

**MINISTRY OF HEALTH OF UKRAINE**  
**ODESA NATIONAL MEDICAL UNIVERSITY**

Faculty Medicine  
Department of Surgery with Postgraduate Education

**APPROVED BY**



**Vice-Rector for Scientific and Pedagogical Work**

**Eduard Buriachkivskyi**

2025

**METHODOLOGICAL RECOMMENDATION  
FOR PRACTICAL CLASSES OF THE ACADEMIC DISCIPLINE**

Faculty, course Medical 6<sup>th</sup> year

Academic discipline Surgery  
(name of the discipline)

**PRACTICAL CLASSES**

*Practical class № 14*

**Topic: “Peculiarities of the surgical course of disease in pregnant women. Diagnosis and differential diagnosis of acute diseases of the abdominal cavity. Peculiarities of examination. Surgical tactics. Prevention of premature birth”**

**Approved:**

At the meeting of the Department of Surgery with Postgraduate Education of Odesa National Medical University

**Odesa National Medical University**

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## **PRACTICAL CLASSES**

### *Practical class № 14*

**Topic of practical class: “Peculiarities of the surgical course of disease in pregnant women. Diagnosis and differential diagnosis of acute diseases of the abdominal cavity. Peculiarities of examination. Surgical tactics. Prevention of premature birth”**

#### **1.Relevance of the topic.**

Surgical pathology that occurs in pregnant women is often difficult to diagnose, diagnostic errors often occur, certain difficulties in choosing treatment tactics, which can threaten both the condition of the mother and the life of the fetus. All this makes the course of surgical pathology in pregnant women difficult, and in some cases - fatal. It should be noted that there are certain limitations regarding the use of diagnostic studies. In addition, one must add obstetric pathology, which can simulate surgical pathology, or accompany it. Therefore, close interaction between the surgeon and obstetrician-gynaecologist is necessary at all stages of diagnosis and treatment of pregnant women with surgical pathology.

#### **2. Objectives:**

##### **2.1.Learning objectives:**

A student of higher education must:

- |    |   |           |
|----|---|-----------|
| 1. | To know the anatomical and physiological features of the body of a pregnant woman, which can affect the course of surgical pathology      | II level  |
| 2. | Identify anamnestic and clinical objective signs of surgical pathology in pregnant women.   | II level  |
| 3. | Assign an examination plan to pregnant women with suspicion of surgical pathology using laboratory, endoscopic examination methods.       | III level |
| 4. | Provide emergency conservative care to pregnant women with surgical pathology, prescribe treatment for the prevention of premature birth. | III level |
| 5. | Determine indications for surgical intervention in pregnant women with a diagnosis of surgical pathology.                                 | III level |

##### **2.2.Educational objectives:**

1. Formation of a professionally significant personality of a doctor who is a specialist of a broad profile, who has to deal not only with specialized pathology.
2. To emphasize the importance of the national surgical school in the development of modern treatment methods of pregnant women with surgical pathology.

### 3. Interdisciplinary integration

<b>№</b>	<b>Disciplines</b>	<b>To know</b>	<b>To be able to</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>I. Previous disciplines</b>			
1.	Anatomy	Changes in the abdominal cavity during pregnancy.	During examination to be able to interpret the results of research, to navigate in the organs of the abdominal cavity of a pregnant woman during the operation.
2.	Physiology and pathophysiology	Peculiarities of pregnancy	To be able to interpret physiological changes in the body of a pregnant woman.
3.	Biochemistry	Biochemical changes in the blood of a pregnant woman.	To be able to interpret the data of laboratory studies.
4.	Pharmacology	The effect of pharmacological drugs on the body of a pregnant woman, taking into account their effect on the body of the fetus, a possible teratogenic effect.	Determine the indications and contraindications for prescribing pharmacological drugs to a pregnant woman.
5.	Obstetrics	The course of physiological and pathological pregnancy, the threat of premature birth, premature birth, caesarean section.	To determine the pathological course of pregnancy, the threat of premature birth, to carry out the prevention of premature birth, to determine indications for emergency delivery and Caesarean section
<b>II. Intra-subject integration</b>			
1.	Anatomical and physiological changes of pregnancy	Changes in the cardiovascular system, lungs, kidneys, abdominal organs	Interpret the data of physical, laboratory and instrumental examination of a pregnant woman
2.	Acute appendicitis during pregnancy	Know the clinical course and diagnostic features of acute appendicitis in pregnant women.	Purposefully collect anamnesis, evaluate symptoms of acute appendicitis in a pregnant woman
3.	Acute cholecystitis during pregnancy	Know the clinical picture, differential diagnosis, features of the course of acute cholecystitis during pregnancy.	To be able to examine a pregnant woman with acute cholecystitis
4.	Acute pancreatitis during pregnancy	Know the features of the clinical picture and diagnosis of acute pancreatitis in pregnant women	Be able to carry out a differential diagnosis, interpret the data of ultrasound, endoscopic examination, provide indications for treatment.
5.	Hemorrhoids of pregnant women	Etiology of hemorrhoids, causes of hemorrhoids in pregnant women	Conduct a finger examination of the rectum, endoscopy.

#### **4. Content of the class.**

##### **1. Anatomical and physiological changes during pregnancy**

The combination of profound changes occurring in a woman's body during pregnancy and changes caused by illness or injury can create a complex and unclear clinical picture. A clear understanding of the physiological and anatomical changes normally observed in a pregnant patient is necessary for the correct assessment of the mother's condition, her fluid balance, and the interpretation of simple laboratory tests. In addition, pathological conditions unique to pregnancy may be triggered by disease or trauma (e.g., placental abruption or amniotic fluid embolism), which should be considered in both diagnosis and management. After the initial stabilization of the mother's condition, the possibility of treating the second patient (fetus) should be considered.

##### **Changes in the cardiovascular system:**

In the first 10 weeks of pregnancy, cardiac output increases (up to 1.0 - 1.5 l/min), and then remains at this increased level throughout pregnancy. In the late stages of pregnancy, the inferior vena cava is compressed (in the supine position) by the enlarged uterus, and the cardiac output decreases sharply as a result of the reduced load. When the pregnant uterus is displaced from the inferior vena cava at the end of pregnancy, cardiac output increases by 28-30%. This can happen either when the position of the patient's body is changed by turning to the left side, or during manual displacement of the uterus.

Heart rate during pregnancy usually increases. This physiological tachycardia reaches a maximum (15 - 20 bpm above the initial values) at the end of the III trimester. Tachycardia as a sign of hypovolemia in pregnant women with trauma should be interpreted with caution.

Systolic and diastolic blood pressure during normal pregnancy decreases by 10 - 15 mm Hg. in the II trimester and gradually increases until the end of pregnancy to the initial (pre-pregnancy) level.

The displacement of the heart by the enlarged uterus affects the electrocardiographic data. This is manifested by a deviation of the axis of the heart to the left by 15 °, as well as a flattening or inversion of the R wave in the III lead. In addition, supraventricular ectopy is more often observed during pregnancy.

##### **Haematological changes:**

By the end of pregnancy, blood volume increases by a maximum of 45%. The mass of erythrocytes increases to a lesser extent than the volume of plasma; therefore, dilutional anaemia is a normal physiological state during pregnancy. This increase in plasma volume allows you to tolerate a large loss of erythrocytes without the usual signs of hypovolemia. For example, in the late stages of pregnancy, a loss of 35% of blood (III degree of blood loss) may not be accompanied by hypotension and tachycardia. Moderate leukocytosis is observed during normal pregnancy. The number of leukocytes in the II and III trimesters reaches 18,000, and during childbirth - 25,000.

Pregnancy also affects coagulation factors: the content of fibrinogen and factors VII - X increases. However, bleeding and blood clotting time, prothrombin time and partially thromboplastin time remain unchanged. These changes in the hemostasis system (partly due to increased estrogen levels) increase the risk of venous thrombosis. In addition, release of thromboplastin due to disease or trauma

(e.g., placental abruption) can initiate rapid coagulopathy.

The rate of sedimentation of erythrocytes during normal pregnancy increases to 60-80 mm per hour.

### **Changes in the lungs:**

Respiratory volume in late pregnancy increases by approximately 40%. The residual volume during pregnancy decreases by approximately 25%, and the respiratory rate changes slightly.

Arterial blood gases are affected by an increase in respiratory volume and a decrease in residual volume, which leads to a decrease in alveolar and arterial CO<sub>2</sub> pressure. On average, P CO<sub>2</sub> is 30 mm hg (against 40 mm Hg in non-pregnant women). Normal pH is maintained due to increased excretion of bicarbonate by the kidneys.

### **Changes in the gastrointestinal tract:**

Decreased gastric motility and reduced emptying time increase the risk of aspiration, especially in patients requiring general anesthesia. Signs of peritoneal irritation in pregnant women are less reliable in this regard than non-pregnant women with trauma. Soreness and stiffness of the muscles of the abdominal wall in pregnant women are often reduced, appear later or are completely absent. Due to the placental component of alkaline phosphatase, the level of the latter increases by 2-3 times by the end of pregnancy compared to its level in non-pregnant women.

### **Changes in the urinary system:**

Expansion of renal bowls and ureters (right more than left) begins from the 10th week of pregnancy and persists up to 6 weeks after delivery.

The bladder moves up and forward, becoming an organ of the abdominal cavity from about the 12th week of pregnancy; which makes it more vulnerable (in case of damage).

A decrease in serum creatinine and blood urea nitrogen (0.5 and less than 10 mg / dl, respectively - in the late stages of pregnancy) occurs as a result of increased renal blood flow and increased glomerular filtration rate.

### **Changes in reproductive organs:**

During pregnancy, the length and weight of the uterus increases from 7 cm and 70 grams to 36 cm and 1000 grams at the end of pregnancy. The large size of the uterus potentially increases the risk of damage to both the organ itself and its contents (for example, rupture of the uterus, placental abruption, rupture of the amniotic membranes, damage to the fetus). Blood circulation in the uterus increases during pregnancy from 60 to 600 ml/min, which leads to massive blood loss when the integrity of the uterine vessels is violated during surgery.

## **2. PREGNANCY AND ACUTE ABDOMEN**

The term "acute abdomen" unites a large group of diseases of the abdominal organs, which occur acutely and threaten life and from which the majority of patients can be cured only with the help of emergency surgical intervention. The frequency of certain diseases of this group in pregnant women is similar or slightly higher than that outside of pregnancy. The most common are lesions of the gastrointestinal tract (appendicitis - up to 90% of cases). There are some features of the course of these diseases in pregnant women. In addition to the increased danger for the mother, acute diseases of the abdominal organs adversely affect the course of pregnancy, causing its premature termination, miscarriages and premature births, and possible perinatal mortality. Such complications are noted in 5-7% of women with acute appendicitis,

in 50-70% - with intestinal obstruction, with peritonitis, the death rate of children reaches 90%.

The prognosis for the mother and the fetus in any acute diseases of the abdominal cavity significantly worsens with increasing gestational age and childbirth, which is associated with increasing diagnostic difficulties and, therefore, with delaying surgery.

### **Pregnancy and acute appendicitis**

The course of the disease. During pregnancy, conditions are created that favor the development of acute appendicitis. Under the influence of progesterone, there is a decrease in tone and motor function of the gastrointestinal tract, constipation develops. In connection with intestinal atony, its contents are delayed. At the same time, the secretory function of the gastrointestinal tract changes, which leads to an increase in the virulence of the intestinal flora. At the same time, with the progression of pregnancy and the increase in the volume of the uterus, the location of the colon changes. During pregnancy, regional blood circulation in the uterus increases significantly. Hyperemia of the pelvic organs can be the cause of the occurrence and development of acute appendicitis.

Diagnosis of acute appendicitis during pregnancy is based on the same symptoms as outside pregnancy: the suddenness of the disease, pain in the epigastrium and their displacement to the right epigastric region, vomiting, tachycardia, increased body temperature. The most typical clinical picture in the first trimester of pregnancy. Diagnosis of the disease is difficult at long periods of pregnancy due to changes in the localization of the appendix and overstretching of the abdominal wall, the picture of the disease becomes less clear. Impresses the clinical manifestations of acute appendicitis and the form of the disease (simple or destructive). A high degree of intoxication, high leukocytosis with a shift of the leukocyte formula to the left may indicate a destructive form (phlegmonous, gangrenous and perforative). In doubtful cases, to confirm the diagnosis, the patient is observed dynamically for 1.5-2 hours, leukograms, biochemical blood tests, and urine tests are repeated. Laboratory data are compared with the results of clinical observation, body temperature, pulse rate, examination and palpation of the abdomen. Observations are carried out jointly by a surgeon and an obstetrician-gynecologist.

The course of pregnancy is complicated by the threat of miscarriage, premature birth.

When the diagnosis of acute appendicitis is confirmed, the patient is indicated for surgical intervention. Appendectomy should be performed under endotracheal anesthesia, in conditions of increased oxygenation.

Any form of appendicitis is not a reason to terminate a pregnancy of any term. Caesarean section is used in rare cases when acute appendicitis is combined with obstetric pathology, which requires operative delivery, or when the large size of the uterus prevents the main operation. The operated pregnant women are prescribed therapy aimed at preserving the pregnancy (spasmolytics, tocolytics) and prevention of hypoxia of the fetus. In cases of childbirth in the postoperative period, the imposition of obstetric forceps is indicated in order to exclude physical exertion.

### **Pregnancy and acute cholecystitis**

Among non-obstetrical indications for surgical intervention during pregnancy, acute cholecystitis ranks second (after acute appendicitis). The disease most often

develops against the background of gallstone disease, as a result of blockage of the bladder duct with stones. In 3.5-11% of pregnant women, gallstone disease is asymptomatic, and stones are accidentally detected during ultrasound. Hypercholesterolemia, which occurs during pregnancy, contributes to the occurrence of this disease. An essential role is played by infection, which is negatively affected by disturbances in the activity of the gastrointestinal tract. The formation of stones in the gallbladder and the subsequent development of gallstone disease are pathogenetically related to cholecystitis. There is a known family predisposition to cholecystitis.

Diagnosis of acute cholecystitis, like other acute diseases of abdominal organs during pregnancy, is associated with known difficulties caused by changes in topographical and anatomical relationships. Laboratory studies help diagnose acute cholecystitis: general and biochemical indicators of blood and urine, ultrasound of the liver and extrahepatic ducts.

Differential diagnosis of cholecystitis during pregnancy is carried out first of all with pyelonephritis, urolithiasis, in the presence of jaundice - with viral hepatitis, gestosis.

The disease is manifested by pain in the right hypochondrium, with radiation under the right shoulder blade, in the shoulder, sometimes the pain is dull. Nausea, vomiting, heartburn is added. The general condition of the patient initially remains satisfactory. Palpation reveals tenderness in the gallbladder. There is pain with a light blow on the right costal arch (Ortner's symptom); pain on inspiration when palpating the right hypochondrium (Ker's symptom); soreness between the legs of the right sternocleidomastoid muscle (Musset's symptom).

Patients are hospitalized in the Department of Pregnancy Pathology; patients are treated together with therapists and surgeons. Bed rest, fasting for 24-48 hours, antispasmodics (no-shpa, baralgin, papaverine), intravenous administration of an isotonic solution of sodium chloride and glucose, a complex of vitamins are prescribed. In the absence of effect from conservative treatment, it is necessary to resolve the issue of surgery. The indication for immediate transition to surgical treatment is the complication of cholecystitis with peritonitis, cholangitis, and mechanical jaundice. The operation on the gallbladder and ducts is carried out according to the same rules as outside pregnancy. In the postoperative period, treatment aimed at preserving the pregnancy is prescribed. If the disease develops till the end of pregnancy, then at the same time as conservative treatment of cholecystitis, the birth canal is prepared for further fertility stimulation. With uncomplicated cholecystitis, the prognosis for the mother and fetus is generally satisfactory.

### **Pregnancy and diseases of the pancreas**

The effect of pregnancy on the function of the pancreas has not been fully established. It is known that glucagon secretion increases during pregnancy. Insulin secretion also increases, especially at the end of pregnancy. Serum amylase activity, according to some provisions, does not change, according to others, it increases, reaching a maximum by the end of the II trimester of pregnancy. Using electrophoresis of serum proteins, two isozymes of amylase were isolated: P and S. Amylase P is produced in the pancreas, and amylase S is produced in other organs and tissues. In this regard, when amylase activity increases, serum protein electrophoresis is performed to determine the source of the enzyme.

The prevalence of acute pancreatitis among pregnant women is 1 in 3,000 - 10,000. Acute pancreatitis is usually associated with gallstone disease and develops more often in the III trimester of pregnancy.

Causes of acute pancreatitis during pregnancy:

1. Medicines: Azathioprine, thiazide diuretics, furosemide, valproic acid.
2. Outflow disorders: Gallstone disease, Stenosis after surgical intervention, Inflammation and swelling of the pharyngeal nipple, Duodenum diverticulum.
3. Metabolic disorders: hypertriglyceridemia, hypercalcemia, CKD.
4. Infections: Ascariasis, Epidemic mumps and other viral infections, mycoplasma infection.
5. Other diseases: Acute fatty dystrophy of the liver, SLE, penetrating ulcer of the stomach or duodenum, thrombocytopenic purpura.

Pregnancy does not affect the clinical picture of acute pancreatitis. Nausea and vomiting are observed in 70-90% of cases. Often there is a sharp, intense and long-lasting pain in the stomach that radiates to the back. Pancreonecrosis can be complicated by hemorrhage into the retroperitoneal tissue. This is accompanied by cyanosis of the lateral surfaces of the abdomen (Gray-Turner's symptom) and cyanosis in the paraumbilical area (Cullen's symptom). Differential diagnosis is carried out with acute appendicitis, dissection of an aneurysm of the abdominal aorta, intestinal obstruction, acute cholecystitis, diabetic ketoacidosis, peptic ulcer disease, pyelonephritis, paranephritis, perforation of an empty organ, and renal colic. The following changes may be noted during laboratory tests.

1. Mild hyperbilirubinemia (in 15% of cases, the bilirubin level is about 4 mg%).
2. Leukocytosis above 15,000 - 30,000 in  $\mu$ l
3. Serum amylase level above 2000 units/l.

An increase in the activity of serum amylase may indicate acute pancreatitis. At the same time, serum lipase activity increases, but the norm of this indicator for pregnant women has not yet been precisely established. A survey X-ray of the abdominal cavity is performed only when absolutely necessary (exclude accumulation of free gas). An ultrasound is performed to detect calcification, edema, and false cysts of the pancreas. If the diagnosis is confirmed, acute pancreatitis is treated and its frequent complications are prevented: hypocalcemia, hypovolemia, hypomagnesemia, and hyperglycemia. In addition, with acute pancreatitis, there is a high risk of acute renal failure, DIC syndrome, ARDS, bleeding into the lumen of false cysts of the pancreas.

Treatment of acute pancreatitis during pregnancy is the same as in non-pregnant women. With conservative treatment, pancreatitis usually resolves within 3-7 days. Analgesia is administered, infusion therapy is administered, and serum calcium, magnesium, and glucose levels are closely monitored. Stop taking food, liquids and medicines. Enteral nutrition is restored after a decrease in the activity of amylase and lipase in the serum, as well as restoration of intestinal function (emission of gases, appearance of peristalsis and formed stool). Regular aspiration of stomach contents through a nasogastric tube is recommended. In severe pancreatitis, parenteral nutrition is indicated. With acute pancreatitis, fever is possible, but if it persists for a long time, it is necessary to rule out infectious complications. The effectiveness of prophylactic antimicrobial therapy has not been proven. With the

formation of a pseudocyst or abscess of the pancreas, emergency measures, including percutaneous or open drainage, are indicated.

If the swollen form of acute pancreatitis develops before 12 weeks of pregnancy, then after the disease subsides, it is advisable to terminate the pregnancy. In the case of the development of acute pancreatitis in the late stages of pregnancy, in parallel with conservative treatment, preparation of the birth canal for early birth stimulation is prescribed. If the disease occurs at any stage of pregnancy and is accompanied by the threat of termination of pregnancy, it is not advisable to prescribe treatment aimed at preserving it. Childbirth is carried out through the natural birth canal with thorough analgesia, at the same time intensive infusion therapy is continued, a sufficient number of antispasmodics is administered. The second stage of childbirth ends with the application of obstetric forceps.

One of the formidable complications of childbirth is bleeding associated with a violation of the coagulation properties of blood, so it is absolutely necessary to prevent bleeding. Intra- and postnatal mortality of children increases due to severe intoxication of mothers in labor. After childbirth, the condition of the patients improves little, but there are conditions for carrying out massive therapy, expanding the range of antibiotics aimed at treating peritonitis or sepsis.

Indications for surgical treatment are the transition of the edematous form to destructive, purulent pancreatitis, peritonitis. The goal of the surgical intervention is to create an outflow of active enzymes from the ducts of the pancreas, apply a relief cholecystostomy and drain the small cap, create a channel (tampons, drains) for the removal of pancreatic sequestrations. To perform such an operation, the uterus must be emptied. On the other hand, against the background of the serious condition of the patients, the performance of two operations worsens the condition of the woman even more. The postoperative period is difficult, with a high percentage of complications and deaths.

### **Pregnancy and ulcer disease**

Ulcer disease occurs in 1 in 4000 pregnant women. These data may be underestimated, since the diagnosis of peptic ulcer disease during pregnancy is difficult. It is believed that the risk of peptic ulcer disease during pregnancy is reduced.

Clinical manifestations of peptic ulcer disease include dull, aching pain in the stomach, sometimes radiating to the back. The pain usually goes away after eating or taking antacids. Sometimes there is vomiting with an admixture of unchanged or changed blood (the latter looks like coffee grounds). Gastrosocopy is prescribed. This study helps to confirm the diagnosis, as well as to make a differential diagnosis between peptic ulcer disease and other conditions that require treatment.

Treatment of peptic ulcer disease during pregnancy: Avoid smoking and alcohol. Antacids, sucralfate, proton pump blockers, H<sub>2</sub> blockers are prescribed. Liquid antacids are used in a dose of 30 ml orally every 2-3 hours. Before prescribing sucralfate or H<sub>2</sub>-blockers, a gastroscopy must be performed.

1. Sucralfate is the basic aluminum salt of sucrose octa sulfate. When the drug enters the stomach, it forms a protective film on the area of the mucosal defect. It prevents the action of pepsin and stimulates the formation of bicarbonate. Sucralfate is used when antacid treatment is ineffective. The drug is prescribed orally for 1 g 1 hour before meals and at bedtime. Antacids can be taken no earlier than 1 hour after taking sucralfate. A side effect of the drug is

constipation.

2. H<sub>2</sub>-blockers - cimetidine, ranitidine, and famotidine - bind inversely to H<sub>2</sub>-receptors of gastric mucosa cells and block gastric secretion, as well as proton pump blockers (omeprazole, lansoprazole, pantoprazole, esomeprazole) - block the “proton pump” through further reducing to minimum secretion of hydrochloric acid. These drugs are not recommended for widespread use during pregnancy.
3. Eradication of *Helicobacter pylori* is not recommended for pregnant women, as side effects of antibiotic therapy on the fetus are possible.

With gastrointestinal bleeding, the risk of the death of the fetus and the development of complications on the part of the mother increases sharply. Massive bleeding during pregnancy is an indication for emergency surgery.

### **Pregnancy and acute intestinal obstruction**

Acute intestinal obstruction (AKI) can occur in pregnant women and women who have given birth. Contributing factors are the presence of adhesions, chronic inflammatory processes, complications during the postoperative period in the past, changes in the motor function of the gastrointestinal tract associated with pregnancy. Both mechanical and dynamic intestinal obstruction occur in pregnant women. Their frequency during pregnancy and outside it is approximately the same (88% and 12%). Clinical manifestations of dynamic obstruction develop gradually, starting with the retention of feces and gases, distension of the large intestine, which later spreads to the small intestine. Then “fecal” vomiting joins, peritonitis phenomena increase.

Mechanical obstruction is divided into obturation, strangulation, mixed and vascular (intestinal infarction).

The clinical picture of acute intestinal obstruction (AKI) in pregnant women is very diverse, which is related to the dependence of its manifestations on the level of obstruction, the absence or presence of compression of mesenteric vessels and nerves, their degree and types, the time that has passed since the onset of the disease, and also from the period of pregnancy and the volume of the fetal egg. The higher the level of obstruction, the more vivid the general manifestations of the disease, vomiting and severe dehydration, but less vivid flatulence, no stool retention, flatulence.

Compression of the vessels of the mesentery, which leads to an acute violation of the trophic state of the intestine (with volvulus, nodule formation, with intussusception and adhesion obstruction), causes its necrosis in a short time with subsequent breakthrough. With the dominance of vein compression, intestinal necrosis develops 1-2 hours after the onset of the disease, the most acute pains are noted due to the growing swelling and imbibition of the intestine with blood, clinical manifestations of shock are possible.

When the inflow and outflow of blood in the mesentery is disturbed, the symptoms of AKI are sharply expressed, but more often the phenomena of rapidly progressing peritonitis, caused by the easy permeability of the intestinal wall, and sometimes its perforation, prevail.

In the initial period of AKI development (2-12 hours), patients complain of sudden abdominal pain, bloating associated with retention of gases and feces, and vomiting. The pain has a paroxysmal character (its appearance coincides with the increase in intestinal noises), but it can also be constant, which increases

paroxysmally (with strangulation). In the second phase of the disease (12-36 hours), hemodynamic disorders prevail. Due to weakening of intestinal contractions, pains decrease and their nature changes: they become permanent, flatulence increases, and vomiting increases. Signs of impaired activity of parenchymal organs (liver, kidneys) appear, violations of water-salt metabolism increase (dehydration, hypochloremia, hyponatremia, hypokalemia, shift of Acid-base homeostasis). In the late period of the disease (“the period of the result”), the condition of the patients is extremely difficult, the mortality of both the mother and the fetus is high, as a result of intoxication of the mother's organism.

It is difficult to diagnose the disease in pregnant women and women who have given birth, especially in the II and III trimesters of pregnancy, since there are no typical symptoms of gastrointestinal tract (acute intestinal obstruction) during palpation and percussion of the abdomen during full-term pregnancy, it is impossible to X-ray examine the gastrointestinal tract and determine horizontal levels. Pain during AKI can be mistaken for the beginning of labor and patients are taken to obstetric hospitals, as a result, time is lost for surgical treatment, in almost half of pregnant women, surgery is performed later than 36 hours after the appearance of the initial symptoms of acute intestinal obstruction. AKI can be the cause of premature detachment of a normally located placenta, it can be mistaken for another pathology of the acute abdomen, uterine rupture. As a result of all the complications, the prognosis of pregnancy with AKI is unfavorable.

In case of acute intestinal obstruction, the tactics of pregnancy management depend on the type of intestinal obstruction. Conservative methods of treatment have not only therapeutic, but also diagnostic value. Conservative treatment can be started with the introduction of atropine sulfate, the appointment of a siphon enema. The use of means that enhance peristalsis is not indicated until the character of the obstruction is clarified. At the same time, gastric contents are evacuated (through the nose, with a thin probe).

Infusion therapy should be carried out in full. Failure of conservative measures within 1.5-2 hours serves as a basis for surgery. It is possible to operate on patients in the conditions of an obstetric hospital, starting from 28 weeks of pregnancy (in the early stages, patients can be in surgical departments). If the diagnosis of acute mechanical obstruction is clear during admission to the hospital, then the pregnant woman is immediately prepared for surgery. Mandatory prevention of fetal hypoxia. The extent of surgical intervention related to obstruction is determined and performed by the surgeon. Termination of pregnancy is indicated in cases of dynamic intestinal obstruction caused by the pregnancy itself, if surgical treatment is ineffective. In the remaining patients, operations on the uterus should be avoided, unless there is an urgent need for its emptying for technical reasons or for the strictest obstetric indications. In the case of forced caesarean section due to peritonitis, the emptying of the uterus should be followed by its removal. The interests of saving the life of a patient with a serious illness should prevail over all other considerations.

### **Acute abdominal pain during pregnancy**

Pain syndrome during late pregnancy is most often due to the threatening rupture of the uterus or premature detachment of the normally located placenta. With the threat of rupture of the uterus during childbirth, severe abdominal pain most often occurs with a clinically narrow pelvis (disparity between the size of the fetal head

and the mother's pelvis), childbirth with a transverse position of the fetus. A less vivid pain syndrome is observed with threatening rupture of the uterus along the scar after a caesarean section operation or as a result of dystrophic processes in the myometrium caused by inflammatory diseases. Premature detachment of a normally located placenta is accompanied by severe forms of late toxicosis (nephropathy, preeclampsia, eclampsia), hypertension, glomerulonephritis. With the threat of rupture of the uterus during childbirth, the woman in labour complains of severe spasmodic abdominal pains that do not disappear during pauses. The uterus is tense and painful on palpation. There are signs of overstretching of the lower uterine segment and a high position of the contraction ring (the border between the lower uterine segment and its body). The round uterine ligaments are tense, painful and distinctly palpable through the anterior abdominal wall. Urination is delayed. During the vaginal examination, pressure and swelling of the cervix is determined (with the main presentation of the fetus). Blood discharge appears from the genital tract (if the uterus has ruptured). When the uterus ruptures, the violent birth activity stops, while the woman feels severe pain in the abdomen. The phenomena of internal bleeding and shock are rapidly increasing. The fetus is in a state of severe hypoxia and quickly dies. In the case of threatening rupture of the uterus along the scar after a previous caesarean section operation, a pregnant or parturient woman complains of pain in the area of the scar. Palpation of the scar on the uterus causes pain.

For premature detachment of a normally located placenta, if it occurred over a considerable period (up to 1/3 of the placenta or more), sharp pain in the abdomen of a distending nature is characteristic. The uterus is dense, tense, does not relax. On the side of retroplacental hematoma formation - asymmetry of the uterus and pronounced local soreness. There are signs of internal and (or) external bleeding (increased pulse, decrease in blood pressure, appearance of vaginal bleeding). Heart tones of the fetus quickly cease to be heard. If there is a suspicion of threatening rupture of the uterus or premature detachment of a normally located placenta, it is necessary to relax the uterus. This is achieved by ether-oxygen anesthesia, after which the woman is transported to the nearest maternity hospital for urgent delivery (caesarean section).

### **3. Varicose veins of the lower limbs during pregnancy**

It is believed that the prevalence of varicose during pregnancy ranges from 20 to 50%. An increase in the concentration of progesterone during pregnancy leads to a decrease in the tone of smooth muscles, a decrease in its excitability and contributes to the stretching of the venous wall, which increases to 150% of the norm and returns to it 8-12 months after childbirth. Due to the increase in venous outflow through the internal iliac veins, a functional obstacle to the outflow of venous blood from the external veins is created. An increase in the concentration of progesterone and pituitary hormones during pregnancy contributes to the opening of arteriovenous shunts and the development of venous hypertension in the lower extremities. Compression of the iliac veins by the pregnant uterus has not yet been convincingly confirmed and is not independently considered as the cause of varicose veins, since vein dilation occurs already in the first weeks of pregnancy.

The main symptoms of varicose are: the presence of varicose veins (their cosmetic disconfiguration), a feeling of heaviness (syndrome of "heavy" legs), cramps, pain, swelling, skin hyperpigmentation, lipodermatosclerosis, eczema,

ulcers.

At the beginning of the disease, the first symptoms are often telangiectasias or reticular veins, which arise as a result of intradermal and subcutaneous varicose veins, mainly in the area of the inner surface of the distal part of the lower leg, then expansion of the inflows of the large and small subcutaneous veins can be observed. With the increase of chronic venous insufficiency, the veins become more and more tortuous and dilated, which is already evident in the proximal parts of the lower extremities. In the future, widespread varicose veins develop, mainly in the basin of the large saphenous vein and its tributary. Some patients have extremely pronounced, large and multiple varicose veins and no other symptoms due to the compensated venous outflow of blood through deep and communicating veins. At the same time, other patients with insignificant single dilated superficial veins suffer from severe pain in the legs as a result of severe venous hypertension.

In young women, a moderate expansion of superficial veins can be observed, which is often manifested by unpleasant sensations during menstruation. Usually, these veins become more dilated and multiple during pregnancy.

In connection with chronic venous insufficiency, many patients are bothered by a dull pain in the leg area, which usually occurs after standing for a long time and disappears when the leg is raised or when using an elastic bandage. Cramps in the lower leg muscles can be observed along with the pain at night. Pain may increase in warm, humid weather due to salt and water retention, which increase swelling. Patients may also experience pain along dilated veins after prolonged standing, which is the result of venous stasis and stretching of the venous wall. In the case of failure of the valves of the deep veins and severe venous hypertension, a strong burning pain in the lower leg appears when standing, which can deprive the patient of his ability to work.

Edema is an early symptom of varicose veins of the lower extremities. It is moderately pronounced and is limited to the area of the foot and ankles and disappears completely after a night's sleep. In more common varicose veins with a severe degree of chronic venous insufficiency, the swelling extends to the middle part of the lower leg. As a result, lymphovenous insufficiency develops and chronic edema develops with the development of subcutaneous fibrosis.

With long-term chronic venous insufficiency, skin pigmentation, secondary eczematous dermatitis and trophic ulcers may occur. These changes are localized in the area of the inner ankle, where venous hypertension is most pronounced due to failure of direct perforating veins and dysfunction of the muscular-venous pump.

Varicose veins of the lower limbs may be:

1. without ulcer or inflammation;
2. with inflammation (congestive dermatitis and cellulite);
3. with an ulcer;
4. with ulcer and inflammation;

The patient's limbs should be examined in a standing position from the front, side and back, from the foot to chest level. The examination data are entered in the anatomical diagram of the lower extremities. Such an examination makes it easy to detect tense, especially in the area of the inner ankle, dilated, elongated and twisted subcutaneous veins at the level of the lower leg and thigh. If the veins are not easily visible due to swelling or obesity, they can be detected by palpation. The degree of edema and its distribution in the area of the foot, ankle joint and lower leg is

documented using a measuring tape at certain points. The location of the venous ulcer, its size, and depth are noted on the diagram, and the presence of granulations is also described. Material for bacteriological and, if necessary, cytological and histological studies should be taken from the ulcer.

Then the limb is palpated. The degree of tension of the subcutaneous tissues is determined - their swelling can be insignificant, easily pressed with a finger ("checkerboard" swelling), or it can be woody in density, resistant to palpation. An increase in skin temperature is also possible, which indicates the addition of cellulite.

### **Diagnosis of varicose veins of the lower limbs**

Brody-Troyanov-Trendelenburg and Hackenbruch tests are performed to detect reflux in superficial and perforating veins.

#### **Instrumental diagnostics:**

1. Ultrasound Doppler
2. Duplex scanning with color Doppler energy mapping, which is performed in physiological conditions and allows you to assess the patency and condition of the valvular apparatus of superficial, deep and perforating veins, determine the length of subcutaneous veins, and monitor the results of treatment. As a result of functional tests, the closing of the leaflets of the vein valves is normally delayed for almost 2 seconds, as a result of which a retrograde movement of blood is observed.
3. Phlebography is performed only in cases where it is necessary to accurately establish the presence or absence of blood clots in deep veins.
4. Endoscopic examination of veins is a promising method that has not yet entered clinical practice and is under development. It allows you to accurately determine the structure of the large and small subcutaneous veins, the localization and function of their valves and the places where the tributaries meet.

#### **Complications**

1. Pigmentation and eczematous dermatitis, fibrosis of subcutaneous tissue, calcification or ossification of subcutaneous fatty tissue.
2. Trophic ulcer (open or healed).
3. Thrombophlebitis of superficial veins (in a limited area or over a long period, with spread to deep veins).
4. Bleeding from a thin-walled varicose node.
5. Thromboembolism of the pulmonary artery (rarely, when thrombophlebitis spreads to deep veins).

### **Thrombosis of the deep veins of the lower limbs in pregnant women**

Classic symptoms of deep vein thrombosis of the lower extremities are: swelling, pain, tenderness on palpation, cyanosis and increased temperature of the skin of the limb, expansion of superficial veins. Clinical signs of thrombosis of the deep veins of the lower extremities depend on the localization and prevalence of thrombosis, the degree of impaired patency of the veins (stenosis or obturation of the lumen), the development of venous collaterals. The clinic varies widely - from the absence of symptoms to severe pain, massive swelling and even gangrene of the limb.

Thrombosis of the deep veins of the lower extremities is often asymptomatic

when there is no obstruction to the venous outflow. Often this situation remains unrecognized and is observed with thrombosis of only one of the veins of the lower leg or with the presence of a floating thrombus in the iliac and inferior vena cava. In such cases, thromboembolism of the pulmonary arteries may be the first manifestation of asymptomatic thrombosis of the deep veins of the lower extremities.

Symptoms of deep vein thrombosis of the lower extremities develop, as a rule, within a period of several hours to one to two days from the onset of thrombus formation. Sometimes clinical manifestations are delayed by almost 2-5 days in relation to the actual time of thrombus formation.

Symptoms of deep leg vein thrombosis include:

1. edema in the area of the foot, bones and distal part of the lower leg;
2. soreness when palpating the muscles of the lower leg;
3. the appearance of pain in the calf muscle when moving the foot in the back direction;
4. an increase in the temperature of the skin of the affected leg due to increased blood flow through superficial veins and inflammation;
5. the appearance of pain, discomfort and tension in the calf, especially when the patient sits, stands or walks, and also makes active movements of the foot in the back direction. Pains usually decrease at rest, first of all, if the lower limb is raised;
6. dilated superficial veins. The difference in the volume (circumference) of the affected limb, determined using a measuring tape, compared to the unaffected limb is one of the most reliable signs of edema.

Massive thrombosis of leg veins in some cases is combined with the disappearance of pulsation on peripheral arteries caused by their spasm. At the same time, it should be taken into account that thrombosis of the veins of the lower leg can be secondary to the blockage of the arteries of this limb.

During the ascending process, thrombosis spreads to the popliteal and superficial veins to the mouth of the deep vein of the thigh (pain and tenderness appear in the distal part of the thigh and in the popliteal region). The swelling is more pronounced than with thrombosis of the leg veins and spreads to the area of the knee joint, which is accompanied by restriction of movement in it.

With iliac-femoral (ileofemoral) thrombosis with complete obturation of the common femoral vein, the deep vein of the thigh and/or the external iliac vein, there is an acute violation of venous outflow with an increase in venous pressure in the area of the foot by more than 10 times.

The clinical picture is characterized by an increase in body temperature, the appearance of pain in the lumbosacral region, in the lower abdomen, in the iliac and inguinal regions. The entire lower limb up to the inguinal fold becomes swollen. In some patients, edema may spread to the buttocks, and anterior abdominal wall on the affected side. During palpation, swelling of the subcutaneous tissue and muscles is determined. Marked soreness in the projection of the femoral vein, in the groin. Subcutaneous veins on the thigh, especially in the inguinal area, on the front abdominal wall, on the side of the lesion, may be enlarged.

With iliofemoral thrombosis, depending on the severity of hemodynamic disorders in the affected limb, three forms of development can be observed: 1) Phlegmasia alba dolens (white painful swelling) is characterized by arterial spasm,

decrease or disappearance of the peripheral pulse; the lower limb is pale and cold to the touch; 2) Phlegmasia coerulea dolens (blue painful swelling) is a more severe form of iliofemoral thrombosis and is accompanied by the development of cyanosis; 3) venous gangrene, which occurs when the patency (spasm) of the arterial bed of the lower limb is disturbed. With the involvement of the iliac vein, characteristic symptoms appear: swelling of the lower limbs, genitals, lower half of the body, a sharp expansion of the veins of the anterior abdominal wall is noted.

Other forms of venous thrombosis: Inferior vena cava thrombosis (IVC) rarely occurs as a neonatal phenomenon with edema (sometimes with venous gangrene) in both lower extremities. In adults, the condition can occur spontaneously, most often as a continuation of bilateral iliofemoral thrombosis.

Thrombosis of the infrarenal, renal, and hepatic segments of the intrarenal vein is usually distinguished. The severity of clinical symptoms depends on the level of thrombosis and the degree of violation of the patency of the IVC. In the presence of parietal thrombus of the infrarenal segment of the renal pelvis, the disease may be asymptomatic. With preserved blood circulation, there is a real danger of PE.

With thrombosis of the inferior vena cava at the level of the renal veins, pain appears in the projection of the kidneys. Then comes acute renal failure (oliguria, anuria, uremia), which often leads to the death of patients.

With thrombosis of the hepatic segment of the inferior vena cava, there is a violation of blood flow through the hepatic veins, which is manifested by an increase in the liver, ascites, pronounced dilation of the veins of the anterior abdominal wall and the lower half of the chest, manifested by swelling of the lower extremities, jaundice.

**The goal of treatment** is to prevent the spread of primary thrombosis and pulmonary embolism, as well as the formation of new blood clots and post-thrombophlebitic syndrome (PTS). The vast majority of patients with deep vein thrombosis are treated conservatively.

In hospital conditions, the patient is prescribed bed rest, with the affected limb elevated, approximately 15-20 degrees above the level of the heart, which increases venous return, inhibits the formation of new blood clots, reduces swelling and pain. Bed rest must be observed for at least 7-8 days, because by this time blood clots become fixed to the venous wall. Bed rest should be continued while there is pain, swelling and tenderness of the affected limb.

Gradual expansion of the regime is allowed with compressive elastic support, standing and sitting with the legs down should be excluded, because they cause an increase in venous pressure, increase swelling and discomfort. The use of elastic support and restrictions in standing and sitting are required for 3-6 months, until recanalization of thrombosed veins occurs and collaterals are not formed.

Treatment includes the use of anticoagulants, if there are no specific contraindications. Antithrombotic therapy with heparin should be started immediately. The initial dose is calculated based on the patient's weight (this avoids drug overdose) and is 500 units/kg per day (30,000 units/day). Heparin is administered intravenously every 4-6 hours or continuously as a drip under the control of activated partial thromboplastin time (PTT). The duration of the course of treatment with heparin is within 7-10 days (up to 2-3 weeks). This time is necessary for firm fixation of the thrombus to the venous wall. Recently, it is considered optimal to use low molecular weight heparin (LMWH) in a dose selected according

to body weight. If by the end of this time pain and tenderness of the lower limb persist, heparin therapy should be continued until they disappear. The use of indirect anticoagulants (Varvarin, etc.) is contraindicated due to the possible death of the fetus.

Surgical treatment includes: 1) thrombectomy from the deep veins of the lower extremities

2) partial or complete, less often, occlusion of the inferior vena cava.

Indications for thrombectomy from the deep veins of the lower extremities are:

1. blue phlegmasia, especially if conservative treatment is ineffective within 24-72 hours;
2. recurrent PE;
3. floating clots in the ileocaval or ileofemoral segments, which are detected by duplex scanning and phlebography;
4. rapidly increasing thrombosis in case of any type of acute iliofemoralocaval thrombosis.

The essence of the thrombectomy operation is as follows:

1. prevention of further spread of thrombosis, which can cause venous gangrene of the limb;
2. elimination of the PE source;
3. prevention of PTS development.

The best results are obtained by removing fresh blood clots (24-48 hours after the onset of the disease), since "old" blood clots cannot be removed by a balloon catheter due to their adhesion to the venous wall.

In order to prevent PE, palliative methods of surgical treatment are used by creating an obstacle or barrier to the advancement of emboli into the inferior vena cava without significant disruption of venous outflow. These include: 1) partial occlusion of the inferior vena cava using a ligature and 2) plication of the inferior vena cava 3) implantation of cava filters.

Indications for such mechanical protection are:

1. contraindications to anticoagulant therapy;
2. recurrence of PE despite adequate anticoagulant therapy;
3. inability to perform thrombectomy from the ileocaval and/or iliofemoral segments due to late seeking medical help or late diagnosis;
4. presence of other contraindications to the operation;
5. complications of anticoagulant therapy;
6. incomplete thrombectomy;
7. thrombus of deep veins with respiratory disorders;
8. free-floating thrombus in the ileocaval or iliofemoral segments;
9. history of deep vein thrombosis in patients who underwent surgery with a high risk of developing PE;
10. septic thrombophlebitis when conservative therapy is ineffective.

Interruption of the inferior vena cava can itself induce an ischemic syndrome. The method of stenosis of the inferior vena cava with a ligature is easier, safer and faster. The use of a cava filter, which provides 95% permeability of the IVC and does not lead to an increase in the frequency of PTS, is the method of choice. There are temporary and permanent cava filters. Nowadays, minimally invasive technologies of X-ray surgery are used to install a cava filter, instead of complex and difficult open operations, which were used earlier.

### **Hemorrhoids during pregnancy**

In addition to embryonic risk factors, other pathological factors occur in pregnant women: frequent constipation, compression of the pelvic organs by the pregnant uterus, and during childbirth - by the fetal head, strong efforts, etc. Therefore, hemorrhoids very often occur before childbirth and even more often - after it. As a result, hemorrhoids in pregnant women are considered not a pathology, but a variant of the norm.

Another feature is that hemorrhoids in pregnant women are often combined with varicose veins of the lower extremities.

Treatment of hemorrhoids during pregnancy should be conservative. It combines: diet, light physical exercises, careful water toilet after defecation, laxatives. In case of itching, pain, bleeding, suppositories, ointments, sitz baths, butadione are prescribed.

In case of profuse bleeding, sclerosing injections can be performed, in the event of large nodes falling out, in this case, you can try to carefully exercise them in a warm sitz bath, but it is better to prevent these situations and intensively treat hemorrhoids during pregnancy conservatively. For acute hemorrhoids, lotions with furacilin, rivanol, novocaine, warm sitz baths with potassium permanganate, compresses with Vishnevsky ointment are indicated, and for thrombophlebitis or phlebothrombosis - suppositories and ointments with heparin and enzymes (chymotrypsin). In severe cases, pararectal novocaine blockade with the addition of kanamycin is indicated. UHF therapy has a beneficial effect locally. If knots fall out immediately after separation of litter (usually after 15-30 minutes), you should carefully try to straighten them after a warm sitz bath. It should be noted that knot removal is allowed only for pregnant women and women in labor as a temporary measure that alleviates the condition.

#### **5. PLAN and organizational structure of the class.**

<b>№</b>	<b>The main stages of the class, their function and content</b>	<b>Learning objectives in mastery levels</b>	<b>Control and training methods</b>	<b>Materials and methodological provision</b>	<b>Time min</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Preparatory stage</b>					
<b>1.</b>	<b>Organization of the class</b>				<b>5 min</b>
<b>2.</b>	<b>Setting educational goals and motivation of the topic</b>				<b>10 min</b>
<b>3.</b>	<b>Control of the initial level of knowledge, skills, abilities.</b>				
	1. Anatomical and physiological features of a pregnant woman's body that contribute to the occurrence of some surgical diseases	II	Tests	Tables, slides	
	2. Peculiarities of the course of surgical diseases in the	II	1. Individual oral survey.	Tables, slides	

body of a pregnant woman.			2. Written theoretical survey.		
3. Clinical picture of surgical diseases of abdominal organs and blood vessels in a pregnant woman.	II		3. Solutions to typical problems.	Tables, slides	
4. Algorithm for examining a pregnant woman who is sick on surgical pathology.	II		Interview	Table	60
5. Differential diagnosis of surgical pathology in a pregnant woman.	II		Interview	Medical history, ultrasound data, duplex, phlebogram	
6. Interpretation of examination data, assessment of obstetric condition.	III		1. Solutions to atypical situational problems		
7. Principles of conservative therapy in pregnant women, prevention of premature birth.	III		2. Treatment of the patient		
8. Surgical treatment of pregnant women with surgical pathology	II		Tests	Schemes	
<b>Basic stage</b>					
<b>4.</b>	<b>Formation of professional skills and abilities</b>				
	1. Master the methods of objective examination of a pregnant woman with suspicion of surgical pathology, conducting an external obstetric examination.	III	Method of formation of practical training skills	Educational equipment - indicative maps	130 min
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
	2. Carry out curation of a pregnant woman suffering from acute surgical pathology	III	Method of formation of skills:	Atypical tasks in the form: patient, case histories, test situational tasks, business games, dressing	
	3. To participate in the ultrasound (including duplex) study of a pregnant woman who is suspected of having a surgical pathology	III	a) Professional training in solving non-typical problems		

4. Conduct an external obstetric examination of a pregnant woman suspected of having a surgical disease.	III	b) solution of laboratory research problems	Situational tasks
5. Perform elastic bandaging of the lower limb in case of varicose veins in a pregnant woman	III	Control of practical skills	Office of practical skills

Final stage					
5.	<b>Control and correction of the level of professional skills and abilities</b>	III	Control method: Individual control of practical skills	Tests	60
6.	<b>Summarizing the results of the class</b>				3 min
7.	<b>Homework, educational literature on the topic</b>			Approximate map of independent work with literature	2 min

## 6. Materials on methodical provision of classes

### 6.1. Control materials for the preparatory stage of the class.

#### Questions

- Anatomical and physiological features of the alimentary canal of a pregnant woman, which lead to an atypical course of surgical diseases of the alimentary canal.
- Anatomical and physiological features of the liver and pancreas of a pregnant woman, which lead to a special course of diseases of the pancreas, liver, gall bladder and bile ducts.
- Anatomical and physiological features of the venous vessels of a pregnant woman, which lead to the development of varicose veins of the tender limbs.
- Features of the course of acute appendicitis in a pregnant woman.
- Causes of exacerbation of gallstone disease in a pregnant woman, symptoms, diagnosis, treatment, indications for surgical intervention.
- Main symptoms of acute pancreatitis in a pregnant woman, treatment features.
- Features of the course of acute intestinal obstruction in a pregnant woman.
- Ulcer disease in a pregnant woman, features of the course, diagnosis, treatment.
- Causes of acute intestinal obstruction in a pregnant woman, clinic, diagnostic features, indications for surgical intervention.
- Varicose veins of tender limbs in pregnant women, causes, treatment, prevention of thrombophlebitis of deep veins.
- Treatment of thrombophlebitis of the deep veins of the lower extremities in pregnant women, prevention of PE, indications for surgical intervention, placement of a cava filter.

#### Situational tasks

- Patient S., 32 years old, was hospitalized in an obstetric hospital with a threat of

abortion, the term of pregnancy is 18 weeks. Hemorrhoids were found during the examination. What treatment tactics is necessary for this patient?

**Answer standard: Conservative treatment.**

2 Patient N., 44 years old, 28 weeks pregnant, consulted a gynecologist with complaints of pain in the right iliac region, nausea, vomiting, and elevated body temperature. What is the previous diagnosis? What are the further tactics of the examination, where to conduct the examination?

**Answer standard: Acute appendicitis. For further examination, it is necessary to refer the patient to a surgical hospital.**

3 Patient M., 30 years old, 32 weeks pregnant, complained of swelling of the left lower limb and pain in it. After hospitalization, a duplex scan of the veins of the lower extremities was performed, during which a floating thrombus of the deep femoral vein was detected. What complication can threaten the patient's life?

**Answer standard: PE.**

4. The mother of two children complains of the presence of soft-elastic nodes on the lateral surface of the left leg and left thigh, swelling at the end of the day. After resting at night, the swelling disappears. The onset of the disease is associated with pregnancy and childbirth. Uses elastic stockings. What will be the preliminary diagnosis? With what is it necessary to carry out a differential diagnosis?

**Answer standard: Varicose veins of tender limbs, it is necessary to carry out a differential diagnosis with PTS.**

5. A pregnant woman (35 weeks) was admitted to a surgical hospital with a diagnosis of acute calculous cholecystitis. During the examination, the patient was found to have mechanical jaundice caused by choledocholithiasis. Conservative therapy without effect. What further tactics is necessary for the patient?

**Answer standard: surgical intervention for choledocholithiasis is indicated.**

However, it is necessary to coordinate the operative tactics with the obstetrician-gynaecologist, in order to resolve the issue of simultaneously resolving the patient's pregnancy by caesarean section during surgery.

6. A pregnant woman (28 weeks) was brought to the hospital in serious condition with a diagnosis of thrombophlebitis of the deep femoral vein, which was complicated by thromboembolism of the small branches of the pulmonary artery. A deep femoral vein thrombosis was found during a duplex examination. What further tactics are necessary for this patient?

**Answer standard: The prescription of bed rest, low-molecular-weight heparin drugs, and the solution to the issue of installing a temporary cava filter for the prevention of recurrent PE are shown.**

## 6.2. Materials for methodical support of the main stage of the class

- **What are the contraindications to emergency appendectomy in acute appendicitis?**

A. Appendicular infiltrate.

B. Myocardial infarction.

C. The second half of pregnancy.

- D. Hemorrhagic diathesis.
- E. Widespread peritonitis.

• **Emergency appendectomy is not indicated:**

- A. **With an unknown cause of pain in the right iliac region.**
- B. Acute appendicitis in the second half of pregnancy.
- C. At the first attack of acute appendicitis.
- D. Acute simple appendicitis.

• **Factors that affect varicose veins of the lower extremities include::**

- A. **Pregnancy.**
- B. A tight bandage in the area of the upper third of the thigh.
- C. Enlargement of inguinal lymph nodes.
- D. All listed.
- E. None of the above.

• **There is a contraindication to operative treatment for a pinched ventral hernia:**

- A. **The gigantic size of the hernia.**
- B. Pregnancy in the second half.
- C. Phlegmon of the hernial sac.
- D. Fresh myocardial infarction.
- E. None of the above.

• **Which surgical operation is the most frequent in cases of urgent intervention in pregnant women?**

- A. **Appendectomy.**
- B. Cholecystectomy.
- C. Caesarean section.
- D. Laparoscopy.

• **With which surgical pathology are pregnant women exposed to the greatest risk due to increasing uterine pressure?**

- A. **Intestinal operations.**
- B. Stomach operations.
- C. Spleen surgery.
- D. Liver operations.

• **Which of the following diseases is the most common in pregnant women?**

- A. **Appendicitis.**
- B. Cholecystitis.
- C. Ovulatory syndrome.
- D. Peritonitis.

• **Which research method is the most informative for the diagnosis of surgical pathologies in pregnant women?**

- A. **Ultrasound.**
- B. CT.

- C. X-ray.
- D. MRI.

• **Which of the following symptoms may indicate acute cholecystitis in a pregnant woman?**

- A. Pain in the right hypochondrium.**
- B. Backpain.
- C. Jaundice.
- D. Nausea without vomiting.

• **What changes in pregnant women can complicate surgical treatment?**

- A. Hormonal background change.**
- B. Increase of immunity.
- C. Weight loss.
- D. Improvement of general condition.

### 6.3. Materials for methodical support of self-training of a higher education applicant

No	Basic tasks (to learn)	Instructions (to name)
1.	Anatomical and physiological changes in the body of a pregnant woman contributing to the pathomorphosis of surgical diseases	- Change in organs that have smooth muscle structures - changes in the topography of the abdominal organs. - changes in the content of bile
2.	Peculiarities of clinical signs of acute diseases of the abdominal cavity in pregnant women	- clinical picture: a) acute appendicitis; b) acute cholecystitis; c) thrombophlebitis of deep veins of the lower extremities.
3.	Methods of examination of pregnant women with suspicion of surgical diseases.	- Fibrogastroscopy; external obstetric examination; Ultrasound, duplex; laboratory studies. indications and contraindications for X-ray examination in pregnant women
4.	Conservative therapy in pregnant women with surgical pathology.	- Absolute and relative contraindications to the use of drugs of various groups (antibiotics, H <sub>2</sub> -blockers, secretion inhibitors, heparin, etc.) - medical prevention of premature birth;
5.	Indications for surgical intervention	- determination of a life-threatening condition. - mother's health is a priority. - at a late stage of pregnancy, the decision to perform a caesarean section at the same time.

6.	Operative methods of treatment	- peculiarities of access in pregnant women with pathology of abdominal organs, use of laparoscopy.
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