlarges** and produces serum **prolactin** needed for the lactation process.
3. The **posterior lobe** of the pituitary gland produces **oxytocin**, which stimulates uterine contractions.
4. The **thyroid enlarges slightly**, and **thyroid activity increases**.
   The **parathyroid increases in size**.
5. **Aldosterone levels gradually increase**.
6. **Water retention is increased**, which can contribute to weight gain.

Reproductive System

Uterus

A. Uterus enlarges, increasing in mass from approximately 60 to 1000 g as a result of hyperplasia (influence of estrogen) and hypertrophy.
B. Size and number of blood vessels and lymphatics increase.
C. Irregular contractions occur, typically beginning after 16 weeks of gestation.

Cervix

A. Cervix becomes shorter, more elastic, and larger in diameter.
B. Endocervical glands secrete a thick mucus plug, which is expelled from the canal when dilation begins.
C. Increased vascularization and an increase in estrogen cause softening and a violet discoloration known as Chadwick's sign, which occurs at about 6 weeks of gestation.

Ovaries

A major function of the ovaries (Corpus luteum) is to secrete progesterone for the first 6 to 7 weeks of pregnancy.

A. The maturation of new follicles is blocked.
B. The ovaries cease ovum production.

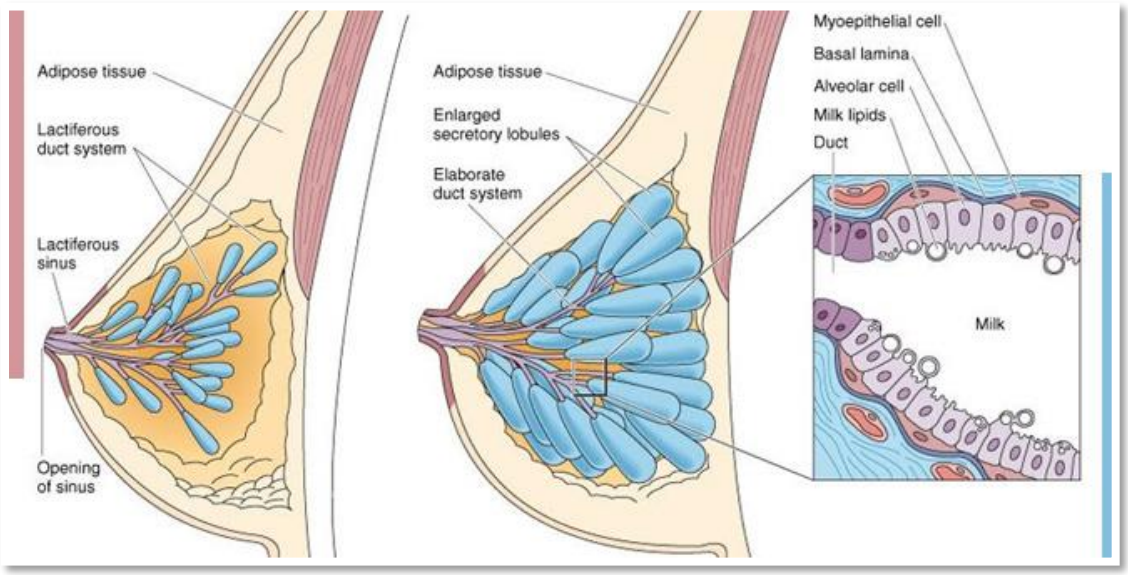
Vagina

A. Hypertrophy and thickening of the muscle occur.
B. An increase in vaginal secretions is experienced; secretions are usually thick, white, and acidic.

Breasts

Breast changes occur because of the increasing effects of estrogen and progesterone.

A. Breast size increases, and breasts may be tender.
B. Nipples become more pronounced.
C. The areolae become darker in color.
D. Superficial veins become prominent.
E. Hypertrophy of Montgomery's follicles occurs.
F. Colostrum may leak from the breast (in late trimester).

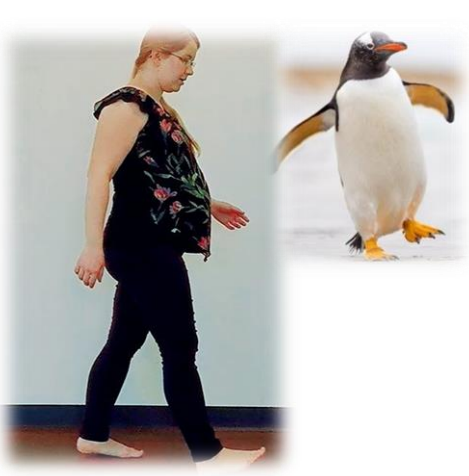


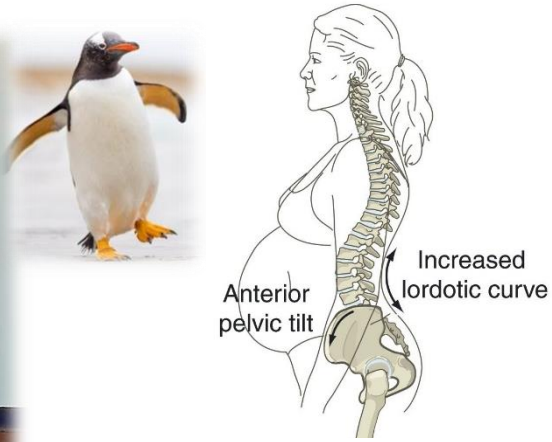
Skin changes

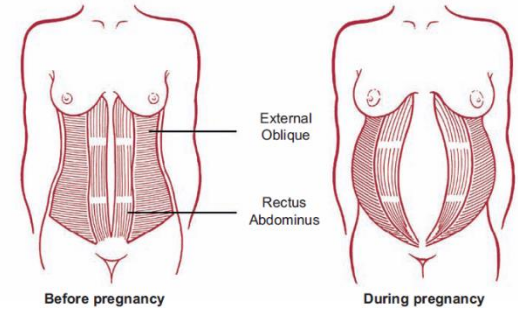
A. Some changes occur because the levels of **melanocyte-stimulating hormone** increase as a result of an increase in estrogen and progesterone levels; these changes include the following:
    i. Increased pigmentation
    ii. Dark streak down the midline of the abdomen (linea nigra)
    iii. Chloasma (mask of pregnancy)—a blotchy brownish hyperpigmentation, over the forehead, cheeks, and nose
B. Reddish purple stretch marks (striae gravidarum) on the abdomen, breasts, thighs, and upper arms
C. Vascular spider nevi may occur on the neck, chest, face, arms, and legs.
D. Rate of hair growth may increase.

Musculoskeletal System

A. Changes in the center of gravity begin in the second trimester and are caused by the hormones relaxin and progesterone.
B. The lumbrosacral curve increases.
C. Aching, numbness, and weakness may result; walking becomes more difficult, and the woman develops a waddling gait and is at risk for falls.
D. Relaxation and increased mobility of pelvic joints occur, which permit enlargement of pelvic dimensions.
E. Abdominal wall stretches with loss of tone throughout pregnancy, regained postpartum.
F. Umbilicus flattens or protrudes.







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“Prenatal care“

OBJECTIVES

1- Evaluate the benefits of prenatal care and problem of accessibility for some women
2- Describe nutritional needs of pregnant women

Explain cause and nursing intervention for common discomfort of pregnancy

Prenatal care

This includes :

1. Medical & nursing care
2. Taking history
3. Physical exam.
4. Obstetrical exam.
5. Nutrition during pregnancy
6. General hygiene during pregnancy
7. Minor discomforts during pregnancy
8. Preparation for labor & delivery

Antenatal care: is important for:

1. Maintaining mother in best possible health condition
2. Detecting complications earlier
3. Maternal education : for diet , general health , vaccination , psychological support

1st visit called booking . This include the followings :

1. History taking
2. General exam.
3. obstetric exam. → scheduled visits
4. Investigations → GUE , Hb%, Blood group & Rh

Maintaining general health of pregnant lady :

1. rest, sleep (10 hrs.)
2. exercise
3. employment activity
4. traveling
5. breast care
6. cloths (wide ,clean)
7. shoes (low healed)
8. teeth care
9. bowel habit
10. hemorrhoids
11. douches& vaginal hygiene
12. smoking
13. alcohol

14. drug abuse
15. diet intake (adequate, frequent, carbohydrates)
16. psychological support for labor

History taking :

The nurse should receive mother in pleasant manner, good relationship , able to answer all questions

It includes :

1. **Identifying data** : name , age, race, occupation, religion
2. **Chief complaint** : what makes the patient come to the clinic & duration
3. **History of present illness** : details of chief complaints

4-**Medical and Surgical History**: Chronic conditions can affect the outcome of the pregnancy and should be investigated. Infections, surgical procedures, and trauma may complicate the pregnancy or childbirth and should be documented. The history includes the following:

A-Childhood diseases and immunizations
B-Chronic illnesses (onset and treatment) such as asthma, eart disease, hypertension, diabetes, renal disease, and lupus
C- Previous illnesses, surgical procedures, and injuries (particularly of the pelvis and back)
D- Previous infections such as hepatitis, STDs, tuberculosis, and presence of group B Streptococcus
E-History of and treatment for anemia, including any previous blood transfusions
F-Bladder and bowel function (problems or changes)
G-Amount of caffeine and alcohol consumed each day
H- Tobacco use in any form (number of years and daily amount)
I- Complementary or alternative therapies used
J-Appetite, general nutrition, history of eating disorders
K-Contact with pets, particularly cats (increased risk for infections such as toxoplasmosis)
L-Allergies and drug sensitivities
M-Occupation and related risk factors

5- **Family history** : D.M , HT, respiratory or renal, thyroid disorders, bleeding disorders, hepatitis , epilepsy tuberculosis In addition, it may reveal information about patterns of genetic or congenital anomalies
6- **Social history** : habits , living accommodations
7- **Review of systems** : respiratory, cardiac, GIT, genitourinary , neurological
8-**Obstetric History**: The obstetric history provides essential information about previous pregnancies and may alert the health care provider to possible problems in the present pregnancy. Components of this history include the following: . Gravida, para, abortions (spontaneous or elective termination of pregnancies before the 20th week of gestation; spontaneous abortion is frequently called miscarriage), and living children
. Length of previous gestations
. Weight of infants at birth
. Labor experiences, type of deliveries, locations of births, and names of providers
. Types of anesthesia and any difficulties with anesthesia during childbirths or previous surgeries
. Maternal complications such as hypertension, diabetes, infection, bleeding, or psychologic complications
. Infant complications
. Methods of infant feeding used in the past and currently planned
9- **Gynecological history** : gynecological infection , operations , contraceptive use,
A detailed history of contraceptive method is important.

10- **Menstrual history** : menarche, regular , amount of blood loss, dysmenorrhea , LMP, Duration of period , Length of the cycle

General examination / physical exam.

1. **Vital signs** : Blood pressure , Temp. , PR, Respiratory rate, height , wt. lymph nodes , goiter , teeth , throat, breast , skin, signs of infection or disorders
2. **Abdomen exam**. : fundal height, fundal grips , lateral grip, pelvic grip
3. **Pelvic exam**. : bimanual exam. for comfirming pregnancy , any infection , adequacy of pelvic cavity
4. **Diagnose high risk pregnancy**
5. **Investigations** : Hb% , Bd. group & Rh , GUE
6. **Subsequent visits** → scheduled as follows :

a- Conception to 28 weeks → every 4 week
b- 29 to 36 weeks → every 2 week
c- 37 weeks to birth → weekly

Nutrition during pregnancy :

Studies show direct relationship between maternal diet & pregnancy outcome . Bad nutrition leads to difficulties in pregnancy , labor & delivery : ↑ perinatal mortality , LBW, ↑ infant morbidity

Possible effects of poor nutrition on reproductive cycle :

1. infertility
2. abortion , stillbirth, neonatal death
3. PET, eclampsia
4. placental abnormalities
5. LBW babies
6. slow postpartum recovery

7.difficulties in lactation

Nutritional assessment :

1. Assess dietary intake : nurse ask for amount of food intake , type , method of preparation
2. Assess nutritional status : by :

a- measuring height & wt. (BMI) to identify under wt. mother
b- doing investigations Hb%, S. level of folic acid used as indicator
c- Sometime, do total S. protein, Albumin, S. vit. B12

Nutritional risk factors :

1. < 17 years old : need ↑ nutrition for her body & her fetus
   Adolescent woman had LBW, ↑ perinatal mortality , prematurity

   Older woman may also need additional nutrition

2. Obstetric history : high parity , PET, gestational diabetes , anemia, APH, prematurity, neonatal
   Death

3. Pregnancy complications : anemia, D.M, PET
4. Medical history
5. Maternal wt.
   a- low pre pregnant wt. → 10% under standard wt. for height have LBW, premature, ↑ morbidity & mortality
   b- obesity → 20% over standard wt. for height have HT, DM & thrombophlebitis

Insufficient wt. gain related to LBW babies

↑ iron , folic acid , calcium 0.5 → 1.5 gm

Minor Discomforts of Pregnancy:

A. Nausea and vomiting
1. Occurs in the first trimester and usually subsides by the third month
2. Caused by elevated levels of human chorionic gonadotropin and other pregnancy hormones as well as changes in carbohydrate metabolism
3. Interventions
a. Eating dry crackers before arising
b. Avoiding brushing teeth immediately after arising
c.Eating small, frequent, low-fat meals during the day
d. Drinking liquids between meals rather than at meals
e. Avoiding fried foods and spicy foods
f. Taking antiemetic medications as prescribed (Meclezine 25 mg , Cyclizine 50 mg or Promethazine 25 mg TDS) , I.V fluid with sedative & sometime vit. B12 (10 mg) supplement .

B. Urinary urgency and frequency
1. Usually occurs in the first and third trimesters
2. Caused by pressure of the uterus on the bladder
3. Interventions
a. Drinking no less than 2000 mL of fluid during the day
b. Limiting fluid intake in the evening
c. Voiding at regular intervals
d. Sleeping side-lying at night
e. Wearing perineal pads, if necessary
f. Performing Kegel exercises
C. Heartburn
1. Occurs in the second and third trimesters
2. Results from increased progesterone levels, decreased gastrointestinal motility, esophageal reflux, and displacement of the stomach by the enlarging uterus

3. Interventions
a. Eating small, frequent meals
b. Sitting upright for 30 minutes after a meal
c. Drinking milk between meals
d. Avoiding fatty and spicy foods
e. Performing tailor-sitting exercises
f. Consulting with the HCP about the use of antacids

D. Ankle edema
1. Usually occurs in the second and third trimesters
2. Results from vasodilation, venous stasis, and increased venous pressure below the uterus

3. Interventions
a. Elevating the legs at least twice a day and when resting
b. Sleeping in a side-lying position
c. Wearing supportive stockings or support hose
d. Avoiding sitting or standing in 1 position for long periods

E. Varicose veins
1. Usually occur in the second and third trimesters
2. Result from weakening walls of the veins or valves and venous congestion

3. Interventions
a. Wearing supportive stockings or support hose
b. Elevating the feet when sitting
c. Avoiding long periods of standing or sitting
d. Moving about while standing to improve circulation
e. Avoiding leg crossing
f. Avoiding constricting articles of clothing suchas knee-high stockings
4. Thrombophlebitis is rare, but it may occur.
a. Teaching leg exercises
b. Avoiding airline travel

F. Increased vaginal discharge
1. Can occur in the first through the third trimesters
2. Caused by hypertrophy and thickening of the vaginal mucosa and increased mucus production

3. Interventions
a. Using proper cleansing and hygiene techniques
b. Wearing cotton underwear
c. Avoiding douching
d. Consulting the HCP if infection is suspected

G. Hemorrhoids
1. Usually occur in the second and third trimesters
2. Result from increased venous pressure and constipation

3. Interventions
a. Soaking in a warm sitz bath
b. Sitting on a soft pillow
c. Eating high-fiber foods and drinking sufficient fluids to avoid constipation

d. Increasing exercise, such as walking
e. Applying ointments, suppositories, or compresses as prescribed by the HCP

H. Constipation
1. Usually occurs in the second and third trimesters
2. Results from an increase in progesterone production, decreased intestinal motility, displacement of the intestines, pressure of the uterus, and taking iron supplements
3. **Interventions**
a. Eating high-fiber foods such as whole grains, fruits, and vegetables
b. Drinking no less than 2000 mL per day
c. Exercising regularly, such as a daily 20- minute walk
d. Consulting with the HCP about interventions such as the use of stool softeners, laxatives, or enemas

I. Backache
1. Usually occurs in the second and third trimesters
2. Caused by an exaggerated lumbosacral curve resulting from an enlarged uterus
3. Risk for falls; teach to move about slowly
4. **Interventions**
a. Obtaining rest
b. Using correct posture and body mechanics
c. Wearing low-heeled, comfortable, and supportive shoes
d. Performing pelvic tilt (rock) exercises and conscious relaxation exercises
e. Sleeping on a firm mattress

J-Leg cramps
1. Usually occur in the second and third trimesters
2. Result from an altered calcium-phosphorus balance and pressure of the uterus on nerves or from fatigue
3. Interventions
a. Getting regular exercise, especially walking
b. Dorsiflexing the foot of the affected leg
c. Increasing calcium intake

K. Shortness of breath
1. Can occur in the second and third trimesters
2. Results from pressure on the diaphragm from the enlarged uterus
3. **Interventions**
a. Taking frequent rest periods
b. Sitting and sleeping with the head elevated or on the side
c. Avoiding overexertion

Preparation of pregnant lady for labor & delivery :

1. Education during antenatal care . Explain what will happen
2. Psychological support
3. Advise to have bath, clean cloths
4. Evacuate the bowel , catheterization for urination

5. Clean vagina by shaving hair
6. Measuring vital signs frequently
7. Checking her investigations
8. Thorough exam. (general & obstetrical exam.)
9. Position in the theatre , isolation of the patient

Detect signs & symptoms of maternal & fetal distress

"PREGNANCY COMPLICATIONS"

HEMORRHAGIC CONDITIONS OF EARLY PREGNANCY

OBJECTIVES

1.Describe potential complications of pregnancy and its management of hemorrhagic condition of early pregnancy , including spontaneous abortion, ectopic pregnancy and gestational trophoblastic disease .

2- **Describe potential complications of pregnancy and its management of hemorrhagic condition of late pregnancy placenta previa and placenta abruption**

3- Explain physiology and management of placenta previa and placenta abruption.

4- describe the development and management of hypertensive disorders of pregnancy

5- Discuss the effects and management of preexisting diabetes mellitus during pregnancy .

6- Explain the physiology and management of gestational diabetes mellitus .

The three most common causes of hemorrhage during the first half of pregnancy are abortion, ectopic pregnancy, and gestational trophoblastic disease .

Abortion:

Abortion is : the expulsion of a fetus from the uterus before it has reached the stage of viability (in human beings, usually about the 20th week of gestation

Spontaneous Abortion:

Spontaneous abortion is a termination of pregnancy without action taken by the woman or another person.

Incidence and Etiology.

Determining the exact incidence of spontaneous abortion is difficult because many unrecognized losses occur in early pregnancy, but it averages approximately 18% to 31% with any pregnancy. Most pregnancies (50% to 70%) are lost during the first trimester; many of these may occur before implantation or during the first month after the last menstrual period.

Causes:

First trimester (12 weeks)

1- Chromosomal a abnormalities (50 %-60%) Anembryonic (no embryo) causing a spontaneous abortion
2- maternal infections such as syphilis, listeriosis, toxoplasmosis, brucellosis, rubella, cytomegalic virus,
3- maternal endocrine disorders such as hypothyroidism, diabetes, and decreased progesterone.
4- Anatomic defects of the uterus,uterine septum, or cervical incompetence may contribute to pregnancy loss at any gestational age
5- Finally, heavy alcohol consumption and heavy smoking may play a role in spontaneous abortion
6- Teratogen drugs and radiation (cancer chemotherapy)

Pathophysiology:

the pathophysiology of spontaneous a abortion differs according to the cause in most cases embryonic death occurs , which results in loss human chorionic gonadotropin (HCG) and decreased progesterone and estrogen levels . the uterine deciduas is then sloughed off (vaginal bleeding) and usually expels the embryo / fetus .

Classification :

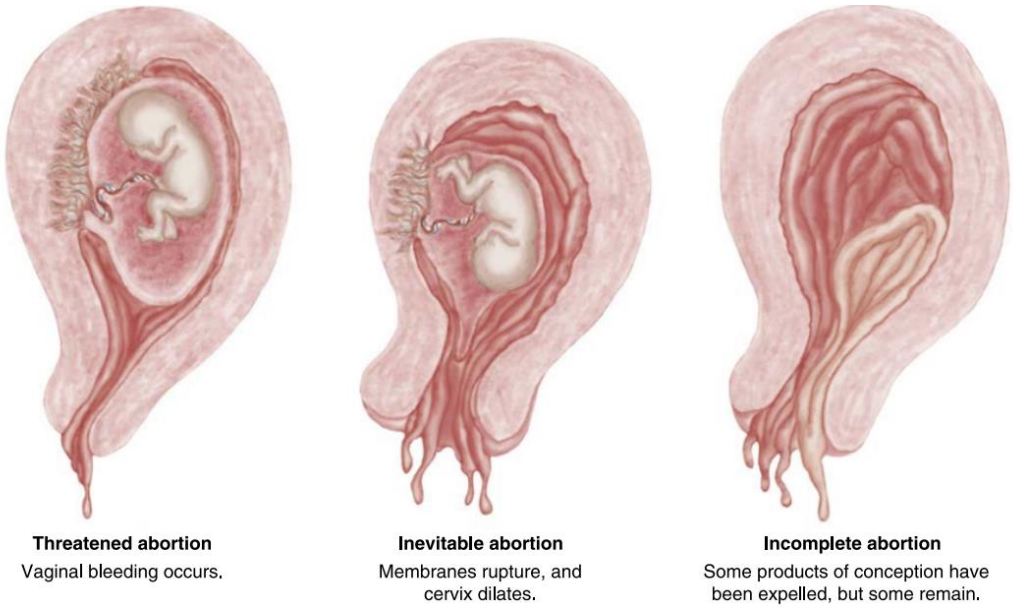
Spontaneous abortions are subdivided in to the following categories so that they can be differentiated clinically

1-**Threatened abortion** :

Unexplained bleeding ,cramping , or backache indicate that the fetus may be in jeopardy , bleeding persist for days the cervix is closed it may be followed by partial or complete expulsion of pregnancy , or it may resolve with out threatening the fetus these will continue to term other will end by missed abortion.

2- **Inevitable Abortion** Clinical Manifestations. Abortion is usually inevitable (i.e., it cannot be stopped) when membranes rupture and the cervix dilates. Rupture of membranes generally is experienced as a loss of fluid from the vagina and subsequent uterine contractions and active bleeding. Incomplete evacuation of the products of conception can result in excessive bleeding or infection.

3- **Incomplete Abortion** Clinical Manifestations. Incomplete abortion occurs when some but not all of the products of conception are expelled from the uterus. The major manifestations are active uterine bleeding and severe abdominal cramping. The cervix is open, and some fetal and/or placental tissues are passed



4- **Complete Abortion** Clinical Manifestations. Complete abortion occurs when all products of conception are expelled from the uterus. After passage of all products of conception, uterine contractions and bleeding subside and the cervix closes. The uterus feels smaller than the length of gestation would suggest. The symptoms of pregnancy are no longer present, and the pregnancy test becomes negative as hormone levels fall.

5-**Missed abortion** :

The fetus dies in utero but is not expelled uterine growth ceases , breast changes regress and the women may report brownish vaginal discharge . the cervix is closed on history , pelvic examination , and drop in (HCG) levels or a negative pregnancy test and may be confirmed by ultrasound if necessary .

If the fetus is retained beyond 4 weeks , fetal autolysis (break down of cells or tissue) results in the release of thromboplastin , and disseminated intravascular coagulation (DIC) may develop

6- **Recurrent or habitual abortion**:

Abortion occurs consecutively in three or more pregnancies .

Causes :

the primary causes of recurrent abortion are believed to be

1- Genetic or chromosomal abnormalities and anomalies of the reproductive tract , such as uterus with to horns or incompetent cervix
2- Additional causes include an inadequate luteal phase with insufficient secretion of progesterone Additional causes include an inadequate luteal phase with insufficient secretion of progesterone
3- Systemic diseases such as systemic lupus erythematosus and diabetes mellitus have been implicated in recurrent abortions.
4- Reproductive infections and some sexually transmitted diseases (STDs) are also associated with recurrent abortions

7- Septic abortion :

Presence of infection septic abortion is less common since the availability of legal abortion . may occur with prolonged , unrecognized rupture of the membranes , pregnancy with intrauterine device (IUD) in utero , or pregnancy attempts by in adequately prepared individuals to terminate a pregnancy .

Management of abortion:

1-bed rest .

2-sedation.

3- For incomplete abortion curettage before 14 wks. of gestation but after 14 wks of pregnancy we do induction of abortion by giving pit (oxytocin) drips.

4- Anti biotic to prevent infection.

5-RH-ve women give immunoglobulin after abortion.

Nursing care :

1-Monitor blood pressure and pulse frequently.

2- Observe women for indication of shock , such as pallor , chammy skin , perspiration ,dyspnea , or restlessness .

3-Count and weight pads to assess amount of bleeding over a given time period , save any tissue or clost expelled .

4- If pregnancy is of 12 weeks gestation or beyond , assess fetal heart tones with a Doppler .

5- Prepare for intravenous (IV) therapy . there may be standing orders to start IV therapy on bleeding clients .

6- Prepare equipment for examination have oxygen therapy available .

7-Collect and organize all data , onset of bleeding episode , laboratory studies (Hb ,Rh ,hormonal assays) .

8 -Obtain an order to type and cross – match for blood if there is evidence of significant blood loss .

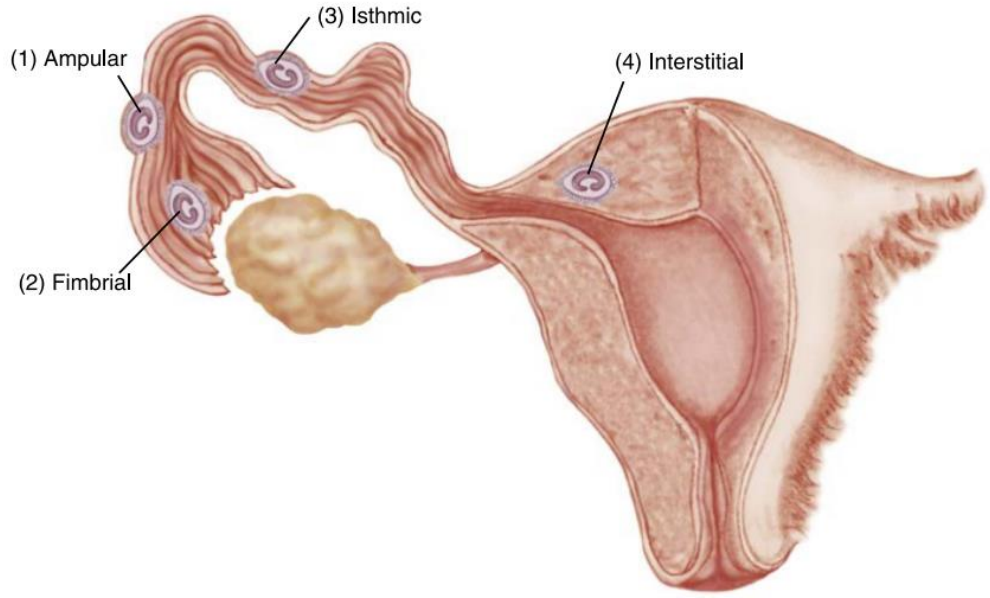
9- Asses coping mechanisms and support system of women in crisis

Give emotional support to enhance her coping abilities by continuous , sustained presence , by clear explanation of procedures , and by communicating her status to her family , most important , prepare the women for possible fetal loss Assess her expressions of anger , denial , guilt ,depression , or self – blame

10- Assess the family's response to the situation

Ectopic Pregnancy:

Ectopic pregnancy is an implantation of a fertilized ovum in an area outside the uterine cavity. Although implantation can occur in the abdomen or cervix, 97% of ectopic pregnancies occur in the fallopian tube. shows the common sites of ectopic implantation**.**



Sites of Tubal Ectopic Pregnancy. Numbers indicate the order of prevalence.

Causes:

1- Additional causes of ectopic pregnancy are delayed or premature ovulation, with the tendency of the fertilized ovum to implant before arrival in the uterus, and altered tubal motility in response to changes in estrogen and progesterone levels that occur with conception.

2- Previous pelvic or tubal surgery
3- Endometriosis
4- Previous ectopic pregnancy
5- Presence of an intrauterine device (IUD)
6- Congenital anomalies of the tube
7- Use of ovulation –inducing drugs
8- infertility
9-Smoking
10-Advanced maternal age(25-34)

PATHOPHYSIOLOGY of ectopic pregnancy.

The mechanisms responsible for ectopic implantation are unknown. The four main possibilities are an **anatomic obstruction to the passage of the zygote**, an abnormal concepts, abnormalities in the mechanisms responsible for tubal motility, and trans peritoneal migration of the zygote.

Clinical Manifestations:

The classic signs of ectopic pregnancy include the following:

1-Missed menstrual period
2-Positive pregnancy test
3- lower Abdominal pain
4-Vaginal "spotting"(6-8 weeks)
5- dark red or brown
6- shock
7- blood in peritoneal cavity
8- dizziness and faintness
9- blueness around the umbilicus hemato peritoneum (indicated intra abdominal ruptured)

Diagnosis :

1- A careful assessment of menstrual history , particularly the last menstrual period (LMP)
2- Careful pelvic exam to identify any abnormal pelvic masses and tenderness
3- Laboratory testing (pregnancy test)
4- Physical examination
5- Ultrasonography .
6- Laparoscopy (examination of the peritoneal cavity)

Management:

1- surgical for rupture either by laparoscopy or laparotomy to remove the affected tube or to perform a salpingectomy(incision in to the tube to terminate the pregnancy)
2- medical by metho trexate in case of early diagnosis when un ruptured mass is lass then 4 cm

Nursing care:

1-checking vital signs and laboratory test, take sample of blood send for Hb , blood group and Rh and cross match she must inform the doctor who will be responsible
2-Nursing care focuses on prevention or early identification of hypovolemic shock, pain control,

and psychological support for the woman who experiences ectopic pregnancy.
3-Nurses administer ordered analgesics and evaluate their effectiveness so pain can be adequately controlled.
4-Nurse administers Rh immune globulin to Rho(D)-negative women
5-After operation , nurse must be alert for the sign of infection and intra abdominal bleeding follow – up .Hcg levels are essential to confirm that all trophoblastic tissue was removed

Risk factors

Some things that make you more likely to have an ectopic pregnancy are:

- **Previous ectopic pregnancy.** If you've had this type of pregnancy before, you're more likely to have another.
- **Inflammation or infection.** Sexually transmitted infections, such as gonorrhea or chlamydia, can cause inflammation in the tubes and other nearby organs, and increase your risk of an ectopic pregnancy.
- **Fertility treatments.** Some research suggests that women who have in vitro fertilization (IVF) or similar treatments are more likely to have an ectopic pregnancy. Infertility itself may also raise your risk.
- **Tubal surgery.** Surgery to correct a closed or damaged fallopian tube can increase the risk of an ectopic pregnancy.
- **Choice of birth control.** The chance of getting pregnant while using an intrauterine device (IUD) is rare. However, if you do get pregnant with an IUD in place, it's more likely to be ectopic. Tubal ligation, a permanent method of birth control commonly known as "having your tubes tied," also raises your risk, if you become pregnant after this procedure.
- **Smoking.** Cigarette smoking just before you get pregnant can increase the risk of an ectopic pregnancy. The more you smoke, the greater the risk

Complication of ectopic pregnancy:

1- sever blood loss
2- residual trophoblastic tissues which cause infection and adhesion future infertility

Gestational Trophoblastic Disease
(Hydatidiform Mole)

Hydatidiform mole is one form of gestational trophoblastic disease, which occurs when trophoblasts (peripheral cells that attach the fertilized ovum to the uterine wall) develop abnormally. The placenta does not develop normally and, if a fetus is present, there will be a fatal chromosome defect. Gestational trophoblastic disease is characterized by proliferation and edema of the chorionic villi. The fluid-filled villi form grapelike clusters of tissue that can rapidly grow large enough to fill the uterus to the size of an advanced pregnancy. The mole may be complete, with no fetus present, or partial, in which fetal tissue or membranes are present

Type of hydatid formal
Hydatid formal subdivide in to

1-complete hydatid formal. is thought to occur when the ovum is fertilized by a sperm that duplicates its own chromosomes and the maternal chromosomes in the ovum are inactivated , a complete mole that is composed only of enlarged villi but contains no fetal tissue or membranes.

2-partial mole, the maternal contribution is usually present, but the paternal contribution is doubled, and therefore the karyotype is triploid (69,XXY or 69,XYY). If a fetus is identified with the partial mole, it is grossly abnormal because of the abnormal chromosomal composition. a partial mole that includes some fetal tissue and membranes

Pathophysiology.

A hydatidiform mole is **a pregnancy/concepts** in which the placenta contains grapelike vesicles (small sacs) that are usually visible to the naked eye. The vesicles arise by distention of the chorionic villi by fluid. When inspected under the microscope, hyperplasia of the trophoblastic tissue is noted.

clinical manifestations

1- Vaginal bleeding is almost universal with molar pregnancies and may occur as early as the fourth week or as late as the second trimester

It is often brownish like prune juice due to liquefaction of the uterine clot but it may be bright red .

2- Anemia occurs frequently due to the loss of blood

3- hydropic vesicles may be passed and if so , are diagnostic with a partial mole the vesicles are often smaller and may not be noticed by the women

4- Uterine enragement greater then expected for gestational age is a classic sign . enlargement is due to the proliferating trophoblastic tissue and to a large amount of clotted blood

5- Absence of fetal heart sounds in the presence of other signs of pregnancy is a classic sign of molar pregnancy

6- Markedly elevated serum HCG may be present due to continued secretion by the proliferation tropholoastic tissue .

7- Very low levels of mafernal serum fetoprotein are found .

8- Hyper emesis gravid arum may occur , probably as are sult of the high levels of HCG .

9- pre eclampsia may be seen , especially in the molar pregnancy continues in to the second trimester .

10 – Rarely , hyperthyroidism results from production thyrotropin by molar tissue It produced thyrotoxicosis**.**

Diagnosis:

1- Ultrasound .

2- High level of HCG.

3- Chest X- ray will done to exclude metastatic to the lung .

Management:

Management of mal pregnancy is based on three principles

1- diagnosis of the mole .

2- evacuation of the uterus .

3 –monitoring of HCG levels .

Evacuation :

Done by suction of uterus and tissue will send for histopathology if patient has complete her family we do immediate hysterectomy it is will decrease the chance of malignancy

Follow – up of serum HCG level :

Women will have spontaneous regression of HCG levels by 15 weeks after evacuation during this time

Do pregnancy test every week but if become we do HCG maintain every month tell another 12 weeks

Pelvic examination every two weeks and then every 3 month where HCG level is be negative Avoid pregnancy for one year after pregnancy test is be negative

Chest –X- Ray :

To exclude lung metastasis if level of HCG is increasing by detection it is level in blood or pregnancy test remain +Ve and by result of tissue from pregnancy is mean

Choriocarcinoma we started chemotherapy gestational trophoblast is 100% curable in women with out metastasis or this with metastasis whose initial HCG level are less than 40.000 m /u/ml

Nursing care:

1-Assess sign and symptom .

2- In from the women about probable procedure and the need for follow up of HCG .

3- Discuss of pregnancy at the time of follow up might ask the ability to detect a trophoblastic tumor .

4- Psychological management a bout feeling related to loss her pregnancy and fear of developing cancer

Complication of hydatid for mole:

1-Anemia

2- Hyperthyroidism

3- Infection .usually seen with late diagnosis and spontaneous abortion of the mole

4- Disseminated intravenous coagulation (DIC)

5- Trophoblastic embolization of the lung , usually seen after molar evacuation of a significantly enlarged uterus (this creates a cardio respiratory emergency)

6-Ovarian cysts , which may be small or large enough to displace the uterus

Incompetent Cervix:

A. Description

1. Incompetent cervix refers to premature dilation of the cervix, which occurs most often in the fourth or fifth month of pregnancy and is associated with structural or functional defects of the cervix.
2. Treatment involves surgical placement of a cervical cerculage.

B. clinical manifestations

1. Vaginal bleeding
2. Fetal membranes visible through the cervix

C. nursing care:

1. Provide bed rest, hydration, and tocolysis, as prescribed, to inhibit uterine contractions.
2. Prepare for cervical cerculage (at 10 to 14 weeks of gestation), in which a band of fascia or no absorbable ribbon is placed around the cervix beneath the mucosa to constrict the internal os.
3. After cervical cerculage, the client is told to refrain from intercourse and to avoid prolonged standing and heavy lifting.
4. The cervical cerculage is removed at 37 weeks of gestation or left in place and a cesarean birth is performed; if removed, cerculage must be repeated with each successive pregnancy.
5. After placement of the cervical cerculage, monitor for contractions, rupture of the membranes, and signs of infection.
6. Instruct the client to report to the HCP immediately any post procedure vaginal bleeding or increased uterine contractions.

HEMORRHAGIC CONDITIONS OF LATE PREGNANCY

After 20 weeks of pregnancy, the two major causes of hemorrhage are the disorders of the placenta called placenta previa and placental abruption. Placental abruption may be further complicated by disseminated intravascular coagulation (DIC)

Placenta Previa:

Placenta previa is an implantation of the placenta in the lower uterus. As a result, the placenta is closer to the internal cervical 03 than to the presenting part (usually the head) of the fetus. The three classifications of placenta previa (total, partial, and marginal) depend on how much of the internal cervical os is covered by the placenta

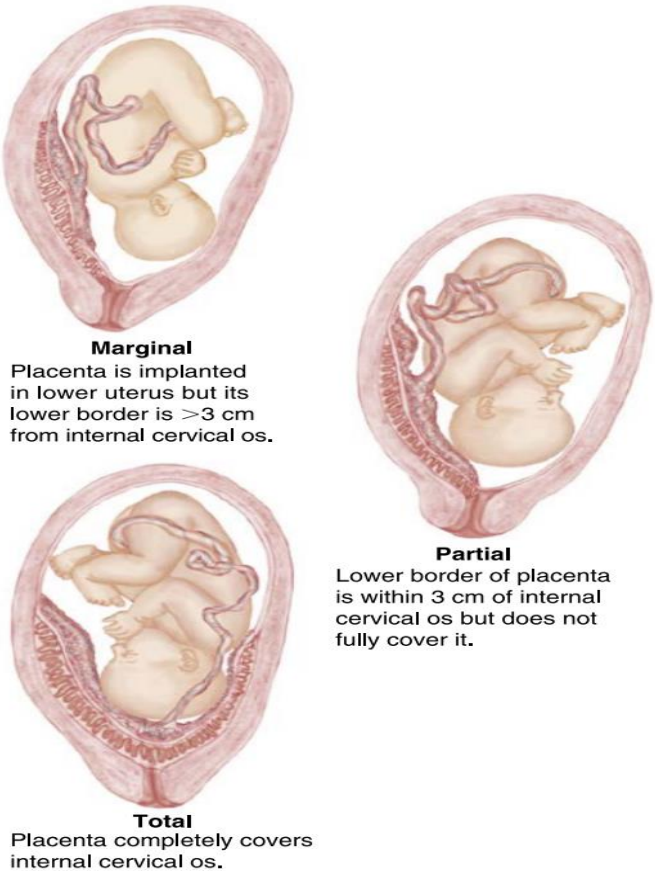
Classification

Placenta previa is classified in three degrees:

Marginal (sometimes called low-lying)—The placenta is implanted in the lower uterus, but its lower border is more than 3 cm from the internal cervical os.

. Partial—The lower border of the placenta is within 3 cm of the internal cervical os but does not completely cover the os.

. Total—The placenta completely covers the internal cervical 03.



Incidence and Causes:

The average incidence of placenta previa is 1 in 200 births

The causes of placenta previa is unknown but factors associated with placenta previa are

1- Multi parity(because large placenta area associated with these pregnancies) .
2- Increase age(older women more than 35 -40 years of age) .
3- Previous caesarean birth (myometreal scar).
4- Current use of cocaine and cigarette Smoking.
5- Recent spontaneous or induced abortion.
6- large placenta(genetic predisposition)area associated with uterine scarring and endometrial damage .
7- previous C.S and curettage in the past for miscarriage or induced abortion are risk factors for placenta previa because both result in endometrial damage and uterine scarring .

Pathophysiology:

Placenta previa is **initiated by implantation of the embryo (embryonic plate) in** the lower (caudad) uterus. With placental attachment and growth, the cervical os may become covered by the developing placenta.

singe and symptoms :

1. Sudden onset of painless, bright red vaginal bleeding occurs in the last half of pregnancy.
2. Uterus is soft, relaxed, and nontender.
3. Fundal height may be more than expected for gestational age

Diagnosis:

1- signs and symptoms.

2- Ultrasound: placenta is located over or very near internal os.

Dependent on:

a- gestational age.

b- Amount of hemorrhage.

If bleeding occur at early gestation we can prolong pregnancy by recent until the fetus is be viable we admit the pt.

1- a- bed rest with bathroom privileges only as long as the b- woman is not bleeding.

2- No vaginal examinations.

3- Monitoring blood loss, pain, and uterine contraction .

4- Evaluation of FHR with external monitor.

5- Monitoring of maternal vital signs.

6- Complete laboratory evaluation hemoglobin, hematocrit, Rh factor, and urinalysis.

7- Administration of intravenous fluid lactated Ringers solution with drip rate monitored.

8- Availability of two units of cross- matched blood for possible transfusion.

9- Administration of betamethasone to facilitate lung maturity.

If frequency, recurrent, or profuse bleeding persists or if fetal well- being appears threatened, a caesarian birth needs to be performed

Fetal Complications:

1- prematurity.

2- Asphyxia.

Material complication:

1- severe hemorrhage.
2- Embolism.
3- Endomatrities.

Abruptio placenta:

Premature separation of the placenta from the uterine wall after the twentieth week of gestation and before the fetus is delivered

The incidence of abruptio placenta is 1 in 226 birth but accounts for 15% of perinatal deaths .

Pathophysiology. Placental abruption ;is **where a part or all of the placenta separates from the wall of the uterus prematurely**. Abruption is thought to occur following a rupture of the maternal vessels within the basal layer of the endometrium. Blood accumulates and splits the placental attachment from the basal layer

Causes of abruptio placenta.

Maternal causes:

1- hypertension 44% .
2- maternal trauma 2-10 %(abdominal trauma) .
3- Cigarette smoking(cause vascular disruption in the placenta bed).
4- Alcohol consumption.
5- Short umbilical cord.
6- Multi gravid status .
7- Increases maternal age.
8- Presence of fibroids.
9- Over distension of the uterus. e.g. twins, poly hydromanious.
10- Pre-term labor
11- Pre mature rupture membranes and history of previous premature separation of placenta .

Classification (Type)

Classification of abruption placent is based on the extent of separation.

Premature separation of the placenta may be divided into three types:

1- marginal:

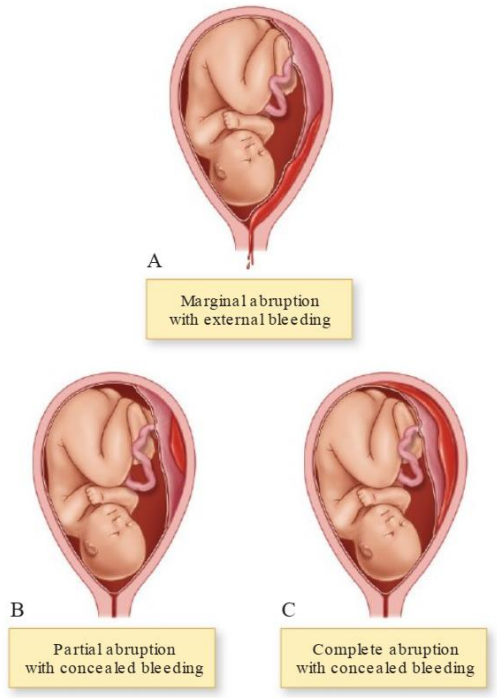
the blood passes between the fetal membrane and the uterine wall and escapes vaginally. Separation beings at the periphery of the placenta, this marginal Sinus rupture may or may not become more severe.

2- central:

the placenta separation centrally , and the blood is trapped between the placenta and the uterine wall in concealed bleeding.

3- complete:

massive vaginal bleeding is seen in the presence of almost fatal separation.



Types of abruptio placentae.

Signs and Symptoms:

Dark red vaginal bleeding. If the bleeding is high in the uterus or is minimal, there can be an absence of visible blood.

2. Uterine pain or tenderness or both

3. Uterine rigidity

4. Severe abdominal pain

5. Signs of fetal distress

6. Signs of maternal shock if bleeding is excessive

Management:

1- diagnosis is confirmed by ultrasound.

2- Put intravenous fluid (lacted Ringe's) and blood replacement.

3- Delivered the fetus as soon as possible.

4- Coagulation test is performed to rule or the DIC (Disseminated Intravascular Coagulate).

5- Cesarean birth is necessary in the face of severe hemorrhage to allow an immediate hysterectomy to save both woman and fetus.

6-central venous pressure (CVP) monitoring may be needed to evaluate intravenous fluid replacement.

7-(CVP) should be used to assess for hypovolemia.

8-Elevated (CVP) may indicate fluids over load and pulmonary edema.

Nursing Care:

The nursing care of bleeding in 3rd trimester:

1- take good history amount of bleeding , nature of vaginal bleeding.

2- Associated pain.

3- Maternal vital signs.

4- Fetal heart rate.

5- Uterine tone.

6- Send sample of blood for Hb, platelets, means corpus luteum volume, blood group and RH.

7- Put folly's catheter (check urine output).

8- Put fetal heart monitor (Doppler).

9- Electronic monitoring of the uterine contractions and resting tone between contractions provides information regarding labor pattern and effectiveness of

oxytocin induction.

10- Psychological supports.

Complication:

Maternal Risk	Fetal- New natal Risk
a- shock	a- preterm birth
b- cardiac or renal failure	b- perinatal mortality 20-30 %
c- postpartum hemorrhage	c- Intrauterine asphyxia
d- DIC (Disseminated Intravascular Coagulation	d- Anemia
	e- Neurology defects 1st years cerebral palsy
	f- irreversible brain damage 50 % fetal death

"Care of the Woman with a Hypertensive Disorder"

LEARNING OBJECTIVES

At the end of this lecture, the student will be enable to:

1. Define Hypertension terminology during pregnancy.
2. Classification of hypertension in pregnant women
3. Identify risk factors associated with preeclampsia.
4. List criteria for the diagnosis of preeclampsia (mild, sever, HELLP syndrom)
5. Discuss the effects of hypertension on the mother and fetus.
6. Nursing care of the pregnant woman with a Hypertensive Disorder

•Hypertension(High blood pressure) is the most common medical disorder in pregnancy.

•Hypertensive disorders of pregnancy include a spectrum of severity ranging from a mild elevation of blood pressure to severe preeclampsia and hemolysis.

•The incidence of hypertension among pregnant women ranges from 12% to 22%.

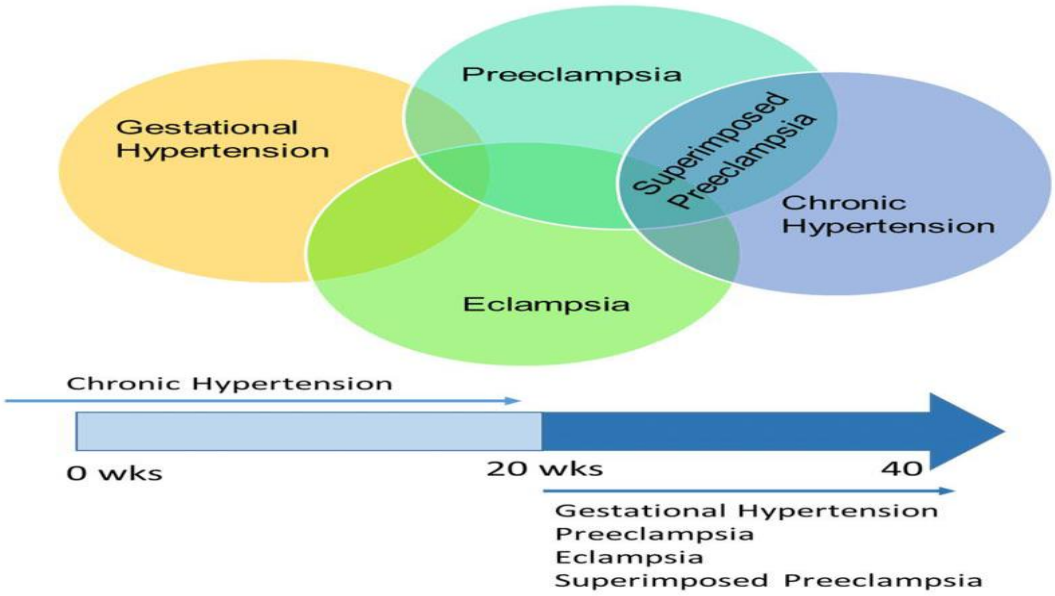
Classification of Hypertension in Pregnancy Women

1. Preeclampsia-eclampsia

2. Chronic hypertension

3. Gestational hypertension

4.Chronic hypertension with superimposed preeclampsia



1- Preeclampsia-eclampsia:

- Preeclampsia: occurs in 5% to 8% of all pregnancies
- Preeclampsia defined as an increase in blood pressure that occurs after 20 weeks gestation with proteinuria (protein in the urine) in a woman who had a normal blood pressure before pregnancy.
- Edema is no longer included in the definition because it is a common feature in normal pregnancy.

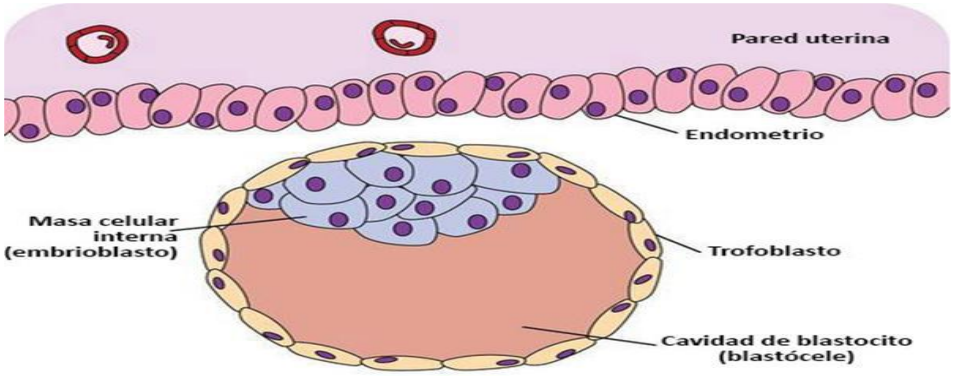
Pathophysiology of preeclampsia

Preeclampsia has been called a ‘Disease of Theories’ because the true mechanisms behind the pathogenesis are unknown.

(Genetic, immunological, maternal vascular disease)

Change in Normal Pregnancy:

1. Fetal trophoblastic invade walls of spiral arteries of myometrium.

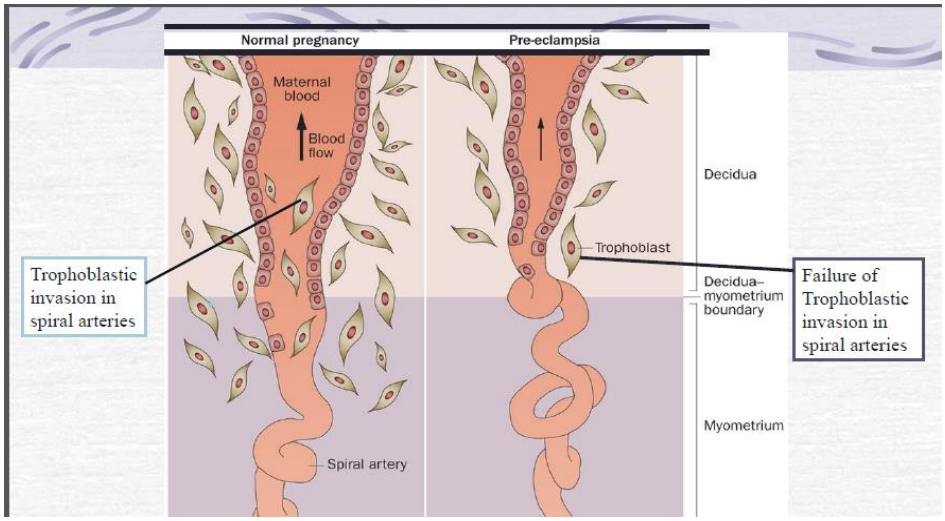


Trophoblastic

2. Remodeling of spiral artery begins about 5-6 weeks and continues until around 20-22 weeks
3. This allows *blood supply to uterus to increase* from 10-15 mls to 600-800 mls per minute to meet placental blood flow requirements at term.
4. Prostacyclin: a vasodilatation produced by endothelial cells, decrease blood pressure, prevents platelet aggregation, and promotes uterine blood flow
5. Thromboxane: produced by platelets, causes vasoconstrictor and stimulator of platelet aggregation

In pre-eclampsia, this process is DEFECTIVE:

1. Failure of trophoblastic invasion in spiral arteries of myometrium → ↓uteroplacenta perfusion → IUGR& Oligohdramnios.
2. Failure to Remodel the spiral arteries
3. Vascular endothelial cell damage
4. Imbalance of prostacyclin and thromboxane (> thromboxane, < prostacyclin)



Pre-eclampsia divided into Mild and Sever

<u>A- Mild Pre-eclampsia:</u>

1- Increase in Bp (140/90mm Hg) after 20 weeks gestation

2- Presence of (+) proteinuria ≥ 300 mg/24 hr

3- Oedema :generalized edema or rapid weight gain. Puff face, hands, ankles and lower legs).

B- Sever Pre-eclampsia : may develop Suddenly

1.BP of 160/110 or higher.

2.Proteinuria ≥ 5g/L in 24 hr

3.Oliguria: urine output < 500ml/24hr

4.Visual disturbances, scotomata (a blind spots) or blurred vision, retinal edema

5.Pulmonary edema

6.Epigastric pain

7.Impaired liver function

8.Thrombocytopenia.

9.Headache, Nausea and vomiting

Risk factors of preeclampsia

•First pregnancy

•Previous preeclamptic pregnancy

•Obesity, Body mass index (BMI) of 35 or more.

•Family history of preeclampsia, Poor nutrition

•Age more than 35 years or less than 19 years

•Multi-fetal pregnancy (e.g., twins)

•Chronic hypertension and renal disease

•History of Diabetes mellitus type I and II

laboratory test for preeclampsia

1. HB% to Detects hemoconcentration
2. Clotting factors & platelet concentration------Thrombocytopnia

3. Urine for protein, Proteinuria confirms preeclampsia, kidney function.

4. Liver function test.

In additional to Ultrasound assessment of:

- fetal size;
- amniotic fluid volume

Complication of preeclampsia

A- Maternal complication

1.Antepartum hemorrhage, Abruptio placentae

2.Central nervous system: Headache ,eclamptic seizure

3. Increase Intraocular pressure causes retinal detachment.

4.Acute tubular necrosis result from under-perfusion of the kidney(renal failure)

5.Thrombocytopenia

6.Stroke

7.HELLP syndrom

B- Fetal complication :

1)Small for gestational age, Intrauterine growth restriction, low birth weight

2)Oligohydramnios

3)Prematurity labor

4)Stillbirth

5)Perinatal mortality

Nursing care :

1.Regular visiting ANC.

2.Bed rest and a quit environment to improve circulation to the heart and uterus.

3.Drink 8-10 glass of water daily.

4.Diet, low sodium diet, high-fiber foods.

5. Monitoring blood pressure daily (every 4_6 hr)&daily weighting to check edema

6.Monitoring intake _ output and give fluid and electrolyte.

7.Ask the patient to count fetal movement(kick count) and take ultersound at least every 3 to 4 weeks for determine fetal growth.

8.Measure amount of protein in urine and other laboratory test

9.Take anticonvulsants (magnesium sulfat, in sever preeclampsia)

10.Anti-hypertensives (in sever preeclampsia).

11.Corticosteroids (Betamethasone or dexamethasone for women whose fetus has an immature lung)

12.Education the patient about signs and symptoms of preeclampsia and Contact the home health nurse if any of the following occurs: (Increase in blood pressure, Protein present in urine, sudden weight gain , Burning when urinating, Decrease in fetal activity or movement, Headache, Dizziness or visual disturbances, epigastric pain, Decreased urination and Nausea and vomiting).

Eclampsia

- Eclampsia : is the occurrence of a seizure in a women with preeclampsia, who has no other cause for seizure.
- It considered a complication of sever preeclampsia
- Eclamptic seizures are generalized and start with facial twitching. The body then becomes rigid, in a state of tonic muscular contraction.
- The clonic phase of the seizure involves alternating contraction and relaxation of all body muscles.

Eclampsia Signs and symptoms

1. Bp 160/110 mm Hg,
2. Marked proteinuria,
3. Severe headache
4. Generalized edema
5. epigastric pain
6. Visual disturbances,
7. Convulsion or coma , may occur before the onset of labor , or early in the postpartum period

Complication of Eclampsia Maternal-Fetal complication:

1)Antepartum hemorrhage.

2)Jaundice, HELLP syndrome.

3)Come

4)Cerebral hemorrhage

5)Renal failure

6)Fetal death

7)Premature delivery

Nursing Care of Eclampsia:

1.The airway should be maintained (clear airway) and oxygen administered during the seizure to resuscitated the mother and fetus.

2.Suction equipment must be readily available to remove secretions from her mouth.

3.Check the vital signs.(Bp every 1-4 hr and Temp. every 4 hr)

4.Magnesium sulfate is administered IV to prevent further seizures.

5.Hypertension is controlled with antihypertensive medication

6. Assess fetal heart rate. Also assess the client for uterine contractions

7. Check vaginal bleeding every 15 minutes which may present with abruption placenta

8. Frequent auscultation of maternal lungs is required.

9. Foley catheter is inserted to assess intake and output, monitor hourly.

10. Urine protein: protein in urine/24hr.

11. Check edema (legs, hands, face, eyelids, feet), and weight daily.

HELLP syndrome

HELLP syndrome: It is a life-threatening obstetric complication. In pregnant women with severe preeclampsia-eclampsia, It is occurs in the last trimester of pregnancy. The cause of HELLP syndrome is unknown.

A syndrome featuring a combination of:

•H → for hemolysis (destruction of red blood cells).

•EL → for elevated liver enzymes (which indicate liver damage)

•LP → for low platelet count. (less than 100,000 cell/mm3)

Signs and symptoms :

fatigue; fluid retention and excess weight gain; headache; nausea and vomiting; pain in the upper right of the abdomen and jaundice result from liver impairment; blurry vision

Treatment for HELLP syndrome

- Magnesium sulfate is used prophylactically prevent seizures.
- Antihypertensives are given to control blood pressure.
- Blood component therapy- packed red blood cells, or platelets—is transfused for anemia.
- Betamethasone or dexamethasone can be given to stimulate lung maturation in the preterm fetus

2- Chronic hypertension

When the blood pressure is 140\90 or higher before pregnancy or before 20 weeks of gestation.

Complication of chronic hypertension:

1- *Maternal complication* :/

About 25% of women with chronic hypertension develop preeclampsia during pregnancy , accidental hemorrhage (abruption placenta)

2-Fetal complication: Intrauterine growth retardation, Preterm labor, Fetal hypoxia**.**

3-Gestational Hypertension also called Transient Hypertension.

- Exists when transient elevation of blood pressure (140/90 mm Hg) occur for the first time after mid pregnancy without proteinuria, after 20 weeks' gestation and resolving by 12 weeks' postpartum.
- If the blood pressure elevation persists after 12 weeks postpartum, the woman is diagnosed with chronic hypertension

4- Chronic hypertension with superimposed preeclampsia

This condition occurs in women who have been diagnosed with chronic high blood pressure before pregnancy, but then develop worsening high blood pressure and protein in the urine, or edema

Hypertension Disorders with pregnancy-----(Summary)

- Preeclampsia: hypertension , protein in urine after 20 week of gestation.
- Eclampsia: preeclampsia, Seizures

- Gestational hypertension: hypertension after 20 weeks of gestation
- Chronic hypertension: hypertension before 20 weeks of gestation.
- Superimposed preeclampsia: Chronic hypertension and preeclampsia

COMPARISON CHART 19.2 PREECLAMPSIA VERSUS ECLAMPSIA

	Mild Preeclampsia	Severe Preeclampsia	Eclampsia
Blood pressure	>140/90 mm Hg after 20 weeks' gestation	>160/110 mm Hg	>160/110 mm Hg
Proteinuria	300 mg/24 hr or greater than 1+ protein on a random dipstick urine sample	>500 mg/24 hr; greater than 3+ on random dipstick urine sample	Marked proteinuria
Seizures/coma	No	No	Yes
Hyperreflexia	No	Yes	Yes
Other signs and symptoms	Mild facial or hand edema Weight gain	Headache Oliguria Blurred vision, scotomata (blind spots) Pulmonary edema Thrombocytopenia (platelet count <100,000 platelets/mm^3) Cerebral disturbances Epigastric or RUQ pain HELLP	Severe headache Generalized edema RUQ or epigastric pain Visual disturbances Cerebral hemorrhage Renal failure HELLP

Diabetes mellitus in Pregnancy

LEARNING OBJECTIVES:

At the end of this lecture, the student will be enable to:

1- Definition of the Diabetes Mellitus
2- Types of Diabetes mellitus
3- Risk factors associated with gestational diabetes.
4-Identify the effects of diabetes on the mother and baby.
5. Distinguish the screening methods for gestational diabetes.
6. Treatment and nursing care of DM

DIABETES MELLITUS The most common medical complication of pregnancy:

Diabetes Mellitus is describe a metabolic disorder characterized by high levels of sugar in blood (hyperglycemia) caused by deficiency of insulin or resistance to insulin or both(hyperglycemia , glycosuria and microangiopathy**).**

TYPES OF DIABETES MELLITUS

Type 1: Insulin dependent diabetes mellitus

• Absolute Insulin deficiency (caused by an autoimmune destruction of the beta cells of the pancreas).

Type2: Non-insulin dependent diabetes mellitus (Insulin resistance)

• Insulin resistance Combined with inability of B-cells to produce appropriate quantities of insulin

Gestational diabetes mellitus (GDM):

Occurs in pregnant women who have never had diabetes before, blood glucose levels become high during pregnancy. Gestational diabetes affects about 18% of all pregnant women

GESTATIONAL DIABETES

Normal pregnancy is diobetogenic: Due to placental anti insulin hormones (progesterone, cortisol, Human placental lactogen, estrogen) and insulinase enzyme

GESTATIONAL DIABETES: ids a condition in which women without previously diagnosed diabetic exhibit high blood glucose levels in pregnancy.

The placenta supplies a growing fetus with nutrients, and also produces a variety of hormones to maintain the pregnancy. Some of these hormones (estrogen, cortisol, and human placental lactogen) can have a blocking effect on insulin. This is called contra-insulin effect, which usually begins **about 20 to 24 weeks** into the pregnancy**.**

During the second half of pregnancy, levels of placental hormones rise sharply. These hormones, particularly estrogen, progesterone, and human placental lactogen (HPL), create resistance to insulin in maternal cells. This resistance allows an abundant supply of glucose to be available in the mother's blood for transport to the fetus. Leave the woman with insufficient insulin and cause hyperglycemia.

SIGNS & SYMPTOM S OF GESTATIONAL DIABETES:

1.Polyuria (excessive urination)

2.Polyphagia (excessive hunger and eating)

3.Polydipsia (excessive thirst)

4.Dry mouth, Weight loss

5.Glucose in urine, UTI

6.Blurred vision

7.Headache, Fatigue

8.Elevated serum glucose

9.Greater than normal abdominal circumference, polyhydarmnios

RISK FACTORS OF GESTATIONAL DIABETES

1. Family history of diabetes

2. Age 35 years or older.

3. Obesity

4. Previous pregnancy with gestational diabetes.

5. Previous infant weight more than 4 kg (macrocosmic baby)

6. Previous (stillbirth, or congenital anomalies)

7. Presence of glycosuria

8. Hypertension before pregnancy or in early pregnancy.

9- Polycystic ovarian syndrome (PCOS)

Complication

1- Maternal

1.Polyhydramnios,

2.Premature membrane rupture, Preterm labor

3.Difficult labor, cesarean birth

4.Vaginal tearing, instrumental deliveries

5. Gestational hypertension.

6.Urinary tract infections resulting from excess glucose in the urine (glucosuria), which promotes bacterial growth

7.Chronic monilial vaginitis, due to glucosuria, which promotes growth of yeast

8.Ketoacidosis

9.DM later life

2- Fetal and Neonatal

1.Congenital anomaly

2.Macrosomia resulting from hyperinsulinemia.

3.Birth trauma due to increased size of fetus.

4. Intrauterine growth restriction, Stillbirth

5.Polycythemia due to excessive red blood cell (RBC) production in response to hypoxia

6.Hyperbilirubinemia due to excessive RBC breakdown.

7.Neonatal hypoglycemia resulting from ongoing hyperinsulinemia after the placenta is removed

DIAGNOSIS & SCREENING OF GDM

The American College of Obstetricians and Gynecologists (ACOG) currently recommend : first prenatal visit and additional screening of all high-risk pregnant women again **at 24 to 28 weeks**

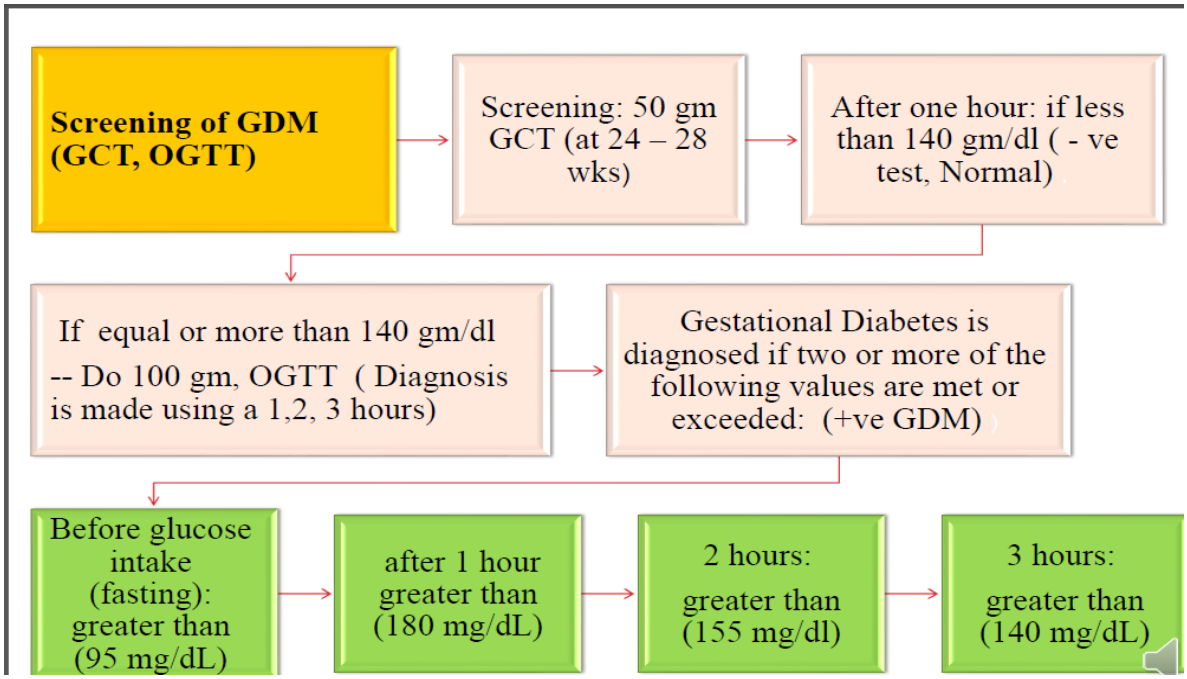
1-Clinically

A →→→→ High risk of DM (+ve family history, obesity,..)

B →→→→ Sign and Symptoms (polyuria, polyphagia, polydipsia , weight loss ,…..)

2- Screening of GDM

Glucose Challenge Test(GCT) is administered between 24 and 28 weeks of gestation. Fasting is not necessary for a GCT, and the woman is not required to follow any pretest dietary instructions. The woman should ingest 50 gm of oral glucose solution. A blood sample is taken 1 hour later. If the blood glucose concentration is 140 mg/ dL or greater, a 3-hour oral glucose tolerance test (OGTT) is recommended. After a fasting plasma glucose level is determined, the woman should ingest 100 gm of oral glucose solution. Plasma glucose levels are then determined at 1, 2, and 3 hours. A diagnosis of GDM is made if two or more of the values meet or exceed the threshold: (Fasting, <95 mg/dL), (1 hour <180 mg/dL) (2 hours, <155 mg/dL) (3 hours, <140 mg/dL)



3- HbA1c

For follow-up for past 3 months (glycosylated hemoglobin (HbA1C) level

(*a measurement of the average glucose levels during the past 3 months*).

A glycosylated hemoglobin level if :

1- less than or equal 5.7% indicates Good control;

2- A value of 5.7-6.4 % indicates Pre-diabetics.

3-a value of 8% indicates Diabetics

4- U/S for Macrosomia, polyhydramnios.

Treatment of DM and GDM

Women with diabetes need comprehensive prenatal care.

The primary goals of care are to maintain glycemic control and minimize the risks of the disease on the fetus.

Key aspects of treatment include:

- Nutritional management, eating healthy diet
- Exercise,
- Taking insulin,
- Monitoring of blood glucose levels,
- Close maternal and fetal surveillance

Delivery : Depends on Glycemic Control:

1- Good control→→→→ till 40 wks.

2- Mild uncontrolled →→→→ terminate at 37 wks.

3- Severe uncontrolled cases →→→→ terminate before 37 wks after giving steroids for lung maturity.

4- C/S is done when Macrocosmic baby.

NURSING CARE

1.Encourage to regular prenatal visit.

2. Obtain a fingerstick to monitor blood glucose level and give themselves insulin (technique, frequency, dose)

3.Daily Fetal kick count. Document them and report any decrease in activity, do U/S for assess well-being (fetal growth, activity, amniotic fluid volume)

4.Encourage the client to drink 8-10 glasses of water each day to prevent bladder infection.

5.Urine check for protein (may indicate the need for further evaluation for preeclampsia

6.Avoid weight loss and dieting during pregnancy.

7.Teach the client about S&S of hypo/hyperglycemia

8. Avoid (cake, candy), which raise blood glucose levels

9.During labor, woman with pre-gestational or gestational diabetes (Monitor blood glucose levels every 1 to 2 hours, Monitor fetal heart rate, Assess maternal vital signs every hour, assess urine output with an indwelling catheter.)

10.Encourage the women to participate in an exercise program that includes at least three sessions lasting longer than 15 minutes per week. Exercise may lessen the need for insulin or dosage adjustments.

11. After birth, monitor blood glucose levels every 2 to 4 hours for the first 48 hours to determine the woman's insulin need and continue intravenous fluid administration as ordered. Encourage breast-feeding to assist in maintain good glucose control

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Anemia during pregnancy

Anemia and pregnancy Commonest medical disorder during pregnancy
Anemia is define decrease in the number of red blood cell, is measured by hematocrit(Hct), or a decrease in the concentration of hemoglobin (Hgb), this results in reduced capacity of the blood to carry oxygen to the vital organs of the mother and fetus.
Hemoglobin less than 12 gm/dl in non-pregnant women, and less than 11 gm/dl in pregnant women

Types of Anemia:
1-Physiological.This is because the plasma volume expansion is greater than red blood cell (RBC) mass increase which causes hemodilution , (++ plasma > + RBCs)
2- Iron deficiency anemia(Nutritional) COMMONEST.
3- Folic acid. & Vit B12 deficiency (Megaloblastic anemia)
4- Hemorrhagic (bleeding in early, late pregnancy & PPH)
5-Thalassemia , sickle cell anemia(Hereditary)
6-Hemolytic anemia (RBC are destroyed faster than they can be made)

Anemia during pregnancy is considered:

1-**Mild**: hemoglobin concentration is 10.0 - 10.9 gm/dl,

2-**Moderate**: hemoglobin concentration is 7.0 - 9.9 gm/dl

3- **Severe**: hemoglobin concentration is 4-7.0 gm/dl

4-**Verey sever** (less than 4gm/dl).

Iron Deficiency Anemia

Dietary iron is needed to synthesize hemoglobin. Because hemoglobin is necessary to transport oxygen, a deficiency of iron may affect the body's transport of oxygen. Without enough iron, the body can't produce enough hemoglobin.

-Approximately 200mg of iron will be conserved because of the functional amenorrhea of pregnancy.

-Pregnant women needs approximately 1000 mg more iron intake during pregnancy.

* 300- 400 mg of iron transferred to the fetus.

*500 mg is needed for the increased RBC mass.

*100 mg is needed for the placenta

*280 mg is needed to replace the 1 mg of iron lost daily through feces, urine, and sweat

Etiology Iron Deficiency Anemia during Pregnancy

1.Decrease intake of iron(poor diet, morning sickness).

2.Lack of vitamin C and proteins.

3.Decreased gastric acidity and use of Antacids.

4.Multiple pregnancy.

5.Hemorrhage with pregnancy.

Signs and symptoms

Pallor, tiredness, fatigue, dyspnea, anorexia, nausea, vomiting, lack of concentration, headaches, brittle nails.

Risks of iron deficiency anemia:

****Maternal**

1.Labor dystocia

2.Post-partum hemorrhage

3.Puerperal sepsis , poor wound healing

4.HB lower than 6 gm\dl will cause cardiac failure

****Fetal**

1.low birth weight

2.Still birth

3.IUGR (Intrauterine growth restriction)

4.Premature delivery

Prevention

 Iron supplements are commonly used to meet the need of pregnancy and maintain iron stores, taking 27 mg of iron orally daily.

 Prevented Iron deficiency anemia, the dosage increased to 60-120

mg/day

Vitamin C may be enhance absorption of iron.

Eat an iron-rich diet

Treatment

Mild (10.0 - 10.9 g/dl) : oral iron

Moderate (7.0 - 9.9 g/dl) :parenteral iron

Severe (4-7 gm/dl) , Very sever (< 4gm/dl): blood or packed RBCs

TEACHING FOR THE WOMAN WITH IRON DEFICIENCY ANEMIA

1-Take your prenatal vitamin daily; if you miss a dose, take it as soon as you remember.

2- For best absorption, take iron supplements between meals.

3-Avoid taking iron supplements with coffee, tea, chocolate, milk.

4- Eat foods rich in iron, such as :Meats, green leafy vegetables, legumes, dried fruits, whole grains, Peanut butter, whole-wheat fortified breads and cereals

5- The women is taught to take iron tablets with vitamin C to increase absorption.

6-Increase your exercise, fluids, and high-fiber foods to reduce constipation.

7-Instructthe woman about adverse effects, which are predominantly gastrointestinal and include gastric discomfort, nausea, vomiting, anorexia, diarrhea, metallic taste, and constipation.

Folic acid deficiency Anemia

Folic acid is necessary red blood cell and neural tube formation. Maternal needs for folic acid double during pregnancy in response to the demand for greater production of erythrocytes and fetal and placental growth.

Folic acid deficiency is characterized by Low levels of folic acid can cause **megaloblastic anemia**. With this condition, red blood cells are **larger than** normal, and are fewer in number They are also oval-shaped, not round. Sometimes these red blood cells don’t live as long as normal red blood.

Folic acid deficiency Anemia An inadequate intake of folic acid has been associated with:

1- Neural tube defects (spina bifida, anecephaly and meningomyelocele) in baby.

2- Cleft lip, cleft palate

3- Intrauterine growth restriction

4- Megaloblastic anemia

Prophylactic measures:

Supplement (0.4 gm) of folic acid orally per day are recommended for all women of childbearing and during pregnancy.

Treatment:

: oral 5mg folic acid per day

(Nursing Care) The nurse can help the pregnant women avoid folate deficiency by teaching her food sources of folic and cooking methods for reserving folic acid. The best sources are fresh leaf green, vegetables, poultry, legumes Fruits like lemons, bananas, and melons.

"Labor"

OBJECTIVES

1.Describe fetal response to labor

2. Explain how each component of the birth process affects the course of labor and birth and the interrelation of these components

3.relate the mechanisms of labor to the process of vaginal birth

4. explain early signs of labor

5.differentiate true and false labor

6. compare the labors of nulliparous and parous women

7. compare each stage of labor and the phases with in the first stage

Labor usually begins between the 38 week and the 42 week of gestation , when the fetus is mature and ready for birth .

Concepts of family
Physiology of labor

1- Possible causes of labor onset

progesterone is produced by the placenta relaxes uterine smooth muscle by interfering with conduction of impulses from one cell to the next . for this reason the uterus is usually with out

coordinated contractions during pregnancy biochemical changes to ward the end of gestation result in decreased availability of progesterone to myometrial cells .

2-prostaglandin hypothesis

the amnion and decidua are the focus of research on the source of prostaglandin once prostaglandin is produced , stimuli for its synthesis may include rising levels of estrogen decreased availability of progesterone , increased levels of oxytocine or response to oxytocine

3- corticotropin – releasing hormone hypothesis

corticotropin releasing hormone (CRH) is also afocus for researchers its possible onset of labor is suggested by the fact that CRH concentration increases through out pregnancy with a sharp increase at team Also , there is an increase in plasma CRH prior to preterm labor , and CRH levels are elevated in multiple pregnancy

Premonitory signs of labor

1. Lightening or dropping: Is also known as engagement and occurs when the fetus descends into the pelvis about 2 weeks before birth; lightening or dropping is most noticeable in first pregnancies

2. The vaginal mucosa is congested, and vaginal discharge increases.
3. Brownish or blood-tinged cervical mucus is passed

4. Cervix ripens, becomes soft and partly effaced and may begin to dilate.

5. Braxton – Hicks contrations : - contractions that occur irregularly and intermittently through out pregnancy ; they may be come uncomfortable and produce false labor

6. Rupture of membranes :- occurs before onset of labor in approximately 12 % of clients ; labor begins with in 24 hrs for a bout 80 % of these clients

7. Burst of energy . the client may experience a sudden burst of energy before the onset of labor ; commonly manifested by house cleaning activities

Factors that affecting the process of labour:

Four major factors (4 P's) interact during normal childbirth; the 4 P's are interrelated and depend on each other for a safe birth and are Powers, Passageway, Passenger, and Psyche.

A. Powers: Uterine contractions

1. Forces acting to expel the fetus

2. Effacement: Shortening and thinning of the cervix during the first stage of labor

3. Dilation: Enlargement of cervical os and cervical canal during the first stage of labor

4. Pushing efforts of mother during the second stage

B. Passageway: The mother's rigid bony pelvis and the soft tissues of the cervix, pelvic floor, vagina, and introitus (external opening to the vagina)

C. Passenger: The fetus, membranes, and placenta

D. Psyche: A woman's emotional structure that can determine her entire response to labor and influence physiological and psychological functioning; the mother may experience anxiety or fear.

Mechanical influence

1- **fetal presentation :** Portion of the fetus that enters the pelvic inlet firs
2- **fetal position :** Relationship of assigned area of the presenting part or landmark to the maternal pelvis
3- **fetal lie:** Relationship of the spine of the fetus to the spine of the mother
4- **fetal attitude :** ttitude is the relationship of the fetal body parts to one another

Stages of labour and birth

The first stage begins with the beginning of true labor and end s when the cervix is completely dilated at 10 cm . the second stage begins with complete dilatation and ends with the birth of the infant the third stage begin with the birth of the infant and ends with the expulsion of the placenta .

First stage

*Latent phase

The latent phase begins with the on set of regular contractions as the cervix begins to dilate 0-3 cm it also effaces 40% although little or on fetal descent is evident . for awoman in her first labor (nullipara) the latent phase averages 8 hrs but should not exceed 20 hr . the latent phase in multiparas averages 5 hrs but should not exceed 14 hrs uterine contractions become established during the latent phase and increase infrequency , duration and intensity .

The may start as mild contractions lasting 30 to 40 seconds with a frequency of 5- 10 minutes in the early or latent phase

*Active phase

When the women enters the early active phase her anxiety tends to increases as she senses the intensification of contractions and pain she begins to fear aloss of control and may use avariety of coping mechanisme , some women exhibit adecreased ability to cope and asense of helplessness women who have support persons family and available may experience greater satisfaction and less anxiety then those with out 4 to 7 cm , cervical dilate fetal descent is progressive the cervical dilatation should beat lest 1.2 cm per hour in nulliparas and 1.5 cm per hour in multiparas .the may start as moderate contractions lasting 40-60seconds with frequency every 2-3 min and effacement 80%

in the early or latent phase of the first stage of labor contractions are usually mild the women feels able to cope with the discomfort although she may be anxious , she is able to recognize and express those feelings of anxiety

Transition phase

The transition phase is the last part of the first stage when the women enters the transition phase she may demonstrate significant anxiety , she become acutely aware of the in creasing force and intensity of the contractions ,she may become rest –less frequently changing position . cervical dilatation slows as it progresses from 8 to 10 cm and the rate of fetal descent increases

The average rate of descent is at least 1 cm per hour in nulliparas and 2 cm per hour in multiparas . the may start as moderate contractions lasting 60-90 seconds with frequency every 1-2 min and effacement 80- 100%.

Differences between true and false labor

True labor	false labor
Contraction are regular intervals	Contractions are irregular
Intervals between contractions gradually shorten	Usually no change
Contractions increase in duration and intensity	Usually no change
Discomfort begins in back and radiates a round to abdomen	Discomfort is usually in abdomen
Intensity usually increase with walking	Walking has no effect on or lessens contractions
Cervical dilatation and effacement are progressive	No change
Contractions do not decrease with rest or warm tub bath	Rest and warm tub baths lessen contractions
There is show (mucous or blood)	No show
Uterin palpation (firm uterin)	Soft uterin

Nursing care in first stage of labor

1- make the women and her family feel welcome and comfortable
2- women antenatal records is reviewed to discover any a abnormalities
3- take good history
4- check vital signs
5- abdominal examination : check presentation , position of the fetus , frequency and length of contraction
6- check fetal heart rate every 1/2 hr in 1st stage normal rate is between 120 -160 beat / minute by fetal stethoscope or Doppler monitor .
7- rehydration by intravenous root is better
8- encourage patient to pass urine and sample send for examination and for presence of sugar , protein
9- Full bladder should by emptied by catheter
10- Encourage to take warm both

11- Use partogram
12- Vaginal examination every 3- 4 hrs
13- Breath control during contraction and relax between contraction
14- Sedative or analgesia are give to encourage rest between contraction

Second stage :

The second stage of labor beings when the cervix is completely dilated (10 cm) and ends with birth of the infant
The second stage is typically completed with in 2 hr after the cervix becomes fully dilated for primigravidas (multiparas) average 15 minutes
Assessment :
a.Cervical dilation is complete.
b. Progress of labor is measured by descent of fetal head through the birth canal (change in fetal station).
c. Uterine contractions occur every 2 to 3 minutes, lasting 60 to 75 seconds, and are of strong intensity.
d. Increase in bloody show occurs.
e. Mother feels urge to bear down; assist mother in pushing efforts

Mechanisms of labor

1- Descent :

Descent is thought to occur because of the four forces

A- pressure of the amniotic fluid
B- direct pressure of the fundus of the uterus on the breech of the fetus
C- contraction of the abdominal muscles
D- extension and straightening of the fetal body

the head enters the inlet in the occiput transverse or oblique position because the pelvic inlet is widest from side to side the sagittal suture is an equal distance from the maternal symphysis pubis and sacral promontory

2- flexion :

flexion occurs as the fetal head descends and meets resistance from the soft tissues of the pelvis , the musculature of the pelvic floor , and the cervix , as a result of the resistance , the fetal chin flexes downward on to the che**st**

3-Internal rotation :

The fetal head must rotate to fit the diameter of the pelvic cavity , which is widest in the antero posterior diameter As the occiput of the fetal head meets resistance from the levator ani muscles and their fascia, the occiput rotates from left to right , and the sagittal suture aligns the antero posterior pelvic diameter **.**

4-Extension :

The resistances of the pelvic floor and the mechanical movement of the vulva opening anteriorly and for ward assist with extension of the fetal head as it passes under the symphysis pubis with this positional change the occiput then brow and face emerge from the vagina.

5-Restitution:

he Shoulders of the infant enters the pelvis obliquely and remain oblique when The head rotates to the anteroposterion diameter through internal rotation – because of this rotation the neck becomes twisted once the head emerges and is free of pelvic resistance the neek untwists , turning the head to one side (restitution) and aligns with the position of the back in the birth canal .

6 –External rotation :

As the shoulders rotate to the anteroposterior position in the pelvis the head is turned father to one side external rotation

7-Expulsion :

After the external rotation and through expulsive efforts of the laboring women , the anterior shoulder meets the under surface of the symphysis pubis and slips under it As lateral flexion of the shoulder and head occurs the anterior shoulder is born before the posterior shoulder the body follows quickly

nursing care in second stage of labor

1- mother will be on her back
2- the second stage of labor is recognize by a change in the character of the contraction be come more powerful expulsive and will be adesine to bear down and secondary forus now come to action , the diaphragm is fixed , the patient hold her breath and abdominal muscle contract was ask patient to push down .
3- Record and report as before monitor fetal heart rate every five minute
4- Monitor maternal blood pressure
5- Instruct support person in delivery room as head is descend deep to pelvic floor it will bulging of the perineum
6- After ruptured of the membrane we must do to exclude and prolaps
7- If head is descent ask patient not to push but to take deep breath to prevent perinal tear
8- Delivery in a sterile and antiseptic procedure
9- Episiotomy is done is necessary
10- After delivery of the head a finger is inserted to felt weather a loop of cord is around neck
11-The mouth and pharynx are sucked clean with mucous extractor in neonate the cord should not clamped until the child has cried vigoosuly and pulsation in the cord has creased if it is clamped immediately the baby is deprived a bout 50 ml of blood which would be drawn out of placenta by expansion of lung it is best to keep the baby at the same level as the placenta or a little below it clamp of the umbilical and will be 1-2 cm from the umbilical and the end is cut end of umbilical is examined for two arteries and one vein .

Four Stages of Labor

First Stage	Second Stage	Third Stage	Fourth Stage
Effacement and dilation of cervix	Expulsion of fetus	Separation of placenta	Physical recovery
Three stages– latent, active, and transition	Pushing stage Latent phase– known as "laboring down" Active phase– pushing	Expulsion of placenta	1–4 hr after expulsion of placenta
Mother is talkative and eager in latent phase, becoming tired, restless, and anxious as labor intensifies and contractions become stronger	Mother has intense concentration on pushing with contractions; may fall asleep between contractions	Mother is relieved after birth of newborn; mother is usually very tired	Mother is tired, but is eager to become acquainted with her newborn

"Third stage of labor"

This includes :

placental separation & expulsion:

1. Nursing care during the immediate postpartum period (4th stage)
2. Lacerations of the birth canal
3. Episiotomy & repair
4. Bleeding during the 3rd stage of labor

Placental separation & expulsion:

At the end of 2nd stage of delivery (delivery of fetus) , the woman should be monitored for signs & symptoms of placental separation . The woman feels abdominal pain (uterine contraction) & fullness of vagina . The signs of placental separation include :

1. change in the shape of the uterus
2. vaginal bleeding
3. lengthening of umbilical cord
4. on PV exam. : fullness of vagina by the separated placenta

Two methods are used in separation of placenta :

1. Active method
2. Passive method

Active method :

In this method , immediately after delivery of anterior shoulder of baby , one ampoule of Methergin (Ergometrine) given I.V & immediately after delivery of the fetus , the placenta should be delivered . This method used in patient with previous history of postpartum hemorrhage.

Passive method :

In this method , the placenta let to be separated spontaneously & signs & symptoms of placental separation should be monitored . By Brandt-Androw's method, the placenta should be expelled from the uterus . This is by putting the left hand on the uterus at suprapubic area & catching the umbilical cord (by clamp) by Rt. Hand , then gentle traction on the cord is done by Rt. Hand & pushing the uterus upward & backward by Lt. hand . This method prevents uterine inversion .

Retained placenta should be taken – out in the theatre under G.A with preparation of pint blood . If placenta is percreta , hysterectomy may be indicated .

Passive method last 15-30 minutes to be completed.

Nursing care during the immediate postpartum period :(fourth stage)

4th stage of labor refers to the 1-4 hours immediately after delivery . This critical period is very important because risky complications can occur in this time e.g. postpartum hemorrhage , pulmonary embolism , myocardial infarction, shock due to hematoma in the broad ligament or in vulva , or shock due to severe bleeding from lacerated birth canal (cervical tear) . The role of the nurse in the immediate postpartal period include the following :

1. checking regularly the vital signs to detect early the signs of shock
2. checking the general condition of the patient
3. checking uterine contraction to role-out uterine atony which considered the main cause of postpartum hemorrhage
4. sending the patient for Hb% & GUE after labor to detect anemic state of woman & if she had UTI to be treated earlier
5. checking any vulval hematoma especially in patient with vulval varicosity or patient having episiotomy
6. encourage the patient to pass urine , because urine retention can occur especially in patient with episiotomy & this may precipitate postpartum hemorrhage
7. encourage the woman to take soft diet rich in carbohydrates to compensate the lost energy during labor , except in patient with C/S when she is on I.V fluid
8. encourage the mother to breast-fed her baby as early as possible . This is enhancing the uterus to contract & prevent postpartum bleeding
9. pay attention to any vaginal pack to be removed within 24 hours. If this pack left for more than 24-48 hours infection can occur & septicemia with death can take place

Lacerations of the birth canal :

1. **laceration of cervix :**
   minor lacerations occurs frequently but not cause symptoms . Extensive laceration occur in forceps delivery with incomplete cervical dilatation , or in rapid delivery of head in breech presentation . Scar of cervix from previous injury may tear.

   Clinically : vaginal bleeding during & after 3rd stage

   Management :

1. anesthetize the patient
2. insert wide speculum
3. hold the anterior & posterior lips by sponge forceps
4. suture the tear by catgut

antibiotic is given to prevent infection

2. Laceration of perineum & vagina :
Laceration of 3 stages :

1st degree : tear involve the anterior part of perineum & related posterior wall of vagina

2nd degree: tear involve perineum up to external anal sphincter , with corresponding tear in vagina

3rd degree: tear involve anal sphincter & extend about 2 cm up the anal canal If this tear not repaired, it will end with incontinence ,therefore careful Examination of vagina & perineum after delivery is necessary.

Management :

For 1st & 2nd degree :

Repair of the tear urgently is done Prevent any infection by complete repair under aseptic condition with giving antibiotics Repair is done under pudendal block or G.A or local anesthesia by 1% lignocaine

For 3rd degree :

Repair should be done immediately after delivery. If repair not done , rectal incontinence will be the complication

- Wash the perineum with soap & water & then dried .
- Patient may have urine retention therefore catheterization is needed
- If the bowel not acted by 4th day , glycerine suppository may be used
- If wound infected , remove perineal stitches to permit drainage & giving antibiotics

Episiotomy :

It is an incision in the perineum to enlarge the introitus.

Indications :

1. when perineum threaten to tear : indicated in primigravida .
2. when there is delay in delivery
3. forceps delivery
4. breech delivery : to reduce risk of intracranial hemorrhage
5. fetal distress : when fetal distress at 2nd stage of delivery
6. prolapsed cord
7. premature labor : episiotomy routinely done to prevent intracranial injury

Procedure :

- do episiotomy under pudendal block or G.A or local anesthesia by infiltration with 10 ml of lignocaine 1% .

- incision done when head distending the perineum
- avoid cutting anal sphincter

Management :

- suture episiotomy in layers
- don't leave any space between layers to prevent hematoma
- remove stitches after 5 days
- daily bathing is advised
- keep the wound dry
- antibiotic is given when there is a risk of infection
- analgesia is given when there is discomfort

Bleeding during the 3rd stage of labor :

3rd stage of labor lasts from birth of baby till expulsion of placenta . Placental separation is indicated by the following signs :

- firmly contracted fundus
- change of uterus from discoid to globular ovoid shape
- sudden gush of dark blood from introitus
- apparent lengthening of umbilical cord as placenta descend
- there is vaginal fullness (the placenta) on vaginal or rectal exam.

skin to skin contact between mother & newborn with nipple stimulation & gravity help in spontaneous separation of placenta .

The major risk for woman during 3rd stage of labor is PPH . After delivery of placenta , the nurse should observe woman for signs of excessive blood loss including altered vital signs , pallor, restlessness, decrease urine output & altered level of consciousness .

The risk of amniotic fluid emboli or pulmonary embolism should be noticed.

After delivery of placenta , the nurse should assess the uterine contraction & exclude uterine atony . Also check for perineal or vulval laceration & any bleeding from these areas . Also early detection of cervical tear should be done. Vulval hematoma can be managed conservatively if the size of hematoma < 5 cm.

Retained placenta may happen in 3rd stage & this is managed under G.A by manual removal of placenta & if bleeding still profuse , hysterectomy may indicated .

Management of uterine atony is urgent & need uterine massage , emptying bladder , giving oxytocic drugs by I.V drip , replace fluid & blood lost , packing of uterus under G.A . Methergin is given when there is no contraindication for it . Prophylactic antibiotics should be given to prevent endometritis .

“Nursing care during obstetrical operation

OBJECTIVES

1. To Identify possible medical – surgical interventions labor : cesarean birth , induction and augmentation of labor , episiotomy . forceps & vacuum extractor

2. provide care for a client during labor and delivery .

Induction of labor &augmentation of labor.

Lacerations of the birth canal.

Episiotomy & repair.

Forceps delivery.

Caesarian section.

Induction of labor &augmentation of labor.

Induction of labor (IOL)is the intentional initiation of labor before it begins naturally. **Augmentation** of labor is the stimulation of contractions after they have begun naturally.

Indications for Induction

1. Gestational hypertension
2. Ruptured membranes without spontaneous onset of labor
3. Infection within the uterus
4. Postterm pregnancy
5. Medical problems in the woman that worsen during pregnancy, such as diabetes, kidney disease, or pulmonary disease
6. Fetal problems, such as slowed growth, prolonged pregnancy, or incompatibility between fetal and maternal blood types, oligohydramnios
7. Placental insufficiency.
8. Fetal death

Contraindications to Induction

Labor is not induced in the following conditions

1. Placenta previa, Vasa previa
2. Umbilical cord prolapse
3. Abnormal fetal presentation
4. Abnormal FHR
5. High station of the fetus (head not engaged), which can suggest a preterm fetus or a small
6. maternal pelvis
7. Active herpes infection externally or in the birth canal, which the infant can acquire during
8. birth
9. Abnormal size or structure of the mother's pelvis
10. Previous classic (vertical) cesarean incision

Method of induction of labor

A-Non-pharmacological Methods to Stimulate Contractions(Nturally)

1. Sexual activity
2. Nipple stimulation
3. Walking
4. Bath.
5. Castor oil
6. Cinnamon and curry
7. Acupressure

B-Pharmacological and Mechanical Methods to Stimulate Contractions

1-Cervical Ripening: Cervical ripening is the physical softening of the cervix that leads to effacement and dilation. Induction of labor is more effective if the woman's cervix is "ripe".

-Cervical ripening can be achieved by pharmacological or mechanical means.

- **Prostaglandin E_2** (PGE_2; dinoprostone gel (Prepidil) ripens the cervix and stimulates uterine muscle). Dinoprostone inserts (Cervidil)
- Prostaglandin E1 (PGEI): Misoprostol (Cytotec) can be used for both cervical ripening and induction of labor.

2- Stripping the amniotic membranes

Stripping the amniotic membranes involves separation of the chorioamniotic membranes from the wall of the lower uterine segment and cervix by insertion of the examiner's gloved finger through the cervix and beyond the internal cervical os and rotating the finger along the lower uterine segment**.**

3- Amniotomy is the artificial rupture of membranes (AROM) by inserting a cervical hook (Amniohook) through the cervical os. Is done at least when cervical dilation 2 cm

4-Oxytocin : (normally produced in the hypothalamus and released by the posterior pituitary.)

Oxytocin causes the uterus to contract used to induce labor, strengthen labor contractions during childbirth, control bleeding after childbirth

Oxytocin :is diluted in an(slow IV solution). Contractions usually start about 30 minutes after oxytocin is given.

Complications of Augmentation of Labor

1. fetal compromise
2. uterine rupture
3. uterine hyperstimulation
4. postpartum hemorrhage
5. abruptio placenta
6. rapid labor,leading to lacerationof cervix ,vagina, perineum, and fetal truma

Nursing care during induction and augmentation of labor

1. Explain induction and augmentation to the client
2. Assess cervical dilation
3. assesse and record Fetal heart and uterine contraction
4. assesse maternal vital signs
5. observe & check the rate of flow of infusion ,, intake and output

Lacerations of the birth canal:

1. **laceration of cervix**

- A minor laceration occurs frequently but not causes symptoms. Extensive laceration occurs in forceps delivery with incomplete cervical dilatation, or in rapid delivery of head in breech presentation.
- Scar of cervix from previous injury may tear.

Management

1- Anesthetize the patient.
2- Insert wide speculum.
3- Hold the anterior & posterior lips by sponge forceps.
4- Suture the tear by catgut.
5- Antibiotic is given to prevent infection.

Laceration of perineum & vagina

Laceration of 4 stages:

First degree: Involves the superficial vaginal mucosa or perineal skin
Second degree: Involves the vaginal mucosa, perineal skin, and deeper tissues of the perineum
Third degree: Same as second degree, plus involves the anal sphincter
Fourth degree: Extends through the anal sphincter into the rectal mucosa

Management:

- For 1st& 2nd degree :

5. Repair of the tear urgently should be done.
6. Prevent any infection by complete repair under aseptic condition with giving antibiotics.
7. Repair is done under pudendal block or G.A or local anesthesia by 1% lignocaine

For 3rd and 4th degree:

1. Repair should be done immediately after delivery.
2. If repair not done, rectal incontinence will be the complication.
3. Wash the perineum with soap & water & then dried.
4. Patient may have urine retention therefore catheterization is needed.

5. If the bowel not acted by 4th day,glycerin suppository may be used .
6. If wound infected , remove perineal stitches to permit drainage & giving antibiotic

Episiotomy

is a surgical incision of the perineum and the posterior vaginal wall generally done by a midwife or obstetrician. Episiotomy is usually performed during second stage of labor to quickly enlarge the opening for the baby to pass through

Indications of episiotomy

8. When perineum threaten to tear: indicated in primigravida .
9. When there is delay in delivery.
10. Forceps delivery.
11. Breechdelivery: to reduce risk of intracranial hemorrhage.
12. Fetaldistress: when fetal distress at 2ndstage of delivery.
13. Prolapsedcord.

Prematurelabor: episiotomy routinely done to prevent intracranial injury

There are four main types of episiotomy

- Midline (median)—extending directly from the lower vaginal border toward the anus
- Mediolateral—extending from the lower vaginal border toward the mother's right or left
- Lateral.

Procedure

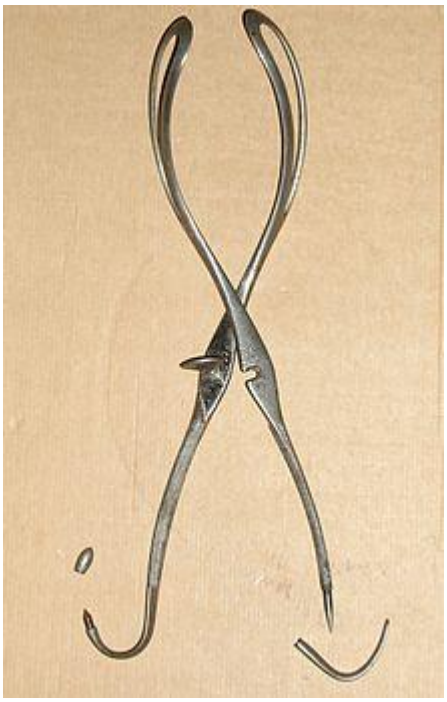
- Do episiotomy under pudenda block or G.A or local anesthesia by infiltration with 10 ml of lignocaine 1%.
- Incision done when head distending the perineum .
- Avoid cutting anal sphincter

Management

- suture episiotomy in layers
- don't leave any space between layers to prevent hematoma
- remove stitches after 5 days
- daily bathing is advised
- keep the wound dry
- antibiotic is given when there is a risk of infection
- analgesia is given when there is discomfort

Forceps delivery

Forceps births, like all assisted births, should only be undertaken to help promote the health of the mother or baby. In general, a forceps birth is likely to be safer for both the mother and baby than the alternatives — either a ventouse birth or a caesarean section— although caveats such as operator skill apply



- Maternal factors for use of forceps:

  1-Maternal exhaustion.

  1. Prolonged second stage of labour.
  2. Maternal illness such as heart disease, hypertension, glaucoma, aneurysm, or other conditions that make pushing difficult or dangerous.
  3. Hemorrhaging.
  4. Analgesic drug-related inhibition of maternal effort (especially with epidural/spinal anaesthesia

- Fetal factors for use of forceps:

  1. Non-reassuring fetal heart tracing.
  2. Fetal distress.
  3. After-coming head in breech delivery

Complications

Baby

- Cuts and bruises.
- Increased risk of facial nerve injury (usually temporary).
- Increased risk of clavicle fracture (rare).
- Increased risk of intracranial hemorrhage - sometimes leading to death: 4/10,000
- Increased risk of damage to cranial nerve ,

Mother

Increased risk of perineal lacerations, pelvic organ prolapse, and incontinence.

- Increased risk of injury to vagina and cervix.
- Increased postnatal recovery time and pain.
- Increased difficulty evacuating during recovery time

Conditions to be fulfilled before applying forceps:

1. The presentation must be suitable.
2. The head must be engaged.
3. Adequate pelvic outlet.
4. Full dilatation of cervix.
5. Rupture fore water bag. (If it is not ruptured).
6. The bladder should be empty.
7. The uterus should be contracting to help pushing the fetus.

Vacuum extraction

. known as **ventouse**, is a method to assist delivery of a baby using a vacuum device. It is used in the second stage of labor if it has not progressed adequately. It may be an alternative to a forceps delivery and caesarean section. It cannot be used when the baby is in the breech position or for premature births. The use of VE is generally safe, but it can occasionally have negative effects on either the mother or the child.[1] The term comes from the French word for "suction cup".

Indications of Vacuum extraction

1. Same as for forceps.
2. Vacuum used to accelerate cervical dilatation when the 1st stage is prolonged.
3. If there is weak uterine contraction, oxytocin is given.
4. If there is disproportion, C/S is indicated.

Caesarian Section

- Is defined as operation by which the fetus is delivered through an incision in the uterus after 28^{th} week of pregnancy. .

Indications of Caesarian section

1. Faults in birth canal e.g.

a. Cephalopelvic disproportion.

b. Pelvic tumor. e.g. ovarian cyst or fibromyoma.

c. Cervical or vaginal stenosis.

d. Double uterus.

2. Fetal malpresentation : (brow, locked twin).

3. Abnormal uterine action.

4. APH: in placenta previa except 1^{st} degree

5. Other maternal indications: in cardiac or respiratory diseases, fulminating PET.

6. fetal indications : as in diabetes mellitus due to premature delivery of the baby in placental insufficiency as in PET

Types of Caesarian section

1. Upper uterine segment operation: rarely done (due to risk of rupture scar).

2. Trans peritoneal lower uterine segment operation: commonly done both types could be elective or emergency.

Pre-operative nursing care

1. Checking maternal vital signs.
2. Checking fetal heart.
3. Shaving abdomen with taking a bath the day before operation.
4. Emptying urinary bladder by catheter.
5. I.V glucose –saline drip is inserted.
6. Prepare cross matched liter of blood.

During operation

1. Re-rusticator equipped theater,heat,suction, oxygen, open mask.
2. Checking maternal vital signs regularly.
3. giving oxytocin if uterus is not contracted

Postoperative

1. Giving I.V fluid for 1st 24 hrs is given.
2. Giving analgesic drug to let the mother comfortable & in rest.
3. Daily breast care is carried out & breast feeding is encouraged earlier.
4. Checking urine output.
5. Check for any PPH.
6. Check for bowel motion early movement of patient will decrease the risk of DVT.
7. Prophylactic antibiotic is given pre &post-operative.
8. Remove stitches at day 5-7 after operation.
9. Checking for any wound infection..

puerperium

OBJECTIVES

1-discuss the mothers physiologic changes after the birth of her baby .
2- describe the expected and unexpected emotional / behavioral changes in the new mother.
3-discuss the possible post- partum complications of hemorrhage and puerperal infection , mastitis ,UTI and pulmonary embolism.

Post-partum care (puerperium)

Postpartum period: the period of adjustment after childbirth during which the mother's reproductive system returns to its normal pre pregnant state. It generally lasts six to eight weeks and ends with the first ovulation and the return of normal menstruation

Physiological changes

General changes

- Temperature: normal but,
    - A reactionary rise may occur after difficult labor. It does not exceed 38oC and drops within 24 hours.
    - A slight rise may occur at the 3rd day due to engorgement of the breasts.
- Pulse: normal but may rise if there is hemorrhage or infection.
- After pains: Painful uterine contractions occur in early puerperium increasing with suckling due to oxytocin release. If intolerable use analgesics.
- Breasts:
    - Colostrum is secreted in the first 3 days.
    - With the establishment of milk secretion at the 3rd to 4th day, the breasts become engorged, larger, painful, tender while suckling relieves the discomfort.
    - Suckling stimulates prolactin secretion, which causes milk production and oxytocin release, which stimulates milk ejection.
- Urine: Diuresis by the 2nd - 4th day, lasting for 3-4 days.
    - Retention of urine may occur due to:
        - Atony of the bladder.
        - Laxity of the abdomen.
        - Recumbancy.
        - Reflex inhibition if the perineum is sutured.
        - Compression of the urethra by vulval oedema or hematoma
- Bowel: Tendency to constipation due to;
    - Atony of the intestine.
    - Laxity of abdomen and perineum.
    - Anorexia.
    - Loss of fluids.
- Loss of weight: due to
    - Evacuation of the uterine contents.
    - More fluid loss in urine and sweat.
- Blood:
    - Increased coagulability of the blood continues during the first two weeks in spite of significant decrease in a number of coagulation factors.
    - Haemoglobin concentration: tends to fall in the first 2-3 days.
- Menstruation: is regained by the 6th - 8th weeks after delivery but in lactating women a variable period of amenorrhea may be present.

Local changes

- The uterus is involuted as follow:
    - Structure: 1-Autolysis of the excess muscle fibres.
    - The blood vessels are obliterated by thrombosis and become degenerated while its remnants are transformed into elastic tissues iii) The decidua, except the basal layer, is separated.
    - Weight: After delivery the uterine weight is 1000 gm. . By the end of 6 weeks it is 50 gm.
    - Size: After delivery the length of the uterus is 20 cm and felt at the level of umbilicus. After one week it is midway between umbilicus and symphysis pubis. After 2 weeks it is at the level of symphysis. By the end of the 6th week it is 7.5 cm long.
    - Uterine ligaments: are involuted and subinvolution predisposes to prolapse and retroversion

Lochia: it is post childbirth uterine discharge. It includes:

1. **Lochiarubra**: consists mainly of blood,decidua& trophoblastic debris. After 3-4days.
2. **Lochiaserosa**:which consists of old blood, serum, leukocytes & tissue debris?
3. **lochia alba**: About 10 days after childbirth the drainage becomes yellow to white which consists of leukocytes , decidua, epithelial cells , mucus , serum & bacteria .

- The amount of lochia decreases by using of Pitocin.
- Retained placental pieces & membranes cause persistence of lochia rubra .
- The odor of lochia is important, if offensive it indicates infection & if it is associated with fever, pain & abdominal tenderness it indicates endometritis . Pay attention to cervical laceration or unrepaired vaginal lacerations..

Nursing diagnosis

1. Risk for infection related to childbirth trauma to tissues.
2. Risk for constipation related to post childbirth discomfort, decrease intakeof solid food &/ or fluids.
3. Disturbed sleep pattern related to discomfort of postpartum period , long labor process , infant care.
4. Acute pain related to involution of uterus , hemorrhoids , engorged breasts.
5. Risk for injury related to effects of anesthesia.
6. Ineffective breastfeeding related to maternal discomfort, infant positioning.

Nursing care during puerperium

1. Assist woman & their partners during their initial transition to parenting.
2. Prevent infection & excessive bleeding & to promote normal bowel & bladder patterns & care for breasts of women who are breastfeeding or bottle-feeding.
3. During 4^{th} stage of labor (1^{st} 1-2 hrs after birth), the nurse should check vital signs (B.p, pulse, temp.) , then examine fundus of uterus (exclude uterine atony) , examine bladder (exclude full bladder) .
4. Determine amount & color of lochia; examine perineum for episiotomy & for laceration &hematoma. Examine for hemorrhoids.

Instructions related to the mother include:

1. **General body hygiene**, good nutrition, rest & sleep, early ambulation,bathing after delivery is necessary & it should be daily in hot weather .

2. **Care for bladder**: the nurse should help the woman to pass urine after delivery to prevent having full bladder which will cause uterine atony& precipitate postpartum hemorrhage.

3. **Care for bowel:** to prevent constipation. This is done by taking excessive fluid,vegetables, sometime by having enema or laxative.

4. **Analgesia** is needed for woman having episiotomy or vaginal laceration.

5. **Care for perineum:** especially in woman having episiotomy or perinealtear. Cleaning the perineum frequently at day, with diluted antiseptic solution with direction from anterior to posterior to prevent contamination of perineum with feces, then drying the area with clean pads.

6. **Care for after pain**: which is colicky pain occurs after delivery & after breastfeeding. Reassurance of the mother with use of simple analgesia can relieve pain.

7. **Care for breasts**: the woman wear well fitted brassiere, the nipple cleaned by water or drops of milk. if breast engorgement occurs, cold sponges used with analgesia .

8. **Postpartum exercise** : should be encouraged for strengthening pelvic floor & abdominal muscles
9. **Encourage breast feeding** with explanation of family planning methods by using contraceptives to lengthen the child spacing time, for at least 2 years birth interval.
10. Teaching woman to notice the temperature, lochia & detecting signs of postpartum hemorrhage or infection.

11-Instructions for caring for fetus :

- Encourage woman for frequent breast feeding.
- Explain the importance of general hygiene of the fetus.
- Care for umbilical stump.
- Notice any fetal risks like jaundice, fever, repeated vomiting, infection of umbilical stump, no passage of meconium.

Nursing assessment and management of neonate:

Assessment and management of newborn is directed towered promoting the physical wellbeing of the baby and supporting the family unit:

1. **Providing umbilical cord care,** to assist the cord in drying and falling off

a. Check umbilical cord clamp placement to prevent bleeding from cord.
b. Keep cord dray and exposed to air.
c. Asses the cord for presence of vessels.
d. Observe cord and abdominal area for redness ,discharge ,or bad odor.
e. Teaching parents to solution used for clean.

2. **weighing and measuring the newborn:**

- To obtain abstained weight and measurement of the newborn infant
  Weight:
- document on the newborns medical record after returning the newborn to the bassinet and compare the weight with previous weight .and normal range (2500 - 4000 g).

3. **Length**

   Their head to heel length is (48 to 53 cm)

4. **Head**

- The head circumference measured over the most prominent part of the occiput and just above the eyebrows is between 33cm and 35 cm.
- The anterior fontanels largest and closed by 18 months.
- Posterior fontanels closed about 2 months.

5. **Eyes**

- eye color varies being either slat grey, blue or brown the eyelids are usually edematous and there are no tears.

6. **Ears**

- the ears are soft,pliable and recoil swiftly when bent and released.

7. Neck

- the neck is short ,thick and usually has several skin folds.

8. Chest

- circumference is 30.5cm to 35cm.

9. Abdomen

The abdomen is cylindrical in shape the bluish white umbilical cord protrudes from the center.

10. Genitalia

- the labia are usually edematous with vernixcseosabetween the labia

11. backs

- the spine is intact with no openings ,masses or prominent curve.

12. Extremities

- Usually flexed.
- Full range of motion.
- Ten finger and ten toes are present with creases visible on the anterior two- thirds of the sole of the foots.

General care of baby

1. Check for abnormalities before give the baby to her mother to suckle the colostrum .
2. Protect him from cold/warp baby with warm towels
3. Baby laid in head turn to one side in its cot
4. Check the temperature: rectally or axillary.
5. identification: by plastic wrist band (blue for♂ pink for♀).
6. bathing the baby: to remove vernixcaseosa&blood best to clean face of baby moistened swab
7. daily inspection of baby skin, eye, mouth, umbilical, cord stamp

Nursing care for puerperium complications:

1-puerperal infections

2- sub involution of the uterus

3- vulvar hematoma

4- disorders of breasts

5- disorders of bladder

6-pulmonary embolism

1- puerperal infections

It is any clinical infection of the genital canal that occurs within 28 days after miscarriage , induced abortion & labor. It occurs 5-10 times higher after c/s than after vaginal birth .

Common postpartum infections include endometritis , wound infection, mastitis, UTI & respiratory tract infections.

The most common infecting micro-organisms are streptococci & anaerobic organisms. The less common , but serious pathogenic organisms include staphylococcus aureus, gonococci, coliform bacteria & clostridia .

Predisposing factors for postpartum infections :

A// Antepartal factors :

1. History of previous venous thrombosis, UTI, mastitis, pneumonia .
2. Diabetes mellitus
3. Alcoholism & drug abuse
4. Anemia & malnutrition

B// Intrapartum factors :

1. C/S births
2. prolonged rupture of membranes
3. chorioamionitis
4. prolonged labor
5. bladder catheterization
6. internal fetal / uterine pressure monitoring
7. multiple vaginal exam. After rupture of membranes
8. epidural anesthesia
9. retained pieces of placenta
10. PPH
11. episiotomy or lacerations
12. hematomas

WOUND INFECTION:

It is common postpartum infection . The site of infection include C/S incision , episiotomy , repaired laceration site .

Signs of wound infection :

Erythema, edema, warmth, tenderness, seropurulant discharge, wound separation, fever & pain.

Urinary tract infection :

It occur in 2-4% of postpartum women .

The risk factors include :

catheterization , frequent pelvic exam. , epidural anesthesia, genital tract injury, history of UTI & C/S births .

Signs & symptoms include :

Dysuria, frequency, urgency, low-grade fever, urinary retention , hematuria & pyuria .

Flank pain may indicate upper UTI. Urinalysis may reveal E.Coli . other gram negative aerobic bacilli can cause UTI .

Mastitis :

Affects 1% of women soon after birth. It is almost always unilateral & develops after flow of milk is established.

The infecting organism is hemolytic strept. aureus.

It starts as infected nipple fissure followed by ductal system involvement . Edema & engorgement of breast obstruct flow of milk & regional then generalized mastitis develop.

If mastitis not treated , breast abscess will occur.

Mastitis more commonly seen in 2^{nd}-4^{th} week postpartum .

Treatment of wound infection :

1. antibiotic therapy
2. wound debridment : wound may be opened & drained
3. nursing care include: frequent wound & vital signs assessment & wound care.
4. comfort measures: warm compresses . sitz bath, perineal care.
5. teaching include: good hygiene technique e.g. changing perineal pads front to back, hand washing before & after perineal care . self-care measures, signs of worsening conditions reported .
6. woman discharged for self-care or home nursing care after treatment is initiated in inpatient setting.
7. follow-up is needed to detect early complications.

Management of UTI :

1. antibiotic therapy according to C&S test. (treatment not less than 10 days).
2. analgesia, hydration
3. postpartum woman with UTI treated on outpatient basis.
4. teaching include: monitor temp. , bladder function, appearance of urine, signs of potential complications & taking antibiotics as prescribed.
5. inform postpartum woman for proper perineal care, wiping from front to back after urinating or have bowel motion , with increase fluid intake to prevent UTI.

Treatment of mastitis:

1. teaching include warning signs of mastitis
2. counseling about prevention of cracked nipple

3. intensive antibiotic therapy (cephalosporin, vancomycin) which are useful for staph. Infection
4. supports of breasts, local cold, adequate hydration
5. giving analgesia
6. proper breastfeeding technique is preventive measure for cracked nipple
7. cleanliness by all having contact with new mother reduce incidence of mastitis

2- Sub involution of the uterus :

Is incomplete return of uterus to its prepregnant size & shape with sub involution .

At 4-6 wk postpartum visit, the uterus is still enlarged & soft. Local discharge is still present.

Sub involution may result from small retained pieces of placenta , mild endometritis or accompanying problem e.g. myoma which interferes with complete contraction.

Management:

Oral administration of methylergonovine (0.2 mg 4 times daily) will improve uterine tone & complete involution.

If uterus is tender on palpation , suggesting endometritis , so give oral antibiotic .

The nurse should teach the mother about normal process of involution & lochial discharge prior to discharge to home to prevent delay in seeking health care advice. Anemia can result from chronic blood loss from subinvoluted uterus& this can add more to woman complaints.

3- Vulvar hematoma:

Mainly perineal hematoma which is collection of blood in subcutaneous layer of tissue of perineum . the overlying skin is intact . this blood collection caused by injured blood vessels in perineum during birth.

Hematoma most likely to occur after rapid spontaneous delivery in woman having perineal varicosities . also, it can occur at episiotomy or laceration repair site . they may cause woman acute discomfort.

Assessment:

Perineal sutures almost give postpartum woman some discomfort .

the woman complain of severe pain in perineal area or feeling of pressure between her legs.

Inspect perineal area for hematoma. Hematoma appear as area of bluish discolation & swelling from 2-8 cm in diameter . the area is tender on palpation & feel fluctuant , but seepage into area continue & thus it may be felt as firm globe.

Management:

1. assess the size of hematoma & degree of woman discomfort
2. administer mild analgesic for pain relief
3. apply ice pack covered with towel to prevent further bleeding
4. hematoma usually is absorbed over next 3-4 days

5. if hematoma is large when discovered or increasing in size, then it should be incised, & bleeding vessel ligated
6. if episiotomy incision line is opened to drain hematoma it may be left open & packed with gauze rather than be resutured
7. packing usually removed within 24-48 hrs
8. teach a woman for home care of suture line before discharge her
9. give antibiotic with correction of anemia by tonics if needed

4-pulmonary embolism:

It is obstruction of pulmonary artery with blood clot . usually occur as complication of thrombophlebitis . the signs of pulmonary embolism are :

Sudden sharp chest pain , tachypnea , tachycardia, orthopnea, & cyanosis. It is an emergency situation . the woman need oxygen immediately & is at high risk of cardiopulmonary arrest . woman with such condition urgently transferred to intensive care unit for continuing treatment.

Disorders of bladder:

1. urinary retention
2. UTI

urinary retention & incontinence :

It implies inadequate bladder emptying after childbirth , bladder sensation for voiding is decrease because of bladder edema from pressure of birth.

Unable to empty bladder means over distention .

Incomplete emptying bladder leads to retention with overflow .

Continuous over distention will lead to bladder atony with permanent incontinence .

Assessment :

Retention of urine is associated with anesthesia & forceps . when postpartum woman not void for > 8 hr. , palpate & percuss bladder to exclude retention .

Always measure the 1st urine output after birth . if it is < 50 ml, suspect retention . urinary retention is confirmed by catheterization immediately after voiding .

if residual urine in bladder after voiding is > 100 ml so the woman has retention of urine . in such condition leave Foley's catheter in bladder (Foley's catheter decrease risk of introducing pathogens) . always use antiseptic technique to prevent infection . activity & ambulation help to prevent thrombophlebitis . after 24 hr, catheter clamped for short time & then removed , encourage woman to void by end of 6 hrs after removal of catheter by offering fluid & giving analgesia to be relaxed . take a mother to

bathroom & let water running at sink or let her hold her hands under warm running water . in most women when edema of vulva & bladder decrease , she can void without difficulty . assess residual urine again . if a woman not void after 8 hrs of catheter removal , reinsert Foley's catheter for another 24 hrs . assure the mother that bladder complications are not uncommon . usually they are present for no longer than 48 hrs postpartum. They are problems that most likely will not recur.

"Neonatal nursing care"

OBJECTIVES

1.Identify indications for instituting neonatal resuscitation.
2. Identify parameters used in the Apgar scoring of a newborn.

The period of transition: from intrauterine to extra uterine life occurs during the first several hours after birth. During the immediate newborn period , the nursing interventions include maintaining airway patency, ensuring proper identification, administering prescribed medications, and maintaining thermoregulation.

Immediate Care of the Newborn:

1-Maintaining Airway Patency: Immediately after birth, a newborn is suctioned to remove fluids and mucus from the mouth and nose. When suctioning a newborn with a bulb syringe, compress the bulb before placing it into the _oral or nasal cavity

2- Identification :the nurse give the mother and newborn identification bands with identical codes in the delivery room.(on bracelet on the wrist of mother and two bracelet are placed on the wrist and ankle of newborn→ pink for female baby and blue for male).The footprint can be placed on a card or the parents' baby book.

3-**Care of umbilical cord:** clamp umbilical card after baby cry and pulsation of cord stop. Two artery and one vein. Put clamp 1-2 cm from umbilical, make sure the baby at level of placenta not higher or lower .keep the cord clean and dry.

4- Assess body temperature frequently during the immediate newborn period. Wrap the baby in warmed blankets to reduce heat loss. Place the newborn under a temperature-controlled radiant warmer.

5- APCAR score :

Five parameters are assessed with Apgar scoring:

A quick way to remember the parameters of Apgar scoring is as follows:
A = appearance (color), **P** = pulse (heart rate), **G** = grimace (reflex irritability),
A = activity (muscle tone), **R** = respiratory (respiratory effort

Table 1:Apgar Scoring:

	Sign	Score		
		2	1	0
A	Appearance (skin colour)	Normal over entire body	Normal except extremities	Cyanotic or pale all over
P	Pulse(heart rate)	>100 bpm	<100bpm	Absent
G	Grimace response(reflexes)	Sneezes, coughs, pulls away	Grimaces	No response
A	Activity (muscle tone)	Active	Arms and legs flexed	Absent
R	Respiration (breathing rate and effort)	Good, crying	Slow, irregular	Absent

A normal newborn's score should be 8 to 10 points. The higher the score, the better the condition of the newborn. If the Apgar score is 8 points or higher, no intervention is needed.
If Scores of 4 to 7 points signify moderate difficulty and needing care. If scores of 0 to 3 points represent severe distress and need resuscitation

5-Vital signs :

-Temperature (36.5–37.5° C)
-Heart rate (pulse): (120–160 bpm); can increase to 180 bpm during crying
-Respirations 30–60 breaths/minute at rest; will increase with crying
-Blood pressure 50–75 mm Hg systolic, 30–45 mm Hg diastolic

6- Measurements of Weight, length, head and chest circumference

-Weight: 2500-4000 gm -Length : 48-52 cm

-Head circumference: 32-37 cm -Chest circumference: 30-35 cm

7- Administering Prescribed Medications

During the immediate newborn period, two medications are commonly ordered: vitamin K and eye prophylaxis with either erythromycin or tetracycline ophthalmic ointment (Prevents ophthalmia neonatorum). Vitamin K is administered intramuscularly to prevent hemorrhage.

7-Bathing the baby to remove vernix caseasa and blood. Best clean the face od baby by moistened swab. The vernix caseasa act as barrier for infection. And keep the baby warm after bathing.

8- Skin to skin contact (Temp. regulation, comfort baby, mother does not have to hold the baby)

9-Check for abnormalities before give the baby to her mother to suckle the colostrum .and encourage to breast feeding.

10-**Vaccine** (BCG, Hep.B ,and OPV first dose)

Assess for newborn reflexes

Reflex name	Evoking stimulus	Response
Blinking reflex	Light flash	Eyelids close
Rooting reflex	Light touch of finger on cheek close to mouth	Head rotates toward stimulation; mouth opens & attempts to suck finger.
Sucking reflex	Finger(or nipple) inserted into mouth	Rhythmic sucking occurs
Moro reflex	Infant lying on the back; slightly raised head suddenly released;	Arms are extended, head is thrown back, fingers are spread wide; arms are then brought back to center convulsively with hands clenched, legs are extended.
Grasp reflex	Finger placed in the palm of hand	Infant's finger close around and grasp object
Abdomen reflex	Tactile stimulation or tickling	Abdomen muscles contract
Babinski reflex	Gentle stroking on the sole of each foot	The big toe dorsiflexion and other toes fan or spread out.

Physical examination: General survey: periods of alertness, symmetric features and movements, easily consolable and all body systems from head to toys.

"Contraception, sterilization and termination of pregnancy"

OBJECTIVES

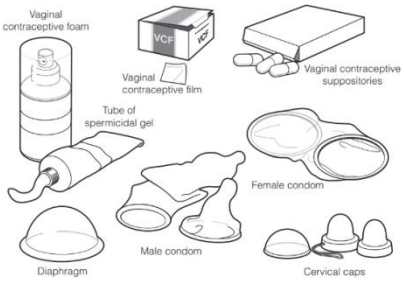
1. Identify the family planning and contraception.
2. Describe the Objective of family planning in Iraq.
3. Identify the Contraception methods and mechanism of action.
4. Describe the risks and benefits of each method of birth control.
5. Teaching the clients for using contraceptive methods

Family planning

Family planning: the concept or a program of limiting the size of families through the spacing or prevention of pregnancies

Contraception: the intentional prevention of conception

by artificial or natural means.



Objective of family planning in Iraq

1. Space pregnancy: increase child spacing.
2. Keep woman healthy and fit.
3. To control the frequent pregnancies which are burden on the mother.
4. Make balance between economic resources and increasing population.

Contraception methods

1. **Natural methods ''Physiological''** (Abstinence, safe period, coitus interruptus, lactational amenorrhea method LAM)
2. **Barrier methods and spermicides**(Condom "male and female" , vaginal diaphragm, cervical cap)
3. **Intrauterine devices(IUD)**
4. **Hormonal contraceptive methods(**oral, IM, Implants, Vaginal ring, patches)
5. **Surgical sterilization.**
6. **Emergency contraception**

Natural methods(Physiological)

1-Abstinence: have no sexual intercourse (failure rate: none, 100% STD protection).

2-Safe period: Intercourse is totally prevented, at the time of expected ovulation (day 10-18 of a 28 days cycle), while allowed for the rest of the month without protection methods. This method is suitable only for regular cycles.

To determine fertile period by either method:(F.R 25%, none protection of STD)

a- Calendar method to calculate time of ovulation.

b- Basal body temperature (BBT): Pre-ovulation temperatures are suppressed by estrogen, whereas post-ovulation temperatures are increased under the influence of heat-inducing progesterone (BBT ↑0.4-0.8 C) and remain elevated till 2-4 days before menstruation.

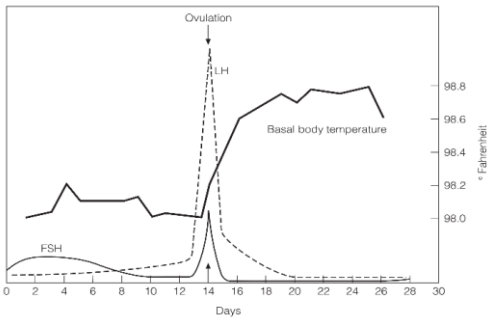


Figure 24-1 • The relationship between ovulation and basal body temperature. LH, luteinizing hormone; FSH, follicle-stimulating hormone.

c- Cervical mucus ovulation method: As ovulation approaches, the mucus becomes more abundant, clear, slippery, and smooth; it can be stretched between two fingers without breaking. After ovulation, the cervical mucus becomes thick and dry under the influence of progesterone.

3-Coitus interruptus, or withdrawal of the penis from the vagina before ejaculation(Failure rate 27% , not protection against DTDs).

4-Lactational Amenorrhea Method (LAM): Breastfeeding inhibits ovulation and prevent pregnancy. Breastfeeding stimulates the hormone prolactin (↑prolactin→↓HCG), 1-2% chance of pregnancy in first 6 month.

2. Barrier methods and spermicides

a-Male condoms are latex sheaths placed over the erect penis before ejaculation to block sperm (F.R 15%). Safe, readily available, low cost, Act as protective measure against STD. Disadvantages: latex allergy, tear, spillage of sperm.

b- Female condom: is a polyurethane pouch inserted into the vagina. It consists of outer and inner flexible ring that is inserted vaginally. (F.R 21%)

Male condom Female condom

c- Vaginal Diaphragm: The diaphragm is a latex dome surrounded by a spring or coil. The woman places spermicidal cream or gel into the dome and around the rim and then inserts the diaphragm over the cervix (covers the cervix and prevents passage of sperm).F.R 16%.

d-Cervical Cap is a smaller than diaphragm , soft, silicone cap that fits directly over the cervix acts as a barrier to sperm and used with a spermicidal jelly. F.R 24%.

Diaphragm

Cervical cap

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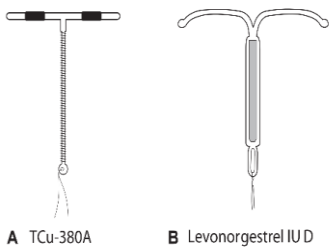
3. Intrauterine devices:

Is a small plastic T-shaped inserted into the uterine cavity, long-acting contraceptives, failure rate 1%.

There are two types of IUDs:

1- The Copper T 380 (ParaGard) IUD - contains copper

2-Hormonal IUD contains the hormone progestogene (Mirena)



Intrauterine devices (IUD). **(A)** ParaGard Copper T (TCu-380A). **(B)** Mirena (Levonorgestrel IUS).

HOW DOES IT WORK?

The hormones or the copper stop the sperm reaching the

egg. Sometimes, sperm does reach the egg (fertilization) so the IUD stops the egg from attaching to the wall of the uterus.

The Cooper-covered (ParaGard) is approved for 10 years of use and non-hormonal. produces a spermicidal intrauterine environment by the release of copper ions into the uterus. This makes the uterus inhospitable to sperm transport and viability.

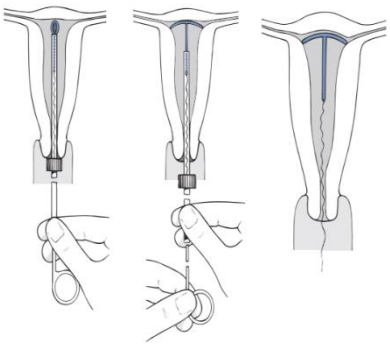
Mirena is provided for 3- 5 years. It releases a low dose of progestin causing thinning of the endometrium cavity and thickening of cervical mucus, prevents transport of sperm into the endometrial cavity and fallopian tubes.

Contraindications for Intrauterine Device (IUD) Use

- Known or suspected pregnancy.
- Undiagnosed abnormal vaginal bleeding.
- Acute cervical, uterine infection.
- Copper allergy (for ParaGard only).
- History of ectopic pregnancy.
- History of pelvic inflammatory disease.
- Current menorrhagia or dysmenorrhea (for ParaGard only).
- Nullipara.
- Uterine fibroid.
- Uterine anomolies that interfere with proper insertion

Possible side effects and Complication for Intrauterine Device (IUD)

- Feel pain, cramps or dizziness, spotting ,Irregular periods after insertion the IUD.
- Perforation
- Expulsion of device
- Infection
- Menorrhgia (increase bleeding during menses
- Dysmenorrhea (painful menstruation
- Ectopic pregnancy.
- Missed IUD.
- Vaginal discharge



4. Hormonal contraceptive methods

Hormonal contraceptives are the most commonly used reversible means of preventing pregnancy, and consist of combined (estrogen and progesterone) and progesterone-only methods.

-Combined hormonal methods are available in oral, transdermal patches, and vaginal ring, whereas progesterone-only methods are available in oral, injectable, implantable, and intrauterine forms.

A. Combination Oral Contraceptives (COCs)

Estrogen and progestin combinations (COCs) are the most common OCs. COCs prevent pregnancy by:

1-Estrogen: Inhibits ovulation via suppression of (GnRH, FSH, LH, and LH surge)

2-Pregesterone: 1-Thickening of cervical mucus, and not penetrated by sperm.
2- Making endometrium unfavorable site for implantation.
3-tubal motility is slowed and unfavorable for oocyte transport.

The combination pill containing both estrogen and progestin is taken for the first 21 days out of a 28-day monthly cycle. During the last 7 days of the cycle, a placebo pill(contain iron) or no pill is taken. (F.R 8%)

Advantages of COCs

1-Easy,cheap, available
2-High rate of effectiveness
3-Regulates menstrual cycle and reduce dysmenorrhea, menstrual blood loss.
4- Reduce anemia
5-↓ incidence of benign breast disease
6-↓ ectopic pregnancy
7-↓ incidence of ovarian, endometrial cancer.
8- improve acne, Hirsutism,

Disadvantages of COCs

1-Offer no protection against STDs
2-User must remember to take pill daily.
3-Nausea, vomiting
4- Spotting
5-Breakthrough bleeding
6-Breast tenderness
7-Headache. depressive mood
8-Deep vein thrombosis.
9-Weight gain: mainly due to salt and water retention.
10-Skin pigmentation (Chloasma).

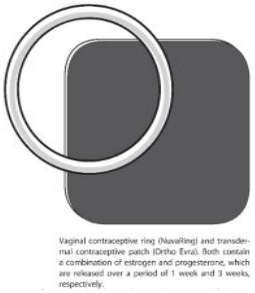
Contraindication of Oral Contraceptives

- **Cardiovascular disease**
- Deep Vein Thrombosis (DVT)
- Hypertension.
- pregnancy
- Liver impairment
- Lactation 6 < weeks postpartum.
- Diabetes longer than 20 years.
- breast cancer;
- undiagnosed abnormal vaginal bleeding

Transdermal Estrogen and Progestin Hormonal Contraception—Ortho Evra

patch (Ortho Evra), Women apply one patch each week for 3 weeks followed by 1-week patch-free period during which they will have a withdrawal bleed.

F.R 8%



Vaginal contraceptive ring (NuvaRing) and transdermal contraceptive patch (Ortho Evra). Both contain a combination of estrogen and progesterone, which are released over a period of 1 week and 3 weeks, respectively.

Vaginal Estrogen and Progestin Hormonal Contraception-NuvaRing

Vaginal ring (NuvaRing), the ring is placed in the vagina for 3 weeks, and is removed for 1 week to allow for a withdrawal bleed. F.R 8%.

B. Progesterone-only contraception

Progesterone-only contraception consists of oral, injectable, implantable, and intrauterine options (the Mirena). These all function primarily using the same mechanisms: thickening the cervical mucus, inhibiting sperm motility, and thinning the endometrial lining so that it is not suitable for implantation.

Progestin-Only Oral Contraception Pills (The Minipill) POP

Progestin-only pills (POPs) are less effective at inhibiting ovulation but cause thickening the cervical mucus to prevent penetration of the sperm and make the endometrium unfavorable for implantation. Progestin-only pills must be taken at a certain time every 24 hours. **Used for lactating women.** F.R 8%

Injectable Progesterone-Only Contraception—Depo-Provera

Depo-Provera (medroxyprogesterone acetate; DMPA) (150 mg/1 mL, intramuscular "IM") is injected intramuscularly every 3 months. The site should not be massaged after injection because massage accelerates absorption and decreases the period of effectiveness. Depo-Provera acts by suppressing ovulation, thickening the cervical mucus, making the endometrium unsuitable for implantation, and reducing tubal motility. F.R. 3%

Implantable Progesterone-Only Contraception—Nexplanon

The contraceptive implant Nexplanon is a single rod implant that is inserted subcutaneously into the upper inner arm with the use of a local anesthetic. It is 2 mm thick and 4 cm (1.6 in) long and releases progestin continuously to provide 3 years of contraception. It acts to inhibit ovulation, thickens cervical mucus to prevent sperm penetrability, and thins out the endometrium making it unfavorable for implantation.

5. Emergency contraception

Emergency contraception (EC)also called "morning-after pill" is a safe and effective means of preventing pregnancy after unprotected intercourse or in the case of contraceptive failure.(COCs. POP, Copper IUD,)

6. Surgical sterilization

1-***Vasectomy*** ♂: is used to provide permanent contraception for men. It involves cutting and sealing the vasa deferens (the tubes that carry sperm from the testes).

2- Tubal ligation ♀ : ligation of the fallopian tubes that by preventing passage of ova from the ovaries to the uterus serves as a method of female sterilization

Gynecological disorders

OBJECTIVES

1-describe the varoius structural disorders of the uterus and vagina.

2- discuss the pathophysiology of selected benign and malignant neoplasms of the female repoductive tract

Urinary tract infection (UT I): is defined as an infection of the lining of the urinary bladder and urethra. A urinary tract infection occurs when an infectious organism enters your urinary tract – usually through the urethra and causes an infection it affect about 2 - 4 % of post partum woman.

Signs & symptoms

- Inflamed bladder and urethra
- Pain in the pelvic region and abdomen
- Strong urge to urinate (but may urinate only few drops)
- Urinating more often
- Burning sensation while urinating
- Unpleasant smelling urine (foul odour)
- generalized body pain, fever and fatigue

The risk factor

1. Catheterization.
2. Frequent unsafe pelvic exam.
3. Epidural anesthesia.
4. Genital tract injury.
5. history of U T I & C/S births

Management of U T I

1. Antibiotic therapy according to c & s test.
2. Analgesics hydration.
3. Postpartum woman with U T I treated in outpatient basis.
4. **Teaching include**: monitor temp, bladder function, appearance of urine.

5. Inform postpartum woman for proper perinea care, wiping from front to back after urinating or bowel motion, increase fluid intake to prevent urinary tract infection.

Nursing Implementation

1. Give the woman information to help her recognize the signs of UTI.
2. Discuss hygiene practices.
3. Advantage of wearing cotton under wear & need to void frequent to prevent urinary stasis.
4. Stress the importance of maintaining a good fluid intake.
5. Drinking cranberry juice daily & taking 500 mg of vitamin C.

Care of the woman with endometriosis.

Endometriosis is a condition in which cells similar to those in the endometrium, the layer of tissue that normally covers the inside of the uterus, grow outside of it. Most often this is on the ovaries, fallopian tubes, and tissue around the uterus and ovaries; however, in rare cases it may also occur in other parts of the body**.**

Endometriosis has been found almost everywhere in the body include:-

- Vagina.
- Lungs.
- Cervix.
- Central nervous system.
- Gastrointestinal tract

The main symptoms **:**

1-pelvic pain

2-Infertility

3- while in 70% pain occurs during menstruation.

4- Pain during sexual intercourse is also common

Nursing Implementation

- Review the dosage, schedule possible side effect & any warning signs of prescribes medication.
- A woman with endometriosis is often advised not to delay pregnancy because of the increase risk of infertility.

Care of woman with polycystic ovarian syndrome

Polycystic ovarian syndrome: is a complex endocrine disorder of ovarian dysfunction that is evidence by a menorrhea or oligomenorrhea& clinical signs of androgen excess (typically, hirsutism, acne).

The 3 main features of PCOS are:

- irregular periods – which means your ovaries do not regularly release eggs (ovulation)
- excess androgen – high levels of "male" hormones in your body, which may cause physical signs such as excess facial or body hair
- polycystic ovaries – your ovaries become enlarged and contain many fluid-filled sacs (follicles) that surround the eggs (but despite the name, you do not actually have cysts if you have PCOS)

Clinical manifestations

1. Menstrual dysfunction.
2. Irregular menses, ranging from total absence of periods (amenorrhea) to intermittent or infrequent period (oligomenorrhea) to heavy periods (menorrhagia).
3. Obesity.

4. Hyperinsulinemia.
5. Infertility.
6. hyperandrogenism

Clinical therapy

1. Decrease the effect of hyperandrogenism (hirsutism, acne).
2. Restoring reproductive function for woman desiring pregnancy.
3. Protecting the endometrium (increased risk for uterine cancer).
4. Reducing long term risk specifically type 2 diabetic & cardio vascular disease.

Treating polycystic ovary syndrome (PCOS)

There's no cure for PCOS, but the symptoms can be treated. Speak to a GP if you think you may have the condition.

If you have PCOS and you're overweight, losing weight and eating a healthy, balanced diet can make some symptoms better.

> Medications are also available to treat symptoms such as excessive hair growth, irregular periods and fertility problems.

If fertility medications are not effective, a simple surgical procedure called laparoscopic ovarian drilling (LOD) may be recommended.

This involves using heat or a laser to destroy the tissue in the ovaries that's producing androgens, such as testosterone.

With treatment, most women with PCOS are able to get pregnant.

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