

## Contents

Lesson	Subject	Page
<b>VI semester</b>		
1	Study of the surgical instruments. Separation and connection of the tissues.	2
2	Topographic anatomy of the shoulder (scapular, deltoid, axillary regions), the shoulder joint and the upper arm.	4
3	Topographic anatomy of the elbow region, forearm and the hand.	8
4	Topographic anatomy of the gluteal region and thigh. Ligation of the femoral artery. The hip joint puncture. Incisions at the thigh phlegmons. Femoral hernias.	14
5	Topographic anatomy of the knee region, the leg, the ankle joint. Morphologic and functional substantiation of the nerve suture.	19
6	The limbs amputation, the operations on the limbs joints, on the vessels. The vascular and tendon suture.	24
7	Topographic anatomy of the cerebral part of the head and lateral region of the face.	27
8	Topographic anatomy of the neck region.	30
9	Operations in the areas of the head and neck. Primary surgical treatment of traumatic brain injuries. Craniotomy. Tracheostomy. Phlegmon sections at the neck. Operations on the thyroid gland. Exposure and ligation of the main vessels of the neck. Vago-sympathetic block by Vischnevsky	33
<b>VII semester</b>		
10	Topographic anatomy of layers of the thoracic wall. Anatomic backgrounds and technique of operations on the thoracic wall and the pleura	35
11	Surgical anatomy of organs of the thorax. Anatomic backgrounds of the operations on them.	37
12	Topographic anatomy of anterior abdominal wall. The operations in the hernias.	41
13	Surgical anatomy of the abdominal cavity. The intestinal suture. The intestinal resection and the anastomoses “end-to-end” and “side-to-side”.	46
14	Topographic anatomy of the upper storey of the abdominal cavity. Operations on the organs of the upper storey of the abdominal cavity.	49
15	Topographic anatomy of the lower storey of the abdominal cavity. Arrangement of the peritoneum. Surgical anatomy of the small and large intestine. Appendectomy. The operations on the small and large intestine.	51
16	Surgical anatomy of the lumbar region and the retroperitoneal space. The operations on the retroperitoneal organs.	53
17	Topographic anatomy of the pelvic cavity. Surgical anatomy of the fasciae and spaces. Topographic anatomy of the perineum. Technique of the suprapubic cystotomy. The operations for hemorrhoid, paraphimosis, cryptorchidism, hydrocele.	56
18	1. Examination practical skills. 2. Examination self-control tests.	59
19	Exam questions	60

Lesson 10 ***”Topographic anatomy of the thoracic wall layers.  
Anatomical backgrounds and technique of operations on the thorax  
and the pleura. ”***

**Control questions.**

1. Topographic anatomy of the thorax. The thoracic wall, intercostal space. Surgical anatomy of the mammary gland (breast). The incisions by cause of suppurative mastitis.
2. The operations by cause of breast cancer and benign tumors of the breast. The operative principles.
3. Thoracotomy. Rib resection.
4. Topography of the pleura, pleural recesses. The puncture of pleural cavity.
5. Topographic anatomy of the diaphragm.

**Self-work.**

To study on a corpse surgical anatomy of the pleura, pleural recesses. To master the thoracocentesis: the indications, the tools, the method of performance, the complications and its prevention.

**Self-control tests:**

1. Name anatomical structures filling the spaces between the ribs. 1-4.
2. Name anatomical structures limiting the intercostal fissure: 1-4.
3. Name the muscular parts of the diaphragm.
4. Name the crura of the diaphragm: 1-3.
5. List the anatomic structures passing between the crura of the diaphragm: 1-2.
6. Name the “weak” places of the diaphragm: 1-3.
7. List the parietal pleura parts: 1-3.
8. Explain what anatomical structures limit the pleural recesses, name main recesses: 1-3.
9. Name the ways of the lymph outflow (regional lymph nodes) from the breast: 1-4.
10. List the kinds of the suppurative mastitis: 1-3.
11. Name the incisions which are performed in the suppurative mastitis: 1-2.
12. List surgical instruments which are necessary for aspiration biopsy of pleural cavity: 1-5.
13. Name the special instruments for rib resection: 1-3.
14. List the steps of radical mastectomy: 1-6.

Lesson 11 ***”Surgical anatomy of the chest organs. Anatomical backgrounds of the operations on them. ”***

**Control questions.**

1. Surgical anatomy of the lungs. The lung root and the lung hilum. Lung division to lobes and segments.
2. Principles of the lung resection: approaches, anesthesia, technique. Pneumonectomy, lobectomy, segmentectomy. The lung suture. Mechanical suture of the lung and bronchus.
3. Surgical anatomy of the anterior mediastinum: arch of aorta, the thymus, phrenic nerves.
4. Surgical anatomy of the pericardium. The recesses of the pericardium. Larrey’s puncture of the pericardium.
5. Surgical anatomy of the heart, operative approaches. Heart suture. Concept about the extracorporeal circulation.
6. Surgical anatomy of the posterior mediastinum: the esophagus, the vagus nerve, the azygos vein, the hemiazygos vein. The sympathetic trunk, the thoracic duct.

**Self-work:** To study on a corpse surgical anatomy of the esophagus thoracic part, backgrounds of the approaches at different levels. To master the technique of suturing of the esophagus wounds: tools, suturing material.

**Self-control tests:**

1. Name the lobes of the right lung: 1-3.
2. Name the lobes of the left lung: 1-2.
3. List the lung surfaces: 1-3.
4. Name the elements of the lung root: 1-5.
5. Name the nerves innervating the lungs and pleura: 1-3.
6. Specify what the mediastinum is limited by: 1-4.
7. List the organs of the anterior mediastinum: 1-5.
8. List the organs of the posterior mediastinum: 1-7.
9. Name the arteries supplying the heart, its sources.
10. Name the structure that is made up by cardiac veins. Where is it situated.
11. List the nerves forming cardiac nervous plexus: 1-2.
12. List the main requirements for suturing the heart wound: 1-3.
13. Name the main approaches to the thoracic part of the esophagus: 1-3.



## Situation tasks

1. A patient A. suffers from chronic pleural empyema. It is necessary to perform the II-III ribs subperiosteal resection for operative approach and drainage of purulent cavity. List in order necessary special instruments for rib resection.
2. The aorta coarctation (congenital constriction at the level of aortic arch transfer to descending aorta) was diagnosed in a patient. What arteries take part in development of collateral circulation?
3. A patient consulted in the polyclinic with the complaints on the hoarseness. It is not detected pathological changes in the larynx. A patient was directed to X-ray examination of the chest. Specify what structure, maybe, is pressed by tumor or inflammatory infiltration.
4. A patient was admitted with the chest closed trauma, with the fractures of 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> right ribs at the middle axillary line. The level of fluid was found at X-ray examination reaches to 6<sup>th</sup> rib level. The blood was received at the thoracocentesis. Specify possible cause of the bleeding.
5. A foreign body was detected by X-ray examination within the right bronchus. What anatomical and topographic features of the trachea and the primary bronchi made for inhalation of foreign body in the right bronchus more often than in the left?
6. A patient suffers from the purulent mediastinitis. The purulent leakage has formed within the retroperitoneal space. Explain the potential ways of pus spread.
7. The phlegmon of fat tissue in the superior and anterior mediastinum appeared after tracheostomy. What spaces of neck could the infection spread in the thoracic cavity through?
8. The esophageal posterior wall was damaged during the esophagoscopy at the level of second constriction. Specify where the esophagoscope could insert in. What fat spaces could the infection reach?
9. The right-side chylothorax is formed after road-transport accident at a patient B. Can we approximately name the damage level of the thoracic duct?
10. A patient suffering from penetrating wound of the thorax (open pneumothorax) was admitted to the surgical department. The wound in size 2×2 cm is situated at the level of fourth intercostal space at the posterior axillary line. Specify what wall layers are damaged.
11. The strong bleeding appears in wound depth during subperiosteal rib resection. Show:
  - a. the bleeding source;

- b. what operation steps during that surgeon could damage vessels.
12. A patient who received trauma of the thorax (road accident) two weeks ago was admitted to the surgical department. The rib damage wasn't detected by X-ray examination. However, the fluid was found in the right pleural cavity at the level of the fifth rib upper border. The yellowish and milk-like fluid with blood was received at the thoracocentesis. Specify what anatomical structure is damaged on this level. How and what fluid did get into the pleural cavity?
  13. A patient with massive guttural bleeding (from throat) was admitted. From anamnesis: the patient choked with fish bone two weeks ago. After that he felt bad, the body temperature was increasing. The patient soon died. At the autopsy: necrosis with perforation of the esophagus posterior wall at the level of second constriction, the purulent infiltration between the esophagus and the aorta. The bleeding was from the aorta to the esophagus. Specify the correlations between the esophagus and the aorta at this level for explaining this complication.
  14. A patient having a knife wound of anterior thoracic wall and strong hemorrhage was admitted to the surgical department. The wound having transverse direction, by the size 2×2 cm, is situated in the fourth intercostal space outside of left edge of the sternum. The damage of the thoracic wall vessels and parietal pleura was detected by the revision. Deeper structures are not damaged. Specify what vessels may be damaged, what tissue needs suture by layers.
  15. A patient having a gastroesophageal hernia was admitted to the surgical department. Specify what kind of tissues form and cover hernia sac, what organ or its part forms the contents of hernia sac.
  16. The foreign body caused the perforation of the esophagus posterior wall at the level of 7<sup>th</sup> cervical vertebra. As a result, the phlegmon of parathyroidal fat tissue developed. Explain possible ways of pus spread.

Lesson 12 ***”Surgical anatomy of the anterior abdominal wall. The operation for the hernia treatment. ”***

**Control questions.**

1. Surgical anatomy of the antero-lateral abdominal wall.
2. Weak places of the anterior abdominal wall: linea alba, umbilical ring.
3. Inguinal region. Inguinal canal. Topographic and anatomical features of the direct, indirect (oblique), congenital and sliding inguinal hernias.
4. The operation technique for the indirect inguinal hernias by Martinov’s, Girard-Spasokukotsky’s, Kimbarovsky’s methods; for the direct inguinal hernias by Bassini’s method.
5. The plastics of the hernia hilum at the femoral hernias by Bassini’s, Ruggi-Parlaveccio’s methods.
6. The operations for the umbilical hernia by Lexer’s, Sapezhko’s, Mayo’s methods; for the linea alba by Sapezhko’s method.

**Self-work:** To study on a corpse the weak places of the anterior lateral abdominal wall. To master the technique of the inguinal canal plastics at the indirect (oblique) and direct inguinal hernias.

**The student report theme:** “The surgical anatomy of the femoral hernias, the hernioplasty”.

**Self-control tests:**

1. Name weak places of the antero-lateral abdominal wall: 1-3.
2. Name fossae on the posterior surface of the anterior abdominal wall: 1-3.
3. List the veins, which take part in formation of the cava-caval and portal-caval anastomoses in the anterior abdominal wall: 1-3.
4. Name the nerves that innervate the antero-lateral abdominal wall: 1-3.
5. List the muscles of the anterior lateral abdominal wall: 1-4.
6. Specify the layers of the antero-lateral abdominal wall, which are located deeper than muscles: 1-3.
7. List the layers of the anterior abdominal wall at the region of umbilical ring: 1-3.
8. Name the walls of the umbilical canal and its contents: 1-3.
9. List the walls of the inguinal canal: 1-4.
10. Name elements of the abdominal wall hernia: 1-3.
11. List the types of the inguinal hernias: 1-3.
12. List to main steps of the herniotomy: 1-6.
13. Explain what means the term “inguinal space”, what it is formed by: 1-2.
14. Name the contents of the male inguinal canal: 1-3.
15. Name the contents of the female inguinal canal: 1-3.
16. Name the components of the spermatic cord: 1-4.
17. List the arteries of the spermatic cord: 1-3.
18. Name the sings of the indirect (oblique) inguinal hernia: 1-3.
19. List the symptoms of the direct inguinal hernia: 1-3.

20. List the symptoms of the congenital inguinal hernia: 1-3.
21. Name localization of the deep ring of the inguinal canal.
22. Name the most rational plastics methods of the anterior wall of the inguinal canal: 1-3.
23. Show the main steps of Ruggi-Parlaveccio's herniotomy at the femoral hernia: 1-7.
24. List operation steps at the direct inguinal hernia: 1-7.



### **Situation tasks.**

1. The operation is performed to a patient by cause of the oblique inguinal hernia. The superficial ring and anterior wall of the inguinal canal are dissected by 10 sm incision above and in parallel the inguinal ligament. List what tissues are cut.
2. The herniotomy was performed to a patient B. by cause of the oblique inguinal hernia. The surgeon has began dissection of the hernia sac after the incision of the skin, subcutaneous fat tissue and the external oblique muscle aponeurosis. The posterior wall of the inguinal canal was damaged medially from the hernia sac. The strong bleeding began at the patient. Specify to the bleeding source.
3. A patient having acute retention of urine (a patient suffer from the prostate adenoma) was admitted. The top of the urinary bladder was palpated on the umbilical level. The urinary bladder injection was performed for urine removal. Specify the level on which the injection should be performed, through what layers. Is the risk of a damage of the peritoneum?
4. A patient suffering from a phlegmon of the fat tissue before the urinary bladder was admitted to the urology department. The drain operation was performed through the anterior abdominal wall. Specify the approach to the fat space, what layers should be dissected.
5. The pararectal laparotomy was performed in a patient by cause of the acute appendicitis. The vessel bundle was seen within lower wound angle after the incision of the anterior wall of rectus sheath and retraction of the rectus muscle. Which of the anatomical layers the bundle is located between? What vessels are seen within the operation wound?
6. Left transrectal laparotomy in length 10 sm was performed from the costal arch for approaching to the stomach and performing a gastrostoma. List the anterior abdominal wall layers up to the peritoneum, which were cut at this operative approach.
7. The appendectomy is performed. The surgeon made the oblique incision of the skin and the fat tissue in the right ilioinguinal region. Then he cut the aponeurosis of the external oblique abdominis muscle along incision. The muscles that fibers were located transverse and more deeply, were blunt separated along the muscle fibers. Name these muscles. Name the authors who offered this approach to the appendix.
8. A patient suffering from the acute heart attack was admitted to the therapeutic department. The physician has paid attention at the examination to the extended (varicose) subcutaneous veins of the anterior abdominal wall in the umbilical area. Specify possible cause of the veins extension.
9. The woman suffering from the ectotic pregnancy was admitted to the surgical department. Inferior median laparotomy was made. The anterior wall of the rectus sheath was opened while incision of the linea alba. Specify what topographic features of the rectus muscles and the linea alba at this level may cause the rectus sheath damaging.
10. The woman suffering from acute appendicitis was admitted to the surgical department. It was decided to use right pararectal approach because symptoms were not clear. The skin

incision was made 1cm laterally from the external border of the rectus muscle. List the tissues which are cut at this approach.

11. The man having cutting wound of the anterior abdominal wall was admitted to the surgical department. The wound in size 2 cm is located in the right rectus muscle area at the boundary of the external and middle thirds of its width 5 cm below the umbilicus. It was supposed at a patient examination that the wound was penetrating into the peritoneal cavity. Layer-by-layer tissue incision was made on a course of the wound canal for exacted [clarified] diagnosis. The wound revision showed extensive haematoma along posterior wall of the rectus abdominis muscle. The peritoneum was not damaged. Specify the bleeding source. What topographo-anatomic layers the haematoma was located between?
12. The woman suffering from large incisional hernia after cholecystectomy was admitted to the surgical department. The postoperative scar is parallel to the right costal arch. Postoperative wound healed per prima. Specify the possible causes of hernia occurrence at this approach.
13. A patient having a closed abdominal trauma was admitted to the surgical department. Median laparotomy was made for revision of the abdominal cavity. List the tissues, which were cut by the surgeon. Specify how the incision is performed in the umbilical area.
14. A patient having blunt abdominal trauma was admitted to the surgical department. A haematoma was diagnosed between the muscles of the lateral abdominal wall at the level of the iliac crest. Specify the possible bleeding source.
15. The patient with knife wound of the anterior abdominal wall was admitted to the surgical department. The wound is located on the median abdominal line 4 cm below the umbilicus. Laparotomy was made to the patient for revising of the abdominal cavity. Small amount of the blood was seen within the abdominal cavity, the intestine contents were located between the intestinal loops. Specify the revising sequence (order).

**Lesson 13 "Surgical anatomy of the abdominal cavity. The intestinal suture. The intestine resection and the anastomoses "end-to-end" and "side-to-side". Mastering of the technique of the intestinal sutures."**

**Control questions.**

1. Topographic anatomy of the abdominal cavity.
2. The intestinal suture and its requirements. Main types (Lembert's, Albert's, Schmieden's).
3. The intestine resection and the anastomoses "end-to-end" and "side-to-side".
4. Technique of suturing of the intestinal wounds.

**Self-work:** To study the surgical tools which are used at the operations on the intestine. To master technique of the intestinal resection with forming the stumps by Doyen and by Moynihan.

**The student report theme:** "The Lambert's suture value in abdominal surgery".

**Self-control tests:**

1. List the ligaments that form the lesser omentum: 1-2.
2. Name structures limiting the lateral canals (gutters): 1-3.
3. What structures limit the right mesenteric recess? 1-3.
4. What structures limit the left mesenteric recess? 1-3.
5. Name the steps of the abdominal cavity revision: 1-7.
6. List the indications for the small intestine revision: 1-2.
7. Name main types of the intestinal sutures: 1-2.
8. Name main methods of the intestinal stump performance: 1-2.
9. List the steps of anastomosis "end-to-end": 1-4.
10. List the steps of anastomosis "side-to-side": 1-3.
11. Name layers of the small intestine wall: 1-4.



**Situation tasks**

1. A patient having a penetrating wound of the abdominal cavity was admitted to the surgical department. Median laparotomy was made. During Gubarev's revision penetrating wound in size 2×1 cm was found on the wall of intestinal loop opposite mesenteric border, on distance 60 sm from the small intestine beginning. Subserous haematoma was located around the wound. What is further surgical tactics?
2. The anastomosis constriction and obstruction arose in a patient after intestinal resection. So the reoperation was performed. Specify what method may increase the lumen of sutured loops to prevent this complication.

3. A patient suffering from closed trauma of the abdomen was admitted to the surgical department. Median laparotomy was made. Revision of the abdominal cavity showed full rupture of the small intestine on distance 100 sm from the duodeno-jejunal flexure, rupture of the mesentery, the bleeding from the mesenterial vessels. What is the surgical tactics?
4. A strangulation of the greater omentum arose in a patient on the anastomosis place after the intestine resection and anastomosis. Name what operation step wasn't performed that caused the complication.
5. A patient suffering from closed trauma of the abdomen was admitted to the surgical department. The intraperitoneal bleeding was suspected in a patient. Median laparotomy was made. Large amount of the blood, avulsion (full rupture) of the mesentery from small intestine loop (along the mesenteric border) on distance 20 sm were found within the peritoneal cavity. What is the surgical tactics?
6. Urgent laparotomy was made to a patient. The nonviable (necrotizing) parts of the ileum were found out at the revision of the abdominal cavity. Name in order the operative steps. What kind of anastomosis should be performed?
7. A patient having a penetrating wound of the abdominal cavity was admitted to the surgical department. Revision of the abdominal cavity showed the wound of descending colon in size 2 sm. How should the intestine integrity (continuity) be restored?
8. Urgent laparotomy was made in a patient suffering from the "acute abdomen". Revision of the abdominal cavity showed the perforated ulcer of the ileum in size 0,2 sm. What is the surgical tactics? What kind of the intestine suture is necessary to use?
9. Enterotomy was performed in a patient for removing a foreign body. The incision is 2,5 sm in length. It's necessary to restore the intestine integrity (continuity). What kind of the intestine suture is necessary to use?
10. A patient having a penetrating stab wound of the abdominal cavity was admitted to the surgical department. Urgent laparotomy was made. Revision of the abdominal cavity showed the wound of the anterior stomach wall (0,2×0,3 sm). What is the surgical tactics?
11. The volvulus of the small intestine was found during laparotomy and revision of the abdominal cavity. It wasn't possible to restore the viability of the intestine. What is the further surgical tactics?
12. Small part of the mucosa isn't buried [implanted] after tightening of the purse-string suture, which was imposed on the intestinal wall by cause of a wound. Show what kind of the sutures is necessary to impose for the wound peritonization.
13. Two penetrating wounds of the small intestine 0,5 sm was found in a patient having an open abdominal trauma at revision of the abdominal cavity. They are located: one - on distance 60 cm from the duodeno-jejunal flexure and the second - on distance 50 sm from the first. Show what kind of the suture the surgeon should use for suturing these wounds. Is it necessary to perform the intestine resection to this patient?
14. Two penetrating wounds of the ileum 0,5 sm was found out in a patient having open abdominal trauma at the revision of the abdominal cavity. They are located: one - on distance 10 sm from ileocaecal junction and the second - on distance 15 sm from it. What is the surgical tactics?

Lesson 14 ***“Topographic anatomy of the upper storey of the abdominal cavity. Operations on the organs of the upper storey of the abdominal cavity.”***

**Control questions.**

1. Topographic anatomy of the bursae of upper storey of the abdominal cavity.
2. Surgical anatomy of the stomach.
3. Surgical anatomy of the duodenum.
4. Surgical anatomy of the liver.
5. Surgical anatomy of the bile ducts.
6. Surgical anatomy of the pancreas and the spleen.
7. The principles and technique of Kader’s, Witzel’s, Toprover’s gastrostomies.
8. The principles of Billroth’s (I, II), Gofmeister-Finsterer’s methods of stomach resection.
9. Gastroenterostomy.
10. The technique of suturing of the liver wounds. The liver resection.
11. Cholecystostomy. Cholecystectomy from the fundus and from the neck.
12. Splenectomy.

**Self-work.**

- To study the surgical tools and suturing apparatus which are used during the operations on the stomach. To master technique of suturing the penetrating ulcer of the stomach.
- To study on a corpse the surgical anatomy of the upper storey of the peritoneal cavity.
- Cholecystostomy.

**The student report theme:**

“The operations on the pancreas”,

“The special surgical tools and suturing apparatus, which are used at operations on the stomach”.

**Self-control tests:**

1. Name the structure, which divides the abdominal cavity on the upper and lower storeys.
2. List the arteries supplying the stomach: 1-5.
3. Name the branches of the celiac trunk: 1-3.
4. Name the classic methods of the stomach resection: 1-3.
5. Specify the methods of gastrostomy: 1-2.
6. Name main methods of vagotomy: 1-2.
7. Name the methods of the cholecystectomy: 1-2.

***Lesson 15 “Topographic anatomy of the lower storey of the abdominal cavity. Arrangement of the peritoneum. Surgical anatomy of the small and large intestine. The operations on them. Appendectomy.”***

**Control questions.**

1. Surgical anatomy of the lower storey of the abdominal cavity (recesses, canals (gutters), mesenteries, greater omentum).
2. Surgical anatomy of the mesenteric part of small intestine.
3. Surgical anatomy of the large intestine.
4. The operation of forming of anus praeternaturalis.
5. Surgical anatomy of the vermiform appendix. The technique of appendectomy.

**Self-work:** To study on a corpse the surgical anatomy of the abdominal cavity lower storey. To master technique of the appendectomy and suturing the large intestine wound.

**The student report theme:** “Revision of the abdominal cavity”.

**Self-control tests:**

1. Name the large intestine parts: 1-7.
2. Name the small intestine parts: 1-3.
3. Specify the distinctive features of the large intestine: 1-4.
4. Name the arteries that supply the small and large intestine: 1-2.
5. List the signs for finding the vermiform appendix: 1-4.
6. Name main steps of appendectomy by the invagination method: 1-5.
7. Name the steps of colostomy: 1-5.
8. Name main steps of the operation forming anus praeternaturalis: 1-7.
9. Name the steps of suturing the small intestine wound: 1-6.
10. Name the steps of suturing the large intestine wound: 1-7.



**Situation tasks**

1. A patient suffering from an acute intestinal obstruction was admitted to the surgical department. The thrombosis of the inferior mesenteric artery was found during laparotomy. Specify suffering part of the intestine, the possible boundaries of the intestinal necrosis.
2. A patient suffering from high arteriomesenterial obstruction (thrombosis of superior mesenteric artery) was admitted to the surgical department. Earlier the patient has had superfluous amount of difficultly digested food after long famine. Specify in what intestinal department obstruction was.
3. Appendectomy is performed. The abdominal cavity was opened by McBurney incision in the right iliac region. The wall of colon contacts with the operational wound. The surgeon has paid attention on too many of the appendices epiploicae during revision of the colon. Then he has retracted the colic loop on left. Specify what part of the intestine contacted with the wound, where the caecum and vermiform appendix could be located.
4. A patient with closed trauma of the abdomen was admitted to the surgical department (road accident). Median laparotomy was made for revision the abdominal cavity. It hasn't been

found any damages of the abdominal organs but retroperitoneal haematoma was found during revision of the right lateral canal (paracolic gutter) and the right mesenteric recess. Specify what anatomic structure might be damaged. What topographo-anatomic layers the blood accumulates in?

5. A patient having faecal stoma in the right lumbar region was admitted to the surgical department. The signs of peritoneal damage don't exist. What part of the intestine might be damaged? Why this wound has not become penetrating into the abdominal cavity?

6. The interintestinal abscess was formed at a patient after appendectomy with spread pus into the left mesenteric recess. Explain where the pus may spread later.

7. The interintestinal abscess was formed in a patient after the operation of penetrating intestinal wound suturing. The abscess spread into the right mesenteric recess. Explain where the pus may spread later.

8. A patient suffering from the superior mesenteric artery thrombosis was admitted to the surgical department. List the parts of the intestine where the blood supply may be affected.

9. A patient suffering from an acute intestinal obstruction was admitted to the surgical department. The hernia of the duodenal recess (Treitz's hernia) was found during the operation. Name the revision method, which helped the surgeon to make this disease.

10. Median laparotomy was made by cause of the "acute abdomen". The gastric contents pass from the epiploic foramen into the right lateral canal. It is necessary to revise the posterior wall of the stomach. A perforating ulcer was found during this revision. What structures should be cut by surgeon for examination the posterior wall of the stomach? Where do the stomach contents get first of all?

11. The Billroth-II resection was made. The mesentery of the transverse colon and the mesenterial vessels were damaged during cutting and ligation of the gastrocolic ligament vessels on the step of the pyloric mobilization. This has resulted to the necrosis of the transverse colon part. What topographic and anatomical relations between the gastrocolic ligament and the mesentery didn't the surgeon take into account? How is it possible to explain the insufficiency of the transversum collateral circulation?

12. The appendectomy is performed. Approach - oblique incision in the right iliac region (McBurney's incision). The colic wall contacts with operational wound. The greater omentum, which was fixed to the intestine, has appeared in the operation wound after pulling of the intestine upwards and on left. Specify what part of intestine contacts with the operation wound: the caecum or other part.

13. A patient suffering from acute appendicitis was admitted to the surgical department. The gastric contents were found in the right iliac fossa during appendectomy after the peritoneum incision. The appendix was intact. The tampons were entered the right iliac region incision than upper median laparotomy was made. A perforating ulcer on posterior wall of the stomach was found during revision. The ulcer was sutured. Specify how of the gastric contents spread to the right iliac fossa.

14. A patient with penetrating wound of the abdomen was admitted to the surgical department. Median laparotomy was made. A large amount of the blood and the intestinal contents were found within the abdominal cavity. Specify the method of the abdominal cavity revision for finding a place of the intestinal damage.

Lesson 16 ***“Surgical anatomy of the lumbar region and the retroperitoneal space. The operations on the retroperitoneal organs.”***

**Control questions.**

1. Topographic anatomy of the lumbar region. The weak places.
2. Surgical anatomy of the kidneys, ureters and suprarenal glands.
3. Surgical anatomy of the vascular and nervous structures of the retroperitoneal space.
4. The retroperitoneal fat spaces.
5. The operations on the kidneys and ureters (nephrectomy, kidney resection, suture of the kidney and ureter).
6. The paranephral block by Vischnevsky.

**Self-work.**

To study on a corpse surgical anatomy of the kidneys, ureters and suprarenal glands, to master technique of paranephral block by Vischnevsky.

**Self-control tests:**

- I. List the anatomical structures forming the Petit’s triangle: 1-4.
- II. List the anatomical structures forming the Lesgaft-Grunfield’s rhomb: 1-4.
- III. Name the fat spaces, which are located deeper than endoabdominal fascia: 1-3.
- IV. Name possible ways of the pus spread from the retroperitoneal fat space: 1-4.
- V. Name the anatomical landmarks that are used for insertion of syringe needle during paranephral block by Vischnevsky: 1-2.
- VI. Name elements of renal crus in order from front to back: 1-3.
- VII. List the kidney coats: 1-3.
- VIII. Name the ureter parts: 1-2.
- IX. List the branches of the abdominal aorta: 1-7.
- X. Name main vessels and nervous plexuses of the retroperitoneal space: 1-7.
- XI. List the nerves of the lumbar plexus: 1-6.
- XII. Name the factors that are responsible for kidney fixation: 1-4.

Lesson 17 *“Topographic anatomy of the true pelvis. Surgical anatomy of the fasciae and the fat spaces of the true pelvis. Anatomical backgrounds of the suprapubic cystotomy. The operations for hemorrhoid, paraphimosis, cryptorchidism, hydrocele.”*

**Control questions.**

1. The bones of the pelvis, ligaments, muscles, apertures formation. Division of the pelvis on the storeys. Sexual differences. The fat spaces and its clinical value.
2. Surgical anatomy of the true pelvis organs (the urinary bladder, the uterus, the rectum, the prostate, the uretra).
3. Suprapubic cystotomy, the urinary bladder suture.
4. The operations for the hemorrhoid, paraphimosis, cryptorchidism, hydrocele.

**Self-work:** To master technique of suprapubic cystotomy, the urinary bladder suturing

**The student report theme:**

- 1- The structure of the pelvis, cellular spaces of the pelvis and its surgical clinical significance,
- 2- Paraproctitis and its surgical treatment,
- 3- Hemorrhoid and its surgical treatment,
- 4- Suprapubic cystotomy, indications for manipulation and surgical technique,
- 5- Paraphimosis, phimosis and its surgical treatment,
- 6- Cryptorchidism, hydrocele and its surgical treatment,
- 7- Ectopic pregnancy, the reasons, complication, the treatment.

**Self-control tests:**

1. Name foramina of the true pelvis: 1-3.
2. Name the storeys of the true pelvis: 1-3.
3. Name the fat spaces around the urinary bladder: 1-3.
4. Name the muscle, which passes through the major ischial foramen. What foramina are formed at its passage? 1-3.
5. List the nerves and the vessels, which pass through the suprapiriform foramen: 1-3.
6. List the nerves and the vessels, which pass through the infrapiriform foramen: 1-8.
7. Name the nerves and the vessels, which pass through the obturator canal: 1-3.
8. Name the anatomical structures, which pass through the minor ischial foramen: 1-4.
9. List the anatomical structures, which form the pelvic diaphragm: 1-3.
10. Name the urinary bladder parts: 1-3.
11. Name the urinary bladder sphincters: 1-2.
12. Specify the parts of the pelvic part of the ureter: 1-2.
13. List the groups of the lymph nodes of the pelvis: 1-3.

14. Name the arteries supplying the rectum: 1-3.
15. List the venous plexuses of the rectum: 1-3.
16. Name the organs of the male pelvis: 1-5.
17. List the parts of the male urethra: 1-3.
18. Name the curves of the male urethra: 1-2.
19. Specify the vascular-nervous structures, which pass within the perineal fat tissue: 1-3.
20. Name the walls of the ischio-rectal fossa: 1-2.
21. Name the vessels supplying the penis: 1-3.
22. Name the constricted places of the male urethra: 1-3.
23. Name the extension places of the male urethra: 1-3.
24. Name pouches of female true pelvis: 1-2.
25. Name the parts of the uterus: 1-4.
26. List the ligaments of the uterus: 1-4.
27. Name the vessels supplying the uterus: 1-2.
28. List the parts of the vaginal fornix: 1-3.
29. Specify the tissues and anatomical structures, which are cut at suprapubic cystostomy: 1-5.
30. Name the operational steps at the ectopic (tubal) pregnancy: 1-5.



### **Situation tasks**

1. A man suffering from the acute renal colic (renal pain) was admitted to the urology department. A patient complains on the pain in the lumbar region, irradiating to the lower part of the abdomen, inguinal region, and external genital organs. What topographo-anatomic relations between the ureter and the adjacent structures cause this pain irradiation?
2. The inflammation process in the uterine tube and ovary (tuboovarial abscess) is complicated by the phlegmon of the pelvic fat space. The drainage was made through the ischio-rectal fossa. Strong bleeding has arisen at the dressing forceps passing. Name the damaged vessels.
3. A deep lacerated perineal wound is formed between anterior anal wall and scrotal root as result of the road accident. Specify what structures might be damaged.
4. A patient suffering from an abscess of the retrorectal fat was admitted to the surgical department. What incision is used for drainage this abscess from perineum.
5. The rectal cancer is located on the anterior wall at transformation of the ampullary part to the anal canal in the woman. The extended extirpation of the rectum was made with the uterus, uterine tube and ovary and pelvic fat tissue removal. Specify what features of the lymph outflow from the rectum and internal genital organs may explain the volume of operation.

6. The gynecologist has decided to perform block of the pudendal nerve. Specify: a) external landmarks for transdermal method; b) external and internal landmarks for transvaginal method.
7. The oncologist clipped the ureter at clipping of the uterine artery during extended extirpation of the uterus (Verheim's operation). What anatomical relations between the uterine artery and the ureter have resulted to surgeon's mistake?
8. The urologist damaged the right ureter at clipping of the testicular artery during extended operation (with removing of the true pelvis fat tissue - lymphodissection) by cause of the right testis cancer. What anatomical relations between the testicular vessels and the ureter have resulted to surgeon's mistake?
9. The woman has addressed to the neurologist with the complaints on sharp pain on internal femoral surface without any disease in this region. The neurologist has recommended addressing to the gynecologist. Why?
10. The rupture of the perineum up to the tendon center has taken place during the labor. Specify what nerves must be blocked for anaesthetize the operation of the rupture suturing.
11. The gynecologist has felt a barrier at the dressing forceps passing through the ischiorectal fossa for draining the lateral fat space. Specify what structure has appeared on ways.
12. A purulent leakage formed in the rectovesical pouch after appendectomy in the postoperative period. How may the leakage be palpated and drained?
13. A patient suffers from rectal cancer with complete obstruction. What kind of operations should be performed?
14. The woman with primary diagnosis - the ectopic pregnancy was admitted to the gynecology department. It is decided to perform a diagnostic puncture of posterior vaginal fornix. Specify where the blood should be accumulated at the tube rupture. What tissue does a needle pass through?
15. A woman with rupture of uterine tube by cause of the ectopic pregnancy was admitted. The gynecologist has to mobilize the tube for removing it. Specify what anatomic structure should be clipped for cutting the tube, what vessels should be ligated

## Lesson 18 “*Self-work.*”

1. Examination practical skills.
2. Examination self-control tests.

### **List of the technical\ practical skills that the student should know after studying operative surgery and topographic anatomy:**

1. Knowledge of common surgical instruments and skill for using them.
2. Preparation and draping of the operative field.
3. Local infiltrating anesthesia.
4. The soft tissues separation.
5. Imposing and removal of the interrupted sutures.
6. Arrest of the bleeding in a wound (temporary and final).
7. The vessels ligation on an extent.
8. Block anesthesia (conductive) by Oberst-Lukashevich.
9. Incisions in felons.
10. The aspiration (puncture) of the shoulder joint.
11. The elbow joint puncture.
12. The hip joint puncture.
13. The knee joint puncture.
14. Rib resection. Thoracocentesis.
15. The incisions by cause of the suppurative mastitis.
16. The technique of the suturing of the intestine wound depending on the size of the wound.
17. The intestinal suture.
18. The intestinal resection and the anastomoses “end-to-end”
19. The intestinal resection and the anastomoses “side-to-side”.

### **Plan of answers for practical skills**

- 1 - Indications for manipulation
- 2 - List of the instruments, equipment that recommend manipulation
- 3 - Patient position
- 4 - Surgical approach - direct/indirect (place where doing the "projection line")
- 5 - Operational reception - what layers are we going through
- 6 - The final phase manipulation - mobilisation what period of time,
- 7 - Technical complications during the execution of manipulation