


<p> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p>  SKMA - 1979 - MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.1 page out of 15

METHODOLOGICAL GUIDELINES FOR PRACTICAL CLASSES

Discipline: "Normal genitourinary system"


Discipline code : NGS 2209

The name and cipher of the EP: 6B10115 –“Medicine”

Amount of study hours/credits: 15/0.5

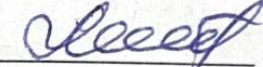
Course and semester of study: 2/3

The scope of practical classes: 4 hours

<p> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		 <p> SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.2 page out of 15

The guidelines for practical training were developed in accordance with the working curriculum of the discipline (syllabus) "Normal genitourinary system" and discussed at a meeting of the Department of «Topographic anatomy and histology».

Protocol No. 1 from "03" 09 2024

Head of the department, c.m.s., acting professor  Murzanova D.A.

Lesson No. 1

1. The theme: Organs of the urinary system.

2. Purpose: To know the microscopic and ultramicroscopic structure of the organs of the excretory system.

3. Learning objectives:

- Learn to identify various parts of nephrons, collecting tubes and blood vessels in the cortical and cerebral substance of the kidneys
- To form an idea of the filtration-reabsorption theory of urination.
- Have an understanding of the endocrine apparatus of the kidneys.
- Learn to determine the tissue composition and membranes of the urinary tract

4. The main issues of the topic:

Complete tasks

1. Make a table in a notebook, indicating the location of the main departments of the nephron in the kidney and the processes (functions) that occur in them during urination.

Kidney Substance	Departments of the nephron	Functions
Cortical Medulla inner zone outer		

2. Fill in the table, indicating the features of the blood supply to the kidneys in connection with their urinary function.

The name of the vessels	Kidney Substance	Participation in filtration and blood reabsorption

3. Make a table indicating the department of the nephron where the primary urine is filtered, name the structures of the renal filter.

Nephron Department	Structures of the renal filter function	

4. Make a table indicating the epithelium lining the various tubules of the nephron and collecting tubules in connection with their function.

The name of the kidney tubules	Type of epithelium	Function

5. Fill out the table, remembering what the endocrine function of the kidneys is and what structures it is associated with.


Name location	function of	Biological	endocrinocytes

6. Make a table indicating the features of the structure of the urinary tract.

Shells	Plates, layers	Fabric composition

Handout material:

Microscopes

<p style="text-align: center;"> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p style="text-align: center;">  SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.4 page out of 15

Micro-preparations for studying and sketching:

1. Pack. Staining with hematoxylin-eosin
2. The bladder. Staining with hematoxylin-eosin

5. The main forms/ methods/ technologies of training to achieve the LO discipline: working in small groups, filling out a checklist of histological preparations and microphotographs.

6. Types of control to assess the level of achievement of the LO discipline: the checklist for evaluating the practical lesson.

7. Literature

Main literature

1. Inderbir Singh. Textbook of Human Histology. With Color Atlas and Practical Guide/8th Edition. Jaypee Brothers Medical Publishers .2016.-302 p. Перевод Гистология человека
2. Dudek Ronald W. Embryology / Ronald W. Dudek. - 5th ed. - [s. l.] : Wolters Kluwer, 2014. - 158 p. Перевод заглавия: Эмбриология
3. Gartner Leslie P. Cell Biology and Histology / Leslie P. Gartner. - 8th ed. - [s. l.] : Wolters Kluwer, 2019. - 436 p. - (BRS. Board Review Series) Перевод заглавия: Клеточная биология и гистология


Additional literature

Textbook of Human Histology. Inderbir Singh /Sixth Edition/Inderbir Singh 2010.-386 p.
Перевод Учебник по гистологии человека

Electronic publications

1. ATLAS OF HISTOLOGY with Functional Correlations. Thirteenth Edition, Wolters Kluwer. 2017.- 1102 p.
2. Theory and practice of Histological techniques. Eighth edition. Elsevier Limited. 2019.-554 p.
3. Textbook of Human Histology. With Color Atlas and Practical Guide/8th Edition. Jaypee Brothers Medical Publishers .2011.-386 p.
4. USMLE Step 1. Lecture Notes 2018. by Kaplan. 2018.-425 p/
5. Zhumabayeva, S.E., Boken, T.S.
Cytology and histology : Educational-methodical complex. . - Kokshetau: KGU, 2017. - 101 p. <http://rmebrk.kz/>
6. Бородулина, О.В. Цитология и гистология – Cytology and histology : Практикум. / Костанайский гос. педагогический университет им. У. Султангазина. - Костанай: КГПУ им. У. Султангазина, 2020. - 100 с. - <http://rmebrk.kz/>

8. Control


<p> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p>  SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.5 page out of 15

Questions

1. Morphofunctional characteristics of the excretory system
2. Sources and course of embryonic development.
3. The structure of the kidney.
4. Nephron is a structural and functional unit
5. Histophysiology of the nephron
6. Features of blood supply to the kidney
7. The endocrine apparatus of the kidney
8. Urinary tract

Tests

1. The endocrine cells in the kidney that secrete renin are:
 - A) interstitial
 - B) endotheliocytes
 - C) juxtaglomerular
 - D) podocytes
 - E) Dense spot cells
2. Pituitary antidiuretic hormone acts in the kidneys on:
 - A) vascular glomeruli
 - B) interstitial cells
 - C) distal tubules and collecting tubules
 - D) papillary tubules
 - E) juxtaglomerular cells
3. In the kidneys, the receptors that detect changes in sodium in the urine are:
 - A) juxtaglomerular cells
 - B) mesangiocytes
 - C) epithelial cells of the outer leaf of the glomerular capsule
 - D) podocytes
 - E) dense spot epithelial cells
4. Mesangiocytes in the kidneys are located:
 - A) in the inner leaf of the glomerulus capsule
 - B) as part of a dense stain
 - C) next to the interchannel capillaries
 - D) between the capillaries of the vascular glomerulus
 - E) around the bringing and carrying arterioles
5. A dense spot in the kidneys is located in:
 - A) the outer leaf of the glomerulus capsule
 - B) the wall of the proximal tubule
 - C) the wall of the distal tubule
 - D) the wall of the collecting tube
 - E) interstitial tissue
6. The filtration barrier of the kidney is:
 - A) mesangial cells
 - B) Juxtavascular cells
 - C) juxtaglomerular cells

<p style="text-align: center;"> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p style="text-align: center;">  SKMA -1979- MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.6 page out of 15

- D) the wall of the arterioles of the vascular glomerulus
- E) glomerular capillary endothelium, basement membrane and podocytes
- 7. There is no ureteral wall:
 - A) transitional epithelium
 - B) longitudinal folds of the mucous membrane
 - C) circular folds of the mucous membrane
 - D) glands in the submucosal base
 - E) Spirally arranged layers in the muscle membrane
- 8. The bladder is not characterized by:
 - A) the mucous membrane
 - B) transitional epithelium
 - C) submucosal base
 - D) three-layer smooth muscle membrane
 - E) striated muscle tissue in the muscle membrane
- 9. The mucous membrane of the bladder and ureter is lined:
 - A) single-layer squamous epithelium
 - B) single-layer cubic epithelium
 - C) transitional epithelium
 - D) multi-layered flat non-horny
 - E) multilayer flat keratinizing
- 10. In the collecting tubes of the kidneys,:
 - A) filtration of blood plasma
 - B) formation of primary urine
 - C) concentration and acidification of urine
 - D) reabsorption of proteins and carbohydrates
 - E) Electrolyte reabsorption

Tasks

1. It became necessary to study the filtration barrier of the kidney. Which site should be chosen for the study?
2. In a comparative analysis of histological preparations of the bladder walls of different animals, significant variations in epithelial thickness were found. Can this fact be explained by individual differences?
3. The photo shows two renal corpuscles. In one vascular glomerulus, the bearing and bearing arterioles are of the same size, in the other, the bearing arteriole is noticeably larger than the bearing one. Which nephrons do these renal corpuscles belong to? Which of these nephrons produces more urine?
4. When asked where the dense spot is located in the kidneys, one student answered - as part of the juxtaglomerular complex, the other - in the distal nephron. Which of the students is right?
5. During the exam, the student was offered two ureter preparations. On one, two layers were visible in the muscular membrane of the ureter, on the other - three. The student explained these differences by a deviation from the norm in the second drug. Is this explanation correct? How would you explain the difference in the structure of the ureters?

Lesson No. 2

1. Topic: Organs of the male reproductive system

2. Purpose: To know the microscopic and ultramicroscopic structure of the organs of the male reproductive system

3. Learning objectives:

- Learn to identify the structural elements of the organs of the male reproductive system
- To understand the features of spermatogenesis
- Have an idea of the structure of the vas deferens and the accessory glands of the male reproductive system

4. The main issues of the topic:

Complete tasks

1. Note in the table which phases of spermatogenesis correspond to these spermatogenic cells.

spermatogenic cells	Reproduction	Growth	Maturation	Formation
Sperm				
Spermatogony				
Early spermatid				
Spermatocyte of the first order				
Spermatida is late				
Spermatocyte of the second order				

2. Briefly formulate and write down in a notebook what processes constitute the essence of each phase of spermatogenesis.

3. Outline the types of tubules of the testicle; emphasize those tubules in which spermatogenesis takes place.

4. Fill in the table the functions characteristic of the testicular sustentocytes and interstitial glandulocytes.

Micro-preparations for studying and sketching:

1. Testis Staining with hematoxylin-eosin
2. Appendage of the testis. Staining with hematoxylin-eosin
5. Teaching and learning methods: description of histological preparations and micrographs
6. Assessment methods: Quizizz testing, filling in tables, solving situational problems.

5. The main forms/ methods/ technologies of training to achieve the LO discipline: working in small groups, filling out a checklist of histological preparations and microphotographs.


6. Types of control to assess the level of achievement of the LO discipline: the checklist for evaluating the practical lesson.

7. Literature

Main literature

1. Inderbir Singh. Textbook of Human Histology. With Color Atlas and Practical Guide/8th Edition. Jaypee Brothers Medical Publishers .2016.-302 p. Перевод Гистология человека

2. Dudek Ronald W. Embryology / Ronald W. Dudek. - 5th ed. - [s. l.] : Wolters Kluwer, 2014. - 158 p. Перевод заглавия: Эмбриология

<p> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p>  SKMA -1979- MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.8 page out of 15

3. Gartner Leslie P. Cell Biology and Histology / Leslie P. Gartner. - 8th ed. - [s. l.] :Wolters Kluwer, 2019. - 436 p. - (BRS. Board Review Series)Переводзаглавия: Клеточнаябиологияигистология

Additional literature

Textbook of Human Histology.Inderbir Singh /Sixth Edition/Inderbir Singh 2010.-386 p.
Перевод Учебник по гистологии человека

Electronic publications

1. ATLAS OF HISTOLOGY with Functional Correlations. Thirteenth Edition, Wolters Kluwer.2017.- 1102 p.
2. Theory and practice of Histological techniques.Eighth edition.Elsevier Limited.2019.-554 p.
3. Textbook of HumanHistology.With Color Atlas and Practical Guide/8 thEdition.Jaypee Brothers Medical Publishers .2011.-386 p.
4. USMLE Step 1.Lecture Notes 2018.by Kaplan.2018.-425 p/
5. Zhumabayeva, S.E., Boken, T.S.
Cytology and histology : Educational-methodical complex. . - Kokshetau: KGU, 2017. - 101 p.<http://rmebrk.kz/>
6. Бородулина, О.В. Цитология и гистология – Cytology and histology : Практикум. / Костанайский гос. педагогический университет им. У. Султангазина. - Костанай: КГПУ им.У.Султангазина, 2020. - 100 с. - <http://rmebrk.kz/>


8. Control

Questions


1. Morphofunctional characteristics of the reproductive system
2. Embryonic sources and the course of development
3. The structure of the testes and spermatogenesis
4. Vas deferens
5. The accessory glands of the male reproductive system

Tests

1. Syncytium of male germ cells is formed in: A) the period of proliferation
B) breeding season
C) the period of growth
D) the maturation period
E) the period of formation
2. The epithelium lining the straight tubules of the testis:
A) Single-layer flat
B) Multi-row flickering
C) multilayer flat non-corneating
D) Single-layer prismatic

<p style="text-align: center;"> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p style="text-align: center;">  SKMA - 1979 - MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
<p style="text-align: center;">Department of «Topographic anatomy and histology»</p>		52-11
<p style="text-align: center;">Methodological guidelines for practical classes "Normal genitourinary system"</p>		.9 page out of 15

- E) Transitional
3. The stage of spermatogenesis corresponding to the prophase of the first meiotic division:
- A) the period of differentiation
 - B) breeding season
 - C) the period of growth
 - D) the maturation period
 - E) the period of formation
4. The epithelium lining the testis network:
- A) Single-layer flat and cubic
 - B) Single-layer prismatic
 - C) Transitional
 - D) multi-row shimmering
 - E) E)multilayer flat keratinizing
5. Functions of sustentocytes:
- A) Testosterone synthesis
 - B) synthesis of androgen-binding protein
 - C) synthesis of follicle-stimulating hormone
 - D) synthesis of lutenizing hormone
 - E) synthesis of gonadoliberin
6. The cells of the spermatogenic epithelium include:
- A)endotheliocytes
 - B) pericytes
 - C) myoid cells
 - D) sustentocytes
 - E) glandulocytes
7. The formation of male germ cells (spermatogenesis) occurs in:
- A) testis nets
 - B) the straight tubules of the testis
 - C) convoluted seminal tubules
 - D) testicular interstitial
 - E) outflow tubules
8. The testis interstitium contains: A)gonadotropocytes
- B) sustentocytes
 - C) spermatocytes
 - D) spermatogonia
 - E) glandulocytes
9. Interstitial glandulocytes produce:
- A) inhibins
 - B) androgen binding protein
 - C) Prostaglandins
 - D) testosterone
 - E) Interleukin 2
10. Elements forming the hematotesticular barrier:
- A) testis network
 - B) interlobular tissue of the testis

ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ		 SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.10 page out of 15

- C) interstitial glandulocytes
 D) dense intercellular contacts between sustentocytes
 E) the epithelium of the duct of the appendage

Tasks

1. In a section of a testicle with an appendage, several types of tubules are visible, which are characterized by the presence of, firstly, cells lying in several layers (cell nuclei have different sizes and densities, some cells divide); secondly, cells having different shapes and lying on the basement membrane (some of them have cilia; the lumen is uneven); thirdly, a double-row ciliated epithelium (the wide lumen has smooth contours). What kind of tubules are these? What function do they perform?
2. On a slice of one of the organs of the male reproductive system, the researcher found the presence of powerful bundles of smooth muscle tissue, between which glandular end sections are located. The excretory ducts open into a cavity lined with transitional epithelium. What kind of organ is it?
3. Microscopic analysis of the wall section of the convoluted seminal tubule revealed the presence of dividing spermatogonia, a large number of spermatocytes and a very small number of spermatids in the spermatogenic epithelium. What phase of spermatogenesis does this pattern correspond to?
4. The analysis of post-traumatic changes in the testicle revealed the desolation of the convoluted seminal tubules as a result of impaired spermatogenesis. Which structures of the tubule wall are affected by these changes?
5. Labeled antibodies to testosterone and inhibin were used to identify cells in sections of the male gonad. Name the appropriate cells and the location of their localization in the organ.

Lesson No. 3

1.Topic: Organs of the female reproductive system 1.

2. Purpose: To know the microscopic and ultramicroscopic structure of the organs of the female reproductive system.

3. Learning objectives:

- Embryonic sources and the course of development.

Ovarian structure, ovogenesis and development of the corpus luteum.

4. The main issues of the topic:

Complete the tasks


- 1.Fill in the table, specifying the phases of ovogenesis.

Phases of ovogenesis	The embryonic period	Postembryonic period	
		prepubescent puberty	pubescent puberty

2. Write down in a notebook a diagram of the endocrine functions of the ovary and their regulation, specify the hormones secreted in the ovary; the cells producing them and the gonadotropins of the pituitary gland that control their secretion. Underline the name of the hormone that controls ovulation.
3. Fill in the table, specifying in them the names of the shells and their layers forming the wall of the organs of the female genital tract. To note the features of their structure and tissue composition.

Membranes and layers of organs	Oviduct	Uterus	Vagina

Handout material.

<p style="text-align: center;"> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p style="text-align: center;">  SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.11 page out of 15

Microscopes

A micropreparation for studying and sketching:

1. The ovary. Staining with hematoxylin-eosin

5. The main forms/ methods/ technologies of training to achieve the LO discipline: working in small groups, filling out a checklist of histological preparations and microphotographs.

6. Types of control to assess the level of achievement of the LO discipline: the checklist for evaluating the practical lesson.

7. Literature

Main literature

1. Inderbir Singh. Textbook of Human Histology. With Color Atlas and Practical Guide/8th Edition. Jaypee Brothers Medical Publishers .2016.-302 p. Перевод Гистология человека
2. Dudek Ronald W. Embryology / Ronald W. Dudek. - 5th ed. - [s. l.] : Wolters Kluwer, 2014. - 158 p. Перевод заглавия: Эмбриология
3. Gartner Leslie P. Cell Biology and Histology / Leslie P. Gartner. - 8th ed. - [s. l.] : Wolters Kluwer, 2019. - 436 p. - (BRS. Board Review Series) Перевод заглавия: Клеточная биология и гистология


Additional literature

Textbook of Human Histology. Inderbir Singh /Sixth Edition/Inderbir Singh 2010.-386 p.
Перевод Учебник по гистологии человека

Electronic publications

1. ATLAS OF HISTOLOGY with Functional Correlations. Thirteenth Edition, Wolters Kluwer. 2017.- 1102 p.
2. Theory and practice of Histological techniques. Eighth edition. Elsevier Limited. 2019.-554 p.
3. Textbook of Human Histology. With Color Atlas and Practical Guide/8th Edition. Jaypee Brothers Medical Publishers .2011.-386 p.
4. USMLE Step 1. Lecture Notes 2018. by Kaplan. 2018.-425 p/
5. Zhumabayeva, S.E., Boken, T.S.
Cytology and histology : Educational-methodical complex. . - Kokshetau: KGU, 2017. - 101 p. <http://rmebrk.kz/>
6. Бородулина, О.В. Цитология и гистология – Cytology and histology : Практикум. / Костанайский гос. педагогический университет им. У. Султангазина. - Костанай: КГПУ им. У. Султангазина, 2020. - 100 с. - <http://rmebrk.kz/>

8. Control

<p style="text-align: center;"> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p style="text-align: center;">  SKMA -1979- MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.12 page out of 15

Questions


1. Morphofunctional characteristics of the reproductive system
2. Embryonic sources and the course of development
3. Ovarian structure and ovogenesis
4. The structure and development of the corpus luteum

Tests

1. Primary ovarian follicle:
 - A) it is formed for the first time in the embryonic period
 - B) contains a second-order cytotocyte
 - C) follicular cells are arranged in several layers
 - D) a teka is formed around the follicle
 - E) progesterone is synthesized in follicular cells
2. With the development of a secondary follicle:
 - A) a shiny shell is formed
 - B) follicular epithelium atrophies
 - C) the volume of the ovocyte decreases
 - D) an ovocyte of the first order turns into an ovocyte of the second
 - E) progesterone is synthesized
3. Changes observed in the proliferative phase of the ovarian-menstrual cycle:
 - A) another follicle matures in the ovary
 - B) progesterone content increases in the blood
 - C) the uterine epithelium is destroyed
 - D) the yellow body is functioning
 - E) prolactin is produced in the pituitary gland
4. Changes observed in the premenstrual phase of the ovarian-menstrual cycle:
 - A) follitropin is produced in the pituitary gland
 - B) another follicle matures in the ovary
 - C) hormones are not produced in the ovary
 - D) the uterine glands are destroyed
 - E) the yellow body is functioning
5. Changes observed in the menstrual phase of the ovarian menstrual cycle:
 - A) necrosis and detachment of the functional layer of the endometrium
 - B) regeneration of the endometrial epithelium
 - C) estrogen is produced
 - D) vitamin D is produced E) uterine glands are functioning

Tasks

1. Two sections of the ovary were examined. In one, primordial, primary follicles, atretic bodies and a developed corpus luteum were found, in the other - primordial, primary, secondary follicles, a mature follicle (Graaf's vesicle) and atretic bodies. What stage of the ovarian cycle does the picture correspond to in each case? What hormones are secreted by the ovary during these stages?
2. Two sections of the uterus were examined. At the first stage, the endometrium has a slight thickness, the glands are narrow and straight, and there are many dividing cells in the epithelium and connective tissue. On the second, the endometrium is thickened, the glands are sinuous with a wide lumen, the vessels are clearly visible. What stages of the menstrual cycle do these drugs correspond to?
3. When analyzing sections of two mammary glands, alveolar milky passages and milky ducts are visible in one, and milky ducts and alveoli in the other. What is the functional state of the organ in both cases?

<p style="text-align: center;"> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p style="text-align: center;">  SKMA -1979- MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.13 page out of 15

Lesson No. 4

1. Topic: Organs of the female reproductive system 2.

2. Purpose: To know the microscopic and ultramicroscopic structure of the organs of the female reproductive system.

3. Learning objectives:

- Embryonic sources and the course of development.
- The structure of the oviduct and uterus, the vagina.
- The mammary gland is in various functional states.

4. The main issues of the topic:

Complete the tasks

1. Write down in a notebook the phases of the menstrual cycle and the names of the ovarian hormones that control them.

2. Fill in the table of the cellular composition of vaginal smears in different phases of the menstrual cycle.

Cell	Phases
Desquamation	
Proliferation	
Secretion	

Handout material.

Microscopes

A micropreparation for studying and sketching:

1. The uterus. Staining with hematoxylin-eosin

5. The main forms/ methods/ technologies of training to achieve the LO discipline: working in small groups, filling out a checklist of histological preparations and microphotographs.

6. Types of control to assess the level of achievement of the LO discipline: the checklist for evaluating the practical lesson.

7. Literature

Main literature


1. Inderbir Singh. Textbook of Human Histology. With Color Atlas and Practical Guide/8th Edition. Jaypee Brothers Medical Publishers .2016.-302 p. Перевод Гистология человека

2. Dudek Ronald W. Embryology / Ronald W. Dudek. - 5th ed. - [s. l.] : Wolters Kluwer, 2014. - 158 p. Перевод заглавия: Эмбриология

3. Gartner Leslie P. Cell Biology and Histology / Leslie P. Gartner. - 8th ed. - [s. l.] : Wolters Kluwer, 2019. - 436 p. - (BRS. Board Review Series) Перевод заглавия: Клеточная биология и гистология

Additional literature

Textbook of Human Histology. Inderbir Singh /Sixth Edition/ Inderbir Singh 2010.-386 p. Перевод Учебник по гистологии человека

<p> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p>  SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.14 page out of 15

Electronic publications

1. ATLAS OF HISTOLOGY with Functional Correlations. Thirteenth Edition, Wolters Kluwer.2017.- 1102 p.
2. Theory and practice of Histological techniques.Eighth edition.Elsevier Limited.2019.-554 p.
3. Textbook of HumanHistology.With Color Atlas and Practical Guide/8 thEdition.Jaypee Brothers Medical Publishers .2011.-386 p.
4. USMLE Step 1.Lecture Notes 2018.by Kaplan.2018.-425 p/
5. Zhumabayeva, S.E., Boken, T.S.
Cytology and histology : Educational-methodical complex. . - Kokshetau: KGU, 2017. - 101 p.<http://rmebrk.kz/>
6. Бородулина, О.В. Цитология и гистология – Cytology and histology : Практикум. / Костанайский гос. педагогический университет им. У. Султангазина. - Костанай: КГПУ им.У.Султангазина, 2020. - 100 с. - <http://rmebrk.kz/>


8. Control

Questions

1. The structure of the oviduct
2. The structure of the uterus
3. Menstrual cycle
4. Mammary gland

Tests

1. Estrogen-secreting cells:
 - A) neurosecretory cells of the hypothalamus
 - B) internal fecal cells
 - C) gonadotropic cells of the pituitary gland
 - D) ovarian follicular cells
2. Progesterone-secreting cells:
 - A) luteal cells of the corpus luteum
 - B) neurosecretory cells of the hypothalamus
 - C) internal fecal cells
 - D) gonadotropic cells of the pituitary gland
 - E) Ovarian follicular cells
3. The fallopian tubes are lined:
 - A) single-layer squamous epithelium
 - B) single-layered prismatic ciliated epithelium
 - C) double-row epithelium
 - D) multilayer flat non-corneating epithelium
 - E) single-layer cubic
4. There are no fetal ovaries:
 - A) primordial follicles
 - B) yellow bodies
 - C) blood vessels
 - D) stroma

<p style="text-align: center;"> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p style="text-align: center;">  SKMA -1979- MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of «Topographic anatomy and histology»		52-11
Methodological guidelines for practical classes "Normal genitourinary system"		.15 page out of 15

E) Capsule

5. Mature follicles in the ovary first appear in the period:

A) embryonic

B) menopausal

C) senile

D) early postembryonic

E) puberty

Tasks

1. When analyzing sections of two mammary glands, alveolar milky passages and milky ducts are visible in one, and milky ducts and alveoli in the other. What is the functional state of the organ in both cases?

2. After menstruation, the concentration of luteinizing hormone in the woman's blood was measured. On the 13th day, its highest level was marked. What processes in the ovary does this indicate? How will the structure of the ovary change in the following days?

3. During the study, during the cycle of the content of pituitary gonadotropins in the blood, a constantly high concentration of follicle-stimulating hormone and a very low concentration of luteinizing hormone were found. What shifts in the ovarian-menstrual cycle will take place? What hormone will be produced in the ovary, and what structural features are characteristic of the ovary?