

FEMALE REPRODUCTIVE SYSTEM

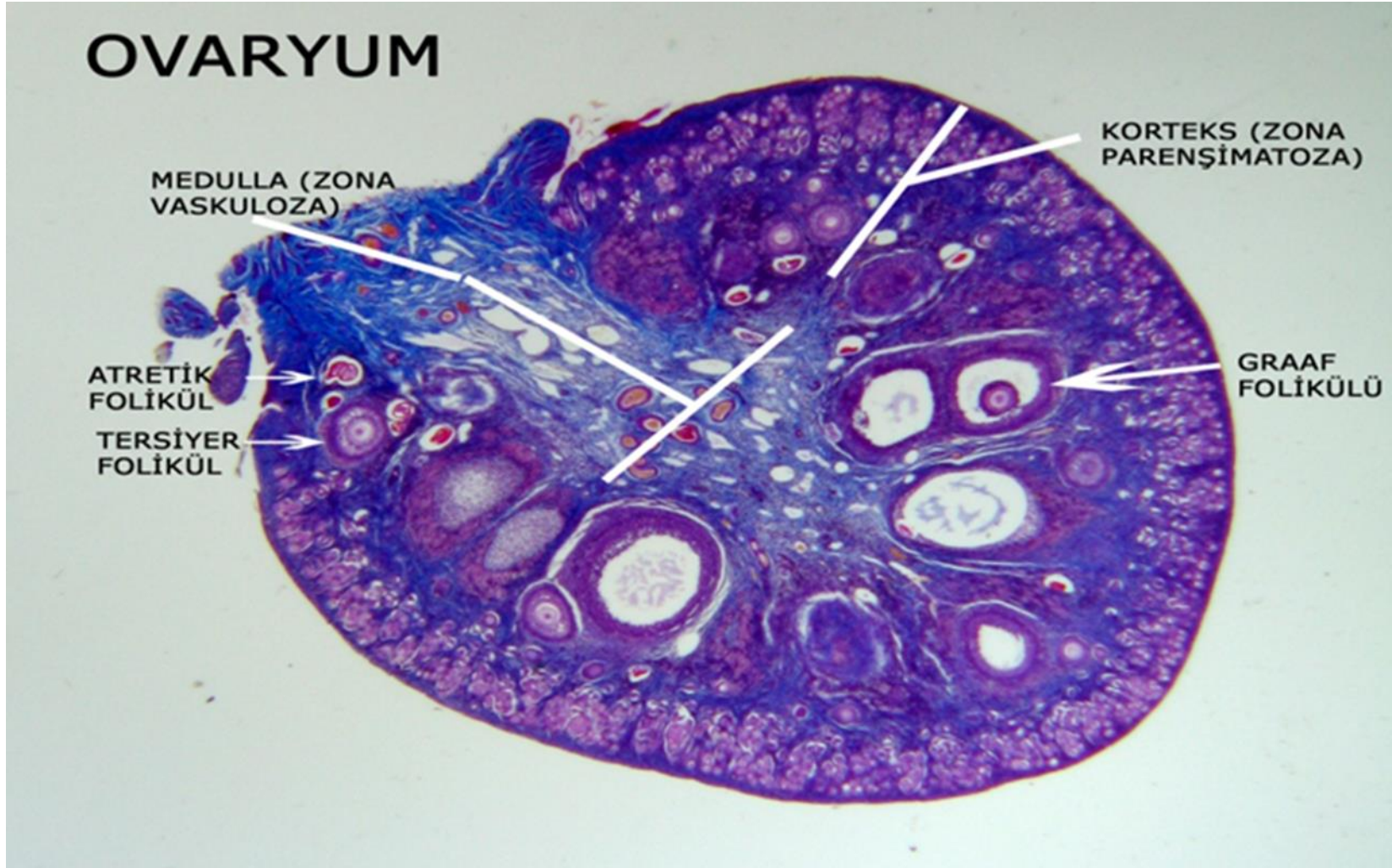
The female reproductive system consist of bilateral located ovarium, oviduct, uterus, cervix, vagina and vulva.

This system;

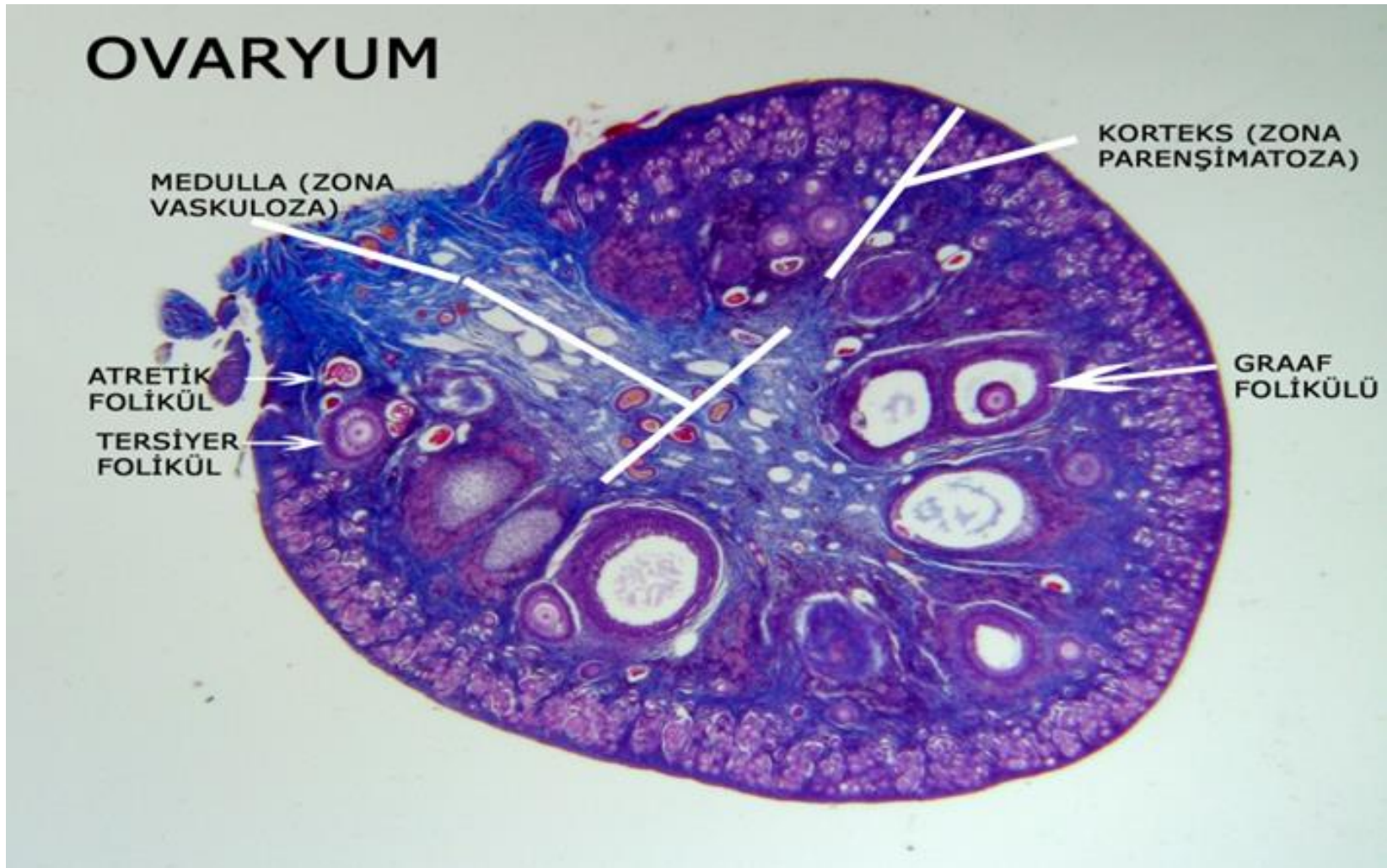
- Haploid gametes (ovum) produce.
- It provides a convenient environment for fertilization.
- It secretes hormones necessary for the implantation of the embryo and allows the development until birth.
- It secretes hormones that regulate the reproductive cycle.

OVARIUM:

The ovaries produce and release oocytes into the female reproductive tract and effect on other organs of the reproductive system with hormones secreted and regulate the genital cycle.



OVARYUM



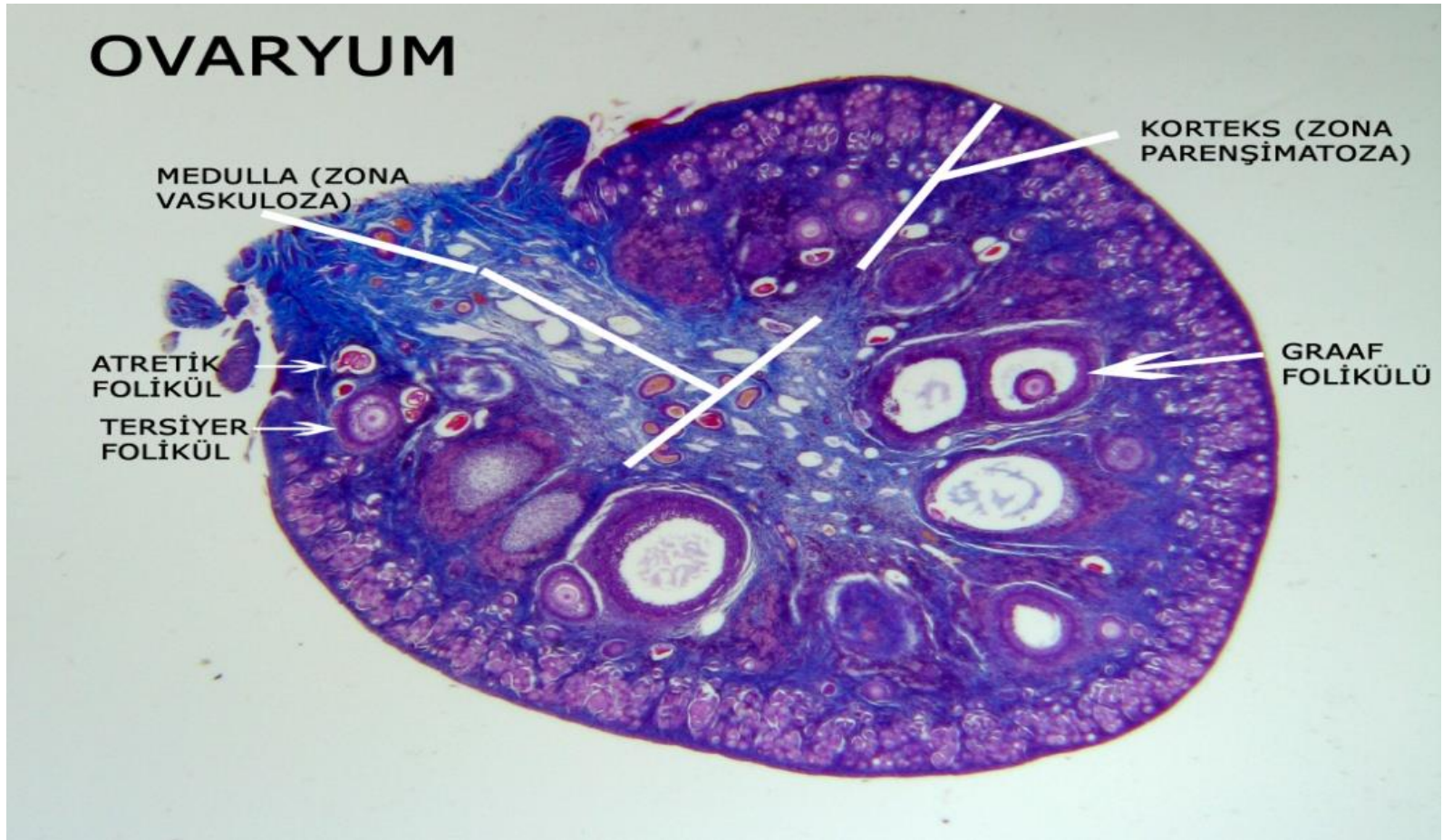
- Two major groups of steroid hormones, **estrogens**, and **progestogens**, are secreted by the ovaries.

OVARYUM



- The releasing to the genital canal of the ovum is an **exocrine function** of the ovarium.
- Producing its own hormones also constitutes **endocrine functions**.

OVARYUM

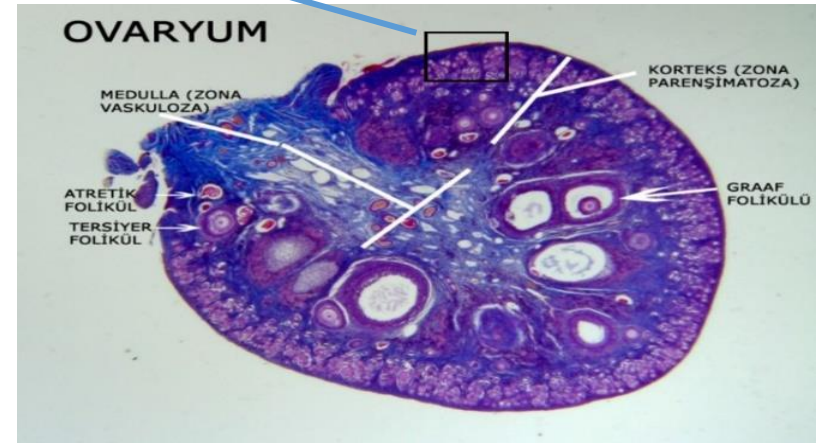
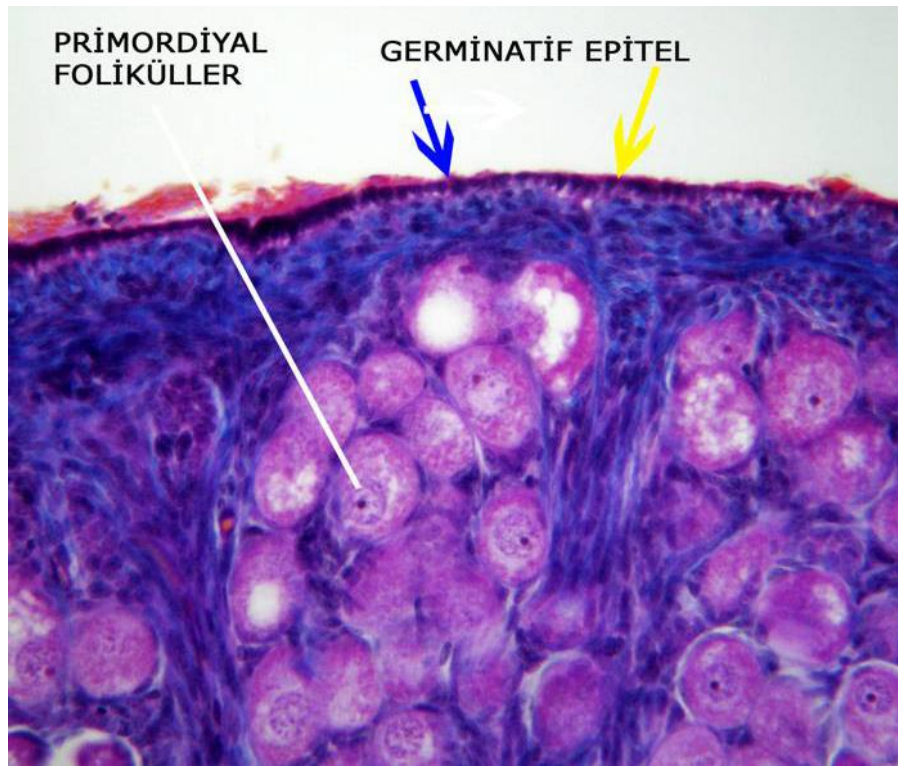


- Oval or bean-shaped. The hilus which is the place the entry and exit of vessels and nerves hold the pelvic wall and uterus with some ties and connective tissue called mesovarium.
- Mesovarium is covered with of visceral peritoneum (mesothelium and connective tissue).

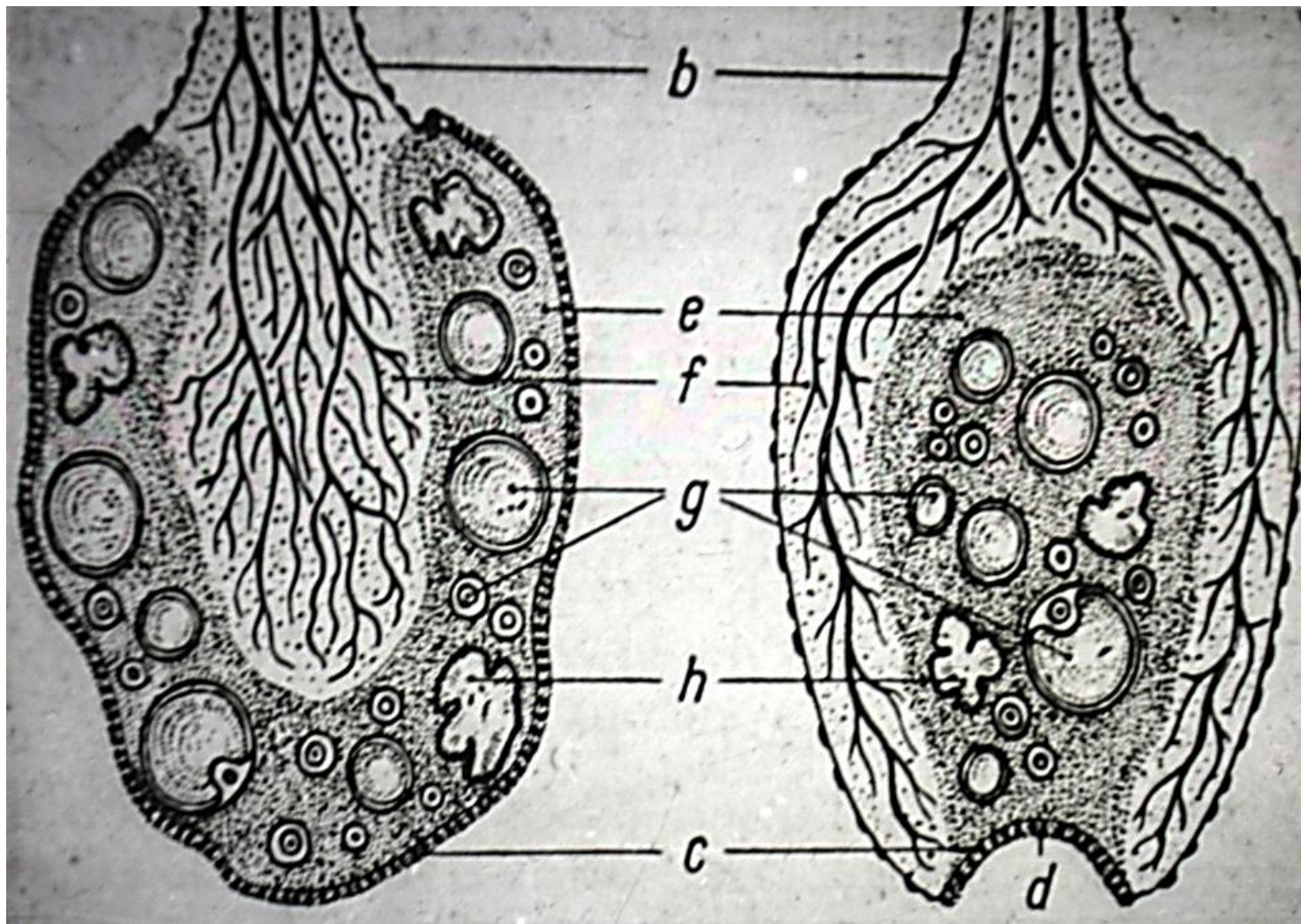
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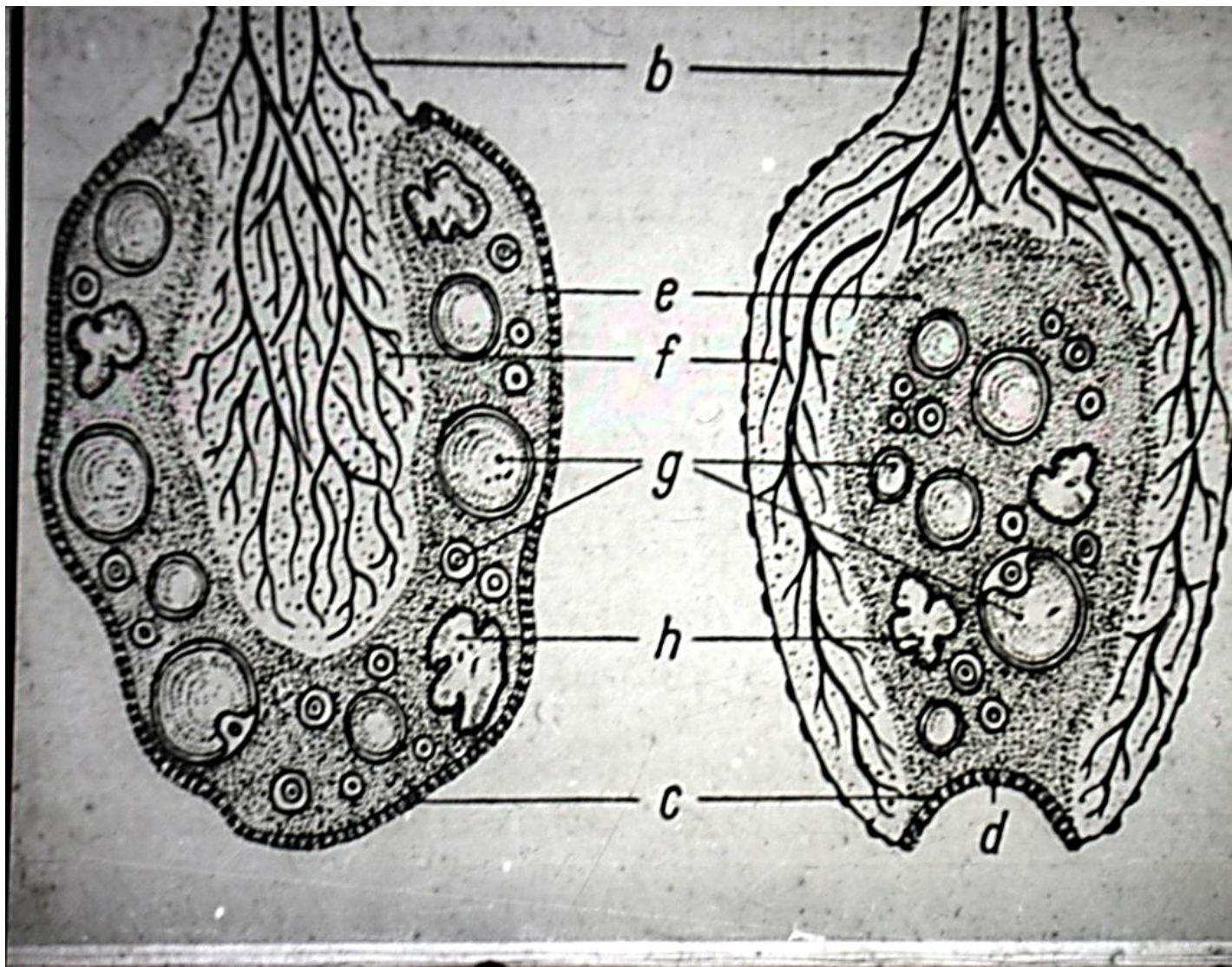
- The ovaries of all mammals have a similar basic structure.
- It is composed of a **cortex** and a **medulla**.
- Medulla located in the central portion of the ovary and contains loose connective tissue.
- The cortex contains the ovarian follicles embedded in a richly cellular connective tissue.



- The surface of the ovary is covered by a single layer of cuboidal and, in some parts, almost squamous cells.
- This cellular layer, known as the germinal epithelium, is continuous with the mesothelium that covers the mesovarium.



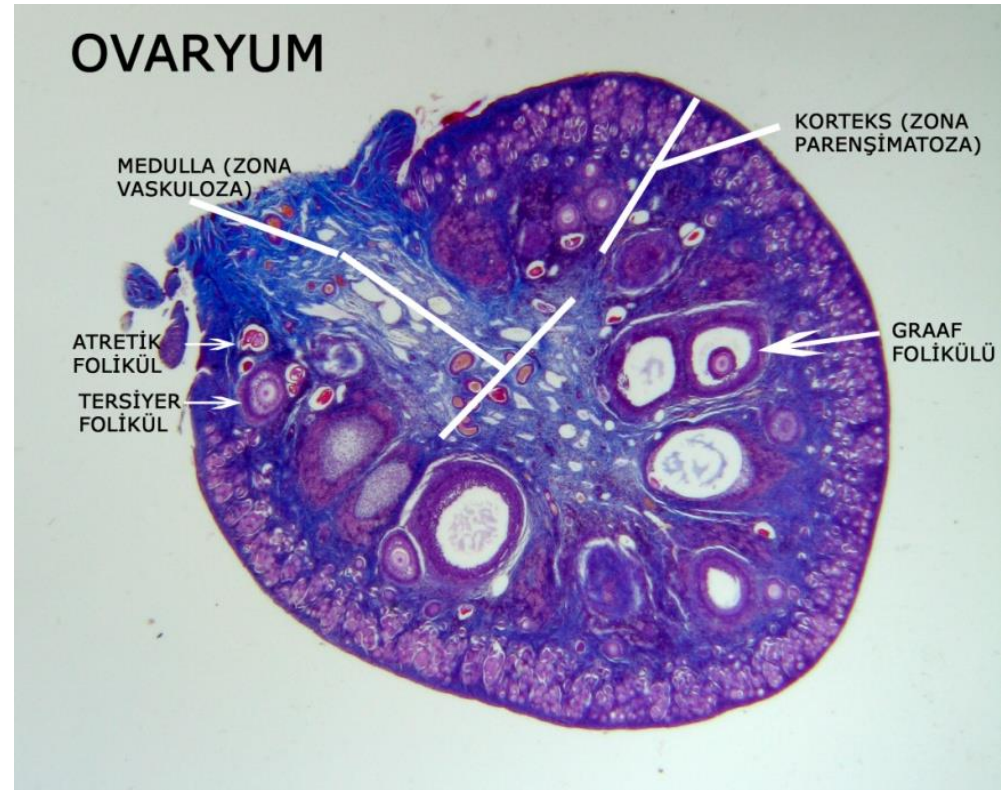
- The ovarium has two parts: the cortex and the medulla.
- The cortex is located outside the ovarium. The medulla is located on the inside.
- But, In the mare, the situation is the opposite.



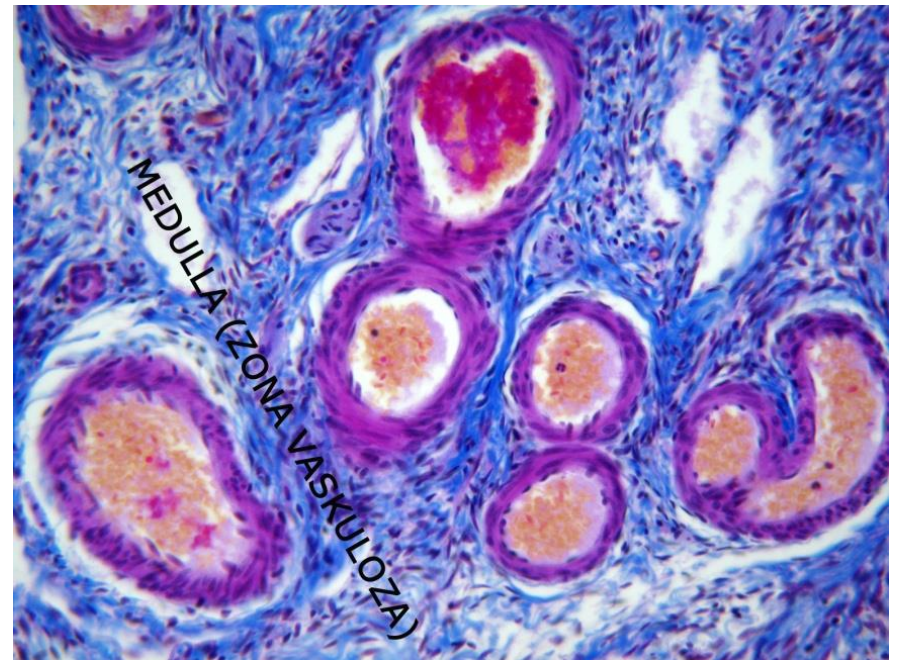
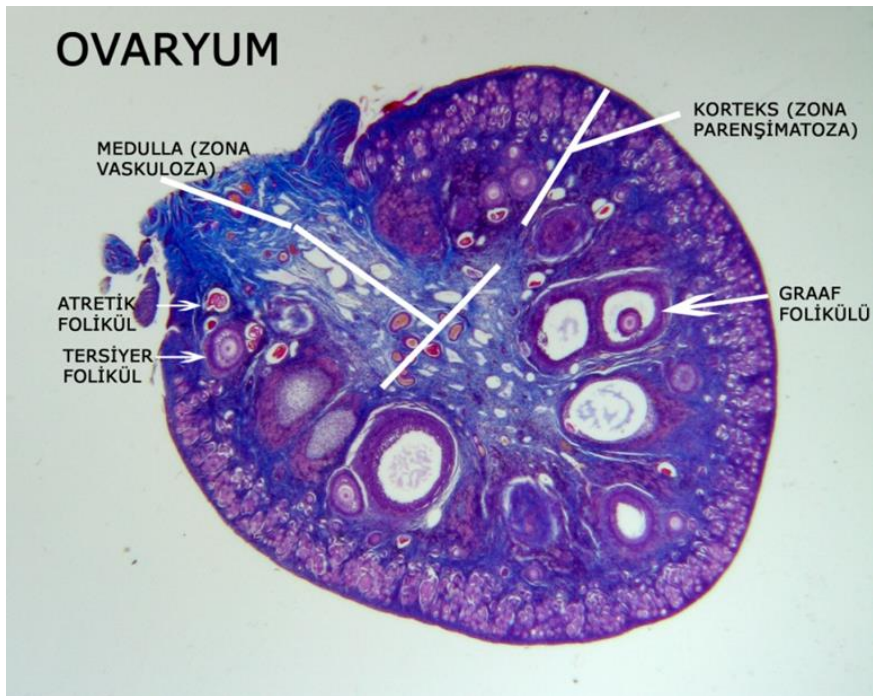
Mesothelium located on the outer face of ovaries.
There is connective tissue containing blood vessels under the mesothelium.

The medulla of ovarium: (Zona vasculosa):

- Basic structure component is connective tissue.
- It contains collagen and elastic fibers and a small number of smooth muscle fibers.

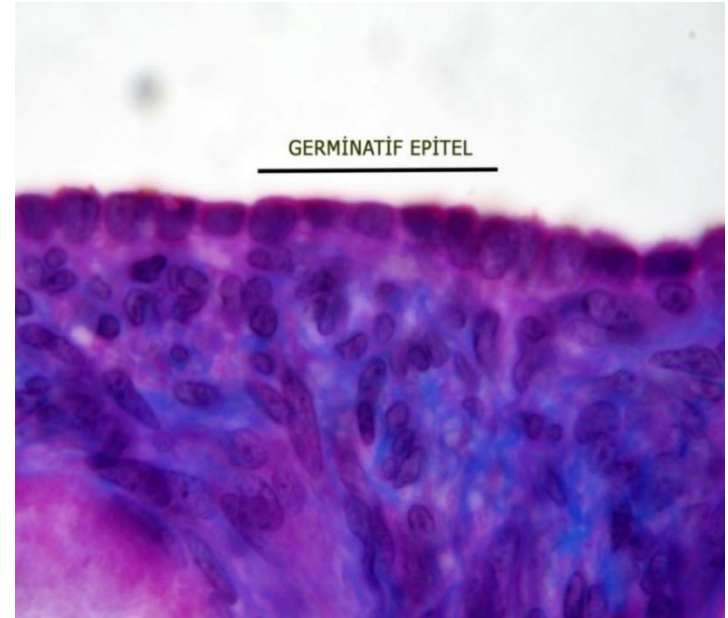
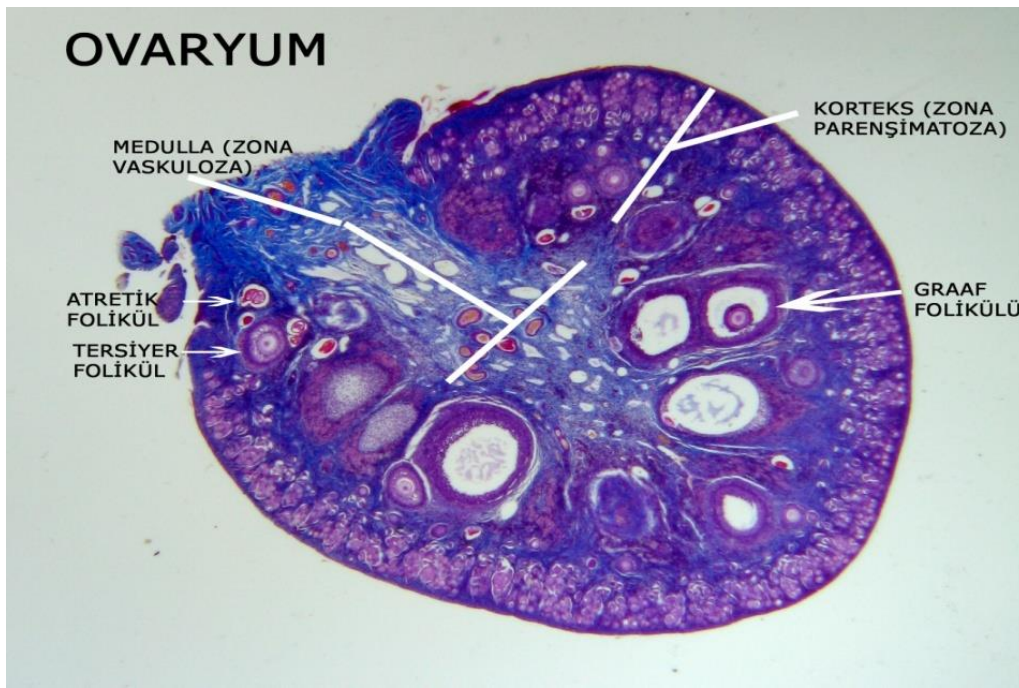


OVARYUM



Medulla is rich in blood vessels. It is also found lymphatic vessels and nerve fibers. Therefore it is also called zona vasculosa.

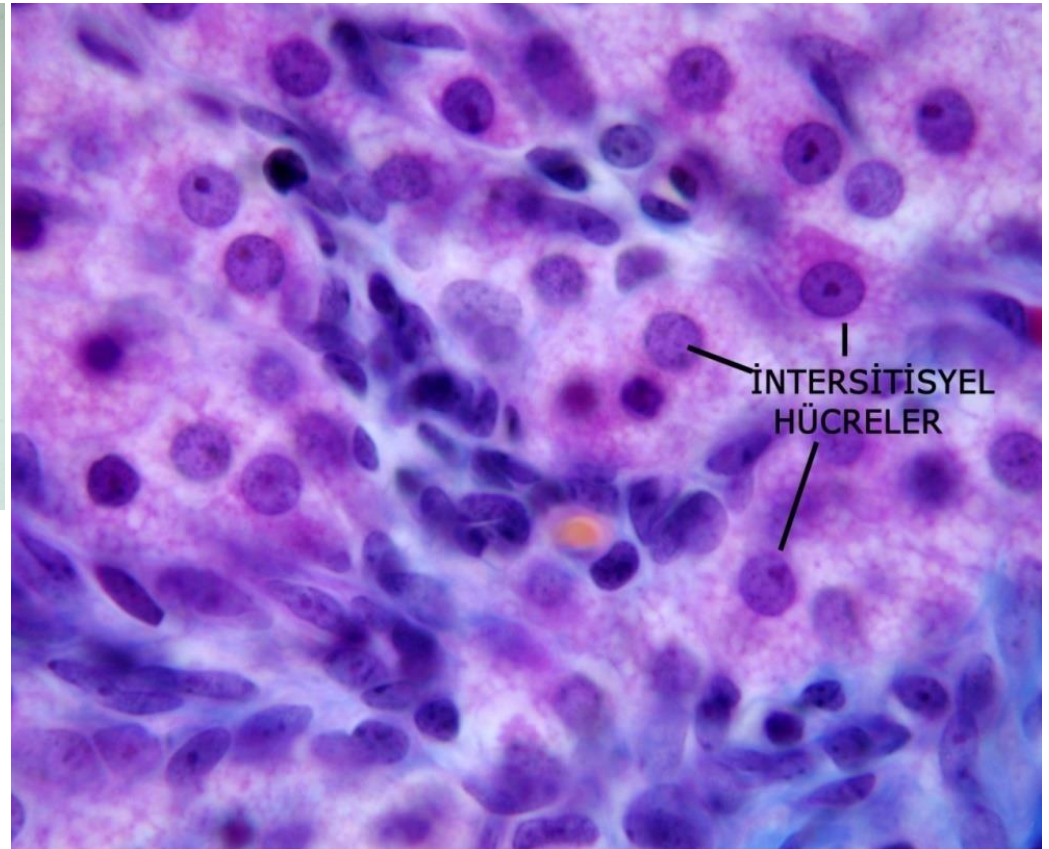
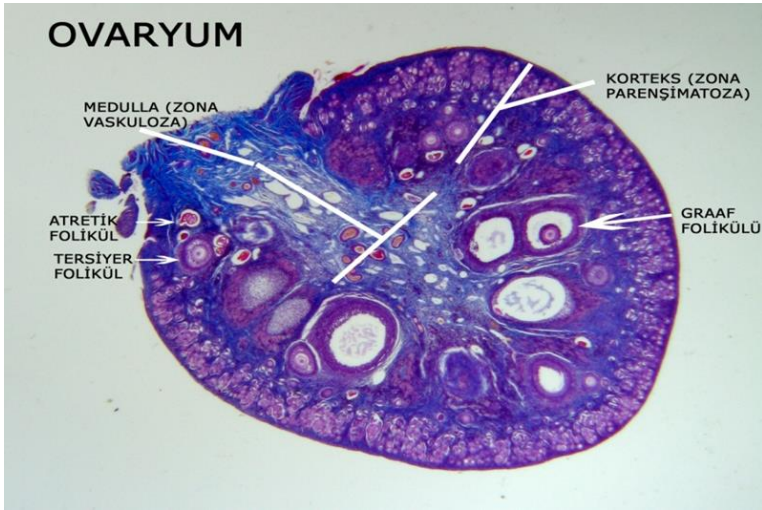
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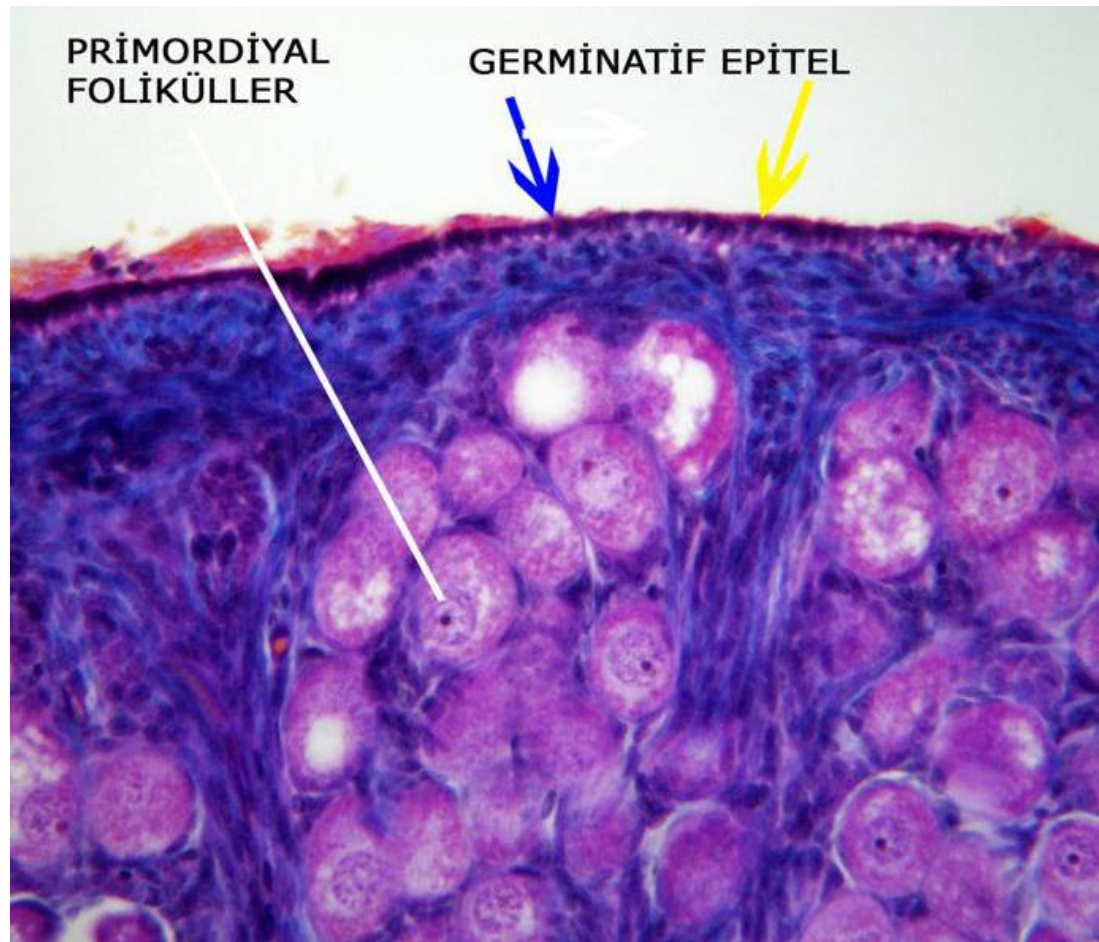
Ovarian cortex:

- Cortex is the active part of the organ.
- Germinative epithelium cubic-prismatic in developing live, prismatic in adults.
- However, in this epithelium is flattened in old age.

- The superficial cortex is more fibrous than the deep cortex and is often called the tunica albuginea.
- These regions contain cells that are capable of differentiation in a variety of ways. Example fibroblasts.



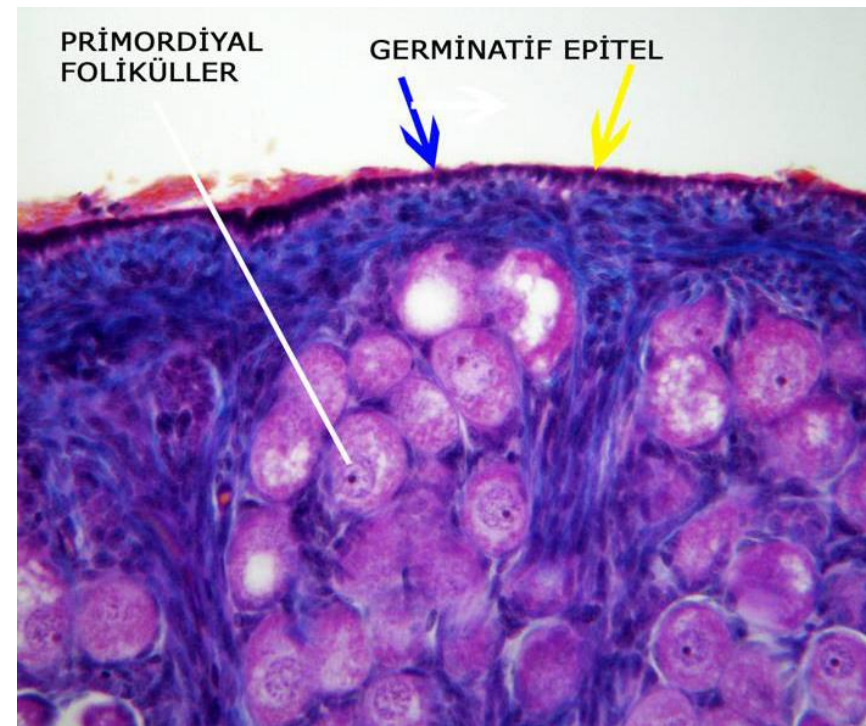
- Interstitial cells are large polygonal cells. They have an epithelioid character.



- Ovarian follicles of various sizes, each containing a single oocyte, are distributed in the stroma of the cortex.
- The cortex has **primordial follicles, many follicles in various stages of development, corpus luteum, interstitial cells, and stromal elements.**

Primordial follicles

- In the mature ovary, primordial follicles are found in the stroma of the cortex just beneath the tunica albuginea.
- The outer surface of the follicle cells is bounded by a basal lamina.
- At this stage, the oocyte and the surrounding follicle cells are closely apposed to one another.



- Follicles are called in different ways according to the state of the follicle epithelium around oocytes.
- According to these; follicular epithelium in primary follicles are single or multi-layered.
- During the follicular development, liquid (liquor folliculi) begins to accumulate between the follicular cells.
- The small spaces that contain this fluid coalesce and the granulosa cells reorganize themselves to form a larger cavity, the antrum.
- The follicles are then called secondary follicles.
- Graaf follicles are mature follicles.

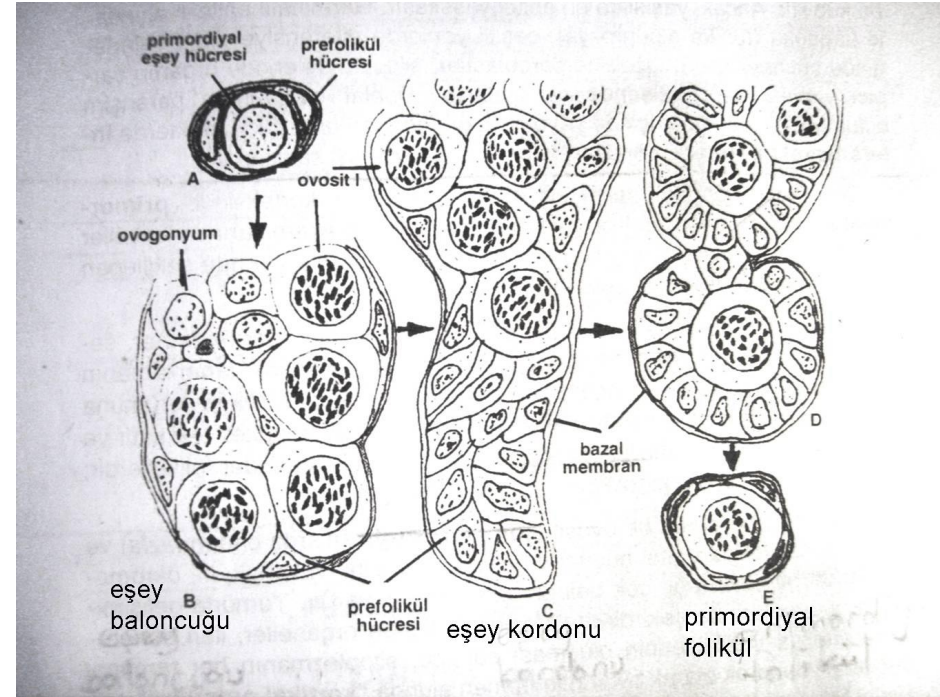
There is an oocyte and follicular epithelial cells surrounding the oocyte in all follicles.

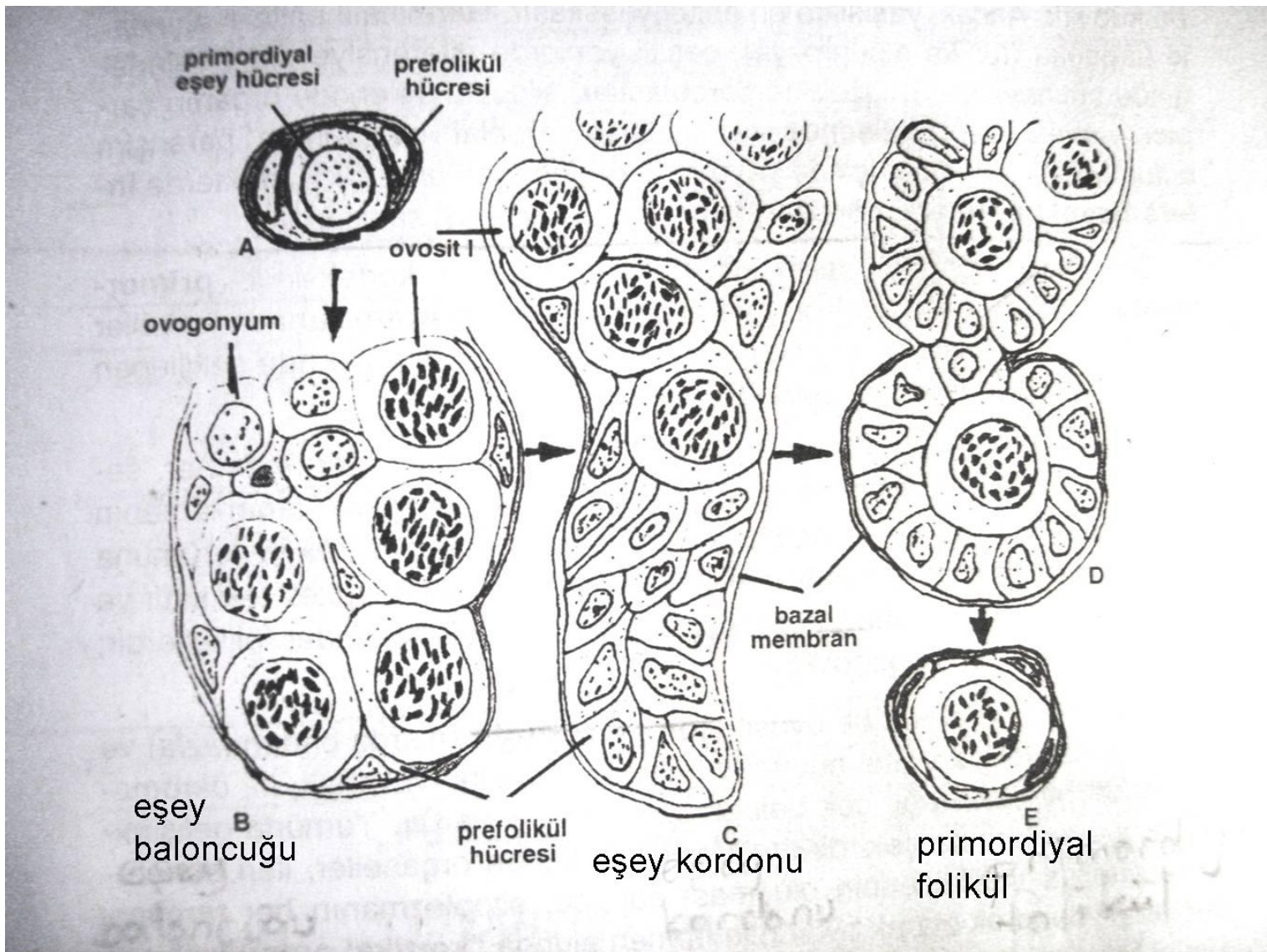
The oocyte has around a large and euchromatic nucleus.

Oocyte provides the essential nutrients from the follicular epithelial cells.

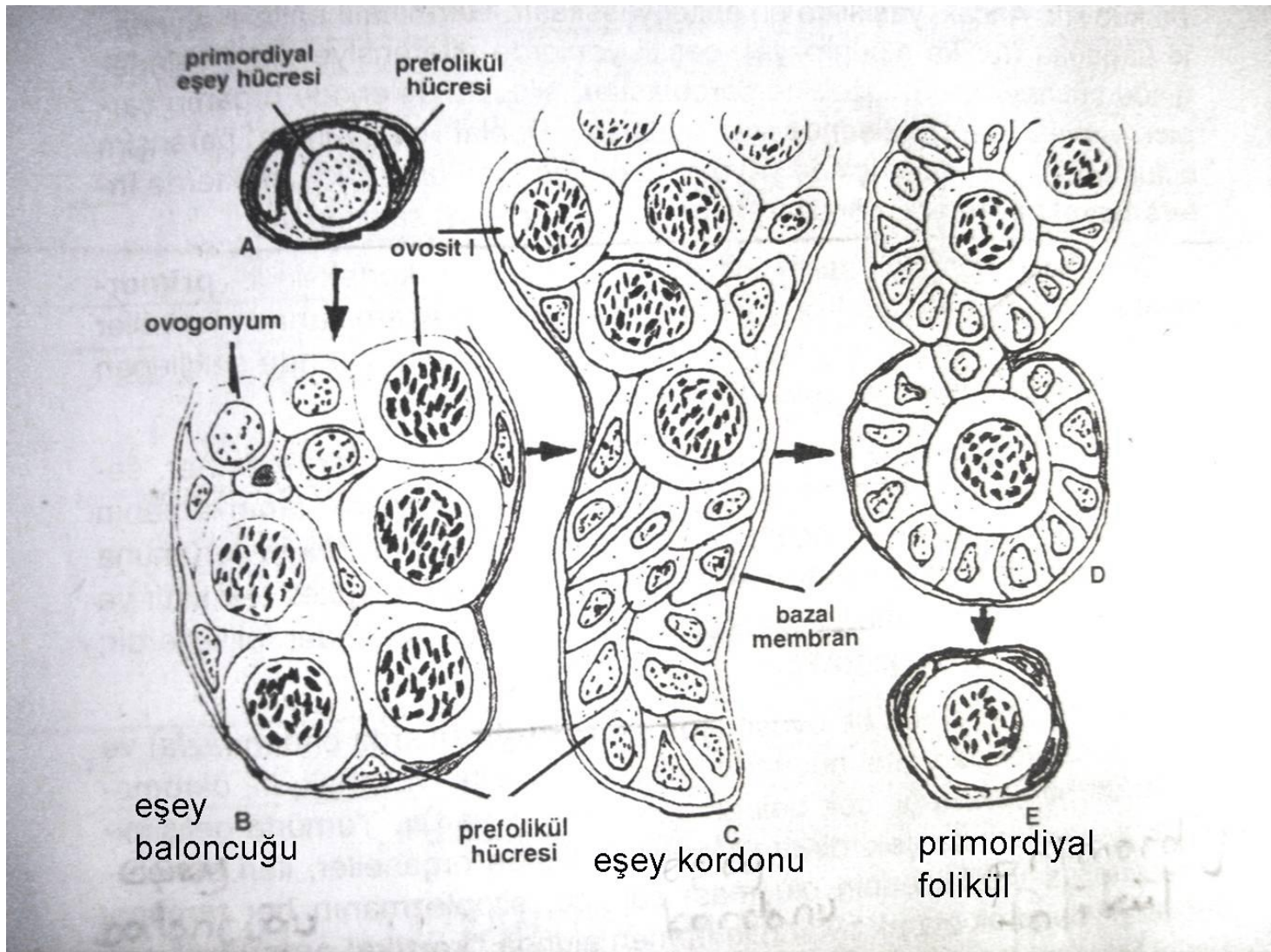
Basement membrane surrounds the follicle epithelial cells.

- Oogonium (primordial germ cells) located just below the germinal epithelium in the fetal period undergo mitotic divisions.
- So, oogonium doesn't undergo mitotic divisions, unlike the spermatogonium, postnatally.

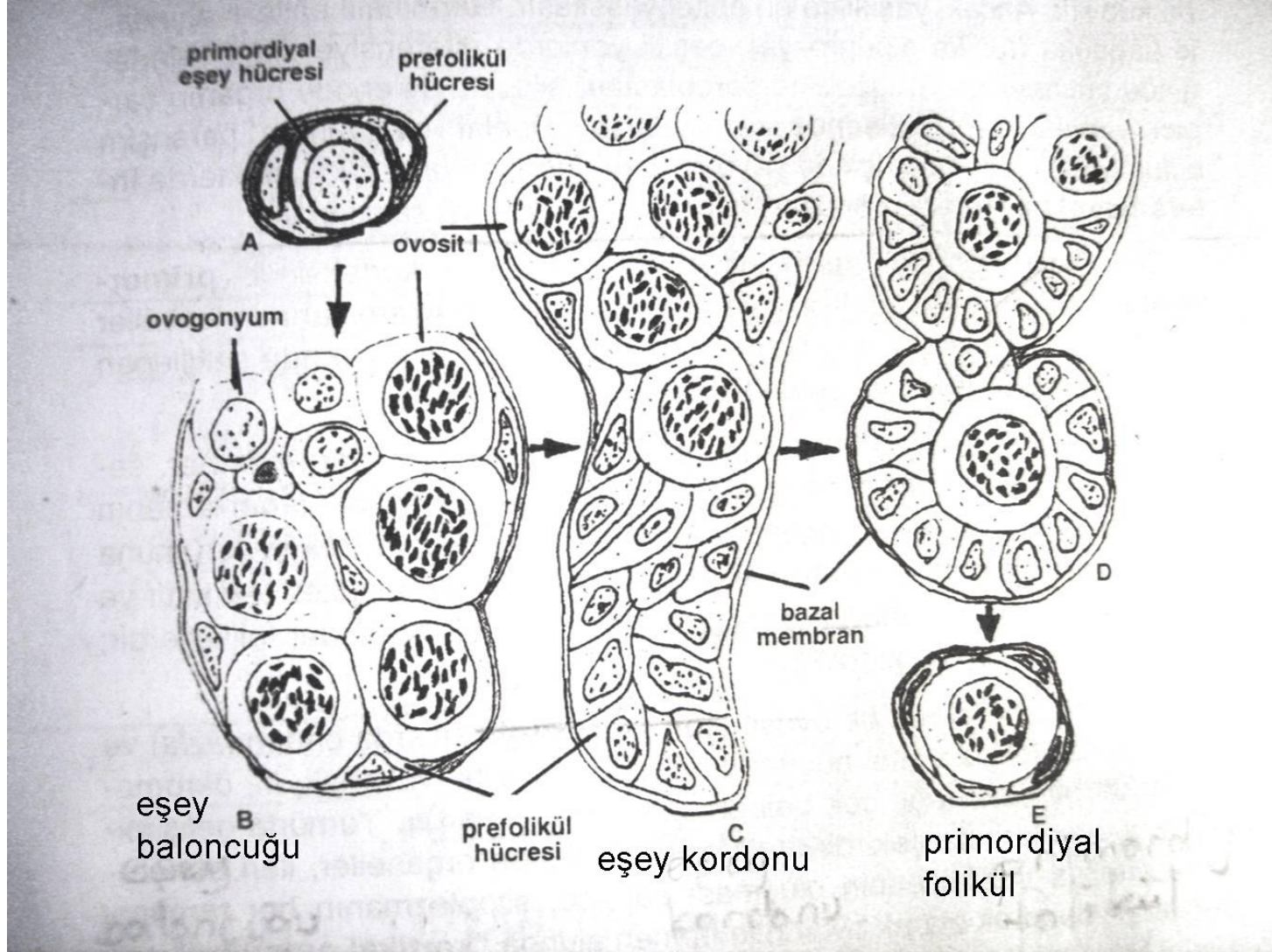




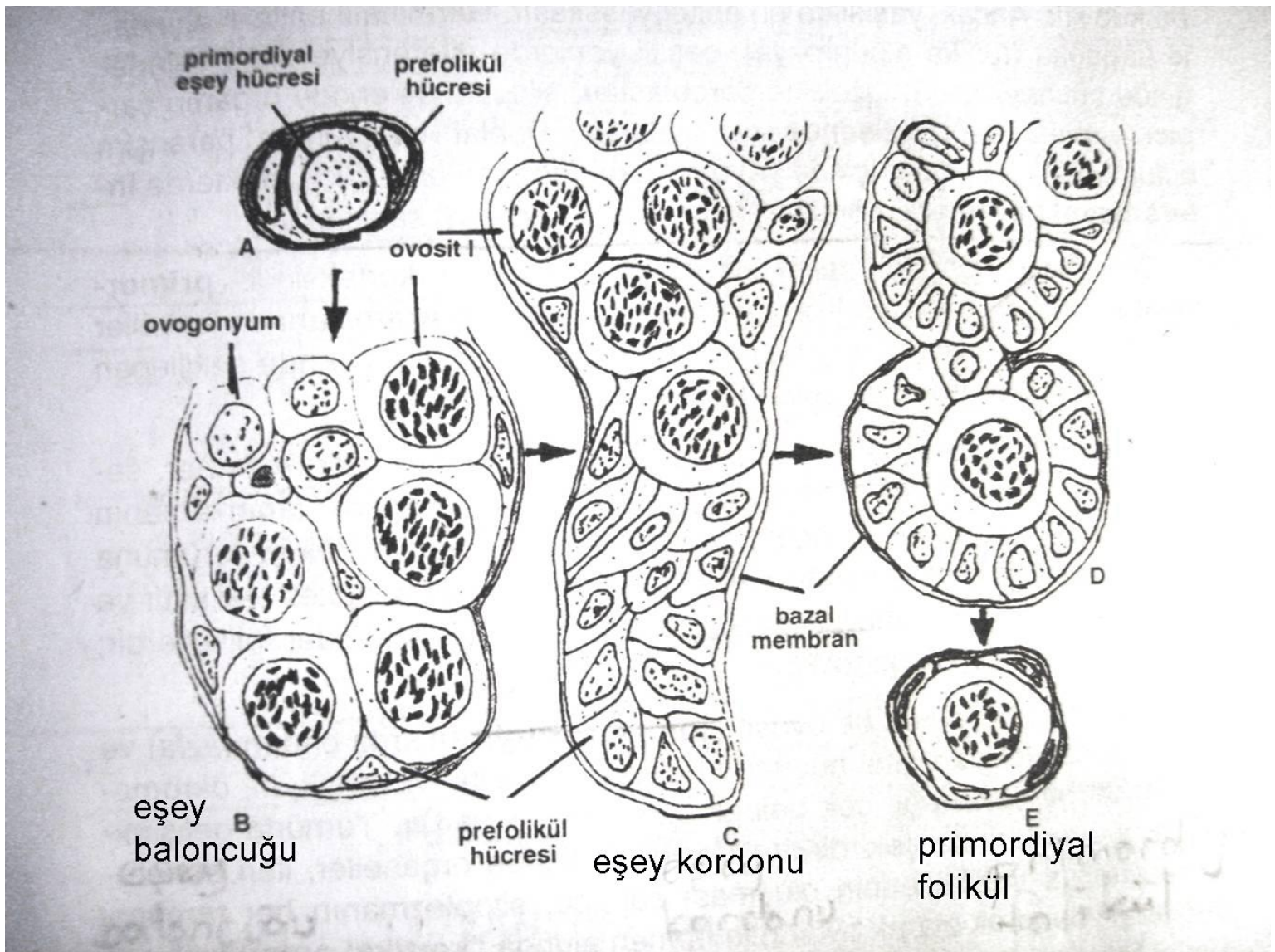
In the same area, there are few prefollicle cells that will shape the follicle cells in the future.



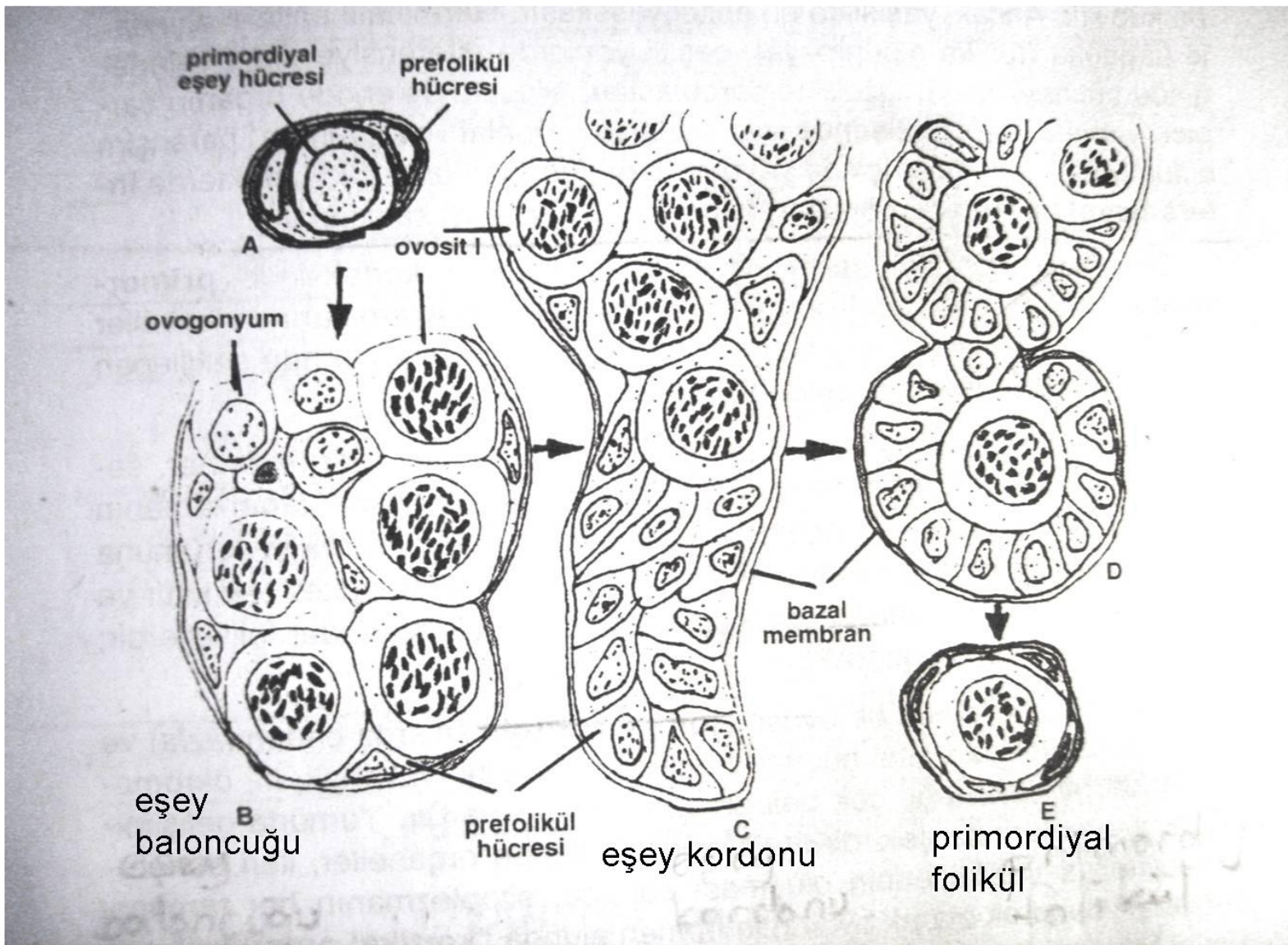
Oogoniums and prefollicle cells form a structure called the germ bubble.



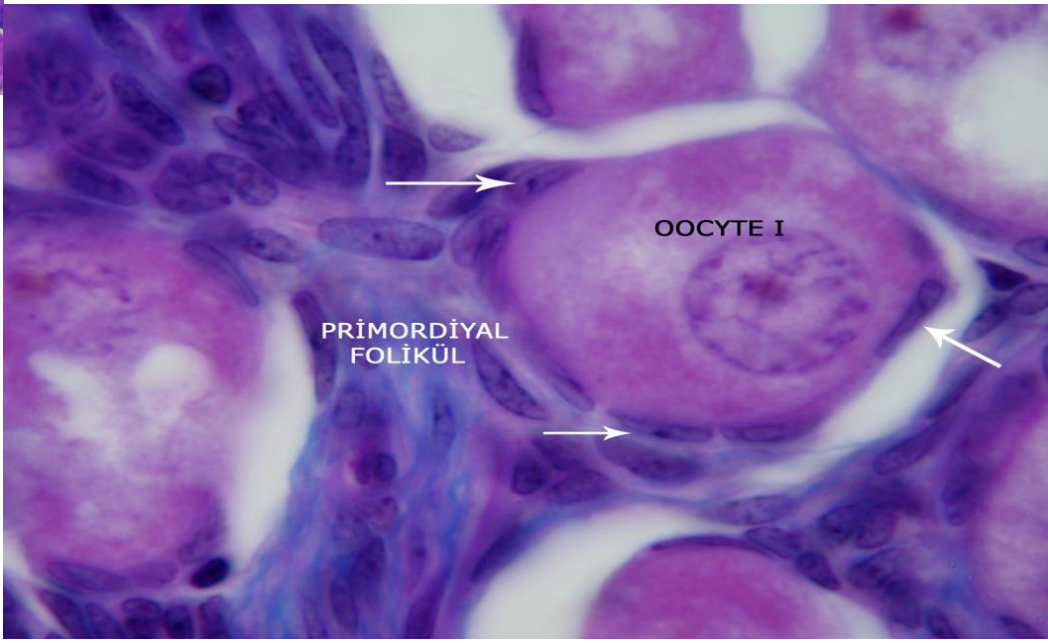
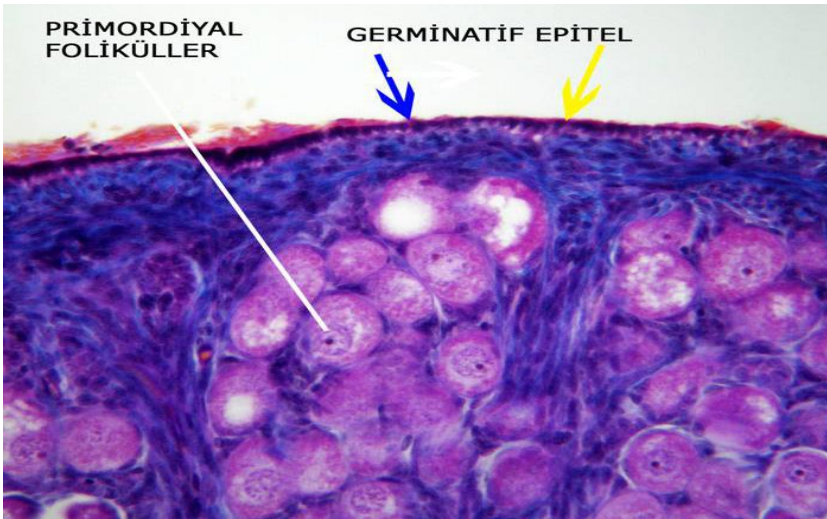
- This bubble which wrapped with the basement membrane extends in cord form (sex cord) deep into the fetal ovary.
- At this stage, oogoniums are at the stage prophase of meiosis I (diplotene) and called primary oocytes.



Prefollicular cells proliferate in the germ cord after this period, and they surround the oocyte by a single layer of flattened follicle cells.

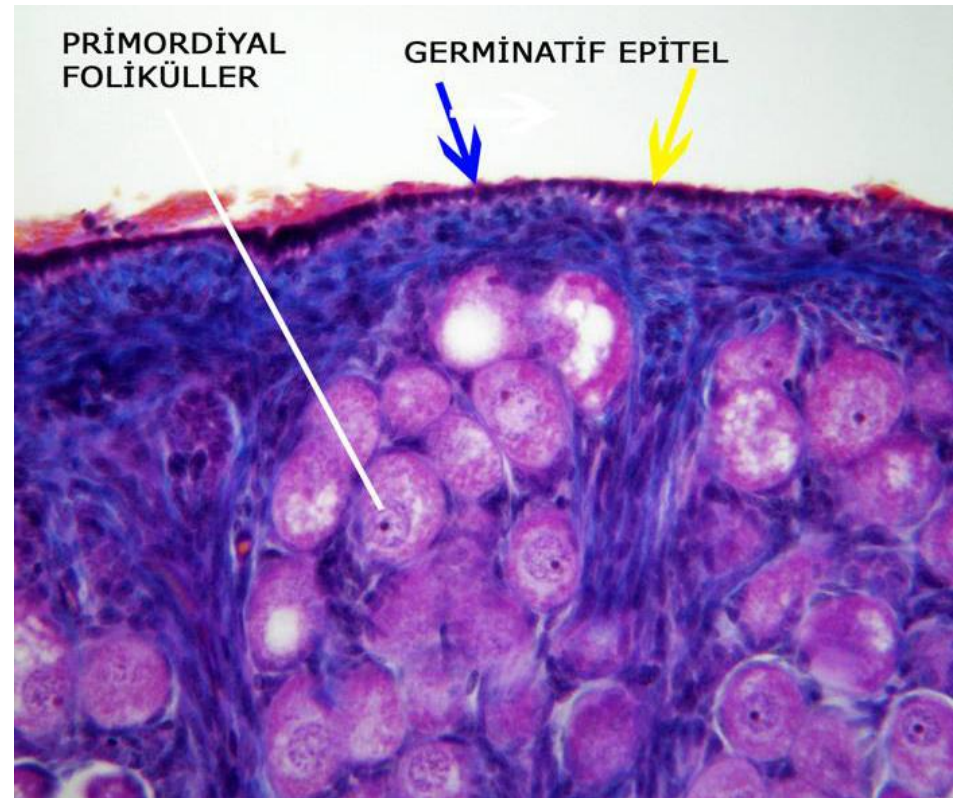


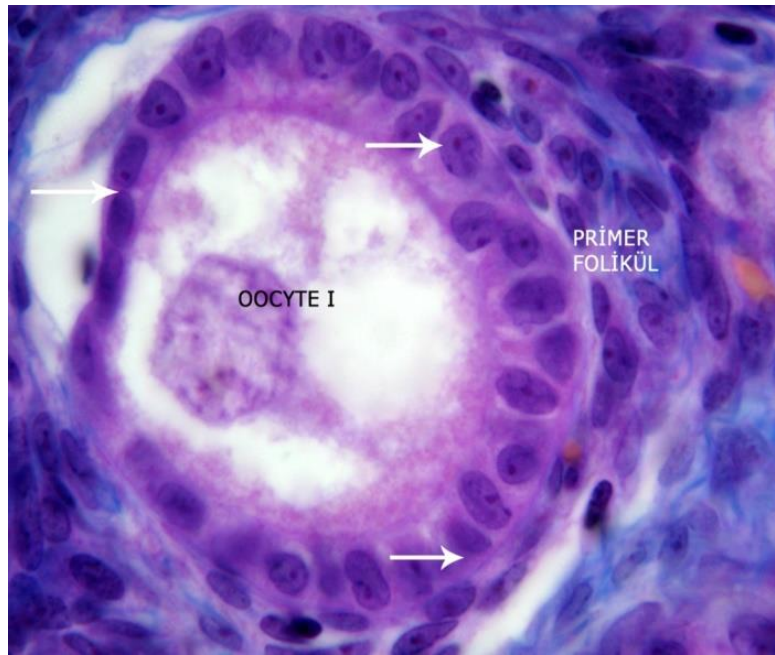
- This structure is called primordial follicles. The outer surface of these cells is separated from the connective tissue by a basal lamina.



- There are only primordial follicles in the cortex of ovaries until puberty from the fetal period.

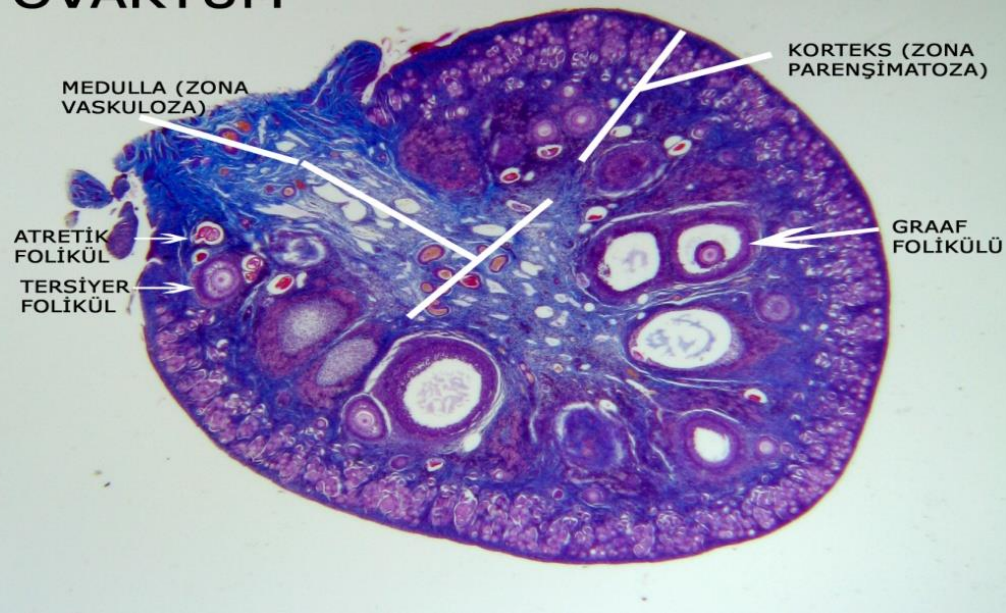
- These follicles begin to develop with the effect of FSH secreted from the pituitary, together with puberty.
- Thus, the primary oocytes form secondary oocytes, and mature ovum as long as the continued sexual activity.
- This feature creates a significant difference between the female and the male reproductive organs.
- Meiosis begins with puberty in male reproductive organs and is completed with the formation of sperm.





- Several immature follicles begin to develop during each reproductive cycle after the start of puberty.
- This development is seen in both the oocytes and follicular epithelial cells.

OVARYUM



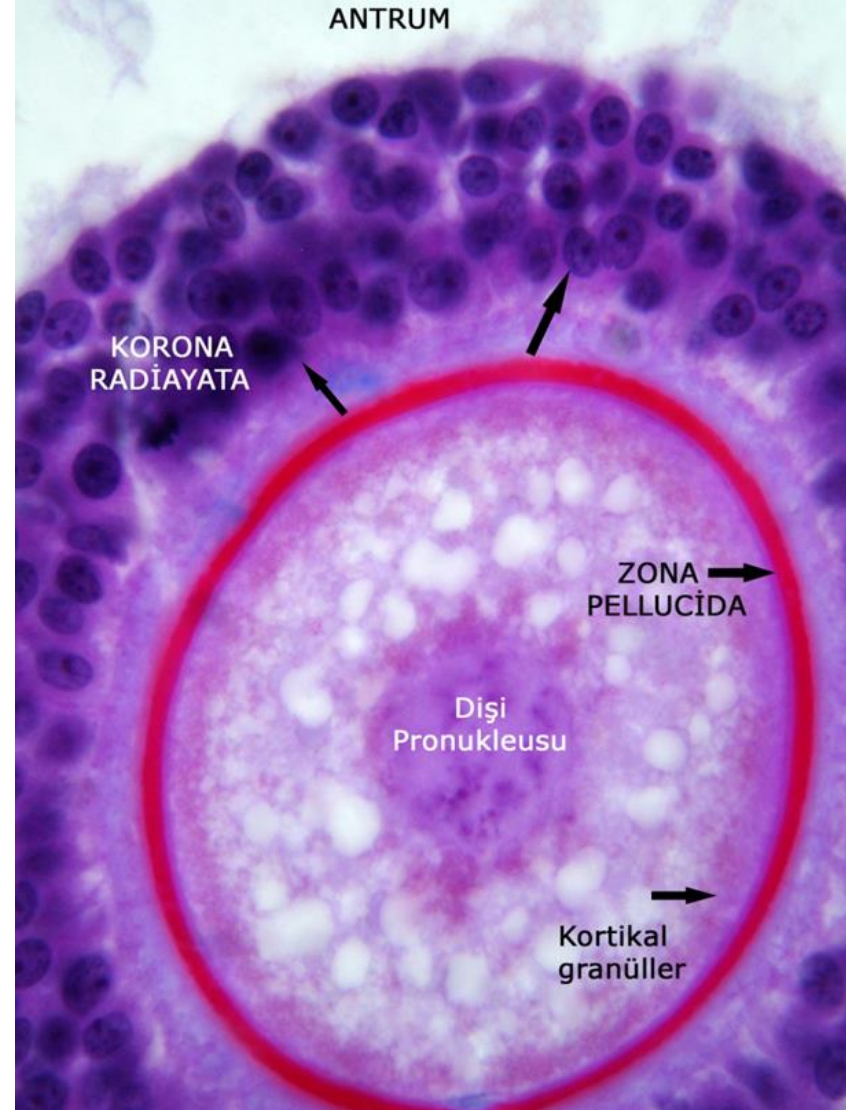
Primary follicles are located near the ovarium surface throughout life.

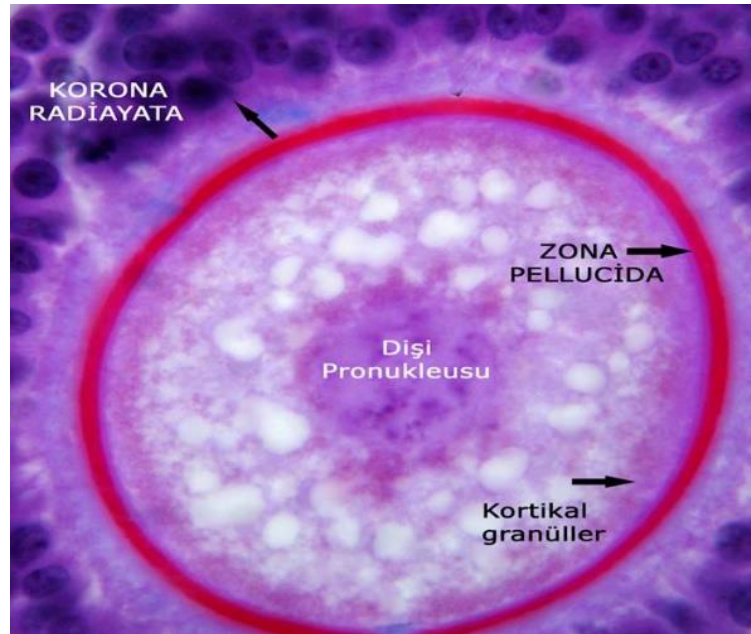
- The oocyte enlarges and through rapid mitotic proliferation, the single layer of follicle cells gives rise to a stratified epithelium, the stratum granulosum, surrounding the oocyte.
- The follicle cells are now identified as granulosa cells.
- This follicle structure is called **multilaminar primary follicle**.
- Primordial follicle has a single layer of flattened follicle cells.
- Granulosa cells produce estrogen under the influence of FSH.

As the oocyte grows, a homogenous, deeply staining, an acidophilic layer called the zona pellucida appears between the oocyte and the adjacent follicle cells.

The zona pellucida is seen in the light microscope when the oocyte surrounded by a single layer of cuboidal or columnar follicle cells.

The zona pellucida is rich in glycosaminoglycans and glycoproteins and stains PAS reaction.

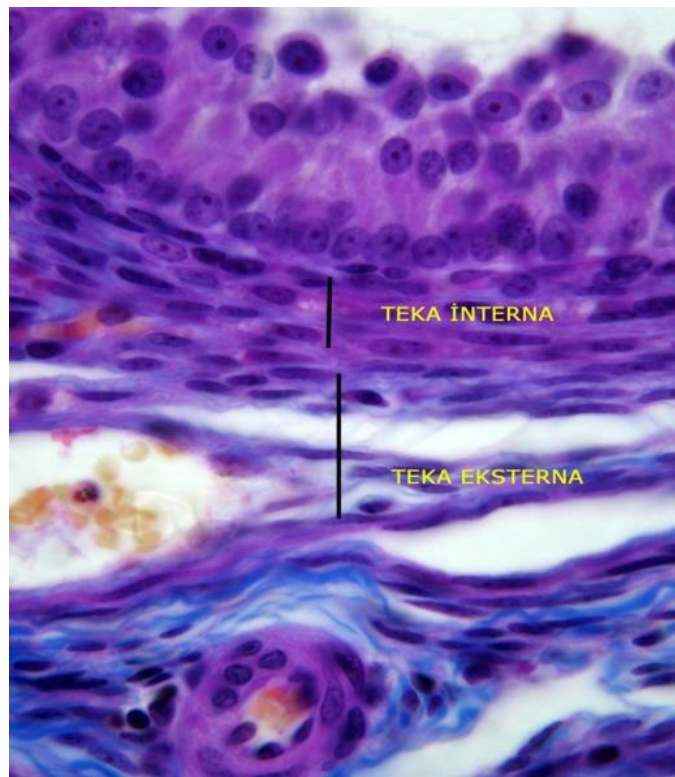




- When examined in an electron microscope, the microvilli of the oocyte and follicle epithelial cells appear to be among each other such as the fingers of two hands.
- These microvilli provide the nutrition of the oocyte with diffusion from the follicular epithelium.

Multilayer primary follicles locate deeper in the ovarian surface. As the granulosa cells proliferate, stromal cells immediately surrounding the follicle form a sheath of connective tissue cells, known as the theca folliculi, just external to the basal lamina. Theca folliculi further differentiates into two layers, the **theca interna** and the **theca externa**.

The **theca interna** is the inner, highly vascularized layer of cuboidal secretory cells. The fully differentiated cells of the theca interna possess ultrastructural features characteristic of steroid-producing cells. In addition to secretory cells, the theca interna contains fibroblasts, collagen bundles, and a rich network of small vessels typical of endocrine organs.



- **Teka interna** cells synthesize **estrogen** hormone.
- The **theca externa** is the outer layer of connective tissue cells. It contains mainly smooth muscle cells and bundles of collagen fibers.

- The primary follicle initially moves deeper into the cortical stroma as it increases in size, mostly through the proliferation of the granulosa cells. Several factors are required for oocyte and follicular growth:

- Follicle stimulating hormone

- Growth factor

When the stratum granulosum reaches a thickness of 6 to 12 cell layers, fluid-filled cavities begin to merge, eventually forming a single, crescent-shaped cavity called the antrum. The follicle is now identified as a secondary follicle.

As the secondary follicle increases in size, the antrum also enlarges. The stratum granulosum has a relatively uniform thickness except for the region associated with the oocyte. Here, the granulosa cells form a thickened mound, the cumulus oophorus, which projects into the antrum.

- The cells of the cumulus oophorus that immediately surround the oocyte and remain with it at ovulation are referred to as the corona radiata.
- These gaps, called the **antrum**, filled with the follicle fluid (liquor follicle).
- This fluid contains steroid hormones (estrogen, progesterone, androgen), hyaluronic acid and proteolytic enzymes secreted from follicular epithelial cells.
- These numerous antrums combine to form larger antrums.



Usually, each follicle contains an oocyte, while carnivorous, pig and sheep follicles can contain 5-6 oocytes.

Graafian follicle:

The mature follicle, also known as a Graafian follicle, has a diameter of 10 nm or more.

Because of its large size, it extends through the full thickness of the ovarian cortex and causes a bulge on the surface of the ovary.

During the reorganization of the granulosa cells to form the antrum, some cells of this layer concentrate at a certain point on the follicular wall. This group forms a small hillock of cells, the **cumulus oophorus**, that protrudes toward the interior of the antrum and contains the oocyte . A group of granulosa cells concentrates around the oocyte and forms the **corona radiata**. These granulosa cells accompany the oocyte when it leaves the ovary.

- Thus, the **corona radiata** is the innermost layer of the [cumulus oophorus](#) and is directly adjacent to the [zona pellucida](#), the outer protective layer of the [ovum](#).
- As the follicle nears its maximum size, the mitotic activity of the granulosa cells decreases. The stratum granulosum appears to become thinner as the antrum increases in size. As the spaces between the granulosa cells continue to enlarge, the oocyte and cumulus cells are gradually loosened from the rest of the granulosa cells in preparation for ovulation.
- The oocyte in the Graaf follicle has now reached the stage of the secondary oocyte, completing the 1st cycle of meiosis.
- 1st meiosis is completed just before ovulation; 2. meiosis division begins after the first meiosis and stops at the metaphase stage.
- If fertilization occurs, meiosis is complete and ovum is formed.

OVULATION:

- Ovulation is the process by which a secondary oocyte is released from the Graafian follicle.
- Just before ovulation, blood flow stops in a small area of the ovarian surface overlying the bulging follicle.
- At this stage, estrogen is also secreted from the theca follicle and interstitial cells.
- Blood estrogen level reaches the highest point and LH is secreted more than once in the anterior lobe of the pituitary gland.
- Meanwhile, the proteolytic enzymes secreted by the follicular epithelial cells dissolve the tunica albuginea and the germinative epithelium.
- This area of the germinal epithelium, known as the stigma, becomes elevated and then ruptures.

- The oocyte, surrounded by the corona radiata and cells of the cumulus oophorus, is forcefully expelled from the ruptured follicle.
- After ovulation, the secondary oocyte remains viable for approximately 24 hours. If fertilization does not occur during this period, the secondary oocyte degenerates as it passes through the tuba uterina. Normally, only one follicle completes maturation in each cycle and ruptures to release its secondary oocyte.
- The oocyte II (preovum) is then transported into the tuba uterina.
- Following ovulation, the ruptured Graaf follicle collapses and fills with blood (This structure is called corpus hemorrhagicum). Blood levels of estrogen decrease.
- LH and LTH secretion from the pituitary gland play a role in these structural changes.

- Some structural changes take place. Follicle epithelial cells forming stratum granulosum differentiate and become large lutein cell (**granulosa lutein cell**) which have endocrine function.
- Similar changes are seen in the theca interna cells and these are converted into the **theca lutein cells**.
- Thus, the follicular wall, composed of the remaining granulosa and thecal cells, is transformed into the corpus luteum.
- The corpus luteum is an endocrine organ and secretes progesterone. It also prevents the pituitary LH and FSH secretion by secreting estrogen and oxytocin in small amounts.
- Progesterone inhibits the development of new follicles in ovary and ovulation.
- Ovarian enters a rest period.
- Fertilization occurs when spermium reaching the tuba uterina can catch the oocyte II released by ovulation.

After entering the spermium oocyte, the cortical granules just below the oolemma are discharged to the space between the oocyte and zona pellucida; This is called the zona reaction.

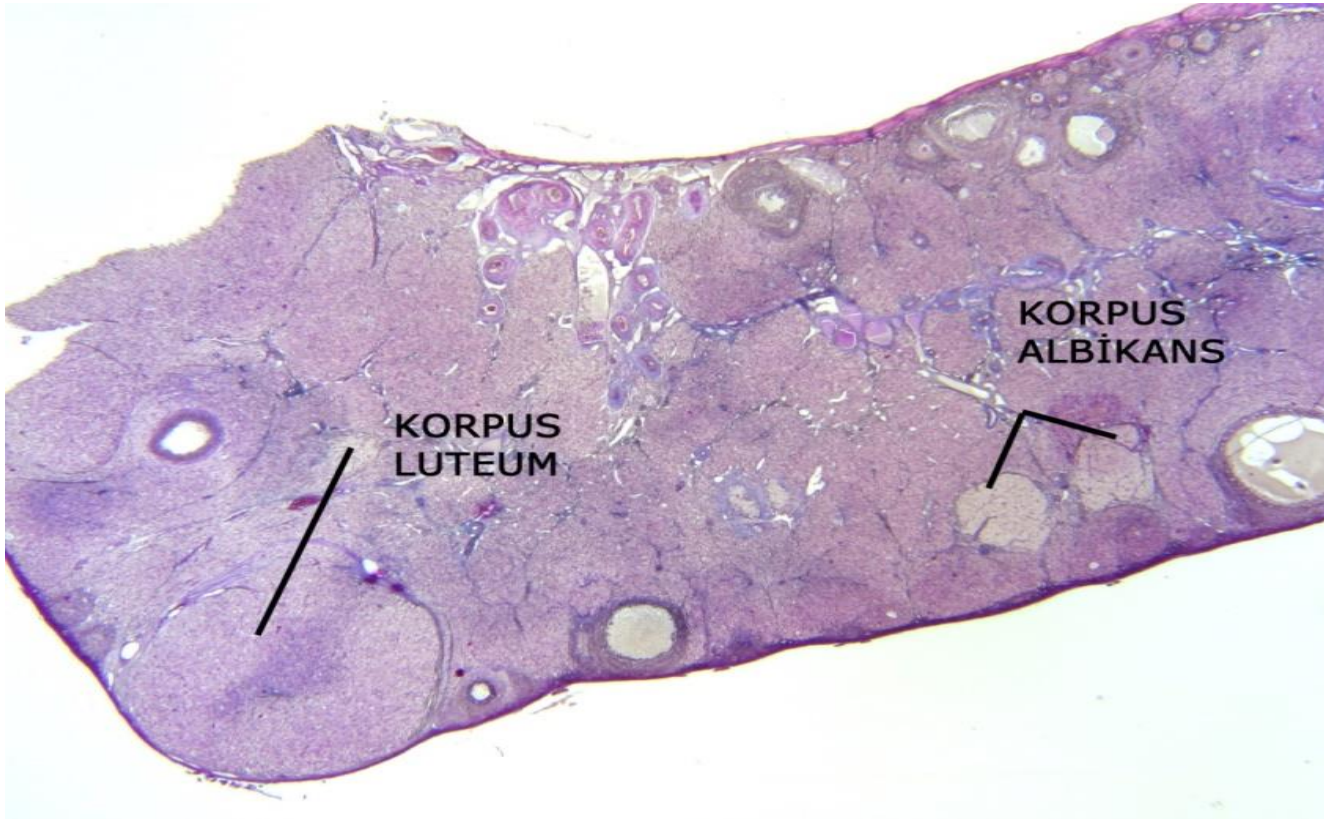
As a result of the zona reaction, the zona pellucida turns into a barrier preventing other spermium from entering oocytes. Therefore, polyspermia is absent in mammals.

The enzymes contained in the cortical granules cause both the formation of specific receptors for spermium on the oolemma and the degradation of glycoproteins in zona pellucida after the entry of a spermium into it.

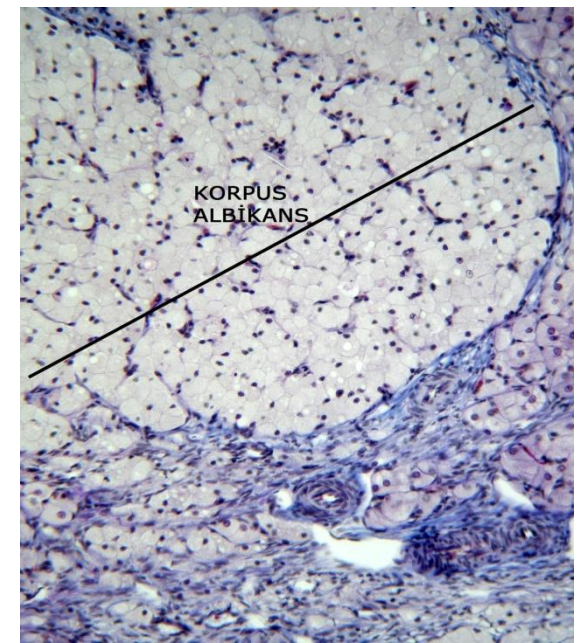
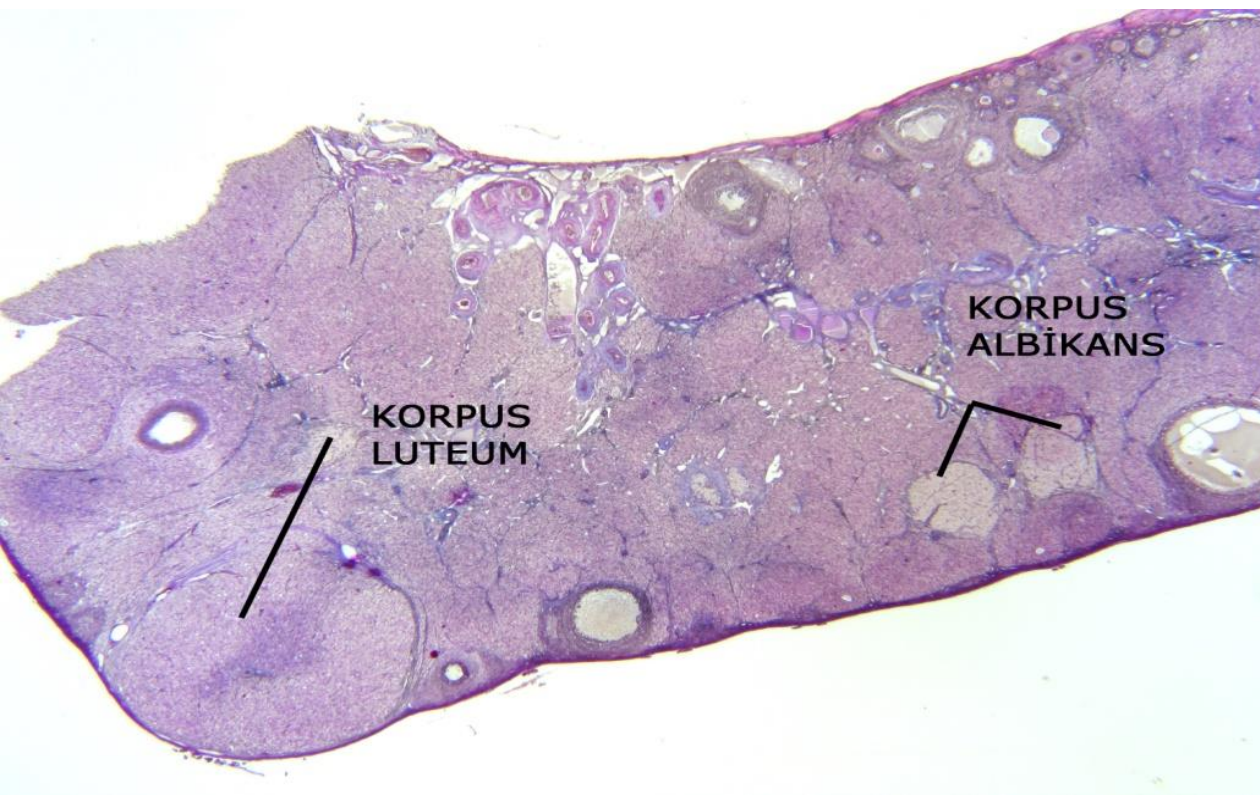
If fertilization occurs, the chorionic gonadotropin hormone secreted by the placenta increases the effect of the corpus luteum.

By maintaining the development of the corpus luteum, it prevents the contraction of the uterus smooth muscle and induces the development of uterine glands; Thus continuing its existence until the end of pregnancy.

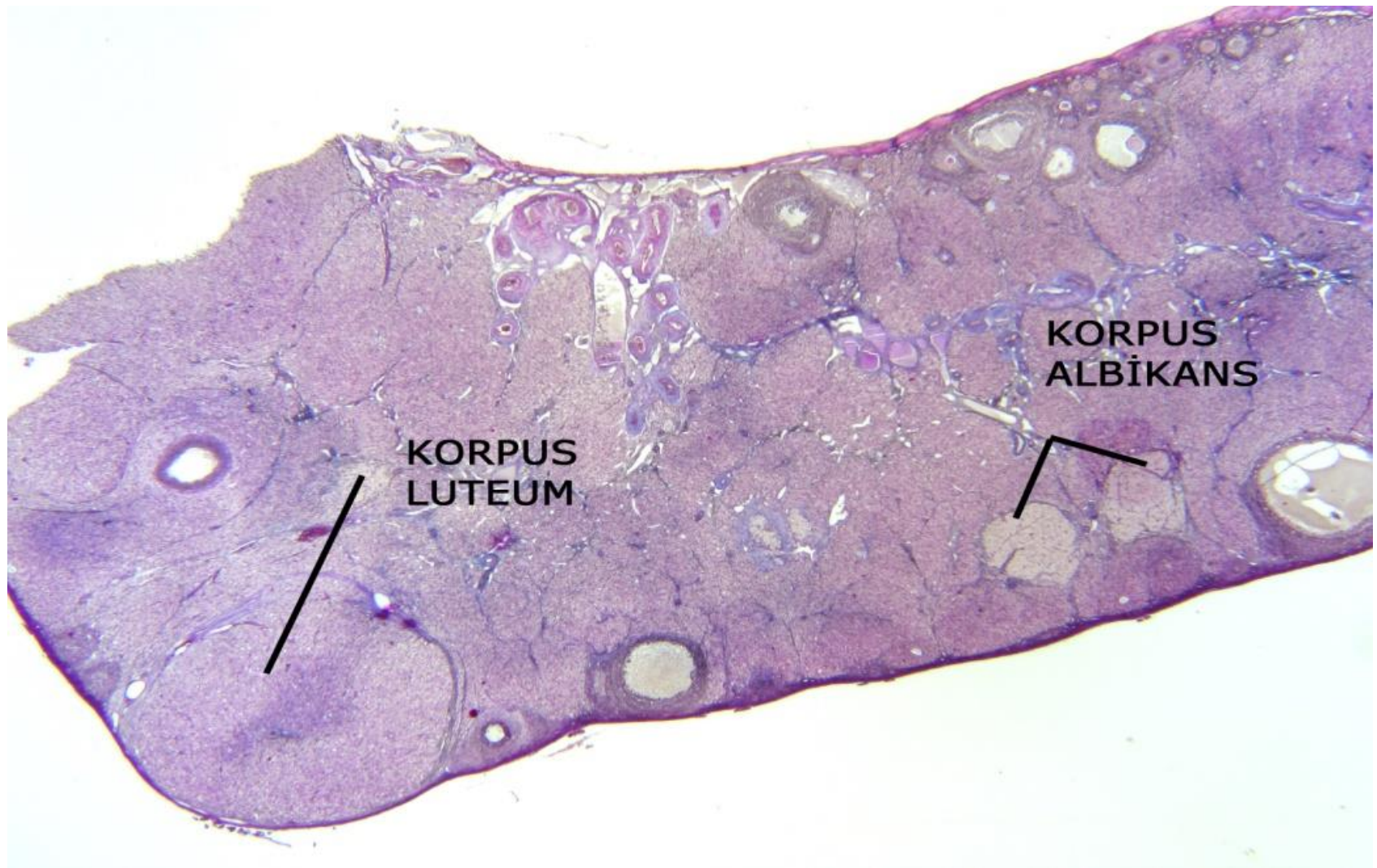
- Pregnancy corpus luteum is called **corpus luteum graviditatis**, corpus luteum verum or corpus luteum pregnansi.
- From the second half of the pregnancy, the placenta also participates in the function of the corpus luteum.
- If fertilization and implantation do not occur, the corpus luteum remains active only short time. In this case it is called **corpus luteum periodicum** or **corpus luteum spurium**.



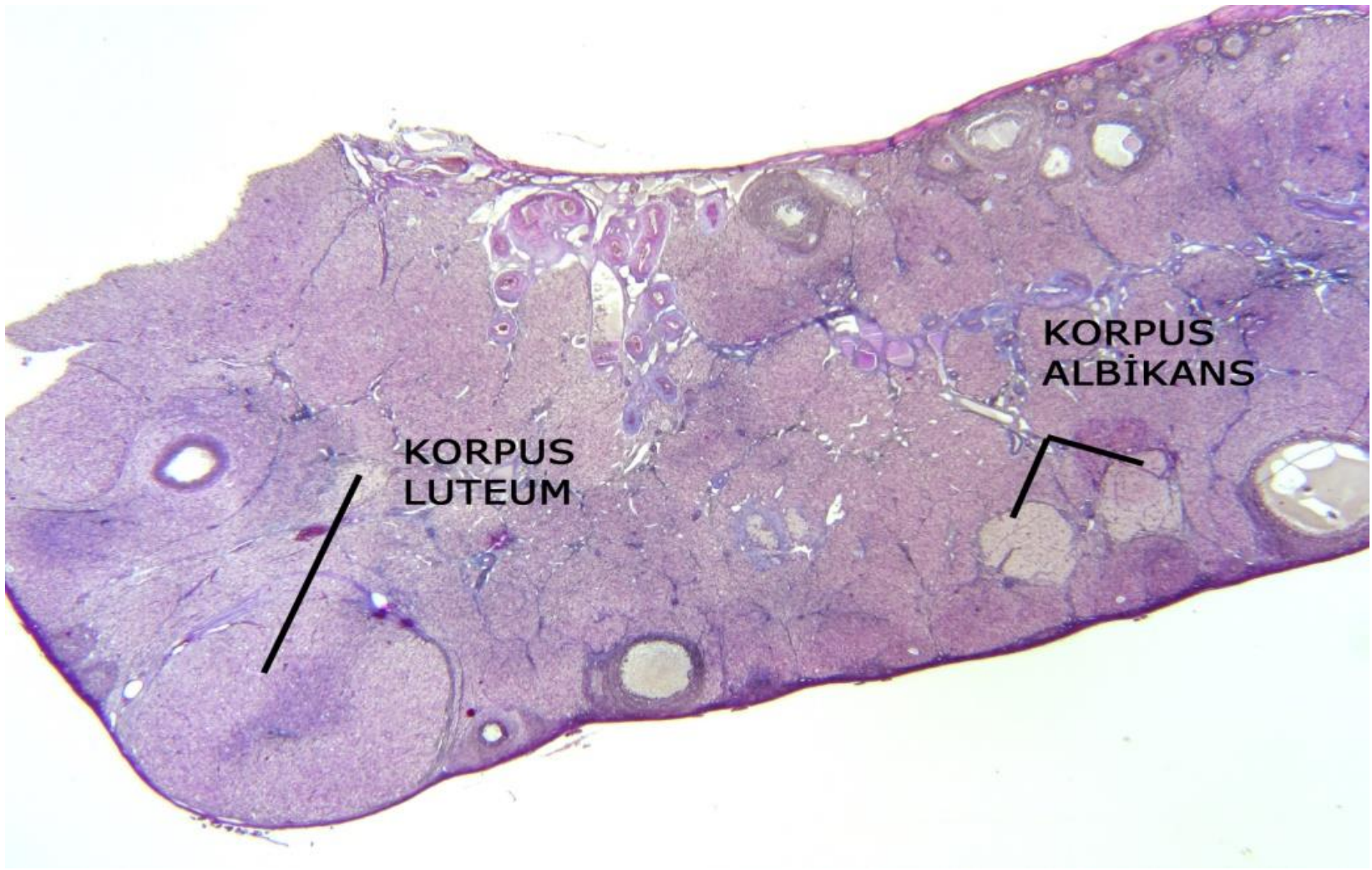
- The corpus luteum degenerates and undergoes a slow involution after pregnancy or menstruation.



- The cells become loaded with lipid, decrease in size, and undergo autolysis. A white scar, the **corpus albicans** is formed.



- Prostaglandin $F_{2\alpha}$ plays an important role in corpus luteum destruction. It is synthesized from the endometrium and released.
- Prostaglandin causes corpus luteum luteolysis and blood progesterone level decreases.



- The degeneration field is filled with connective tissue, the size decreases with time, it gets smaller and smaller as it is absorbed by macrophages.

- FSH secreted from the pituitary near the destruction of the corpus luteum stimulates the ovary to develop new follicles.
- While blood progesterone level decreased with corpus luteum destruction; Estrogen level is increased again by the new follicles that start to develop in the ovary.
- Thus, these events, which continue in the ovary and follow each other chained together, constitute the **ovarian cycle**.
- The ovarian cycle continues regularly with the interactions of the gonadotropic hormones released from the pituitary and the ovarian hormones.
- If it is not pregnant, this cycle is repeated once every 28 days. In animals, a very different cycle is encountered.
- The cycle stages, called **proestrus, estrus, metestrus, diestrus** and **anestrus**, have different durations and characteristics for each species.

Proestrous: The first phase (proestrus) of the estrous cycle is the building-up phase. During this phase the ovarian follicle (under the influence of FSH and LH) enlarges and begins to secrete estrogens.

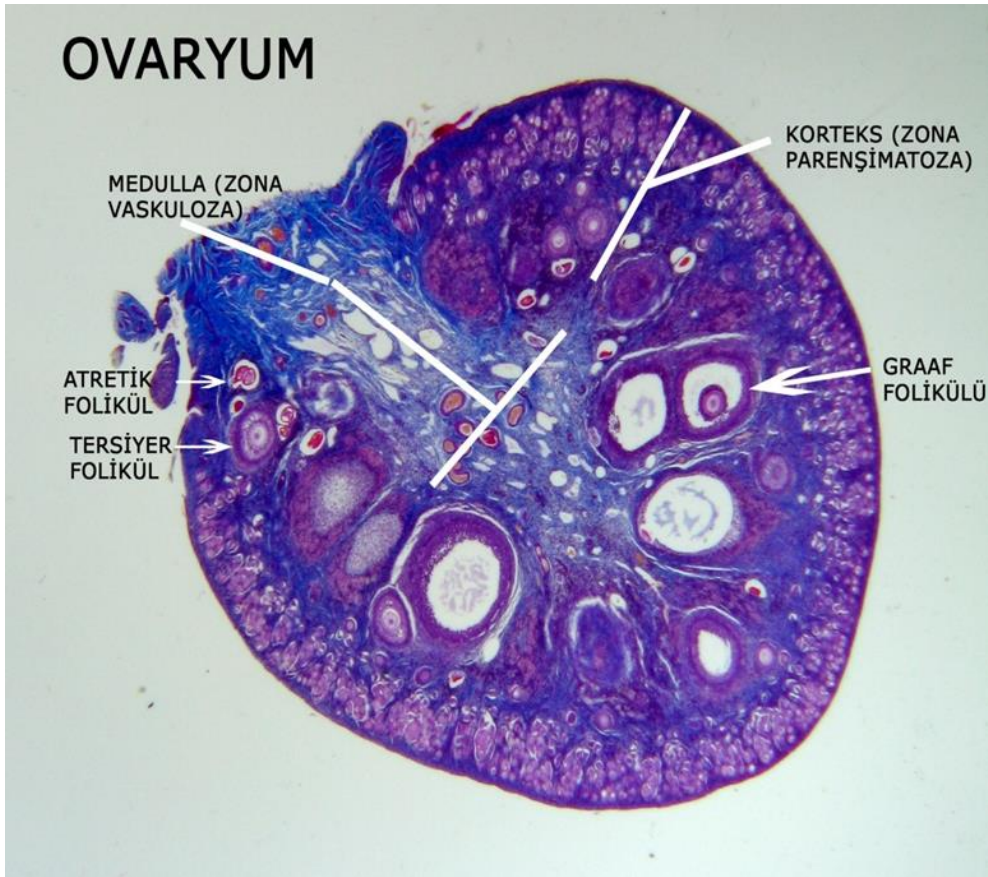
Estrous: At this stage, ovulation occurs.

Metestrous: The period following estrus in most female mammals, when the corpus luteum begins to form.

Diestrous: Corpus luteum is the time to be active. It creates a suitable environment for implantation of the fertilized egg mucosa. Diestrous continues until the corpus luteum regressed.

Anestrous: A long period without sexual activity. This is quite a long period of rest periods seen in some animals. In dogs covers the nearly 2-month period. This period is not observed in cows. Cows show an oestrus 21 days during the time they don't become pregnant.

ATRETIC FOLLICLES



Many atretic follicles occur in the ovary before puberty. This follicle that degenerates before coming to maturity.

The atresia in the primary follicle and secondary follicle and the atresia in the Graaf follicle are different in terms of volume.

Genital ducts

- The next female genital organs of the ovary are the tuba uterine (oviduct), uterus and vagina.
- The wall of these organs is composed of three layers. Tunica mucosa, tunica muscularis, and tunica serosa.
- The vagina has a layer of adventitia instead of tunica serosa.
- Tunica mucosa and tunica muscularis show changes depending on the cycle.

- **TUBA UTERINA
(OVIDUCT):**

The oviducts are paired tubes that extend bilaterally from the uterus toward the ovaries. The uterine tubes transport the ovum from the ovary to the uterus and provide the necessary environment for fertilization and initial development of the zygote to the morula stage. The infundibulum is the funnel-shaped segment of the tube adjacent to the ovary. At the distal end, it opens into the peritoneal cavity. The proximal end communicates with the ampulla. Fringed extensions, or fimbriae, extend from the mouth of the infundibulum toward the ovary.

The ampulla is the longest segment of the tube, constituting about two thirds of the total length, and is the site of fertilization.

It has thin-walled and mucosal folds. Here, the egg cell that remains for about a day waits to meet spermium.

If fertilization occurs, the second maturation division is completed by the elimination of the 2nd pole cells and preovum transforms into the ovum.

The isthmus is the narrow, medial segment of the uterine tube adjacent to the uterus.

The isthmus is thicker walled than the ampulla and smaller in diameter.

Immediately after the formation of the zygote, the embryo starts to develop.

The embryo, which progresses slowly in the isthmus tube and reaches the uterus and blastula within a few days, is implanted there.

- The wall of the tuba uterine is also three layers.
 - T. mucosa
 - T.muscularis
 - T. serosa

-T.mucosa: The mucosa makes folds (plica).

- The tunica mucosa consists of lamina epithelialis and lamina propria sublayers.
- Lamina epithelialis is simple columnar and the height of the epithelial cells towards the uterus decreases.
- It contains two types of epithelial cells.
- Ciliated cells
- Secretory cells

The cilia of the ciliated cells move towards the uterus and are effective in transporting the oocyte II or zygote to the uterus.

Secretion granules are found in the cytoplasm of secretory cells.

This secretion helps protect and nourish oocytes or embryos.

The secretion makes the oviduct lumen slippery.

If the egg cell is present in the ampulla (after ovulation), the number of secretory cells increases.

However, during the period of the formation of follicles (before ovulation), there are a large number of ciliated cells.

The lamina propria is loose connective tissue rich in reticular fiber.

Lamina muscularis is absent.

Tunica muscularis is composed of circular inside and external longitudinal smooth muscle cells. It usually helps the egg cell or embryo to progress with peristaltic movements toward the uterus.

The thickest muscle layer is at the isthmus. Muscles are under the influence of hormonal control as well as nervous control. Rhythmic contractions close to ovulation increase.

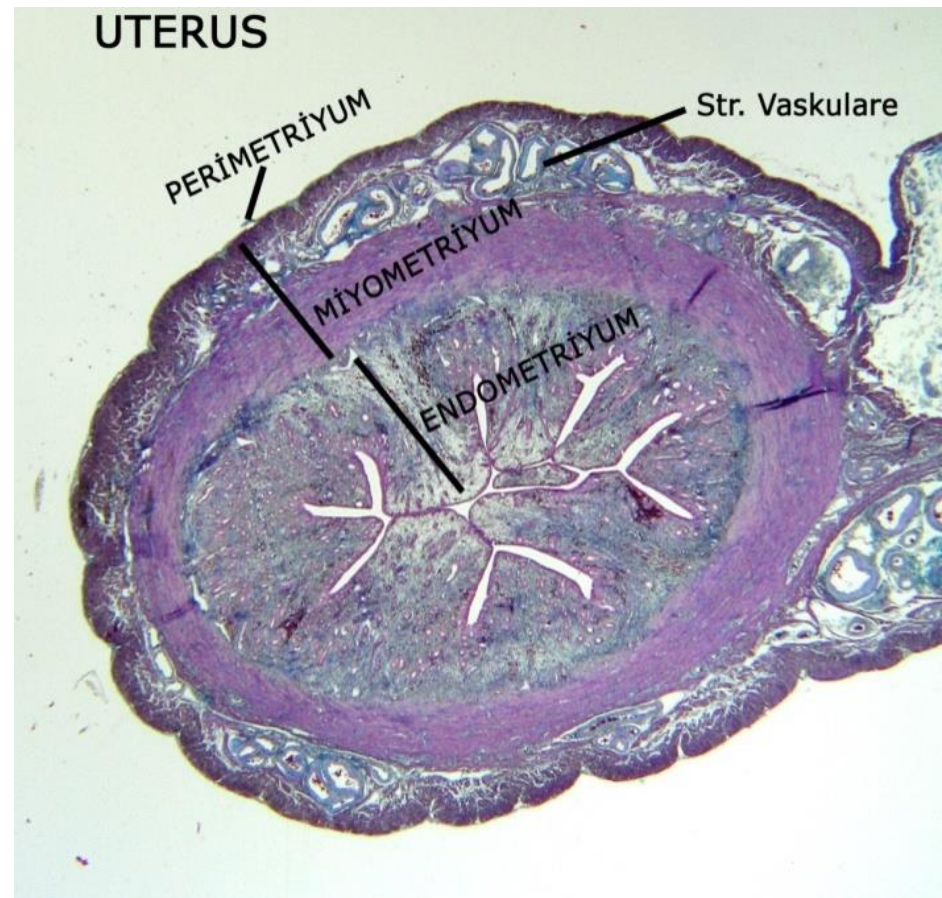
Slow contractions are seen in pregnancy.

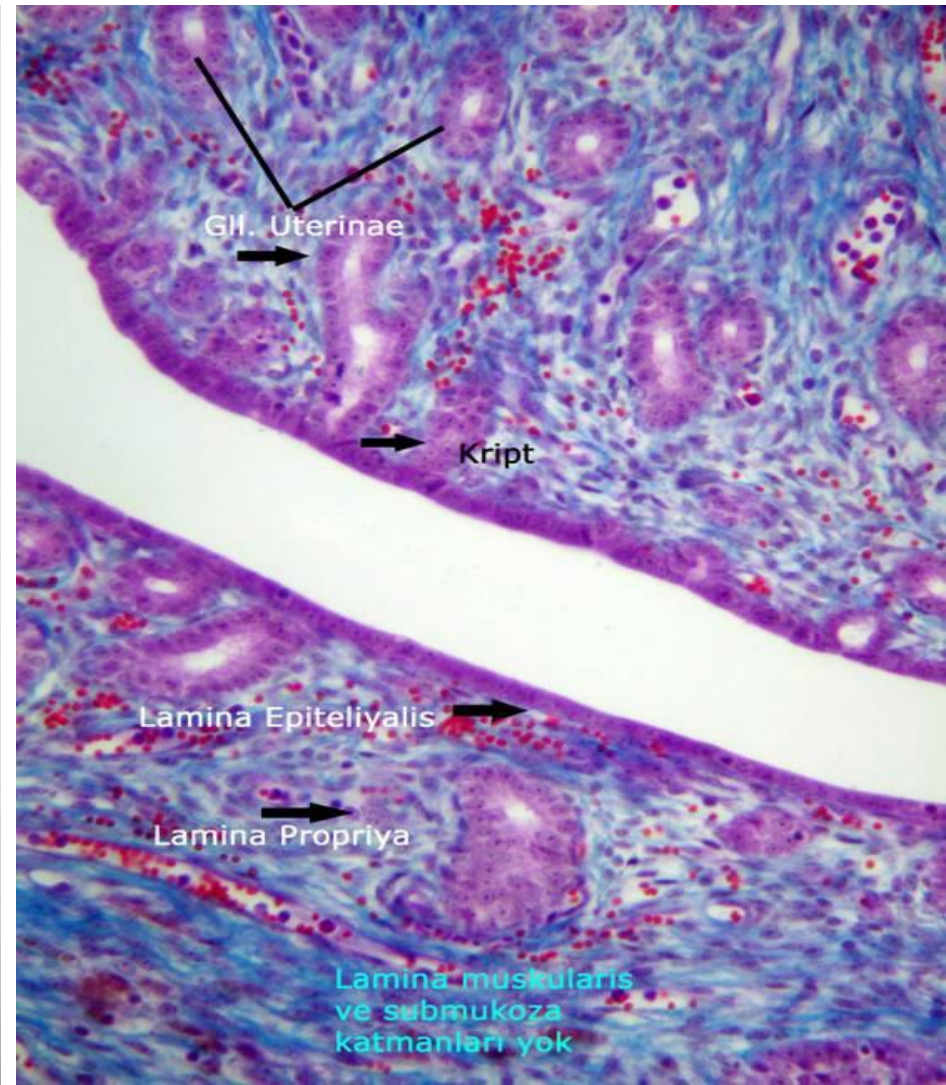
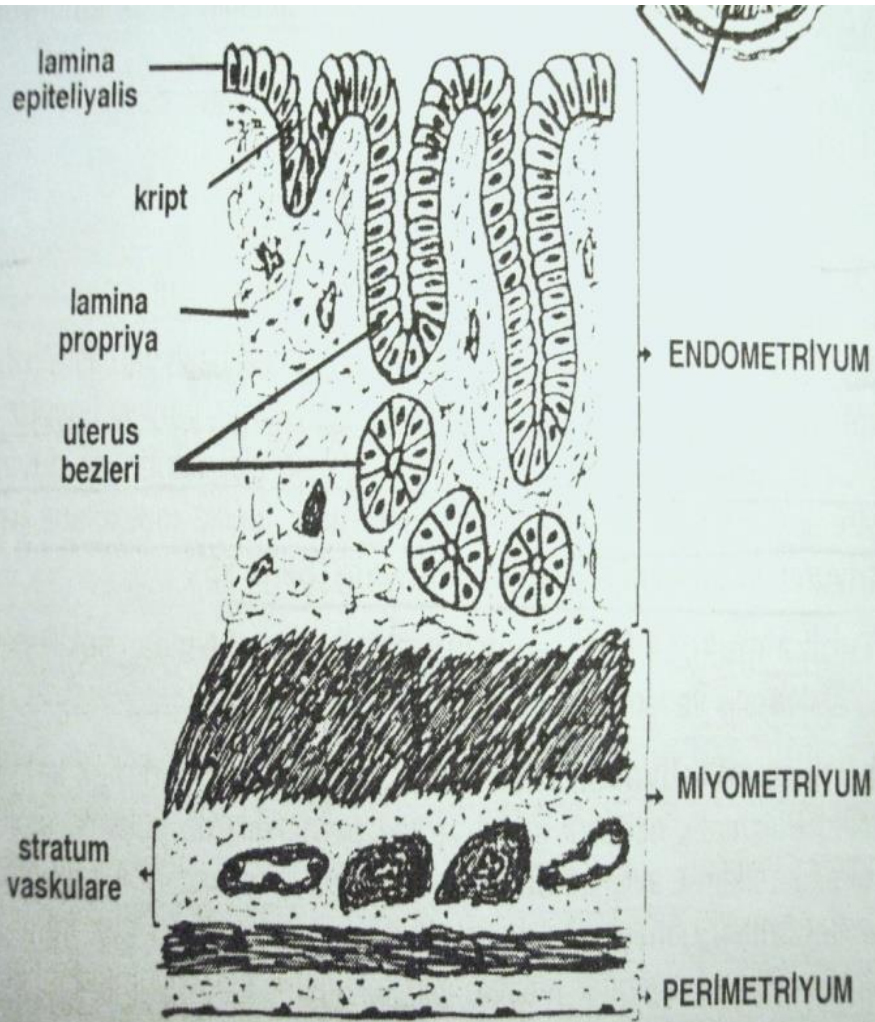
Ectopic pregnancy can be formed by the fact that the embryo is implanted depending on many factors in the oviduct. However, because the channel is narrow, it can cause great bleeding and deaths because it is not suitable for growth.

- **UTERUS:**

The uterus receives the rapidly developing morula from the tuba uterina. All subsequent embryonic and fetal development occurs within the uterus, which undergoes dramatic increases in size and development. In animals, the uterus has a two-horn (uterus bikornis).

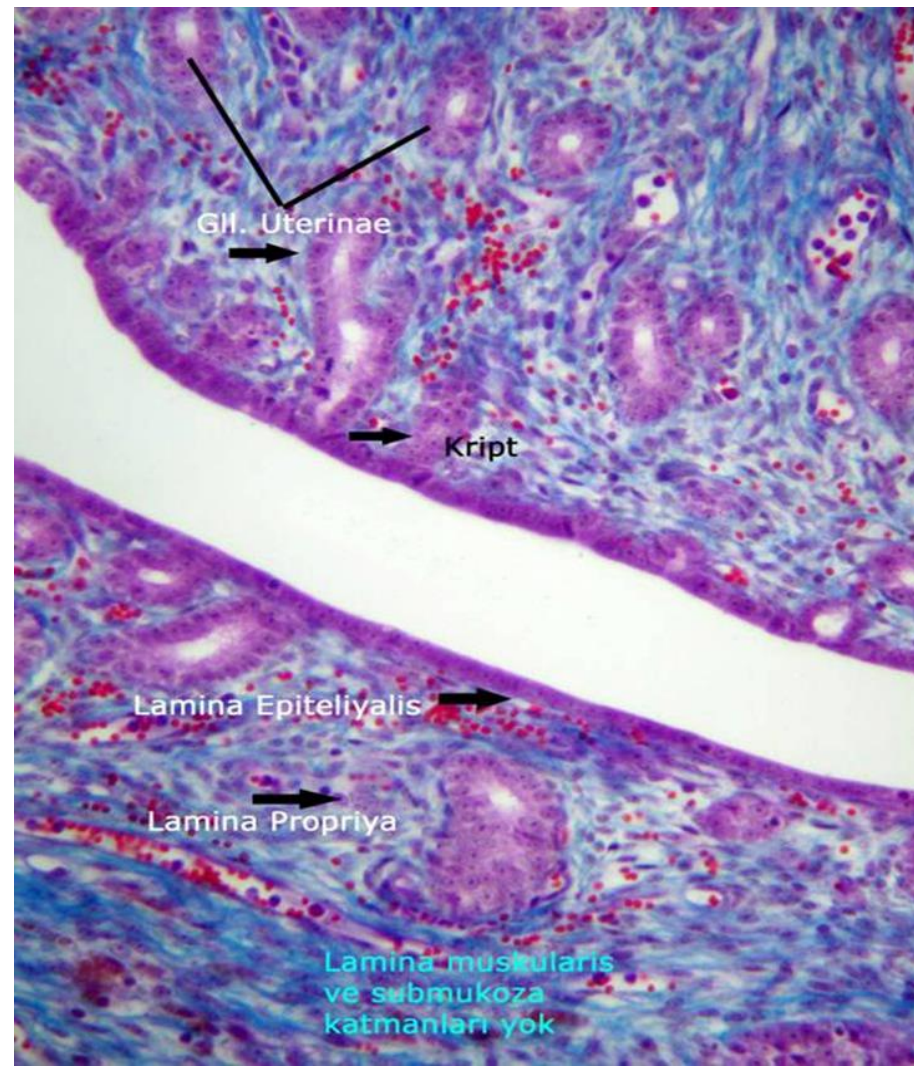
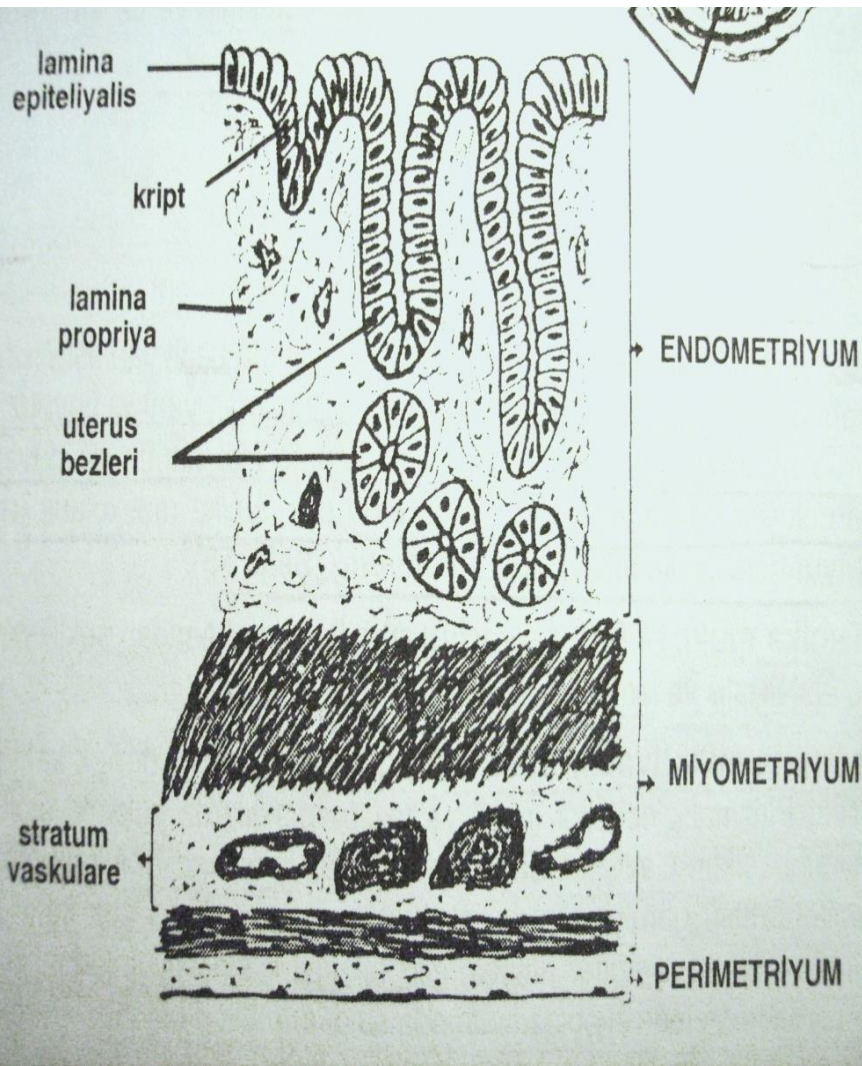
- The uterine wall is composed of mucosa, referred to as the endometrium; a muscular, referred to as myometrium; and, externally, a serosal cover, the perimetrium.
- tunica mucosa (**endometrium**),
- tunica muscularis (**myometrium**)
- tunica serosa (**perimetrium**).



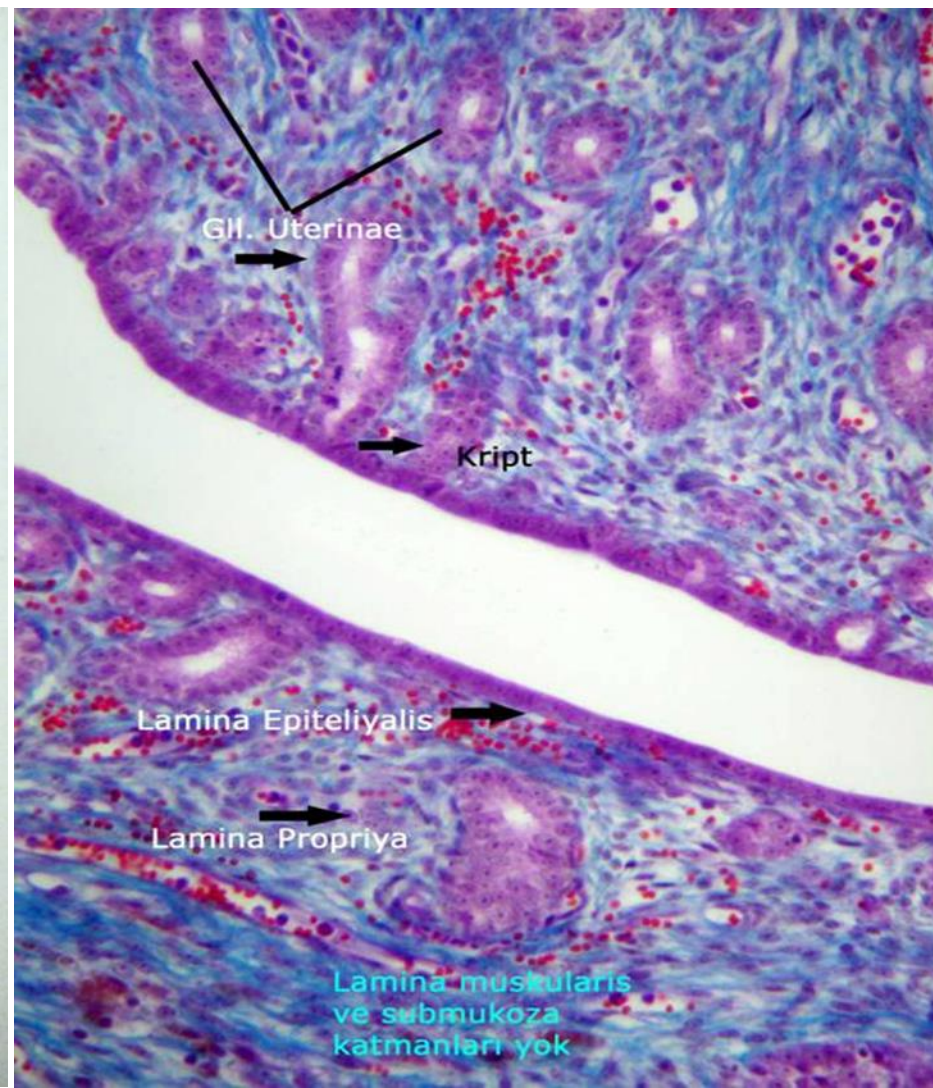
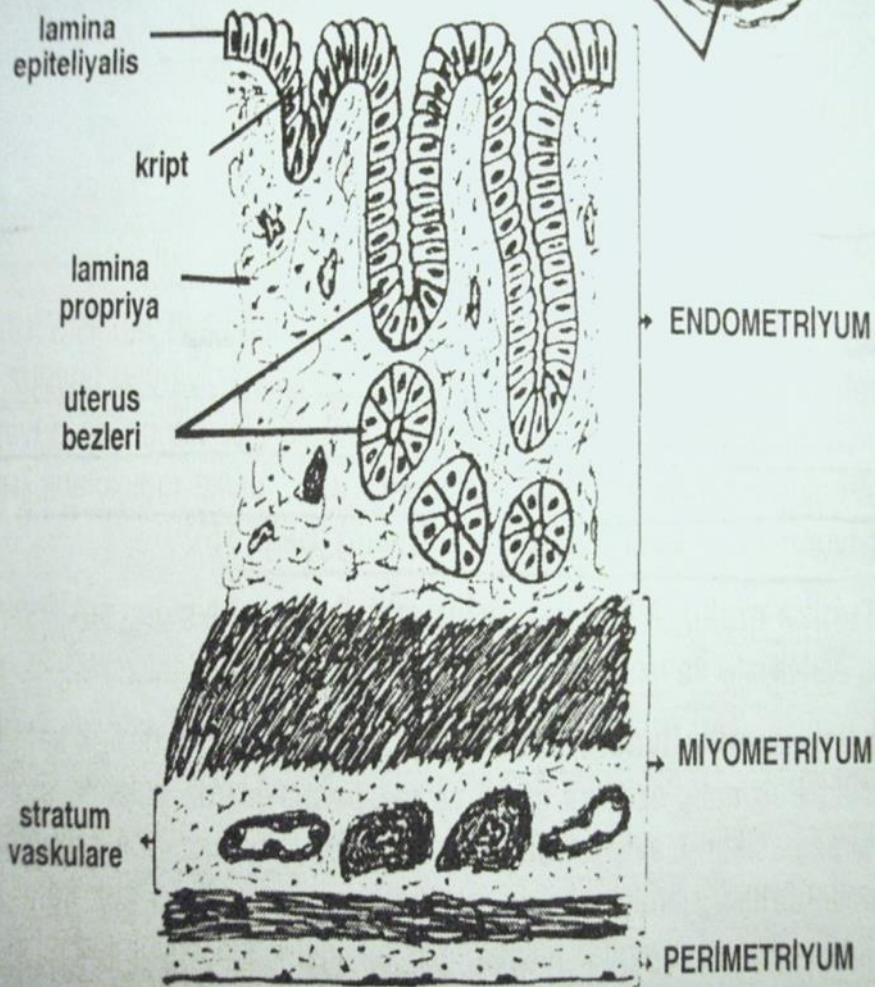


Tunica mucosa (endometrium) is composed of two sublayers:

1. Lamina epithelialis
2. Lamina propria.



Lamina epithelialis is simple columnar in human, single-fingered and carnivores. It is pseudostratified columnar in ruminants and pigs. Some of these cells have kinocilium.

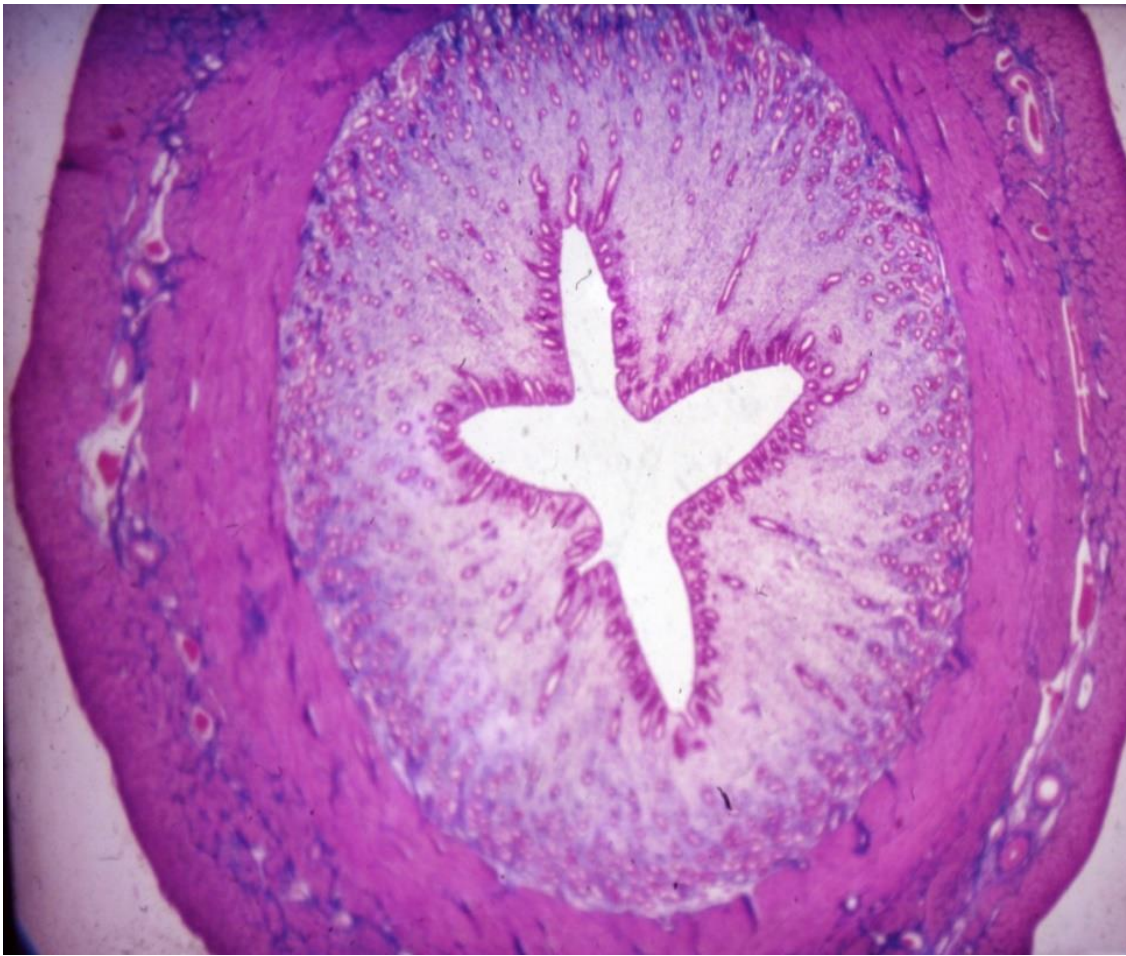


Secretion granules are found in the cytoplasm of nonciliated cells.

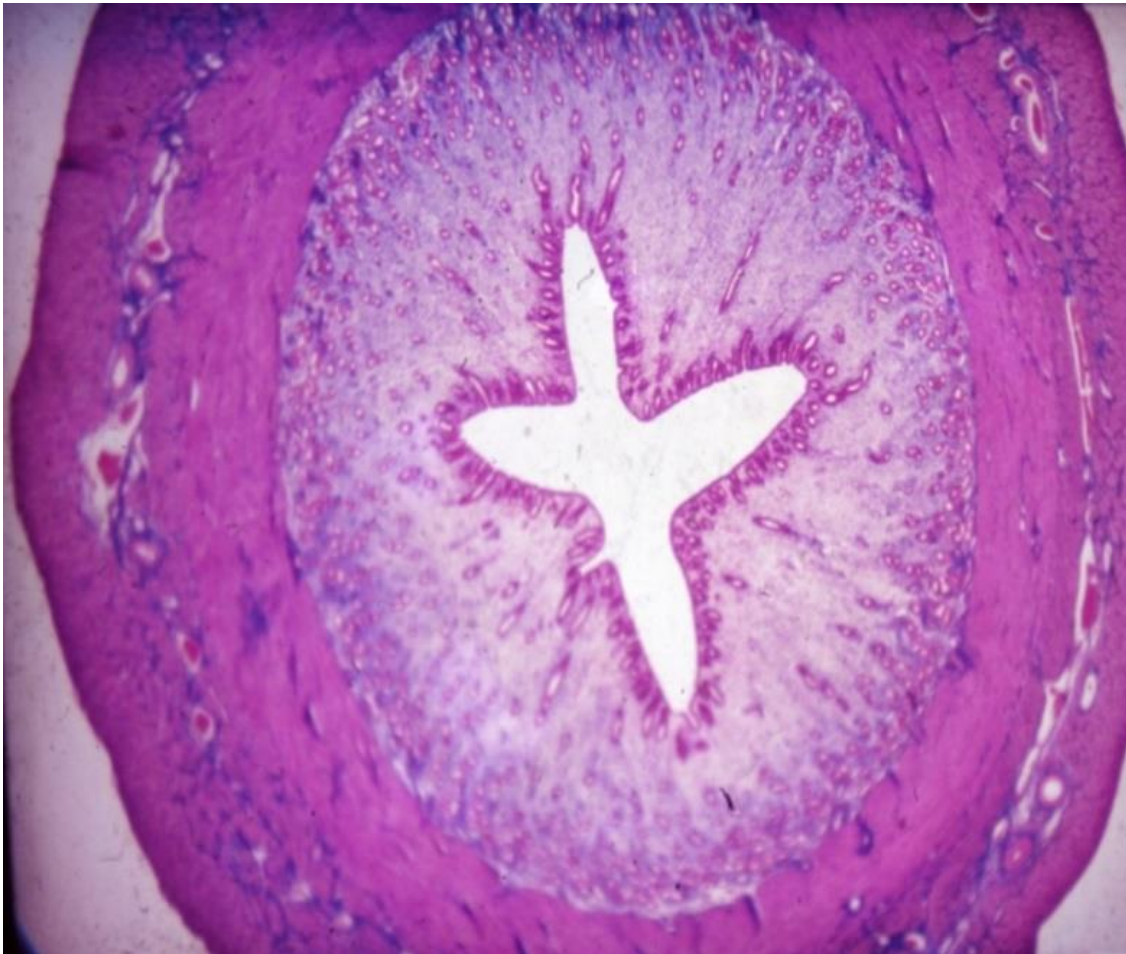
Lamina propria:



It contains uterine glands, which are simple tubules, which vary in appearance depending on the cycle. In ruminants, parts of the lamina propria that do not contain glands become obvious in gestation and shape the caruncula, the maternal half of the placenta.



- The basal part of the uterine glands is rich in blood vessels and is called the endometrium basalis.



- The remaining upper part is called the endometrium functionalis.
- This section shows periodic changes repeated every 28 days in human.

Depending on the ovarian cycle, the endometrium passes the following stages:

Proliferation stage

Secretion stage

Involution stage

Proliferation phase:

- In the ovary, the follicles mature and secrete the follicle hormone. This is why it is called the follicle hormone phase.
- Endometrial thickness increases by the effect of follicle hormone.
- This thickening is caused by the enlargement of the lamina propria and the growth of the uterine glands.

Secretion phase:

- It is seen in the period following ovulation. It is also called the lutein hormone phase.
- The uterine glands begin to secrete.
- The cytoplasm of glandular epithelial cells and the glands are filled with luminal secretion to gain a more voluminous appearance; Furthermore, the glands become more curled.
- As the permeability of the capillary vessels increases during this period, the lamina propria becomes edematous.
- If there is fertilization in the oviduct, the embryo implants in the endometrium.
- After implantation, the superficial part of the endometrium in humans and carnivores turns into decidua.

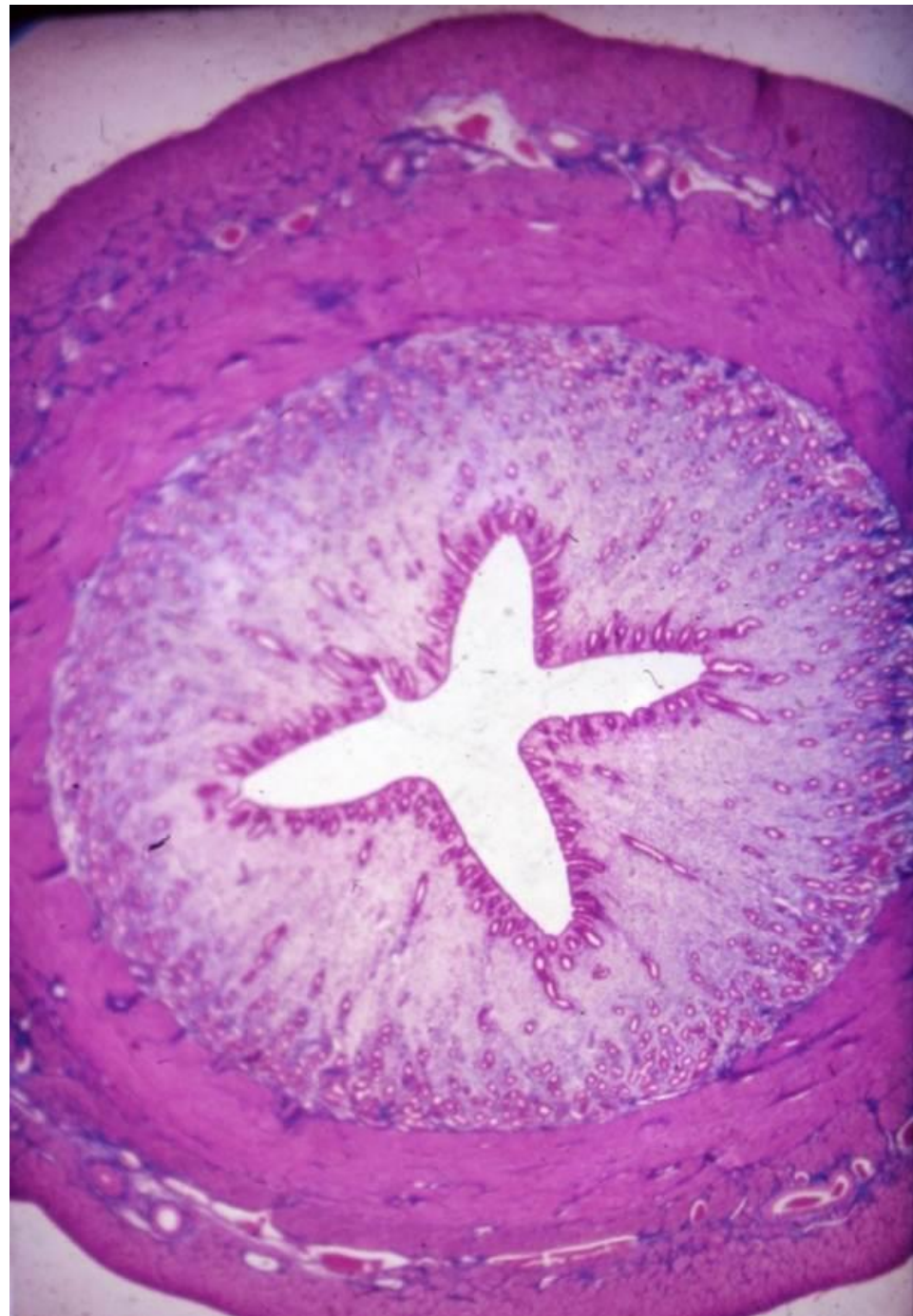
Involution phase:

- If there is no fertilization, the endometrium will eventually become inactive again at the end of the secretion phase; The secretion stops, the glands shrink and the thickness of the endometrium decreases.
- In women, does not go to blood to the functional endometrium because of the continuous contraction of spiral arterioles in the endometrium basalis.
- Necrosis begins.
- Necrotic tissues fall into the lumen of the uterus.
- This is the menstrual cycle.
- Following menstruation, the regeneration phase starts.
- Then the uterine gland epithelium proliferates and shapes the lamina epithelialis.

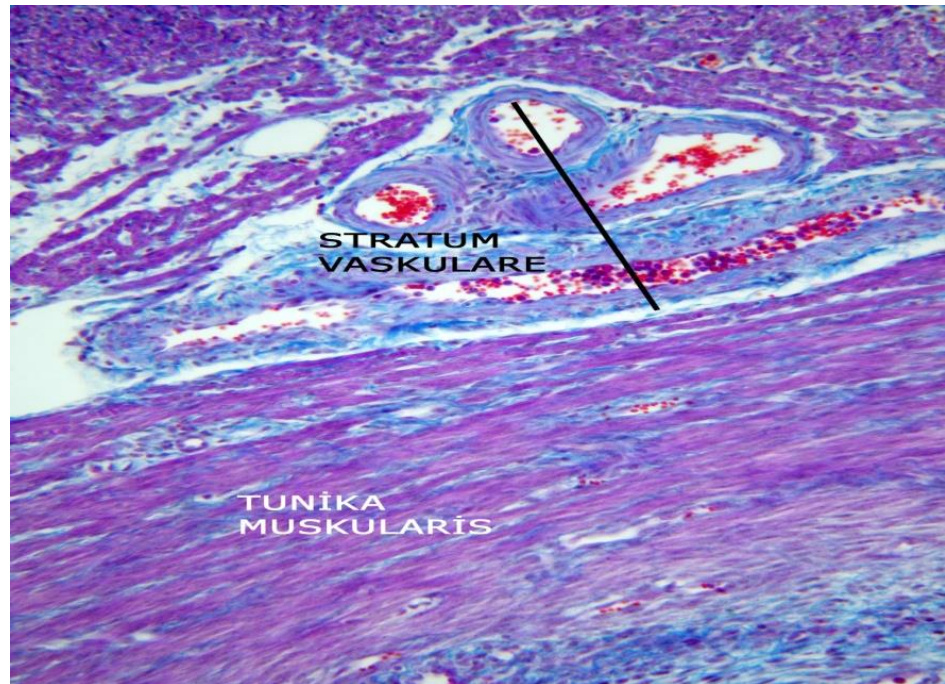
- All of these periodic changes in the endometrium form the uterine cycle.
- These changes are related to the ovarian cycle.
- Ovarian cycle
+
Uterine cycle = Genital cycle
↓
- Both cycles regulated by gonadotropic hormones of the pituitary gland.



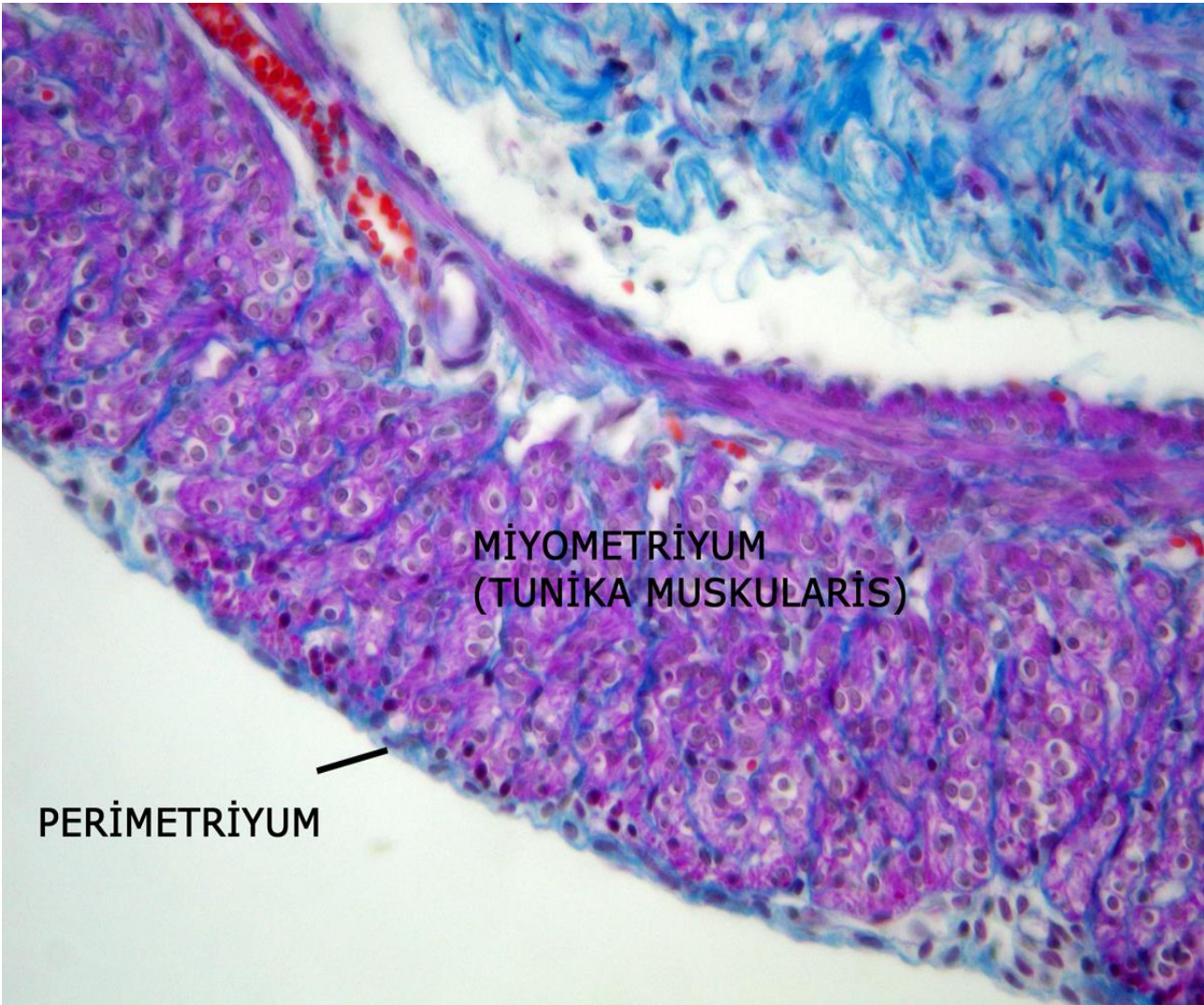
- **Tunica muscularis (miyometriyum):**
- It forms the thickest layer of the uterine wall.
- The longest smooth muscle cells of the organism are found in the uterus.
- Especially during pregnancy this length reaches the most advanced measure; After birth, it returns to its former position again.



- The tunica muscularis contains two smooth muscular layers, the inner circular and the outer longitudinal.
- The inner layer is thicker.
- There is the stratum vasculature rich in arteries, veins and lymph vessels between the two muscle layers.



- Tunica serosa
(perimetrium):



The serosa is the visceral leaf of the peritoneum.

- **Cervix Uteri:**

- The cervix is the narrow or constricted inferior portion of the uterus, part of which projects into the vagina. The structure of the cervix resembles the rest of the uterus in that it consists of ;
- Tunica mucosa
- Tunica muscularis
- Tunica serosa.
- Mucosa has branched folds (plica).
- The mucosa of the cervical canal is covered with columnar epithelium.

- The glands secrete a mucous substance into the cervical canal that serves to lubricate the vagina. Mucous secretion is increased during estrus and pregnancy.
- Cervical secretions also play an important role in fertilization of the ovum.
- **Kallikrein** enzyme in the cervical mucus increases spermium mobility in the female genital tract.
- This mucus provides a favorable environment for sperm migration
- This mucus provides a favorable environment for sperm migration.
- At the time of ovulation mucous secretions are in aqueous consistency. This increases the progression of spermium.
- In pregnancy and in the luteal phase, secretion builds up, forming cervical plugs with the muscles. This plug prevents bacteria and other spermium from entering the uterus.

- The tunica muscularis consists of an inner circular and an outer longitudinal smooth muscle layer. The inner circular layer is rich in elastic fibers. Muscles function as a blocking ring for the cervix in pregnancy.
- It allows the cervix to remain closed until the end of pregnancy.
- These muscles loose significantly at birth. Both muscle and elastic fibers help the cervix return to its original state after birth.
- Tunica serosa is loose connective tissue structure.

- **VAGINA:**

- The wall of the vagina consists of three layers:

- Tunica mucosa

- Tunica muscularis

- Tunica adventitia

- Lamina epithelialis is stratified squamous. But, the epithelial layer is composed of pseudo-stratified columnar cells and contain goblet cells in cows. In the case of pregnancy, the superficial cells of multi-layer epithelial cells become cubic or prismatic.
- In addition, the thickness of lamina epithelialis is reduced in late pregnancy, especially.
- It undergoes changes that correspond to the ovarian cycle.
- By examining the preparations prepared from the vagina, the sexual cycle is detected.
- There is an acidic secretion that lubricates the lumen vagina. This secretion prevents harmful microorganisms from getting into the vagina.
- Lamina propria occupies a narrow area. The glandless loose connective tissue submucosa is followed by tunica muscularis, which consists of circular circles inside and external longitudinal muscles.
- The organ is surrounded by the outermost fibrous connective tissue tunica adventitia.

- **Vulva:**

- It is the outward opening part of the female genital system. It consists of three parts:
 - Vestibulum vagina
 - Labium
 - Clitoris

- Labiums consist of skin folds.

- **Vestibulum vagina :**

- is the entrance to the vagina.
- The urethra opens here (orificium urethra externum).
- Lamina epithelialis is covered stratified squamosus epithelium.
- There is no gland in the lamina propria.
- Unlike the vagina, there are glands in the submucosa.
- These are glandula vestibularis minoris showing branched, tubular structure.
- Human, ruminants, and cat have glandula vestibularis mayoris (Bartholin glands).
- These gland groups secrete mucous.

- Clitoris:

- This shows the penis-like structure.
- Clitoris has a real corpus cavernosum (Corpus Cavernosum klitoridis) especially in human, dog, and equide.
- On other mammals, there is a connective tissue rich vein in this region.
- There are sebaceous glands and genital sensory receptors in connective tissue.
- Development is completed only left ovary and oviduct in chicken.
- The reproductive system is suitable for internal fertilization, as in mammals. Although there is an oviduct and uterus, the development takes place outside body.

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