

# Genital Cycles

Reproduction in female is a complicated process. The endocrine and nervous systems play interwoven roles in the cascade of events leading to the formation of mature gametes, fertilization, establishment and maintenance of pregnancy, birth and, finally, rearing of offspring. These processes begin at puberty. In the female, puberty is marked by the onset of regular cyclic activity in the ovary affecting behaviour and the entire genital system.

Puberty is defined as the age at which reproduction becomes possible.

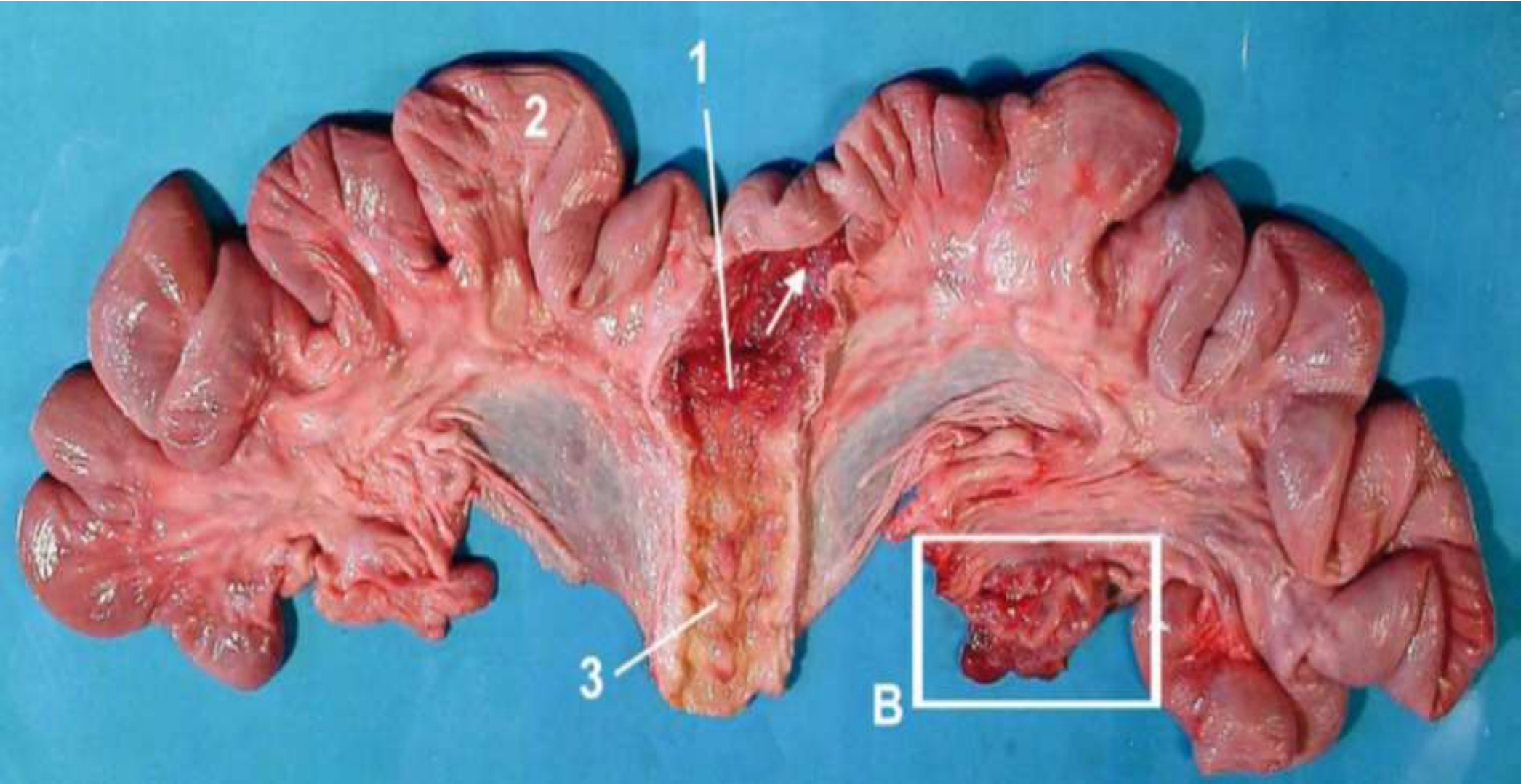
Adenohypophyseal hormones are regulated by releasing factors from hypothalamus.

The anterior pituitary gland releases two separate gonadotropins. 1. FSH: specifically stimulates follicular growth in the ovary 2. LH: It is regulated by LH-releasing factor of hypothalamus .

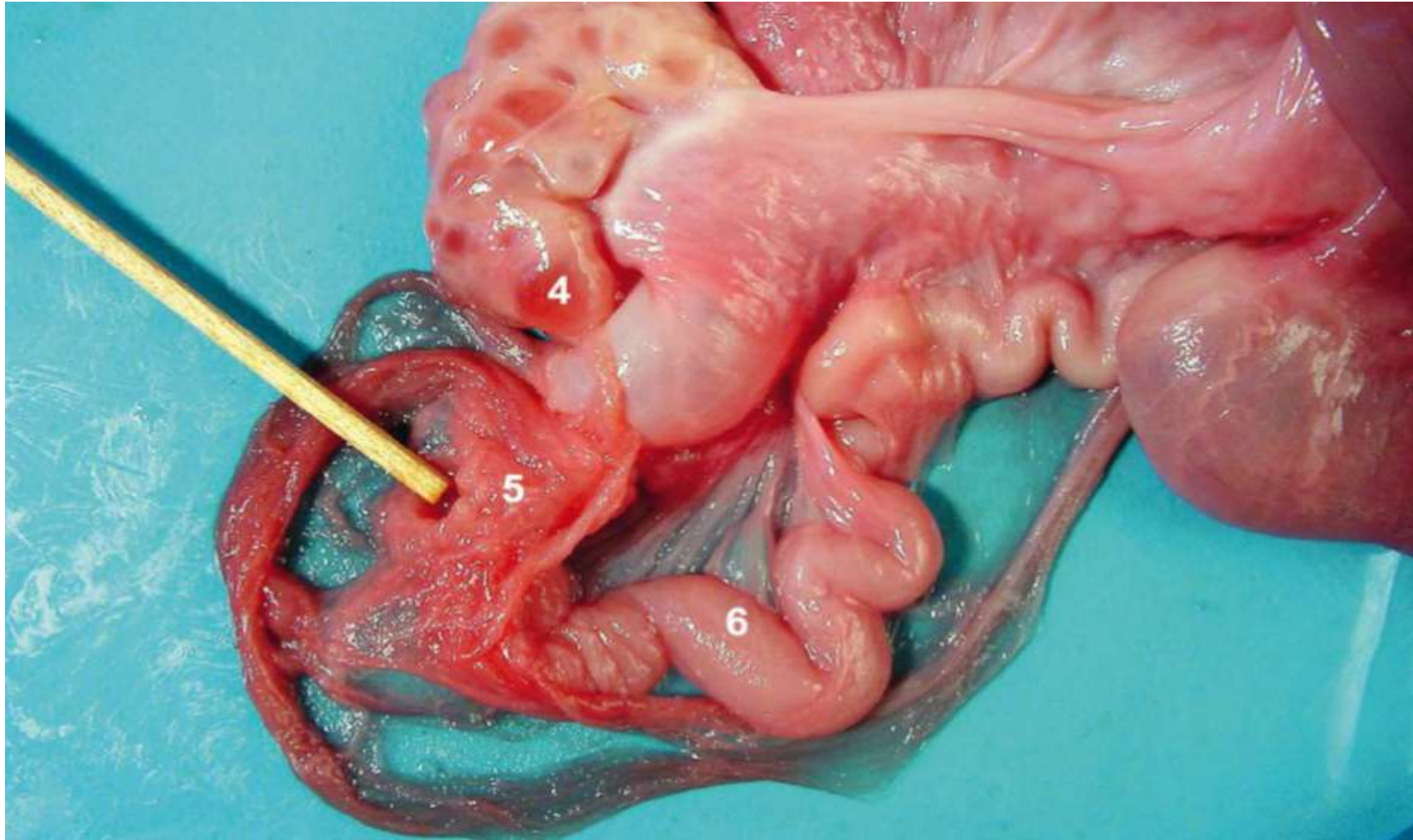
Graafian follicles in ovary develop under the stimulation of FSH but LH is essential for their maturation .ovulation is also controlled by LH

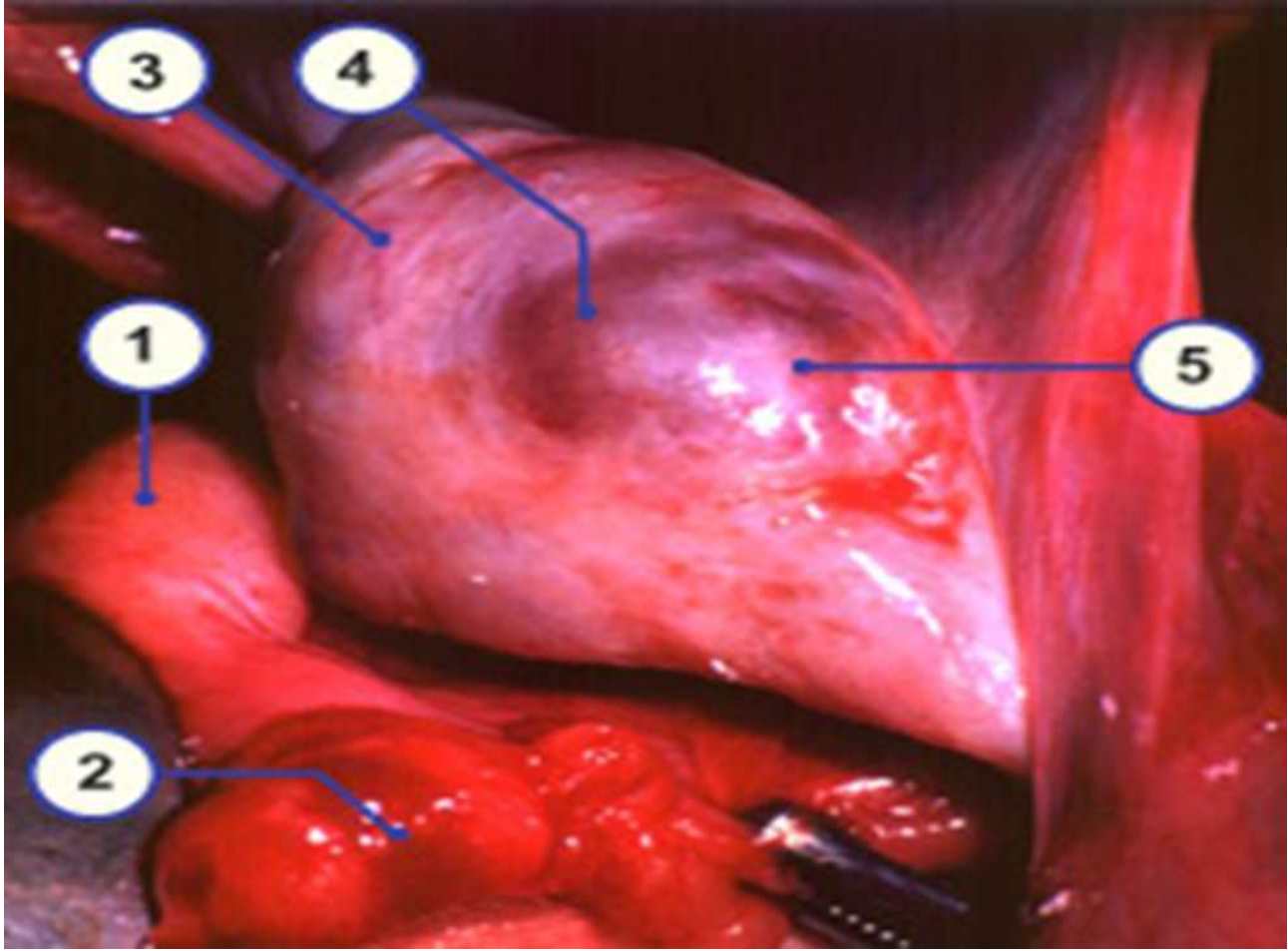
- The onset of puberty depends upon a change in the balance between the output of gonadotropins from the gonads and growth hormones secreted by the anterior pituitary gland. sexual cycle is controlled by gonadotropins and pituitary gland and several environmental (season, temperature, nutrition) and genetic factors.

The female reproductive system



# Oviduct: Fimbria Ampulla and Isthmus





# Cervical canal

- The cervical canal is bordered with longitudinal folds. Additional circular folds are found in ruminants and protrusions, the pulvini cervicales, lock into each other in the cervix of the sow. The opening of the urethra marks the transition between the vagina and the vestibulum, which is demarcated externally by the vulva. In the adult cow and mare, the ovaries and the uterus can easily be manipulated by rectal palpation, a method widely used for assessment of the reproductive status of the ovaries, particularly in cattle. In the mare, and to a lesser extent in other species, ovarian status and initiation of pregnancy can be readily assessed using transrectal ultrasound scanning. Before puberty, the initial development of the female gametes, the oocytes, enclosed in their ovarian follicles, is regulated more or less autonomously. such pre-pubertal oocytes never reach a stage of development at which they are ready for fertilization

# hypothalamo-hypophyseal system

- After the onset of puberty, however, signals provided by certain regions in the brain, including the pineal gland, hypothalamus and the pituitary gland, allow for production of fertilizable oocytes. From the anterior pituitary gland, the gonadotropins (i.e. hormones stimulating cells within the gonads) FSH (follicle-stimulating hormone) and LH (luteinizing hormone) are released. This release is controlled by GnRHs (gonadotropin-releasing hormones) that are secreted from the hypothalamus and conveyed to the anterior pituitary gland through the hypothalamo-hypophyseal portal blood circulation. Secretion of GnRHs, and thus of FSH and LH, is influenced by visual, olfactory, auditory and tactile stimuli from the environment and also by homeostatic feedback systems within the animal.

# Oestrus cycle

- **Prooestrus** :the reproductive system is beginning preparation for the release of the mature ovum from the ovary.
- **Oestrus**: The period (under natural conditions) of acceptance of the male. Ovulation occurs during this phase in all domestic species, with the exception of the cow where it occurs shortly afterwards. The main hormones being produced in the ovary, in response to FSH and LH, are oestrogens.



# Oestrus cycle

- **Metoestrus** : The phase succeeding oestrus when the male is no longer accepted. Period of corpus luteum formation. The main hormone being produced in the ovary is progesterone.
- **Dioestrus** : The period of the mature, functional corpus luteum. The main hormone being produced in the ovary is progesterone.
- **Anoestrus** : The prolonged phase of sexual rest interrupting oestrous cyclicity in some species. The reproductive system is mainly quiescent.

## REFERENCES:

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- ☐ Junqueira, L. C., & Mescher, A. L. (2009). Junqueira's basic histology: text & atlas (12th ed.)/Anthony L. Mescher. New York [etc.]: McGraw-Hill Medical, Chapter 15, pp. 314-354.