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B.Sc HONS Part - III Paper - V

Topic :- Histology and Physiology of ovary.

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Q. Give on account of histology and physiology of ovary.

Ans. Ovaries—The two ovaries are small, whitish, oval bodies, about 2cm long. They are found behind the kidneys, each ovary attached to the dorsal abdominal wall by a double fold of peritoneum called mesovarium. From the surface of ovaries project several blister-like, small, rounded, semitransparent projections, called ovarian or Graafian follicles, each containing a developing ovum.

Histologically, the section of a mammalian ovary shows a peripheral layer of germinal epithelial cells surrounding a dense mass of connective tissue fibres, called stroma, containing group of actively dividing germinal cells, called follicles, a single cell, destined to become oocyte or ovum, enlarges while other cells surround and nourish it forming a protective mass called discus proligerous which is attached to one side of the follicle. When ripe, the follicles are known as Graafian follicle, which project from the surface of ovary as minute bumps. Each contains a large fluid-filled follicular cavity. The cells lining the cavity are termed membrana granulosa. The fully mature oocyte is surrounded by a thick transparent membrane called zona pellucida

containing yolk and fat droplets. It is covered by another striated layer of columnar cells, called cornea radiata. In the stroma there are also found groups of interstitial cells which produce sex hormones (oestrogen.)

Eventually each mature follicle bursts to liberate the oocyte into body cavity, a process known as ovulation. The follicular cells remaining behind divide rapidly to form a yellowish solid mass of cells called corpus luteum. During pregnancy it serves as a temporary endocrine gland secreting a hormone (progesterone) which causes uterus to enlarge to receive the growing foetus and stimulates lactation. If ovum is not fertilized, corpus luteum gradually disappears leaving a scar called corpus albicans.

Function—Ovary is a cytogenic organ. It is responsible for the development of egg. In addition, the ovary secretes the following hormones:

(1) Oestrogen, (2) Progesterone and (3) Relaxin.

(1) Oestrogen—It is secreted by the follicle cells of ovary. The main function of oestrogen is to induce the state of oestrus for heat. It has following functions :

(i) It induces the development of sex organs and secondary sexual characters at puberty.

(ii) It induces the development of breasts and nipples.

(iii) It brings about regular menstrual cycles.

(2) Progesterone : It is secreted by the corpus luteum of ovary. It is called the pregnancy hormone because it is mainly responsible for the change associated with pregnancy. The main functions are as follow :

(i) It prepares the uterus for the reception of the embryo.

(ii) It makes the breast sensitive to lactogen hormone.

(iii) Relaxin—It is also secreted by corpus luteum. It brings about the relaxation of pelvic ligaments and makes way of the embryo at the time of birth.