BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

Department of human anatomy

GUIDELINES

Academic discipline	HUMAN ANATOMY
Module №	2
Content module №	5
The theme of the lesson	Male Reprodactive System
Course	I
Faculties	Medical 1,2,3,4, military, dental
The number of hours	3

2017

1.The relevance of the topic:

- Classify male genitals for placement on the basis of the structure and function;
- Describe and demonstrate on the preparations internal male sex organs;
- Analyze the external and internal structure of the testicles, to explain where the male sex cells are produced and the ways of their elimination;
- Analyze the location and structure of seminal vesicles, prostate;
- Analyze the structure of the external male genitals;
- Analysis of the male urethra, narrowing its structure and characteristics;
- To explain the origin of the shells testicle and spermatic cord;
- Analyze the development of the male reproductive system in ontogenesis;
- Explain the anomalies of the external and internal male sex organs;
- To treat internal male sex organs.

2. Basic level of preparation.
The student should know and be able to demonstrate:

- Anatomy of the pelvis.
- The general principle of the structure of internal organs;
- Ability to describe the position of bodies;
- Identify abdominal wall and peritoneum progress in the pelvis.

Obtained skills. Be able:
- To prepare the muscles of the anterior abdominal wall;
- Classify the abdominal muscles;
- Demonstrate large and small pelvis, his bones and joints kinds connected pelvis;
- Identify germ layers and their derivatives;
- Draw different colors and fill tables and diagrams manual for independent work.

3. Organization of educational content material.
Teaching material is described in a logical sequence involving structural logic, tables, figures that reflect the content of the main topics of practical lessons.

4.Topic:

In the male reproductive system, the gonads are the sperm-producing testes (singular, testis), which lie in the scrotum.

From the testes, sperm travel to the outside of the body through a system of ducts in the following order: the duct of the epididymis, the ductus deferens, the ejaculatory duct, and finally the urethra, which opens at the tip of the penis.

The accessory sex glands, which empty their secretions into the sex ducts during ejaculation, are the seminal vesicles, prostate, and bulbourethral glands.

Location

The paired, oval testes (“witnesses”) , or testicles, are located in the scrotum (“pouch”), a sac of skin and superficial fascia that hangs inferiorly external to the abdominopelvic cavity at the root of the penis.

The scrotum is covered with sparse hairs.

A septum in the midline divides the scrotum into right and left halves, providing one compartment for each testis.

As you will see, the testes first develop deep in the posterior abdominal wall of the embryo and then migrate down into the scrotum, which is external to the body wall.

Such a superficial location would seem to place a male’s entire genetic heritage in a vulnerable position.

However, because viable sperm cannot be produced at the core body temperature of 37°C, the scrotum’s superficial position provides an environment that is about 3°C cooler, an essential adaptation.

Furthermore, the scrotum responds to changes in external temperature.

Under cold conditions, the testes are pulled up toward the warm body wall, and the scrotal skin wrinkles to increase its thickness and reduce heat loss.

These actions are performed by two muscles in the scrotum: The dartos muscle (“skinned”), a layer of smooth muscle in the superficial fascia, is responsible for wrinkling the scrotal skin.

The cremaster muscles (“a suspender”), bands of skeletal muscle that extend inferiorly from the internal oblique muscles of the trunk, are responsible for elevating the testes.

Under hot conditions, these muscles relax, so the scrotal skin is flaccid and loose, and the testes hang low to increase the skin surface available for cooling (sweating); This also moves the testis farther away from the warm trunk.

Gross Anatomy

Each testis averages about 2.5 cm (1 inch) in width and 4 cm in height. Within the scrotum, each testis is posterior to, and partially enclosed by, a serous sac called the tunica vaginalis (vajinalis; “ensheathing coat”).

This sac develops as an outpocketing of the abdominal peritoneal cavity that precedes the descending testes into the scrotum. The tunica vaginalis consists of a superficial parietal layer, an intermediate cavity containing serous fluid (a remnant of the peritoneal cavity), and a deeper visceral layer that hugs the surface of the testis.

Thus, although the testes have descended into the scrotum, they are still retroperitoneal. Just deep to the visceral layer of the tunica vaginalis lies the tunica albuginea (albujineah; “white coat”), the fibrous capsule of the testis.

Septal extensions of the tunica albuginea project inward to divide the testis into 250–300 wedge-shaped compartments called lobules, each containing one to four coiled seminiferous tubules (“sperm-carrying”), theactual“ sperm factories.”

Most of the convoluted seminiferous tubules are looped like hairpins.

Posteriorly, the seminiferous tubules of each lobule converge to form a straight tubule that conveys sperm into the rete testis (rete; “network of the testis”), a complex network of tiny branching tubes.

The rete testis lies in the mediastinum testis, a region of dense connective tissue in the posterior part of the testis.

From the rete testis, sperm leave the testis through about a dozen efferent ductules that enter the epididymis, a comma-shaped structure that hugs the posterior outer surface of the testis.

Nerves and Vessels. The testes receive their arterial blood from the long testicular arteries, which branch from the aorta in the superior abdomen.

The testicular veins, which roughly parallel the testicular arteries in the posterior abdominal wall, arise from a venous network in the scrotum called the pampiniform plexus (“tendril-shaped”).

The veins of this plexus, which surround the testicular arteries like climbing vines, absorb heat from the arterial blood, cooling it before it enters the testes and thereby keeping the testes cool.

This passive mechanism of heat transfer is referred to as countercurrent heat exchange.

The testes are innervated by both divisions of the autonomic nervous system.

The abundant visceral sensory nerves transmit impulses that result in agonizing pain and nausea when the testes are hit forcefully.

It is worth emphasizing that the testicular vessels and nerves extend to the testis from approximately the level of L2 on the posterior abdominal wall.

In the embryo, the testes form in the superior lumbar region and thus receive their vessels from the abdominal aorta and inferior vena cava before descending into the scrotum.

Microscopic Anatomy

A histological section through a lobule of the mature testis reveals numerous seminiferous tubules separated from each other by an areolar connective tissue.

The spermforming tubules consist of a thick stratified epithelium surrounding a hollow central lumen.

The epithelium consists of spherical spermatogenic (“sperm-forming”) cells embedded in columnar sustentocytes (supporting cells).

Spermatogenic Cells. Spermatogenic cells are in the process of forming sperm, or spermatogenesis (spermahtojenesis), which begins at puberty.

An adult male forms about 400 million sperm per day. The stem cells that form sperm are spermatogonia (spermahto-goneah; “sperm seed”).

Spermatogonia lie peripherally on the epithelial basal lamina.

As these cells move inward toward the lumen, they differentiate sequentially into primary and secondary spermatocytes, spermatids, and finally sperm.

This process takes approximately 75 days.

Sustentocytes. The spermatogenic cells are surrounded by sustentocytes (Sertoli cells) which extend from the basal lamina to the lumen of the seminiferous tubule.

Sustentocytes assist sperm production in many ways:

They convey nutrients to the spermatogenic cells, they actively move these cells toward the tubule lumen, and they phagocytize the cytoplasm that is shed during sperm formation.

Sustentocytes also secrete testicular fluid into the tubule lumen, which helps to push sperm through the tubule and out of the testes.

Myoid Cells. Human seminiferous tubules are surrounded by several layers of smoothmuscle-like myoid cells.

Contracting rhythmically, these may help to squeeze perm and testicular fluid through the tubules and out of the testis.

Interstitial Cells.

The loose connective tissue between the seminiferous tubules contains clusters of interstitial cells.

Or Leydig (lidig) cells, spherical or polygonshaped cells that make and secrete the male sex hormones, or androgens.

The main type of androgen secreted is testosterone.

After it is secreted into the nearby blood and lymphatic capillaries, testosterone circulates throughout the body and maintains all male sex characteristics and sex organs.

In fact, all male genitalia atrophy if the testes (and testosterone) are removed.

Secretion of testosterone by the interstitial cells i s controlledby luteinizing (hormone (LH), a hormone from the anterior part of the pituitary gland.

By stimulating testosterone secretion, LH controls testosterone's effects on the entire male reproductive system.

Male reproductive ducts

As previously noted, sperm leaving the seminiferous tubules travel through the straight tubules and rete testis, which are lined by a simple cuboidal epithelium.

Sperm then leave the testis through the efferent ductules, which are lined by a simple columnar epithelium.

Both ciliated epithelial cells and smooth musculature in the wall of the efferent ductules help move the sperm along while nonciliated cells absorb most of the testicular fluid.

From the efferent ductules the sperm enter the duct of the epididymis.

The Epididymis

Sperm are not yet fully functional as they leave the testes.

The epididymis ("besidethetestis ") is where sperm mature.

It is a comma-shaped organ that arches over the posterior and lateral side of the testis.

The head of the epididymis contains the efferent ductules, which empty into the duct of the epididymis, a highly coiled duct that completes the head and forms all of the body and tail of this organ.

With an uncoiled length of over 6 m (20 feet), the duct of the epididymis is longer than the entire intestine!

Histologically, the duct of the epididymis is dominated by a tall, pseudostratified columnar epithelium. The luminal surface of this epithelium bears tufts of long microvilli called stereocilia (stereosileah), which are not cilia and do not move.

Instead, they provide the tall epithelial cells with a vast surface area for reabsorbing testicular fluid and for transferring nutrients and secretions to the many sperm that are stored in the lumen of the epididymis.

External to the epithelium lies a layer of smooth muscle.

The immature, nearly immotile sperm that leave the testis are moved slowly through the duct of the epididymis.

During this journey, which takes about 20 days, the sperm gain the ability to swim and also the ability to fertilize the egg through the acrosome reaction.

These maturation processes are stimulated by proteins secreted by the epididymis epithelium.

Sperm are ejaculated from the epididymis, not directly from the testes.

At the beginning of ejaculation, the smooth muscle in the walls of the epididymis contracts, expelling sperm from the tail of the epididymis into the next segment of the duct system, the ductus deferens.

Sperm can be stored in the epididymis for several months, after which time they are phagocytized by the epithelial cells of the duct of the epididymis.

The Ductus Deferens

The ductus deferens (deferens; “carrying away”), or vas deferens, stores and transports sperm during ejaculation .

It is about 45 cm (18 inches) long. From the tail of the epididymis, the ductus deferens runs superiorly within the spermatic cord (discussed below), goes through the inguinal canal, pierces the anterior abdominal wall, and enters the pelvic cavity.

From there the ductus deferens runs posteriorly along the lateral wall of the true pelvis, arches medially over the ureter, and descends along the posterior wall of the bladder.

Its distal end expands as the ampulla (“flask”) of the ductus deferens and then joins with the duct of the seminal vesicle (a gland) to form the short ejaculatory duct.

Each ejaculatory duct runs within the prostate, where it empties into the prostatic urethra.

The wall of the ductus deferens consists of (1) an inner mucosa with the same pseudostratified epithelium as that of the epididymis, plus a lamina propria, (2) an extremely thick muscularis, and (3) an outer adventitia.

During ejaculation, the smooth muscle in the muscularis creates strong peristaltic waves that rapidly propel sperm through the ductus deferens to the urethra.

The Spermatic Cord

The ductus deferens is the largest component of the spermatic cord, a tube of fascia that also contains the testicular vessels and nerves.

The inferior part of the spermatic cord lies in the scrotum, and its superior part runs through the inguinal canal, an obliquely oriented trough in the anterior abdominal wall.

The inguinal canal is partially formed by the inguinal ligament, which is the free inferior margin of the aponeurosis of the external oblique muscle. The medial opening of the inguinal canal, the superficial inguinal ring, is a V-shaped opening in this aponeurosis.

The canal runs laterally to the deep inguinal ring, an opening in the fascia deep to the abdominal muscle, the transversus abdominis, where the ductus deferens and testicular vessels enter the pelvic cavity.

The Urethra

The urethra in males carries sperm from the ejaculatory ducts to the outside of the body depicts its three parts: the prostatic urethra in the prostate, the membranous urethra in the urogenital diaphragm, and the spongy urethra in the penis.

The mucosa of the spongy urethra contains scattered outpocketings called urethral glands (not shown) that secrete a mucus that helps lubricate the urethra just before ejaculation.

Accessory Glands

The accessory glands in males include the paired seminal vesicles, the single prostate, and paired bulbourethral glands.

These glands produce the bulk of the semen, which is defined as sperm plus the secretions of the accessory glands and accessory ducts.

The Seminal Vesicles

The seminal vesicles (or seminal glands) lie on the posterior surface of the bladder.

These hollow glands are about the shape and length of a finger (5 to 7 cm);

However, because a seminal vesicle is pouched, coiled, and folded back on itself, its true (uncoiled) length is about 15 cm. Internally, the mucosa is folded into a honeycomb pattern of crypts and blind chambers, and the lining epithelium is a secretory pseudostratified columnar epithelium.

The external wall is composed of a fibrous capsule of dense connective tissue surrounding a thick layer of smooth muscle.

This muscle contracts during ejaculation to empty the gland.

The secretion of the seminal vesicles, which constitutes about 60% of the volume of semen, is a viscous fluid that contains (1) a sugar called fructose and other nutrients that nourish the sperm on their journey; (2) prostaglandins .

Which stimulate contraction of the uterus to help move sperm through the female reproductive tract; (3) substances that suppress the immune response against semen in females; (4) substances that enhance sperm motility.

And (5) enzymes that clot the ejaculated semen in the vagina and then liquefy it so that the sperm can swim out.

Seminal fluid also contains a yellow pigment that fluoresces under ultraviolet light.

This feature enables the recognition of semen residues in criminal investigations of sexual assault.

As previously noted, the duct of each seminal vesicle joins the ductus deferens on the same side of the body to form an ejaculatory duct within the prostate. Sperm and seminal fluid mix in the ejaculatory duct and enter the prostatic urethra together during ejaculation.

The Prostate

The prostate (prostat), which is the size and shape of a chest- nut, encircles the first part of the urethra just inferior to the bladder.

The prostate consists of 20–30 com- pound tubuloalveolar glands of three classes—main, submucosal, and mucosal glands.

The glands are embedded in a mass of dense connective tissue and smooth muscle called the fibromuscular stroma and surrounded by a connective tissue capsule.

The muscle of the stroma contracts during ejaculation to squeeze the prostatic secretion into the urethra.

The prostatic secretion constitutes about one-third of the volume of semen.

It is a milky fluid that, like the secretion of the seminal vesicles, contains various substances that enhance sperm motility and enzymes that clot and liquefy ejaculated semen.

One of the enzymes that liquefy semen is prostate-specific antigen (PSA); measuring the levels of PSA in a man's blood is the most important method of screening for prostate cancer.

In addition to its susceptibility to tumors, the prostate is also subject to infection in sexually transmitted diseases (STDs).

Prostatitis (prostahtitis), inflammation of the prostate, is the single most common reason that men consult a urologist.

The Bulbourethral Glands

The bulbourethral (bulbourethral) glands are peasized glands situated inferior to the prostate, within the urogenital diaphragm.

These compound tubule-alveolar glands produce a mucus, some of which enters the spongy urethra when a male becomes sexually excited prior to ejaculation.

This mucus neutralizes traces of acidic urine in the urethra and lubricates the urethra to smooth the passage of semen during ejaculation.

The Penis

The penis ("tail"), the male organ of sexual intercourse, delivers sperm into the female reproductive tract .

Together, it and the scrotum make up the external reproductive structures, or external genitalia, of the male.

As we describe the structures within the penis, keep in mind that the dorsal and ventral surfaces of the penis are named in reference to the erect penis.

The penis consists of an attached root and a free shaft or body that ends in an enlarged tip called the glans penis.

The skin covering the penis is loose and extends distally around the glans to form a cuff, called the prepuce (prepus), or foreskin .

Internally, the penis contains the spongy urethra and three long cylindrical bodies (corpora; singular, corpus) of erectile tissue.

Each of these three erectile bodies is a thick tube covered by a sheath of dense connective tissue and filled with a network of partitions that consist of smooth muscle and connective tissue.

This spongelike net-work, in turn, is filled with vascular spaces.

The midventral erectile body surrounding the spongy urethra, the corpus spongiosum (korpus spunjeosum; “spongy body”), is enlarged distally where it forms the glans penis, and proximally where it forms a part of the root called the bulb of the penis.

This bulb is secured to the urogenital diaphragm and is covered externally by the sheetlike bulbospongiosus muscle.

The paired, dorsal erectile bodies, the corpora cavernosa (kavernosah; “cavernous bodies”), make up most of the mass of the penis.

Their proximal ends in the root are the crura (“legs”) of the penis (singular, crus).

Each crus is anchored to the pubic arch of the bony pelvis and is covered by an ischiocavernosus muscle.

Most of the main vessels and nerves of the penis lie near the dorsal midline.

The sensory dorsal nerves are branches of the pudendal nerve from the sacral plexus, and the dorsal arteries are branches of the internal pudendal arteries from the internal iliac arteries.

Two dorsal veins (superficial and deep) lie precisely in the dorsal midline and drain all blood from the penis.

Finally, a deep artery runs within each corpus cavernosum. The autonomic nerves to the penis, which follow the arteries and supply the erectile bodies, arise from the inferior hypogastric plexus in the pelvis.

The chief phases of the male sexual response are (1) erection of the penis, which allows it to penetrate the vagina, and (2) ejaculation, which expels semen into the vagina. Erection results from engorgement of the erectile bodies with blood.

During sexual stimulation, parasympathetic innervation dilates the arteries supplying the erectile bodies, increasing the flow of blood to the vascular spaces within.

The smooth muscle in the partitions in these bodies relaxes, al- lowing the bodies to expand as the blood enters them.

As the erectile bodies begin to swell, they press on the small veins that normally drain them, slowing venous drainage and maintaining engorgement.

The arrangement of the collagen fibers in the dense connective tissue outside the erectile bodies strengthens the penis during erection.

Longitudinal fibers that run the length of the penis lie at right angles to circular fibers that form rings around the penile shaft.

This is an optimal design for resisting bending forces, so the erect penis does not buckle or kink sharply during intercourse.

Whereas erection is largely under parasympathetic control, ejaculation is under sympathetic control.

Ejaculation begins with a strong, sympathetically induced contraction of the smooth musculature throughout the reproductive ducts and glands.

Which squeezes the semen toward and into the urethra. Simultaneously, somatic contraction of the bulbospongiosus muscle of the penis rapidly squeezes the semen onward through the penile urethra and out of the body.

The Male Perineum

The male perineum ("around the anus") contains the scrotum, the root of the penis, and the anus.

More specifically, it is defined as the diamond-shaped area between the pubic symphysis anteriorly, the coccyx posteriorly, and the ischial tuberosities laterally.

The floor of the perineum is formed by the muscles of the urogenital diaphragm and the superficial perineal space described.

Spermatogenesis

Spermatogenesis, the formation of sperm, occurs within the seminiferous tubules of the testes throughout a man's life, from puberty until death (although the rate of sperm formation declines with advancing age).

The process of spermatogenesis may be divided into three successive stages as spermatocytes move from the peripheral region of the seminiferous tubules to the lumen.

Stage 1: Formation of spermatocytes.

Spermatogonia, sperm stem cells, are located on the outer region of the seminiferous tubule on the epithelial basal lamina.

These cells divide vigorously and continuously by mitosis.

Each division forms two distinctive daughter cells: type A daughter cells, which remain at the basal lamina to maintain the germ cell line; and type B daughter cells, which move toward the lumen to become primary spermatocytes.

Stage 2: Meiosis. The spermatocytes undergo meiosis (miosis; "lessening"), a process of cell division that reduces the number of chromosomes found in typical body cells (denoted 2n and termed diploid) to half that number .

In this process, which is greatly simplified here, two successive divisions of the nucleus, meiosis I and meiosis II, reduce the number of chromosomes from the diploid complement (2n - 46 - 23 pairs) to the haploid complement (n -23 chromosomes).

Meiosis, an essential part of gamete formation in both sexes, ensures that the diploid complement of chromosomes is reestablished at fertilization, when the genetic material of the two haploid gametes joins to make a diploid zygote, the fertilized egg.

Within the seminiferous tubules, the cells undergoing meiosis I are by definition the primary spermatocytes;

These cells each produce two secondary spermatocytes.

Each secondary spermatocyte undergoes meiosis II and produces two small cells called spermatids.

Thus, four haploid spermatids result from the meiotic divisions of each original diploid primary spermatocyte.

Stage 3: Spermiogenesis. In the third and final phase of spermatogenesis, called spermiogenesis (spermeojenesis), spermatids differentiate into sperm.

Each spermatid undergoes a streamlining process as it fashions a tail and sheds superfluous cytoplasm. The resulting sperm cell has a head, a midpiece, and a tail.

The head of the sperm contains the nucleus with highly condensed chromatin surrounded by a helmetlike acrosome (akrosom; “tippiece”), a vesicle containing enzymes that enable the sperm to penetrate and enter an egg.

The midpiece contains mitochondria spiraled tightly around the core of the tail. The long tail is an elaborate flagellum.

The mitochondria provide the energy needed for the whiplike movements of the tail that propel the sperm through the female reproductive tract. The newly formed sperm detach from the epithelium of the seminiferous tubule and enter the lumen of the seminiferous tubule.

The sustentocytes of the tubule surround the spermatogenic cells. These cells are bound to each other by tight junctions on their lateral surfaces and divide the seminiferous tubules into two compartments:

The basal compartment extends from the basal lamina to the tight junctions and contains the spermatogonia and earliest primary spermatocytes;

The adluminal compartment (“near the lumen”) lies internal to the tight junctions and includes the more advanced spermatocytes and the lumen of the tubule.

The tight junctions between the sustentocytes constitute the blood-testis barrier. This barrier protects the developing sperm from attack by the immune system.

Sperm and latestage spermatocytes produce unique membrane proteins, which the immune system identifies as foreign.

If the immune system were ex- posed to the developing sperm, the resulting autoimmune response would destroy the gametes and result in sterility. Because the developing spermatogenic cells must cross the blood-testis barrier on their way to the lumen.

The tight junctions between sustentocytes allow these cells to pass into the adluminal compartment, much like canal locks that open to permit ships to pass.

Spermatogenesis is controlled by the stimulating action of two hormones: follicle-stimulating hormone (FSH) from the anterior pituitary gland and testosterone, the primary male sex hormone produced by the interstitial cells of the testes.

In addition, secretions from the sustentocytes influence spermatogenesis: Androgenbinding protein concentrates testosterone near the spermatogenic

cells, thus stimulating spermatogenesis, and inhibin inhibits FSH and slows the rate of sperm production.

5. The method of educational process on a practical level.
5.1.1. Formation of motivation for training activities targeted at
-studying the anatomy of male genitals for the purpose of professional of the doctor:
- Knowledge of the situation, external and internal structure of the internal male sex organs is the basis for clinical thinking urologist, sexologist;
- The study of external and internal male sex organs encourages further study of these anomalies with the aim of correcting defects of their professional development;
- Knowledge topics lesson stimulates the search to ascertain the causes of diseases such organizations;
- Conducting training in the form of solutions problematic situations teaches students the desire for independent search for knowledge.
5.1.2. Introducing students to the specific objectives of the plan lessons on materials "Methodological guidelines claim. 1 - specific targets; for n. 3 - content of the training material.
5.1.3. Implementation of standardized control entry-level training of students:
- For tests to study the topic;
- Initial questions for knowledge.
5.2. The main stage. A study on anatomical preparations
models, human corpse structure the content of educational material, case studies are solved, embodied individual methods (work in small groups) to facilitate the study of complex anatomical structures.
Students independently study the structure of active consultation with the teacher. Knowledge of students are checked for content control issues topic.
5.3. Final stage.
- Assesses the current activity and the activity of each student during classes. A final control of students' knowledge.
- Announced evaluation of the student and put in the log of visits and student achievement.
- Group leader writes the assessment roll of the success of visits and classes of students, teachers certify them with his signature.
- Teacher informs students with the content of the topic next session and recommended instructional techniques for their preparation.

6. Applications. Means for control.
- Tests.
- Control questions and tasks within the meaning of the theme sessions.

Questions to control the final level of training of students:

1. Classified male genitals.
2. Demonstrate internal male sex organs.
3. Where is the egg, and its external structure?
4. What is testicular stroma and parenchyma it?
5. What are the seminal cells lining the winding tube?
6. Name the consistent ways of removing sperm within the testes.
7. What duct comes from and how it was built?
8. Describe the structure, part of the ejaculatory ducts. Show it to the preparation.
9. Describe the structure in preparation vesicular glands. Where opened its excretory duct?
10. What structures are part of the spermatic cord and its membranes?
11. Name ejaculatory duct is formed by and where it opens?
12. Please describe and show the location of the prostate.
13. Describe the external structure of the prostate.
14. What structures form the parenchyma of the prostate?
15. What are the structure of the final station where their ducts open?
16. What are three groups of glands in the prostate gland and where they are located?
17. Describe consistently all the way sperm output.
18. Where produced secret that facilitates the passage of sperm?
19. Describe the structure, function and rozm1schennya bulbous glands?
20. Name the external male genitals.
21. What are the structural features of the purse?
22. What are all shell testicles and what they are derivatives?
23. Describe the process of lowering the testicles into the scrotum.
24. What are the parts of the penis is?
25. Describe the structure and function of the cavernous and spongy body of the penis.
26. Which of the male urethra is that their length and topography?
27. Describe the structural features of the various parts of the male urethra.
28. What muscles latches male urethra, and that their structure and topographic features?
29. Where lays the egg?
30. What structures are indifferent external genitalia, and that they develop in men?
31. What structures in the male reproductive system are rudimentary, and the remains of what they are?
32. Describe the best known from the literature malformations of the male reproductive system.