

The female genital system

This system is a reproductive system and endocrine function; this means that system is responsible for production of ova and secretion of hormones which are the estrogen and progesterone.

This system is composed by:

- 1. Two ovaries.**
- 2. Two oviducts.**
- 3. Uterus.**
- 4. Vagina.**

The ovary is oval shape in sheep and goat, almond-shape in cow and bean shape in mare. The ovary is formed by the cortex and medulla.

The cortex is covered by simple squamous- cuboidal epithelium which called germinal epithelium, resting on the basement membrane. The ovary is also covered by dense connective tissue (the capsule).

The cortex is the site of formatting the oocytes, it have masses of cells in different sizes of development.

A. The oogonia, these are oocytes covered by simple squamous cells, the oocytes is formed by the nucleus and cytoplasm, these cells develop into:

a-Primary follicle which are oocytes covered by simple cuboidal cells and the oocyte is formed by cytoplasm and nucleus of spherical shape

B-Secondary follicle oocytes which is covered by 2-3 layers of epithelial cells.

C-Tertiary follicle, which is developed from secondary and building up by many layers of epithelial cells called follicular cells, in between these cells there are spaces filled by small quantities of fluid called liquor folliculi, secreted by follicular cells. These follicles become larger and to be form mature called

a. Graafian follicle, it is formed by the following structures:

- i. Mature oocyte**
- ii. Follicular cells**

- iii. Antrum with liquor folliculi
- iv. Zona pellicuda (transparent zone of Hyaluronic acid) around the oocyte
- v. Corona radiata (follicular cells around the zona pellicuda)
- vi. Cumulus oophorus, a mass of cells connect the oocyte to the other follicular cells in the periphery of the follicle
- vii. Theca interna (Inner follicular cell zone)
- viii. Theca externa (outer follicular cell zone)

The medulla of the ovary is composed of connective tissue and blood vessels.

The oviduct (Fallopian tube) or (uterine tube):

Is a muscular, tubular structure extend from the ovary to the uterus, this structure is segmented into 3 portions:

- A. Infundibulum
- B. Ampulla
- C. Isthmus

The infundibulum is the widest part which is present in the form of tunnel shape with fimbriae for picking up the ovum when released from ovary. It is formed by pseudo-stratified columnar epithelium on the basement membrane and a delicate layer of connective tissue called lamina propria encircled by muscular coat (smooth muscle fibers) with the inner circular and outer spiral are longitudinal, these are encircled by loose C-T and mesothelial cells and in between the epithelial cells there are goblet cells for secreting the mucus, also the epithelial cells have cilia for moving the ovum toward the ampulla

The Ampulla:

Is the expanded portion of the oviduct which the ova is fertilized by sperm in this site.

The mucosal part (tunica mucosa) is formed by many folds, covered by pseudo stratified columnar epithelium and the lamina propria is delicate C-T encircled by smooth muscle fibers and serosa.

The isthmus:

Is the narrowest portion of oviduct which penetrate the uterus and it is formed by epithelial cells of simple columnar, lamina propria and thin coat of inner circular and outer longitudinal smooth muscle fibers which intermingled with the myometrium

The uterus:

Is a thick muscular structure, sac-like and the embryo is implanted inside it, it is formed by three layers:

- A. Endometrium**
- B. Myometrium**
- C. Perimetrium**

The endometrium is the inner portion or layer, formed by:

- a. Mucosa, which is formed by:**
 - i. Simple columnar epithelium**
 - ii. Lamina propria, have dense C-T, mainly the collagen and elastic fibers with a great amount of uterine glands particularly at the time of estrus cycle.**
 - b. The upper part of the endometrium is called spongy part which becomes desquamated during estrus cycle.**
 - c. And the deepest part which called basal layer, near by the muscular layer, which have the basal portions of uterine glands, the spiral blood vessels and a great number of WBC in the C-T.**
- B. The muscular coat is the thickest portion, which formed by smooth muscle fibers arranged into 3 directions, inner spiral, middle circular and outer longitudinal, in between these muscle fibers is C-T with fibroblasts, minute blood vessels and WBC. The outer layer is called tunica adventitia which composed by loose C-T, blood vessels and nerves.**

The cervix:

Is the thickest part, formed by epithelium of stratified squamous epithelium from out side which facing the vestibule and vagina and from inner surface facing the uterus the epithelium is simple columnar and the lamina propria have cervical mucus glands, encircled by thick layer of smooth muscle fibers. The mucosal layer

have longitudinal folds in between the uterine cavity from inside and the vaginal vestibule from outside.

The vagina:

Is the portion which formed by the mucosa with stratified squamous epithelium, lamina propria formed by dense C-T and mainly elastic fibers covered from outside by smooth muscle fibers, no mucus glands in this part of female genital system.