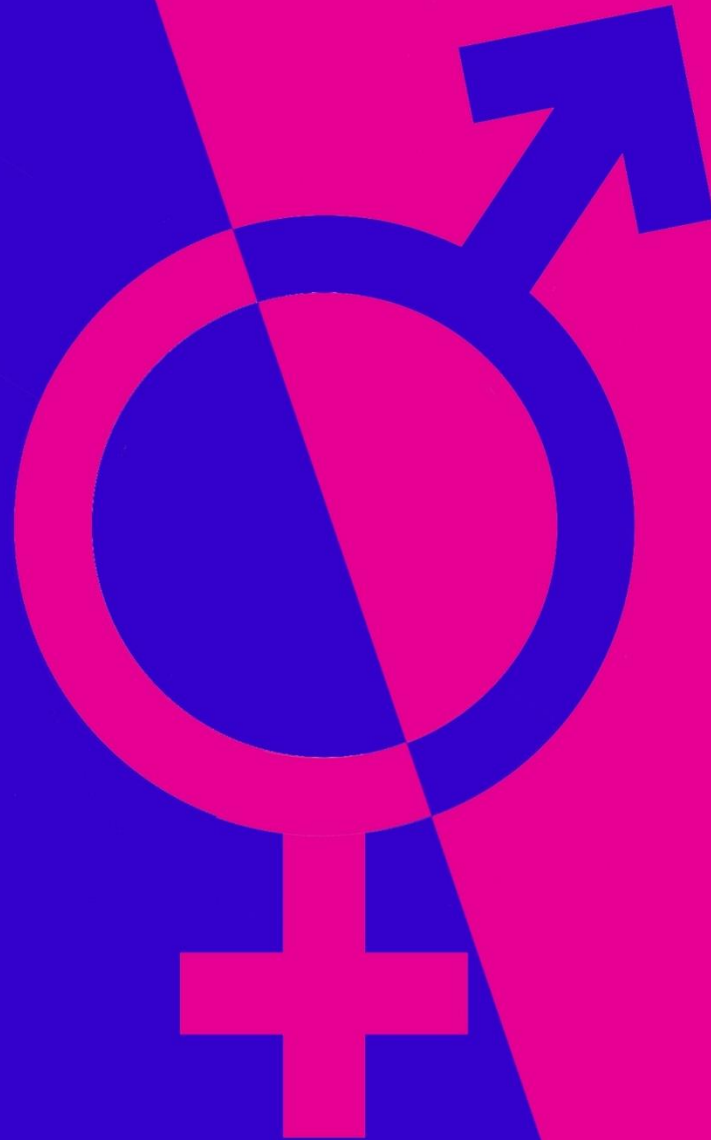


HATAHET ANATOMY



Female Reproductive System

Lecture: 17

Pages: 6

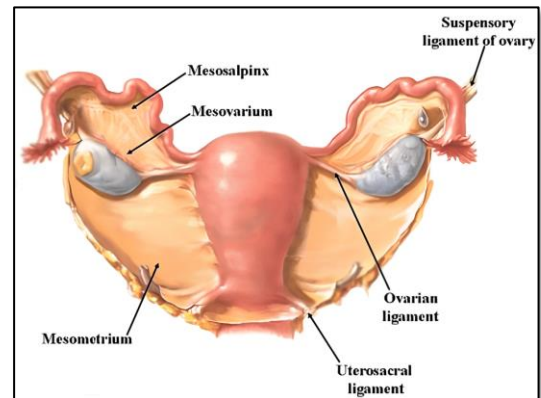
Lecture 17: Female reproductive system

- **Gynecology**: the medical specialty concerned with diagnosis and treatment of female reproductive system diseases

Female reproductive organs

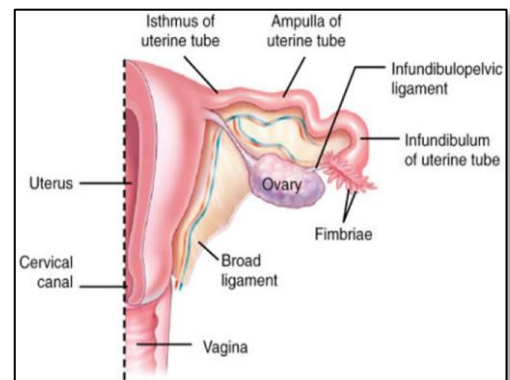
Ovaries

- Ovaries are the main reproductive glands in female
- located in the pelvic cavity, one on each side of the uterus
- each ovary is held in position by 3 ligaments:
 - 1 **Broad ligament** → a fold of peritoneum that attaches to the ovaries one of its folds called (**Mesovarium**)
 - 2 **Ovarian ligament** → anchors each ovary to the uterus
 - 3 **Suspensory ligament** → attaches each ovary to the pelvic wall



Fallopian tube (Oviducts)

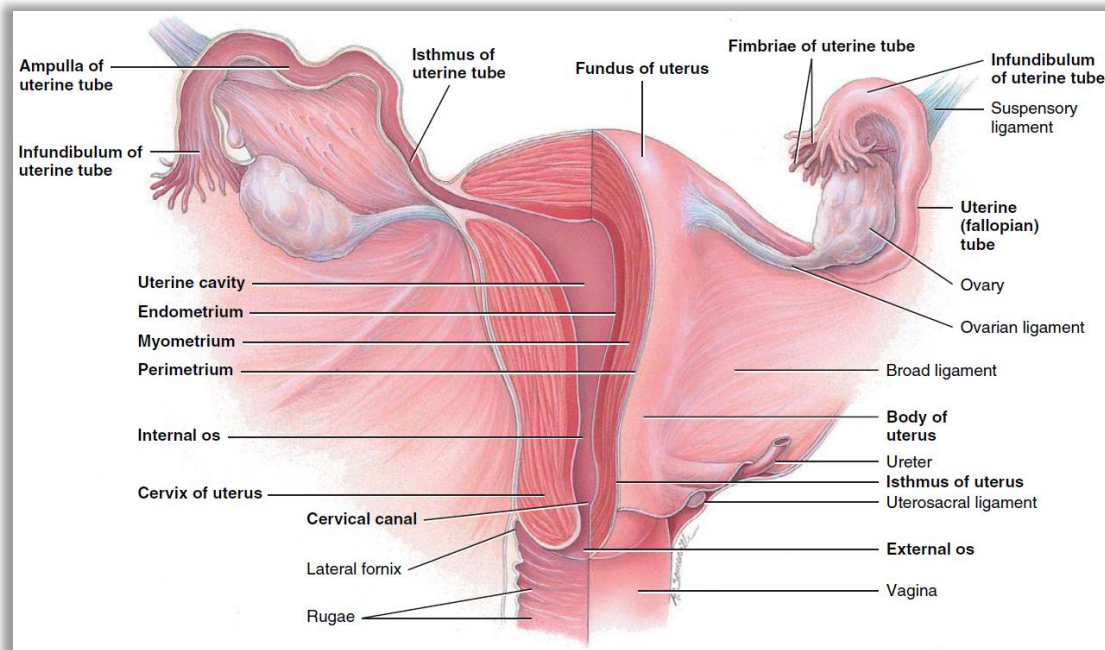
- Fallopian (Uterine) tubes are the two narrow tubes that extend laterally from the uterus
- they transport secondary oocyte & fertilized ovum from the ovaries to the uterus
- composed of 3 main regions:
 - 1 **Infundibulum**, funnel-shaped lateral portion of each tube, located close to the ovary
 - 2 **Fimbriae**, finger-like projections that catch the ovum from ovary after ovulation and delivers it to the fallopian tube by motile currents via the infundibulum
 - 3 **Ampulla**, the lateral two-thirds which is the longest portion
 - 4 **Isthmus**, the short narrow thick medial portion that joins uterus



Uterus (Womb)

- Uterus is a hollow, inverted-pear-shaped, intraperitoneal muscular organ
- located in the female pelvis between urinary bladder posteriorly and rectum anteriorly
- it is where embryonic and early fetal development occur
- events occurring in Uterus (**Functions of uterus**):
 - **pathway for sperm** to reach the uterine tube
 - **implantation** of an early embryo
 - **development of the fetus** during pregnancy (Intrauterine life)
 - **labor** (Childbirth)
 - **the source of menstruation** when implantation doesn't occur (when no fertilization or pregnancy)

- Anatomy of the Uterus:



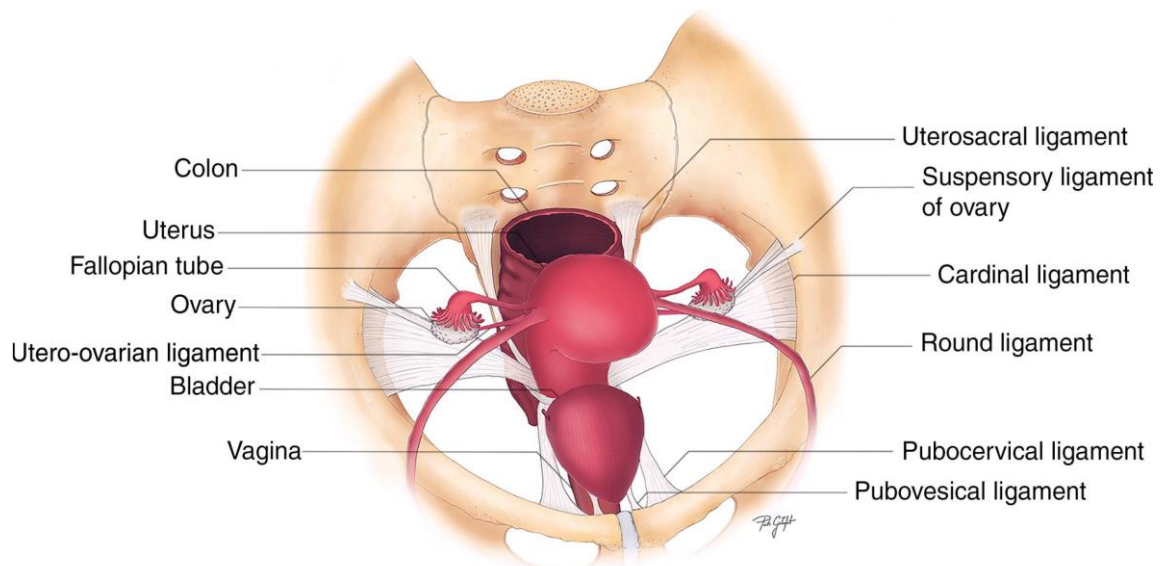
➤ Main parts of Uterus

- ➊ **Fundus**, the dome-shaped region, superior to the uterine tubes
- ➋ **Body**, the major tapering central portion, contains the uterine cavity in the interior
- ➌ **Cervix**, the lower narrow portion that opens into the vagina, contains the cervical canal
- ➍ **Isthmus of uterus**, a constricted area between the body and the cervix of the uterus, contains 2 openings:

- Internal os (Internal orifice)**: opening of the cervical canal into the uterine cavity
- External os (External orifice)**: opening of the cervical canal into the vagina

➤ Ligaments of Uterus

- ➊ **Broad ligament**, attaches the uterus to the pelvic wall
- ➋ **Uterosacral ligament**, attaches the uterus to the sacrum
- ➌ **Cardinal (Lateral cervical) ligaments**, extend below the base of broad ligament between pelvic wall, cervix, vagina
- ➍ **Round ligament**, extends from the uterus to a portion of the Labia majora of the external genital structures



➤ Layers of the wall of Uterus (Histology)

① **Perimetrium (Serosa)**, the outer layer and a part of the peritoneum, forms many structures:

- A. **Anteriorly**, covers the urinary bladder and forms a shallow pouch called (Vesicouterine pouch)
- B. **Posteriorly**, covers the rectum and forms a deep pouch called the (Rectouterine pouch - Pouch of Douglas)
- C. **Laterally**, becomes the (Broad ligament)

② **Myometrium (Muscularis)**, the middle thick layer, composed of 3 layers of smooth muscles that will apply coordinated contractions to help expelling the fetus during labor. Myometrium is thick in fundus & thin in cervix

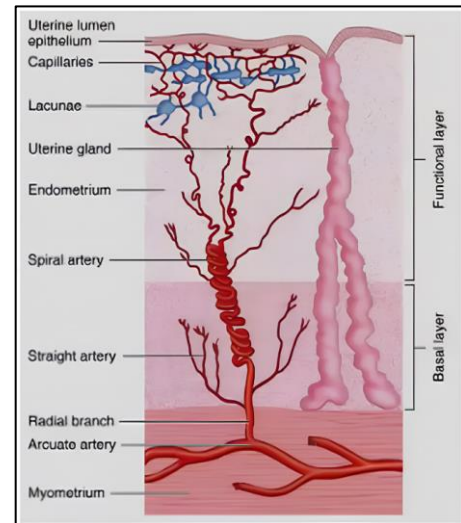
③ **Endometrium**, the inner highly vascularized layer, consists of 3 main components that give 2 sub-layer:

A. Components of Endometrium

- **Innermost layer of Simple columnar epithelium**
- **Lamina propria**
- **Endometrial glands (Uterine glands)**

B. Sub-layers of Endometrium

- **Stratum functionalis**, the functional temporary layer that is shed during menstruation
- **Stratum basalis**, the basal permanent layer that gives rise to a new stratum functionalis after each menstrual cycle



➤ Blood supply of the Uterus

Internal iliac artery → Arcuate artery → Radial artery →
Straight arteriole (S. basalis) & Spiral arteriole (S. functionalis)

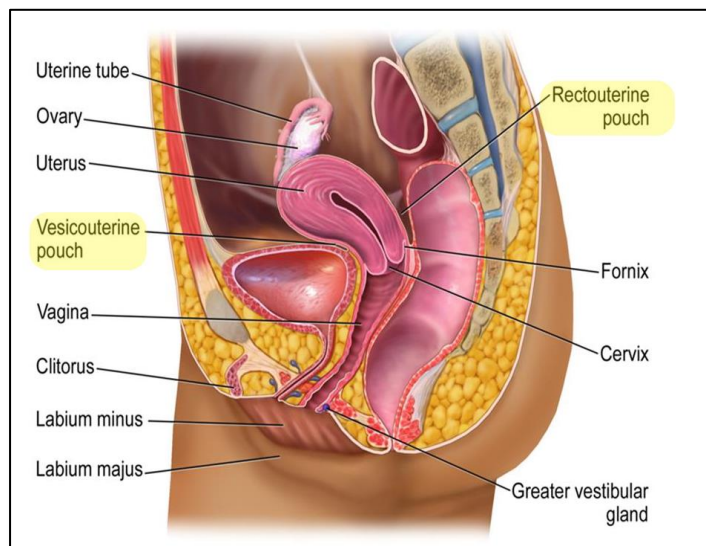
Vagina

- Vagina is the tubular fibromuscular canal (4 inch long) that connects the uterus to the exterior
- located between urinary bladder superiorly rectum anteriorly
- Functions of Vagina:

- the receptacle for the penis during intercourse as well as a passageway of sperm
- the passageway for the menstrual flow
- the passageway for childbirth

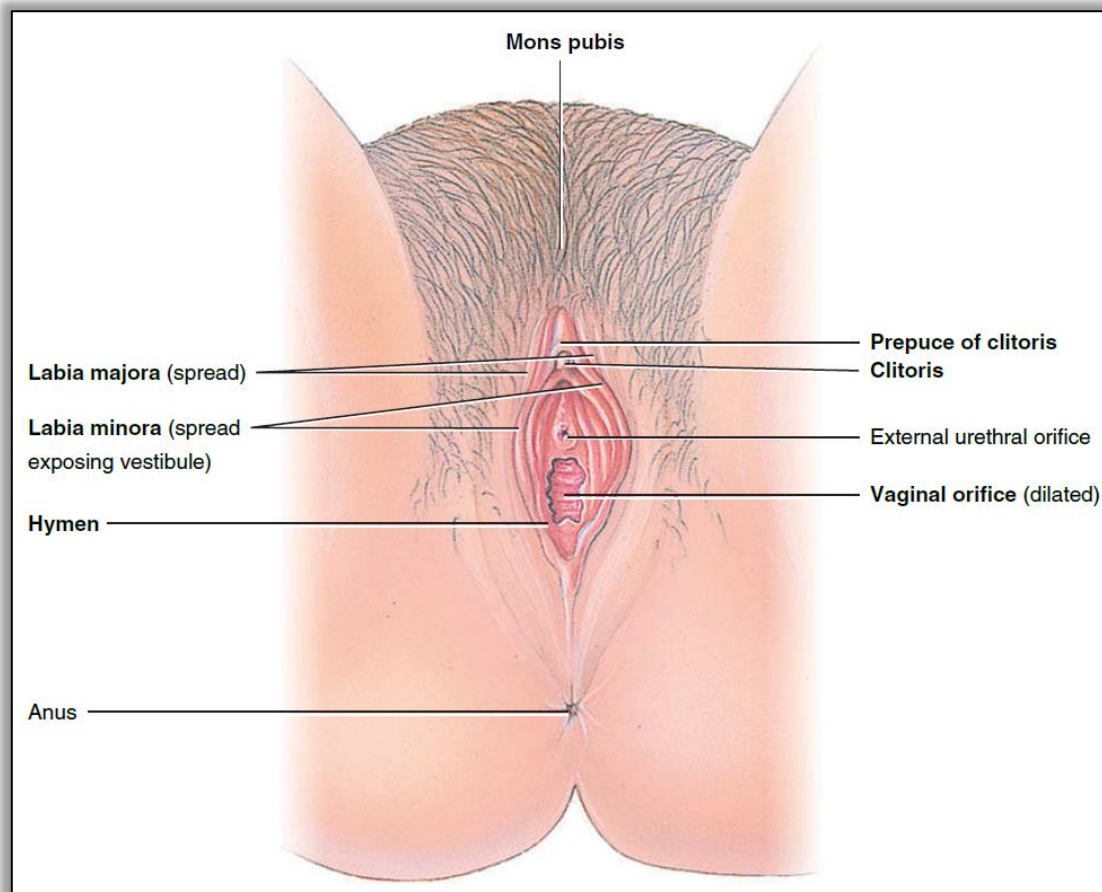
- Anatomy of Vagina:

- ① **Fornix**, a recess (fold) surround the vaginal attachment to the cervix of the uterus
- ② **Vaginal canal**
- ③ **Vaginal orifice**, the opening of the vaginal canal to the exterior, encircled by Hymen
- ④ **Hymen**, thin fold of vascularized mucus membrane completely covers the vaginal orifice, it is intact in 处女 but easily torn and destroyed by the first intercourse



Vulva (Pudendum)

- Vulva (Pudendum) is the external genital organs of female
- contains the following anatomical structures:
 - 1 **Mons pubis**, elevation of adipose tissue covered by skin and pubic hair, located superior to the vaginal and urethral orifices and serves as a cushion for the pubic symphysis
 - 2 **Labia majora**, two longitudinal folds of skin that extend inferiorly and posteriorly from the mons pubis; they are covered by pubic hair and contain adipose tissue, sebaceous glands, and sudoriferous glands
 - 3 **Labia minora**, two smaller folds of skin located medial to the labia majora, they have some sudoriferous glands and many sebaceous glands
 - 4 **Clitoris**, a small cylindrical mass of erectile tissue and nerves located at the anterior junction of the labia minora
 - 5 **Vestibule**, the region between the 2 labia minora where urethral and vaginal orifices are located. Vestibule has some glands that open into it:
 - A. **Paraurethral (Skene's) glands**, lateral to urethral orifice and secrete mucus
 - B. **Greater vestibular (Bartholin's) glands**, lateral to vaginal orifice and secrete mucus
 - C. **Lesser vestibular glands**, several glands which also open to the vestibule
 - 6 **Bulb of vestibule**, 2 elongated masses of erectile tissue deep to the labia and lateral to both sides of vaginal orifice
 - 7 **Vaginal orifice**, the opening of the vagina to the exterior
 - 8 **Urethral orifice**, the opening of the urethra to the exterior



Peritoneum

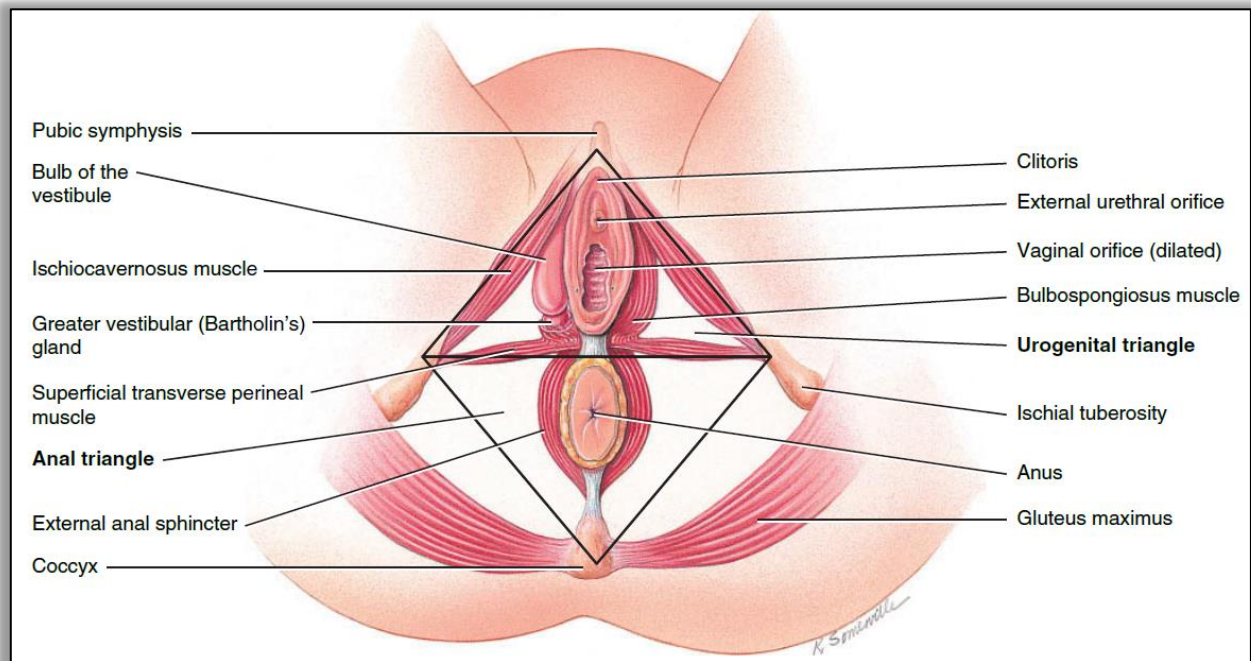
- Peritoneum is the diamond-shaped area between anus & genitals
- extends from the pelvic diaphragm superiorly to the skin of pelvis inferiorly
- consists of (geometrically):

① Boundaries

- Anteriorly → **Pubic symphysis**
- Posteriorly → **Coccyx**
- Laterally → **Ischial tuberosities**

② Transverse line, between both ischial tuberosities, it divides the diamond into 2 triangles:

- **Urogenital triangle**, the anterior triangle that contains the external genital organs
- **Anal triangle**, the posterior triangle that contains the anus



Mammary glands

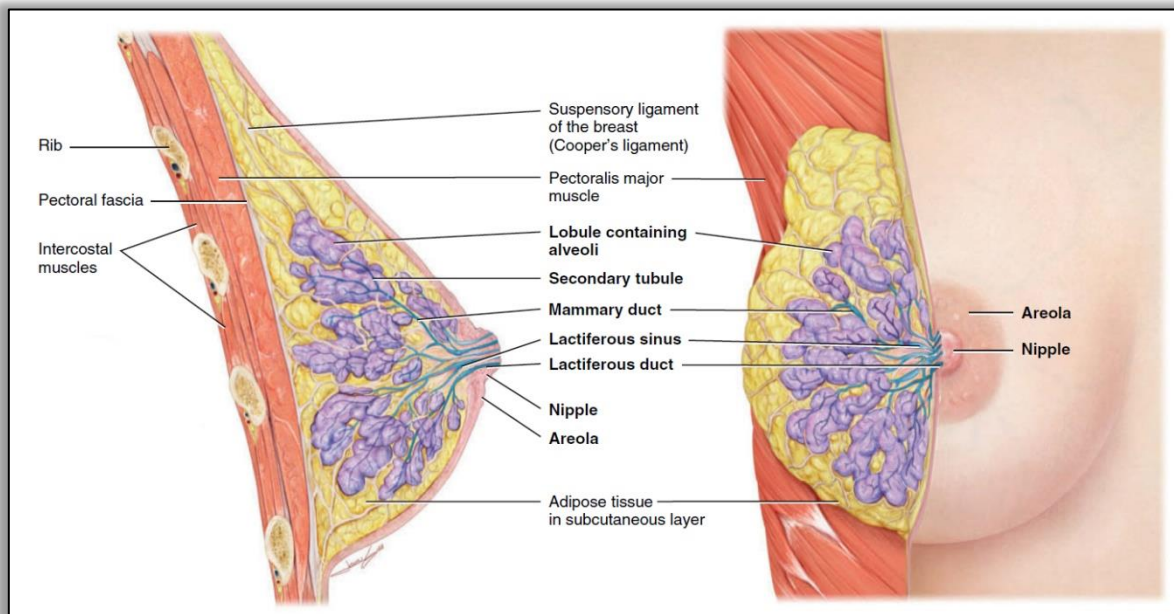
- Mammary glands (Breast) are hemispheric projection of variable size
- located anterior to and attached to Pectoralis major & Serratus anterior
- contains the mammary glands which produce Colostrum (mammary milk)
- Anatomy of the Breast:

➤ Outer surface structures

- ① **Areola**, circular pigmented area surrounding the nipple, it has a rough appearance; because it contains modified sebaceous glands
- ② **Nipple**, pigmented projection that contains closely-spaced openings of lactiferous ducts, where milk emerges

➤ Inner structures

- ❶ **Suspensory ligaments (Cooper's ligaments)**, extend between skin and deep fascia, they support the breast
- ❷ **Mammary gland**, a modified sudoriferous gland capable of producing milk, each mammary gland consists of (15 - 20) lobes that are separated by adipose tissue. Function of mammary glands is Lactation
- ❸ **Lobules**, the smaller compartments of each lobe
- ❹ **Alveoli**, grape-like clusters of milk-secreting glands
- ❺ **Secondary tubules**, tubules that project out of each alveolus and milk flows inside them, converged to give the Mammary ducts
- ❻ **Lactiferous sinuses**, sinuses previous to lactiferous ducts, where milk may be stored
- ❼ **Lactiferous ducts**, ducts that deliver milk from lactiferous sinuses to the nipple



***Note: The size of the breast is determined by the amount of adipose tissue presented

***Note: Milk production is stimulated by (**Prolactin**), while milk ejection is stimulated by (**Oxytocin**)

Homologous structures of male and female reproductive system

Female	Male
Ovaries	Testicles
Ovum	Sperm cells
Labia majora	Scrotum
Labia minora	Spongy urethra
Vestibule	Intermediate urethra
Paraurethral glands	Prostate gland
Greater vestibular glands	Bulbourethral glands
Bulb of vestibule	Corpus spongiosum & Bulb
Clitoris	Corpora cavernosa & Glans penis