HUMAN ANATOMY & PHYSIOLOGY-II- BP201T

UNIT: 5 (REPRODUCTIVE SYSTEM)

CLASS: 4

TOPIC: **Female Reproductive System**

Female reproductive system comprises of primary sex organs and accessory sex organs.

Primary sex organs are a pair of ovaries, which produce eggs or ova and secrete female sex hormones, the estrogen and progesterone.

Accessory sex organs in females are:

1. A system of genital ducts: Fallopian tubes, uterus, cervix and vagina
2. External genitalia: Labia majora, labia minora and clitoris. Mammary glands are not the female genital organs but are the important glands of female reproductive system.

Ovary

Ovary is the gonad or primary sex organs in females. A woman has two ovaries. Ovaries have two functions, gametogenic and endocrine functions. Gametogenic function is the production and release of ovum or egg, which is the female gamete (reproductive cell). Endocrine function of ovaries is the secretion of female sex hormones.

FUNCTIONAL ANATOMY OF OVARY

Ovaries are flattened ovoid bodies, with dimensions of 4 cm in length, 2 cm in width and 1 cm in thickness. Each ovary is attached at hilum to the broad ligament, by means of mesovarium and ovarian ligament. Each ovary has two portions: 1. Medulla 2. Cortex.

MEDULLA

Medulla or zona vasculosa is the central deeper portion of the ovary. It has the stroma of loose connective tissues. It contains blood vessels, lymphatics, nerve fibers and bundles of smooth muscle fibers near the hilum.

CORTEX

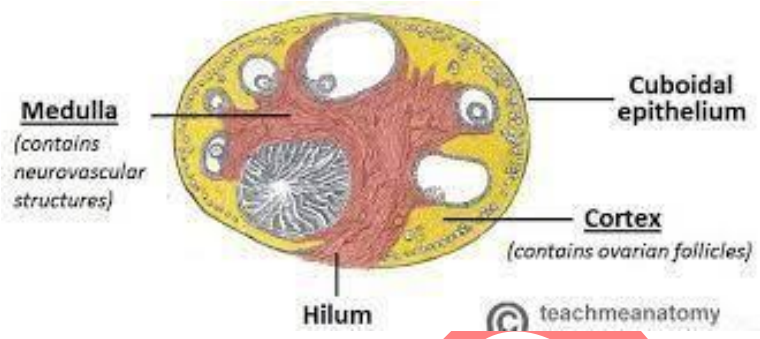
Cortex is the outer broader portion and has compact cellular layers. It is interrupted at the hilum, where the medulla is continuous with mesovarium. Cortex is lined by the germinal epithelium underneath a fibrous layer known as ‘tunica albuginea’.

Cortex consists of the following structures:

i. Glandular structures, which represent ovarian follicles at different stages

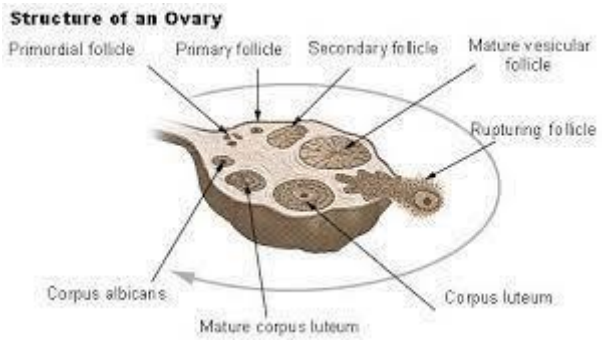
ii. Connective tissue cells

iii. Interstitial cells, which are clusters of epithelial cells with fine lipid granules formed mainly from theca interna.



Ovarian Follicles

In the intrauterine life, outer part of cortex contains the germinal epithelium, which is derived from the germinal ridges. When fetus develops, the germinal epithelium gives rise to a number of primordial ova. The primordial ova move towards the inner substance of cortex. A layer of spindle cells called granulose cells from the ovarian stroma surrounds the ova. Primordial ovum along with granulosa cells is called the primordial follicle. At 7th or 8th month of intrauterine life, about 6 million primordial follicles are found in the ovary. But at the time of birth, only 1 million primordial follicles are seen in both the ovaries and the rest of the follicles degenerate. At the time of puberty, the number decreases further to about 300,000 to 400,000. After menarche, during every menstrual cycle, one of the follicles matures and releases its ovum. During every menstrual cycle, only one ovum is released from any one of the ovaries. During every cycle, many of the follicles degenerate. The degeneration of the follicles is called atresia and the degenerated follicles are known as atretic follicles. The atretic follicles become fibrous and the fibrotic follicles are called the corpus fibrosa. Atresia occurs at all levels of follicles. Usually, the degenerated follicles disappear without leaving any scar.



Functions of Ovaries

Ovaries are the primary sex organs in females. Functions of ovaries are:

1. Secretion of female sex hormones

2. Oogenesis

3. Menstrual cycle.

FUNCTIONAL ANATOMY OF ACCESSORY SEX ORGANS

Uterus is otherwise known as womb. It lies in the pelvic cavity, in between the rectum and urinary bladder. Uterus is a hollow muscular organ with a thick wall. It has a central cavity, which opens into vagina through cervix. On either side at its upper part, the fallopian tubes open. Uterus communicates with peritoneal cavity through fallopian tubes. Virgin uterus is pyriform in shape and is flattened anteroposterior. There is a constriction almost at the middle of uterus called isthmus.

Uterus is divided into three portions:

1. Fundus (above the entrance points of fallopian tubes)

2. Body (between fundus and isthmus)

3. Cervix (below isthmus).

Uterus is made up of three layers:

1. Serous or outer layer

2. Myometrium or middle muscular layer

3. Endometrium or inner mucus layer.

Cervix is the lower constricted part of uterus. It is divided into two portions:

1. Upper supravaginal portion, which communicates with body of uterus through internal os (orifice) of cervix. Mucus membrane of this portion has glandular follicles, which secrete mucus.

2. Lower vaginal portion, which projects into the anterior wall of the vagina and it communicates with vagina through external os (orifice) of cervix. Mucus membrane of this portion is formed by stratified epithelial cells.

Vagina is a short tubular organ. It is lined by mucus membrane, which is formed by stratified epithelial cells.

Lifespan of a female is divided into three periods.

First period extends from birth to puberty. During this period, primary and accessory sex organs do not function. These organs remain quiescent. Puberty occurs at the age of 12 to 15 years. Second period extends from onset of puberty to the onset of menopause. First menstrual cycle is known as menarche. Permanent stoppage of the menstrual cycle in old age is called menopause, which occurs at the age of about 45 to 50 years. During the period between menarche and menopause, women menstruate and reproduce. Third period extends after menopause to the rest of the life.