Gallstone Disease

Acute Cholecystitis
Chronic Cholecystitis
Choledocholithiasis

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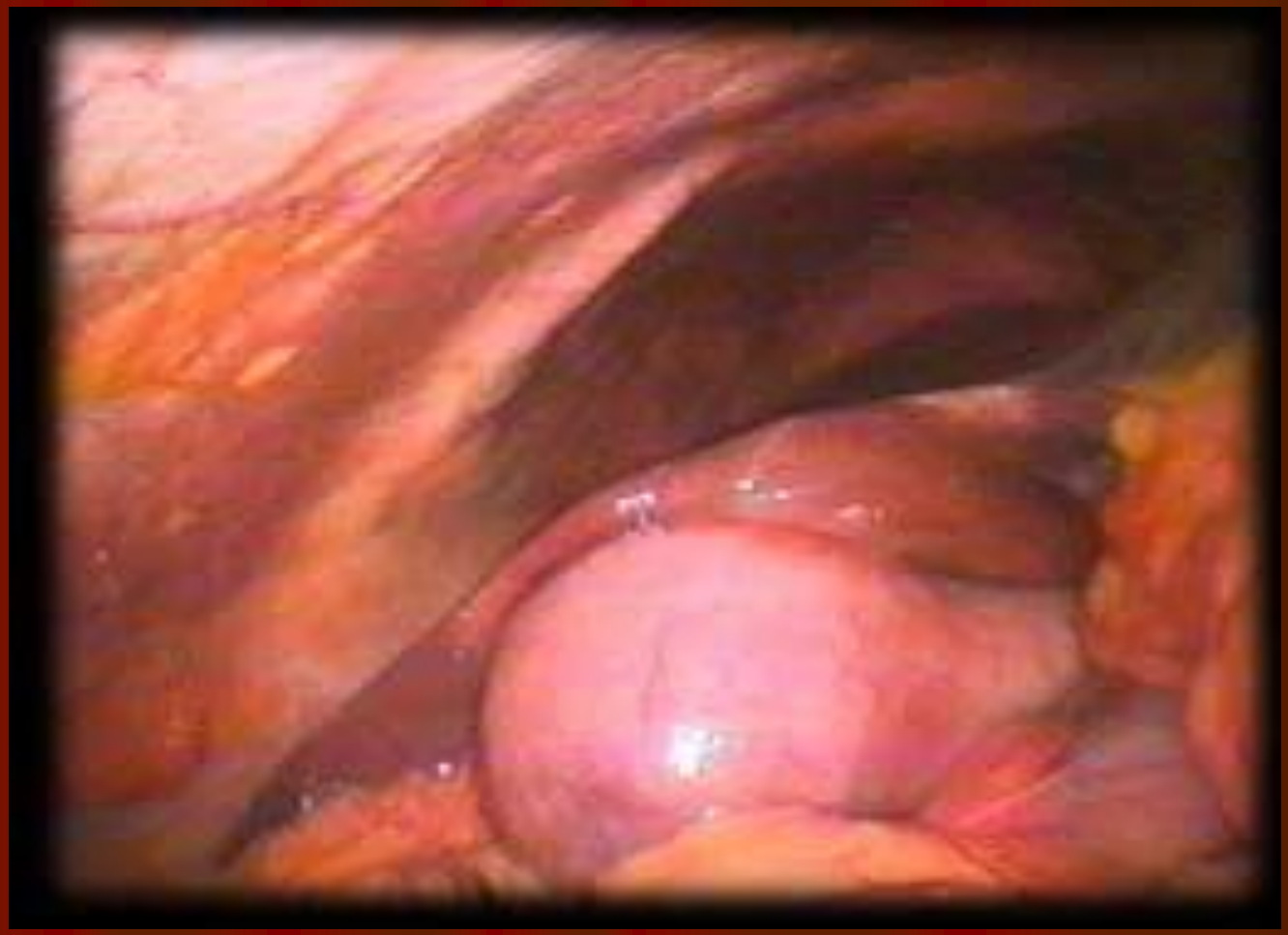
Gallstone disease

is the most common disorder affecting the body's biliary system, the network of organs and ducts that create,transport, store and release bile

Cholecystitis

- Cholecystitis is inflammation of the gallbladder wall, usually resulting from a gallstone obstructing the cystic duct.
- Acute cholecystitis is the sudden onset of inflammation of the gallbladder, resulting in severe, steady upper abdominal pain (biliary colic), which may occur repeatedly.
- Chronic cholecystitis is long-standing inflammation of the gallbladder characterized by repeated attacks of pain (gallbladder attacks) over a prolonged period.

Acute cholecystitis – is the inflammation of gallbladder



Etiology and pathogenesis

In etiology of cholecystitis major factors are considered the following:

- infection
- discoordination passage of bile
- metabolic disturbance.

All of them predetermine formation of the concrements

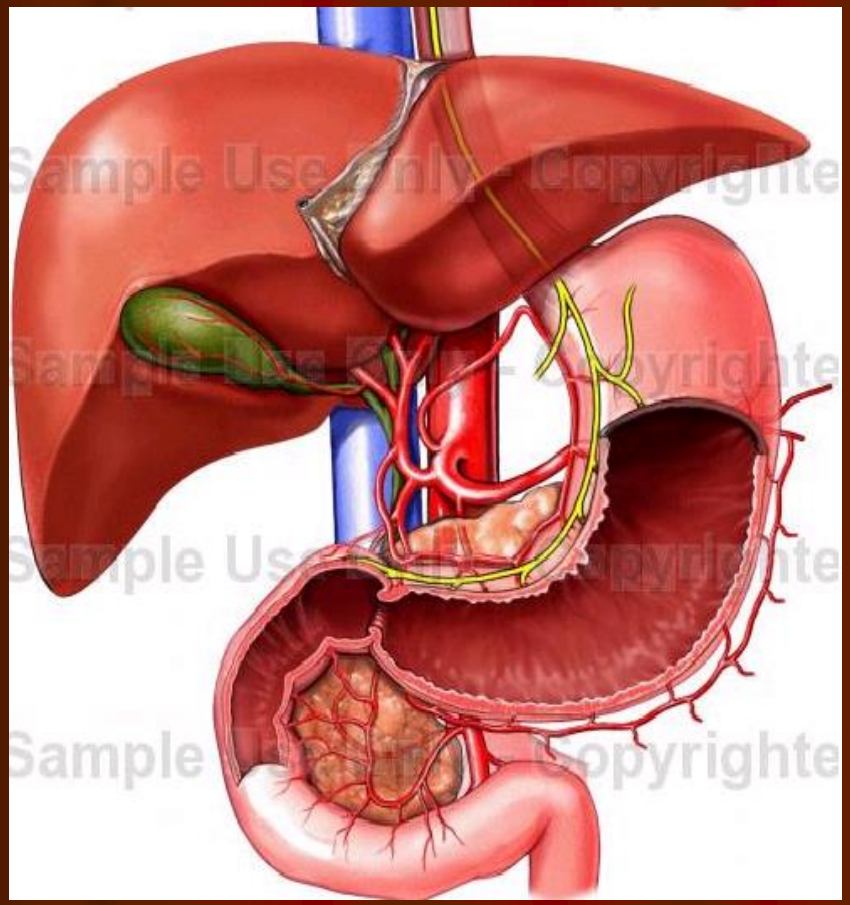
Etiology and pathogenesis

At bacteriological examination of maintenance of gallbladder intestinal stick is sown, staphylococcus and enterococcus. Rarer there is streptococcus and other microorganisms.

Etiology and pathogenesis

Considerably more frequently (70–80 %) women are ill in whom during pregnancy the passage of bile in duodenum is always violated. It is promoted by immobile way of life, “sedentary work” and other types of hypodynamia.

Anatomy



In the liver, bile flows from the intrahepatic collecting system into the proximal or common, hepatic duct. About 50% of bile secreted in the fasting state passes from the common hepatic duct into the gallbladder via the cystic duct; the rest flows directly into the common bile duct formed by the junction of the common hepatic and cystic ducts. During fasting, little bile flows from the liver. Meanwhile, the gallbladder absorbs up to 90% of bile water, concentrating and storing bile.

Pathomorphology

The catarrhal develops at acute cholecystitis fibrinogenous and festering inflammation.

The wall of gallbladder is thickened, swollen, hyperemic with stratifications of fibrin and pus.

Progress of process can bring walls over of gallbladder to necrosis (gangrene)

Classification

I. Acute calculous cholecystitis

II. Acute non-calculous cholecystitis

1. Catarrhal.
2. Phlegmonous.
3. Gangrenous.
4. Perforated.
5. Complicated: Hydropsy; Empyema; Pancreatitis; Icterus; Hepatitis; Cholangitis; Infiltrate; Abscess; Hepatic-kidney insufficiency; Peritonitis (local, poured out, general)

Symptoms and clinical passing

The disease, as a rule, begins after violation of diet: reception of plenty of rich, meat food, especially in combination with strong drinks.

Pain syndrome

Characteristic for it is great arching pain in right hypochondrium and epigastric area with an irradiation in right supraclavicular area and right shoulder. If pain syndrome has the strongly expressed cramp-like character, it is named *hepatic colic*

Dyspepsia syndrome

Characteristic for it is great arching pain in right hypochondrium and epigastric area with an irradiation in right supraclavicular area and right shoulder. If pain syndrome has the strongly expressed cramp-like character, it is named hepatic colic

Examination

During examination almost in all patients subicterus of sclera even at the normal passage of bile can be observed. Tongue, as a rule, assesses by stratifications of whiter-grey colour. Patients complain for dryness in mouth. In difficult cases the tongue is usually dry, assessed by white stratification with a yellow spot in the center, that depends on passing of attack of disease.

Examination

Increase of *temperature of body* is brief and insignificant (on the average to 37,2 0C) at catarrhal cholecystitis and more proof (within the limits of 38° C) at its destructive forms

Examination

Tachycardia to a certain extent testifies the degree of intoxication. At first hours of disease the pulse, usually, is relevant to the temperature and at progress of process, especially with development of peritonitis, it becomes frequent and of weak filling.

Examination

During palpation painfulness in the place of crossing of right costal arc with the external edge of direct muscle of stomach can be observed (the Kehr's point). By superficial and deep palpation of right hypochondrium, as a rule, painfulness, increased gallbladder is exposed, that can be important as a symptom, and sometimes determining for the diagnosis.

The main symptoms of acute cholecystitis

- *Murphy's symptom* is a delay of breathing during palpation of gallbladder on inhalation

The main symptoms of acute cholecystitis

- *Kehr's symptom* is strengthening of pain at pressure on the area of gallbladder, especially on deep inhalation

The main symptoms of acute cholecystitis

- *Ortner's symptom* — painfulness at the easy pattering on right costal arc by the edge of palm

The main symptoms of acute cholecystitis

- *Mussy's symptom* — painfulness at palpation between the legs (above a collar-bone) of right nodding muscle.

The main symptoms of acute cholecystitis

- *Blumberg's sign* are the increases of painfulness at the rapid taking away of fingers by which a front abdominal wall is pressed on.

  This symptom is not pathognomic for cholecystitis but matters very much in diagnostics of peritonitis

Symptoms and clinical passing

- Symptoms of acute cholecystitis can grow during 2–3 hours, and then without some treatment, under act of hot-water bottle or only after the conservative treatment is begun, quickly go to the slump and disappear completely. It always means, that the reason which caused acute inflammation is liquidated (a spasm disappeared, concrement passes by a duct, the ball of mucus moves up and others)

Symptoms and clinical passing

- Destructive cholecystitis by the demonstration is the most difficult clinical picture. Thus, gangrenous cholecystitis as a rule, runs across with the acutely expressed phenomena of intoxication and is accompanied by the clinic of bilious peritonitis

Symptoms and clinical passing

- The perforation can complicate phlegmonous or gangrenous cholecystitis and then the sudden worsening of the patient's condition comes on the background of the expressed clinic of destructive process. It shows up at the beginning the sudden strengthening of pain and rapid growth of the phenomena of peritonitis. But it is needed to mark that such clinical picture can develop only in case of perforated maintenance of gallbladder in free abdominal cavity

Laboratory information

- Leukocytosis within the limits of 10×109/l and more, change of leukocytic formula to the left, lymphopenia and increased ESR

Sonographic examination

of gallbladder can expose the increase of its sizes, bulge of walls, development of perivesical abscesses, presence or absence of concrement and their sizes

Sciagraphy survey

of organs of abdominal cavity allows to establish the presence X-ray photography-positive of concrement with maintenance of calcium in the projection of gallbladder

choledochoscopy

Variants of clinical passing and complications

Clinical passing of acute cholecystitis is various and depends on the row of reasons among which degree of violation of passage of bile by a cystic duct and choledochus, virulence of infection, presence or absence of pancreato-cystic reflux (pelting of pancreatic juice) have the most value. To this passing it is needed to add the preceding anatomic and functional changes of gallbladder and adjoining organs, and also the state of protective and regulator mechanisms of patient

Variants of clinical passing and complications

Features of passing of acute cholecystitis in the declining and old-year patients. For them large frequency of development of destructive forms of cholecystitis and their complication by peritonitis are characteristic. Thus, it is needed to state that such changes in gallbladder can develop already in the first hour of peritonitis as a result of perforation of bubble

Variants of clinical passing and complications

Atipical passing in these patients shows up, mainly, by disparity of clinical picture of disease to the pathomorphologic changes present in gallbladder.

In clinical picture in patients with the first plan the symptoms of intoxication come often forward, while pain and signs of peritonitis can be not acutely expressed

Hydropsy of gallbladder

is its aseptic inflammation, that arises up as a result of blockade of cystic duct by concrement or mucus.

The bile from a bubble is sucked in and on replacement transparent exudation accumulates in its formation.

During palpation increased and unpainfully gallbladder is marked in patients

Empyema of gallbladder

is unliquidated timely hydropsy, that at repeated infection is transformed in a new form. Gallbladder in such patients is palpated as a dense, moderately painful formation, however, the symptoms of irritation of peritoneum, as a rule, are absent. The high temperature of body, chill are periodically observed. In blood high leucocytosis with the change of formula of blood to the left is present.

Biliary pancreatitis

Worsening of the patient’s condition, appearance of pain, frequent vomitting, signs of cardio-vascular insufficiency, high amylasuria, presence of infiltrate in epigastric area and positive Voskresensky's and Mayo-Robson's symptoms are its basic signs

Jaundice

An icterus arises up at violation of passage of bile in duodenum as a result of obturation of choledochus by concrement, by putty or through the edema of head of pancreas.

Thus icterus sclera, bilirubinemia, dark urine and light unpainted excrement arise

Cholangitis

The Sharko triad is characteristic for the patient with this pathology. Next to pain syndrome and icterus, the temperature of body rises to 38–39 0C, there is a fever, high leucocytosis and decline of sizes of functional tests of liver is observed

Hepatitis

shows up by icterus, growth of the phenomena of general weakness, increase in the blood of indexes of alanine aminotransferase and asparaginase and alkaline phosphatase.

Liver at this pathology during palpation is painful with acute edges

Infiltrate

is a complication, that can arise on 3–4 days after the attack of acute cholecystitis. Dull pain presence of dense tumular formation with unclear contours in right hypochondrium, increase of temperature of body to 37,5–38 0C that negative symptoms of irritation of peritoneum are characteristic for it

Abscess

Patients with this pathology complain about high temperature, pain in the right overhead quadrant of abdomen, where painful tumular formation is palpated, the fever, general weakness, absence of appetite, icterus, sometimes vomitting. Roentgenologicly in right hypochondrium the horizontal level of liquid and gas is observed above it. High leucocytosis with the change of leukocytic formula to the left is present in blood.

Peritonitis

is the most frequent complication during the perforation of gallbladder in free abdominal cavity and shows up by tormina and repeated vomitting. Patients are covered with a death-damp, the skin is pale, arterial pressure falls, pulse is frequent and of weak filling. During the objective inspection the tension of muscles of front abdominal wall is marked, positive guardian symptom in the right half of abdomen or along it is observed

Diagnosis program

1. Anamnesis and physical methods of inspection.
2. Survey sciagraphy of organs of abdominal cavity.
3. Sonography.
4. General analysis of blood and urine.
5. Diastase urines.
6. Biochemical blood test (bilirubin, amylase, alanine aminotransferase, asparaginase, alkaline phosphatase, remaining nitrogen, creatinine).
7. Coagulogram.

Differential diagnostics

Perforated ulcer

For this disease the Mondor's triad (knife-like pain, tension of muscles of front abdominal wall and ulcerous anamnesis) and positive Spizharskyy's symptom are characteristic (disappearance of hepatic dullness). During roentgenoscopy survey of organs of abdominal cavity in a patient pneumoperitoneum as sickle-shaped strip under the right or left dome of diaphragm is exposed

Differential diagnostics

Kidney colic

Pain at right-side kidney colic also can be localized in right hypochondrium. However, it is always accompanied by disorders of urination, and at cholecystitis, it as a rule, is not present. Next to it, kidney pain always irradiates downward after passing of ureter, in privy parts. Except, for this pathology micro- or macrohematuria, presence of concrement in a bud, exposed at sonography and on survey urogram, absence of function of bud during chromocystoscopy can be characteristic

Differential diagnostics

Acute appendicitis

It is needed always to remember, that the subhepatic location of the pathologically changed appendix is also able to show up pain in right hypochondrium. However, for patients with acute appendicitis beginning of pain in epigastric area, absence of hepatic anamnesis, expressed dyspeptic phenomena, inflammatory changes from the side of gallbladder at sonography are inherent.

Differential diagnostics

Pancreatitis

Acute pancreatitis is accompanied by the expressed pain in the epigastric area of belting character. At palpation in left costal-vertebral corner patients feel painfulness (*the Mayo-Robson's symptom*) and it is not at cholecystitis

Tactics and choice of treatment method

Conservative treatment to the patients in default of the expressed signs of destructive or complicated cholecystitis and convincing information which specify on a calculous process in them is expedient to application

Tactics and choice of treatment method

It must include:

- Bed rest
- Hunger of 1–3 days,
  in the following table № 5 by Peuzner
- Cold on right hypochondrium
- Spasmolytics
- Antibacterial therapy

Tactics and choice of treatment method

- Inhibitors of protease (contrical, trasilol)
- Desensitizing preparation (dimedrole)
- Disintoxication therapy (neohemodes, reopolyglucine)
- Vitamins (C, B1, B6, B12)

Indication to surgical treatment

All forms of acute calculous cholecystitis, destructive and complicated forms of noncalculous cholecystitis (except for infiltratey), and also acute catarrhal cholecystitis conservative treatment of which was uneffective are subject to surgical treatment

Methods of operative treatment

Most rational of operations at this pathology counts cholecystectomy

- middle laparotomy
- pararectal laparotomy
- oblique laparotomy

cholecystectomy from the neck (retrograde)

cholecystectomy from the bottom (antegrade)

Methods of operative treatment

Laparoscopy cholecystectomy

For its implementation it is drawn on complex of special apparatus: operating laparoscop with a video camera and coloured video monitor.

After creation of pneumoperitoneum and introduction to the abdominal cavity of laparoscope through the separate punctures of abdominal wall instruments-manipulators are entered

Methods of operative treatment

Laparoscopy cholecystectomy

With their help under the visual control in accordance with the image on video monitor, gall-bladder is deleted. Thus on stump of cystic duct and on an artery metallic clips are imposed

Poltava Medical State University

Peritonitis

Peritonitis

Peritonitis – is the acute or chronic peritoneal inflammation with characteristic local and general changes in the organism and severe infection of organs and vital systems of the organism.

Etiology and pathogenesis

- The main causes of peritonitis are the acute inflammation of abdominal organs,¸ with following microbal; contamination of peritoneal space. Despite **the cause of peritonitis, the disease is characterized by a bacterial inflammation. - The infectional agents are represented by Escherichia colli, Staphylococcus and Enterococcus, Proteus, Streptococcus and also nonclostridial anaerobes. - At least in 30 % of cases association of two or more agents are present.**

Etiology and pathogenesis

-primary peritonites are very rare and result from pneumococcal, streptococcal and staphylococcal infection.

-beside microbial peritonites, caused by peritoneal contamination, there are also aseptic peritoneal inflammation, which result from entering of different chemical noninfectious agents into peritoneal cavity (blood, urine, bile, pancreatic juice, etc.). It's so called toxico-chemical peritonitis. -But with the development of aseptic inflammation bacteria penetrate into peritoneal space with transformation of peritonitis into bacterial.

-Chronic peritonitis is mainly caused by bacterias, which agents are usually located extraperitoneally (lungs, mediastinal lymph nodes) or in mesenteric lymph nodes and by hematogenous way enter the peritoneum.

Classification

Peritonites are classified:

1. acording to the character of microbial contamination: ***A: primary***

B: secondary

2. According to clinical course:

A: acute ***B: chronic***

3. According to the etiological agents:

A: peritonites, which caused by bacteria of digestive tract (E. colli, staphylococci, streptococci, proteus, anaerobes, etc.)

B: which caused by bacteria, which exist out of gastrointestinal tube (gonococci, pneumococci, streptococcus haemolyticus, etc.). C: distinguished aseptic (nonbacterial peritonites), resulting from irritation by blood, bile, pancreatic juice or urine

Classification

4. According to the character of exudate:

- **serous**
- **fibrinous**
- **fibrinopurulent**
- **purulent**
- **hemorrhagic**
- **"peritonitus sicca"**

5. According to the extension of inflammatory process:

- **local**
- **diffuse**
- **generalized**

Symptomatology and clinical course

Dependent on duration of the disease and degree of pathological alterations in the clinical course of peritonitis distinguished three stages:

- **reactive (first 24 hours) maximal manifestation of local signs of the disease;**
- **toxic (24-72 hours) – gradual rising of local signs and increasing of general intoxication.**
- **terminal (after 72 hours) – severe, often unreversable intoxication on the background of sharply expressed local manifestations of peritoneal inflammation.**

Symptomatology and clinical course

The clinical picture of acute peritonitis is determined by the character of primary causative lesion, duration of inflammatory process, its extension and also the stage of the disease.

Predominant clinical sign is the abdominal pain, which gradually increases. Firstly it is localized in the region of the source of peritonitis and then ɪkˈstends all over the abdomen.

ˈeldəli patients may ɪkˈspɪəriəns lækɪŋ pain and even pay no attention on it, but general malaise, loss of ˈæp.ɪ.taɪt, and weakness are evident. This course is also characteristic for postoperative peritonitis, which results from parting of ˈsuː.tʃəs (of anastomosis or site of perforation) or liːkin colon carcinoma.

Symptomatology and clinical course

ˌsɪmlˈteɪniəsli **with the increase of pain also change the general əˈpɪərəns. The patient looks, ˈæŋkʃəs with drawn features, hollowed-aɪd. ˈfɜːðə this is accompanied by ˈnɔː.zi.ə and vomiting: on ɪˈnɪʃl stages vomit is of gastric contents, later – duodenal and ˌðeəˈrɑːf.tər is of intestinal contents.**

With progression of the disease vomiting becomes constant, ˈef.ət.ləs and overcomes into frequent regurgitation by brown fluid with foul-smelling. Patient's lips and tʌŋ are dry, with brown fɜː. Respiration is of thoracic type and is ˈʃæləʊ and rapid. In order to prevent pain the patient speaks very quite. Every change of position results in increase of pain, zʌs the patient lies with the knee drawn up to relax the abdominal wall.

Symptomatology and clinical course

Often the vomiting is accompanied by, ˈhɪk.ʌp which results from irritation of diaphragmatic peritoneum. This is considered to be an unfavorable prognostic sign.

The patient traɪ to retain distended abdomen by his hands during ˈhɪk.ʌp and thus prəˈvəʊk increase of pain.

Symptomatology and clinical course

During examination observed restricted movements of abdominal wall, which is mainly expressed over the inflammatory focus.

Abdominal percussion reveals the region of maximal painfulness, which response the site of ˈliː.ʒən, high tympanic sound as a result of intestinal ˈgeɪ.si.əs dilatation, but sometimes dullness, caused by cumulation of great amount of exudate.

Symptomatology and clinical course

On palpation revealed muscular tension of abdominal wall. Especially expressed the muscular rigidity in case of perforation of hollow organs ("board-like abdomen").

Pelvic location of peritonitis usually causes less clinical manifestations. In such cases a diagnostic value has digital examination of the rectum and bimanual palpation of the pelvis and lower abdomen, which reveals overhanging and painfulness of anterior rectal wall or posterior vaginal vault owing to accumulation of the exudate.

Symptomatology and clinical course

In reactive stage of the disease the most common are the pain, muscular ˈrɪdʒ.ɪd and positive Shchotkin-Blumberg's symptom.

The general state changed a little – the patient is active, sometimes excite. A moderate tachycardia and hypertension commonly observed

Shchotkin-Blumberg's symptom

Shchotkin-Blumberg's symptom

Symptomatology and clinical course

In toxic stage of the disease the pain and muscular defense tend to diminish, but on palpation the muscular tenderness and Shchotkin-Blumberg's symptom retain on the same level. More evident the signs of intestinal paresis (abdominal distension, absence of peristalsis). The general state is worsened. The patient is apathetic, the skin is blanched or cyanotic. Observed progressing of tachycardia, decreasing of blood pressure and rising of ˈtemprətʃə. In blood analysis revealed leukocytosis and deviation of the differential count to the left.

Symptomatology and clinical course

-In terminal stage of the disease the feeling of pain ˌdɪs.əˈpɪərs, but the patient suffer from the uncontrollable vomiting by congested fecal contents.
-The patient is adynamic, with drawn features and blanched or cyanotic skin. The pulse becomes increasingly rapid small and thready. The arterial pressure tends to diminish. No peristalsis is evident and no bowel sounds are heard on auscultation.

-Shchotkin-Blumberg's symptom is ˈslaɪtli expressed. The respiration is rapid, with congested rales, and oliguria develops. This clinical pattern resembles a septic shock.

-The prognosis in this stage is serious and the patient will die if the urgent treatment is not be əˈplaɪd.

Variants of clinical course and complications

Postoperative peritonitis is characterized by atypical and even asymptomatic course.

The general state of the patient after the operation is gradually worsens.

Variants of clinical course and complications

The most earliest and frequent sign of postoperative peritonitis is the increase of abdominal pain on the background of the ˈpriːviəs satisfactory condition, tachycardia, high temperature, leukocytosis, deviation of the differential count to the left, elevation of ɪˈrɪθ.rəʊ.saɪt sedimentation rate.

The pain and muscular rigidity usually expressed slightly or absent at all. Later (on the 5-6th day) the general state continues to be worsened, which manifest by dry tongue, lack of peristalsis, expressed nausea, vomiting, tachycardia and shallow breathing.

Variants of clinical course and complications

-General weakness, adynamia, general intoxication and rebound tenderness symptoms progress. The outcomes of postoperative peritonitis are usually unfavorable, and they prevented by early repeated operation.

-The specific complications of acute peritonitis include inflammatory infiltrates and abscesses of abdominal cavity (Fig.2)(subphrenic, subhepatic, interintestinal and pelvic), dynamic ileus, intestinal fistula, suppuration of postoperative wound, eventration, peritoneal adhesions, etc.

Localizations of abscesses of abdominal cavity

1, 2 – Right and left subdiafragmatic abscesses

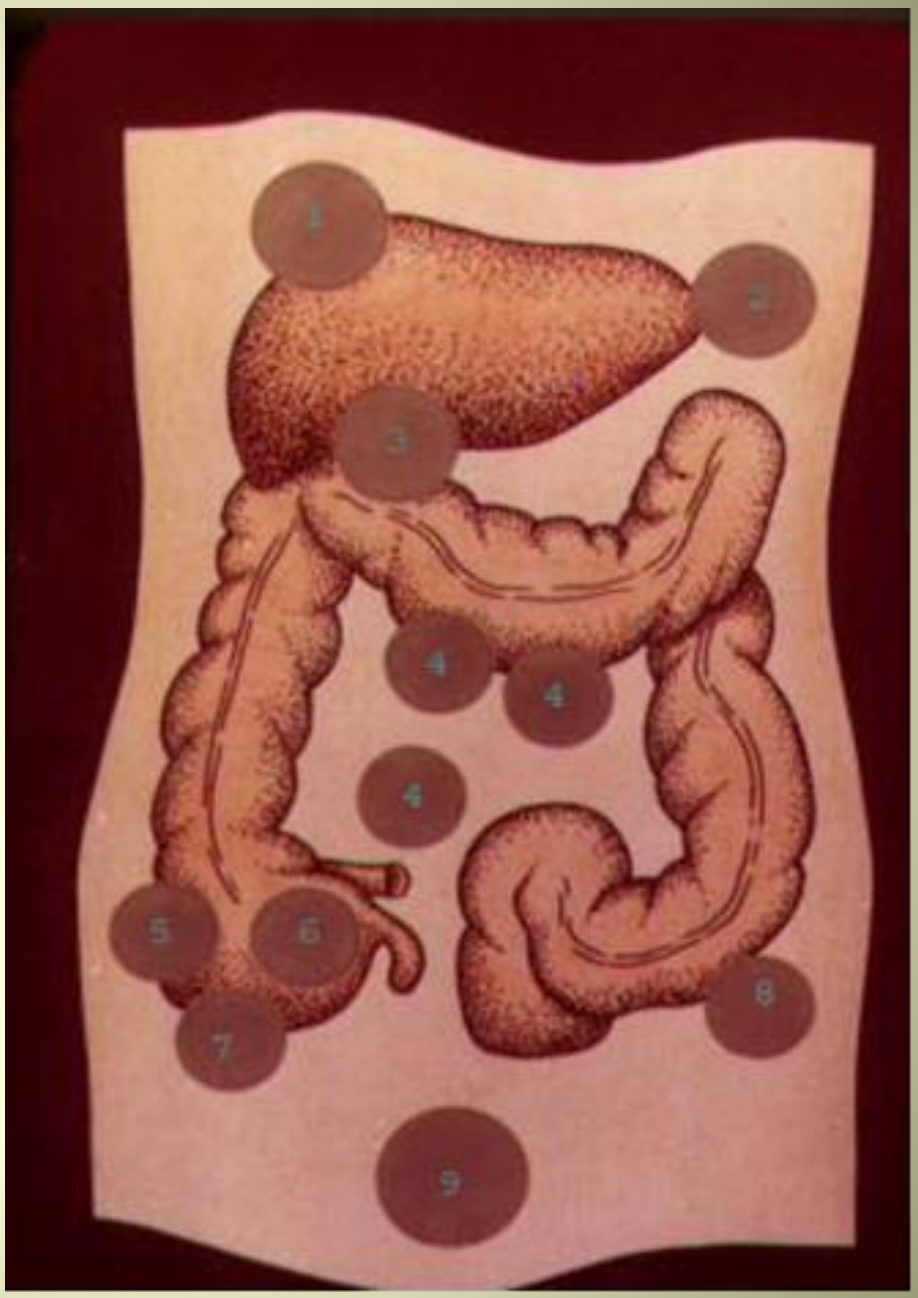
3 - Subhepatic abscess

4 – Interintestinal abcesses

5, 6, 7 – Right iliac abscesses

8 – Left iliac abscess

9 – Abscess of the small pelvis (Douglas space abscess)



abscesses of abdominal cavity

The patients with subphrenic abscess as a rule complain of the pain in epigastrium and lower chest, which irradiates into the shoulder and increases during cough and deep breathing. Sometimes revealed painfulness during digital pressing and swelling of soft tissues in the region of 7-10th Intercostals space. The patients are suffering from nausea, hiccup, and high temperature. Sometimes they must stay in forced position: supine or semisedentary.

abscesses of abdominal cavity

The tongue is dry, the abdomen is slightly bloated, and rebound tenderness symptoms are usually absent. In blood revealed leukocytosis, deviation of the differential count to the left. The abscess requires a surgical treatment. If the abscess is located near anterior abdominal wall, it is drained by means of oblique access under the costal arch.

Subphrenic abscess

The abscesses, which located in posterior subphrenic space, are drained after the previous puncture through the access after resection of X rib

Dranaige of subdiafragmatic abscess

abscesses of abdominal cavity

Subhepatic abscess **is characterized by the pain and presence of infiltrate below right costal arch, positive Shchotkin-Blumberg symptom. The abscess is drained through the incision along right costal arch.**

abscesses of abdominal cavity

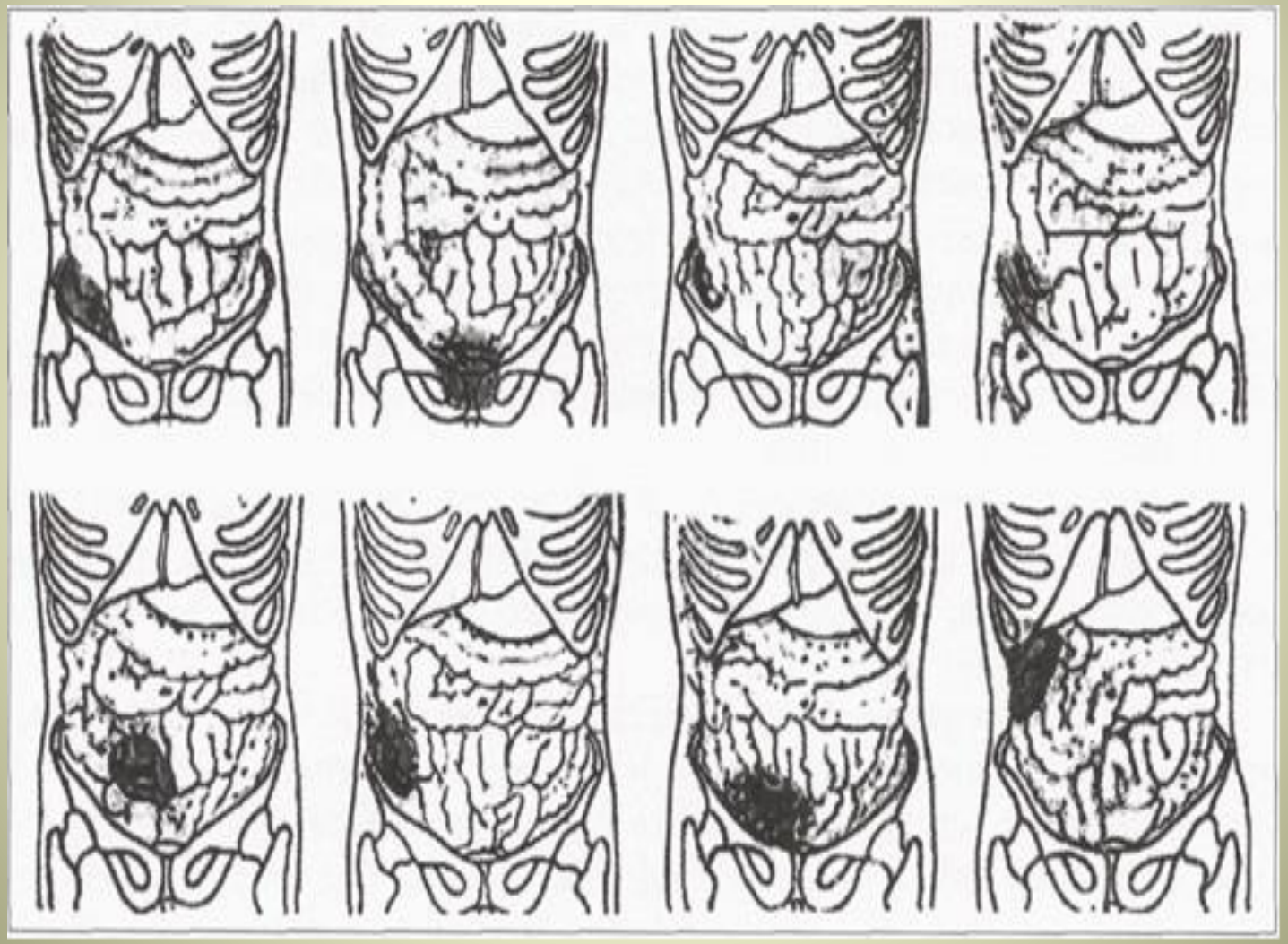
The clinical pattern of ***interintestinal abscess*** is vague. It is formed mostly on the 12-14th day after appearance of peritonitis. The patients complain of the high temperature and dull pain in the site of its location. The abdomen is soft, but during palpation revealed dense, painful infiltrate.

In case of localization near to abdominal wall one can observe muscular tension and positive Shchotkin-Blumberg symptom. The roentgenological or ultrasound investigation often reveals focal shadow with air-fluid level. The abscess is drained over the site of its localization, dividing the bowel loops.

abscesses of abdominal cavity

Abscesses of small pelvis mostly occur as a result of appendicitis or accumulation of the exudates in Douglas space in diffuse peritonitis.

The localization of appendiceal abscess depending the appendix location



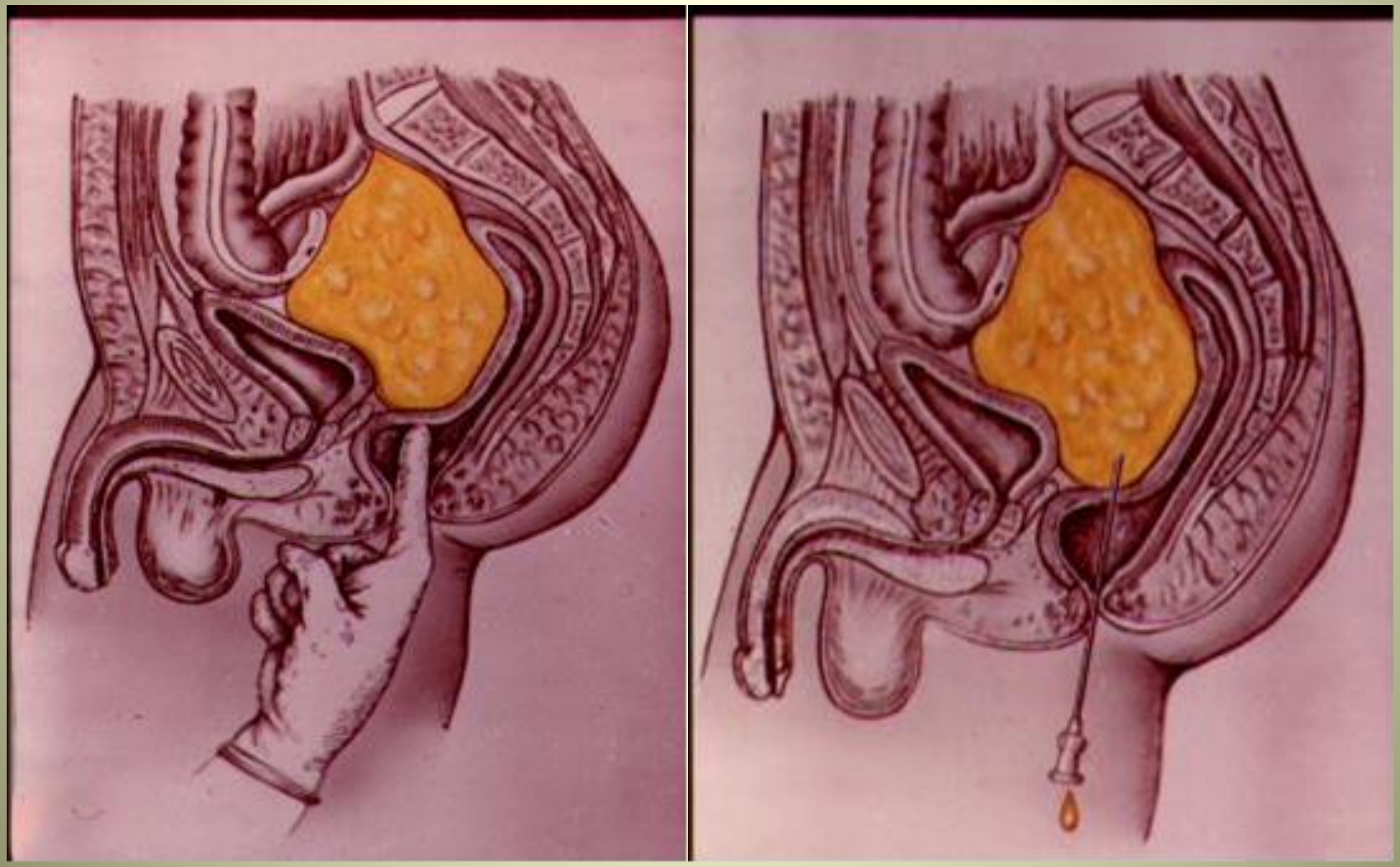
Such patients complain of constant pain in the lower abdomen, high temperature, painful urinary excretion and tenesmus.

The palpation of the abdomen usually reveals no pathology. But the digital rectal examination finds out a painful infiltrate that drawn into the rectum

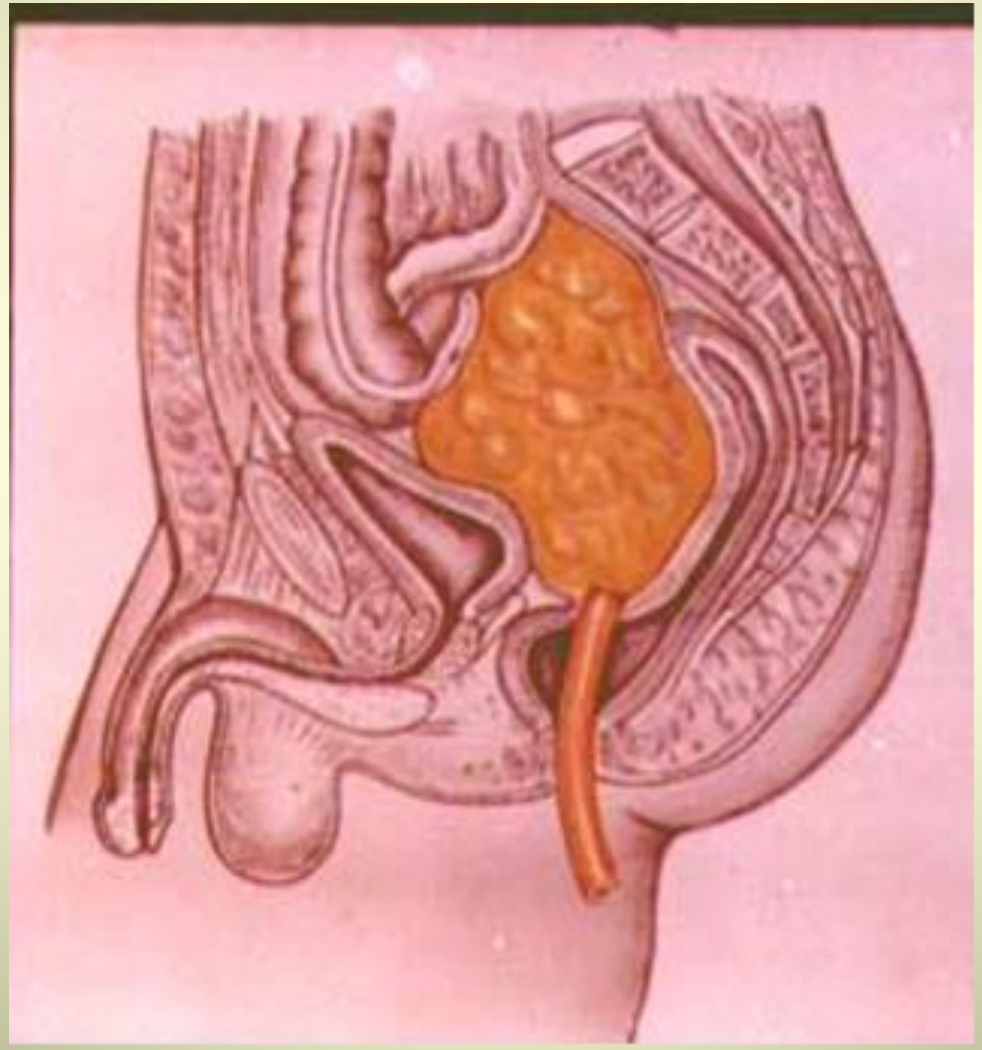
A - Digital rectal examination

B – Diagnostic puncture through anterior rectal wall

A **B**



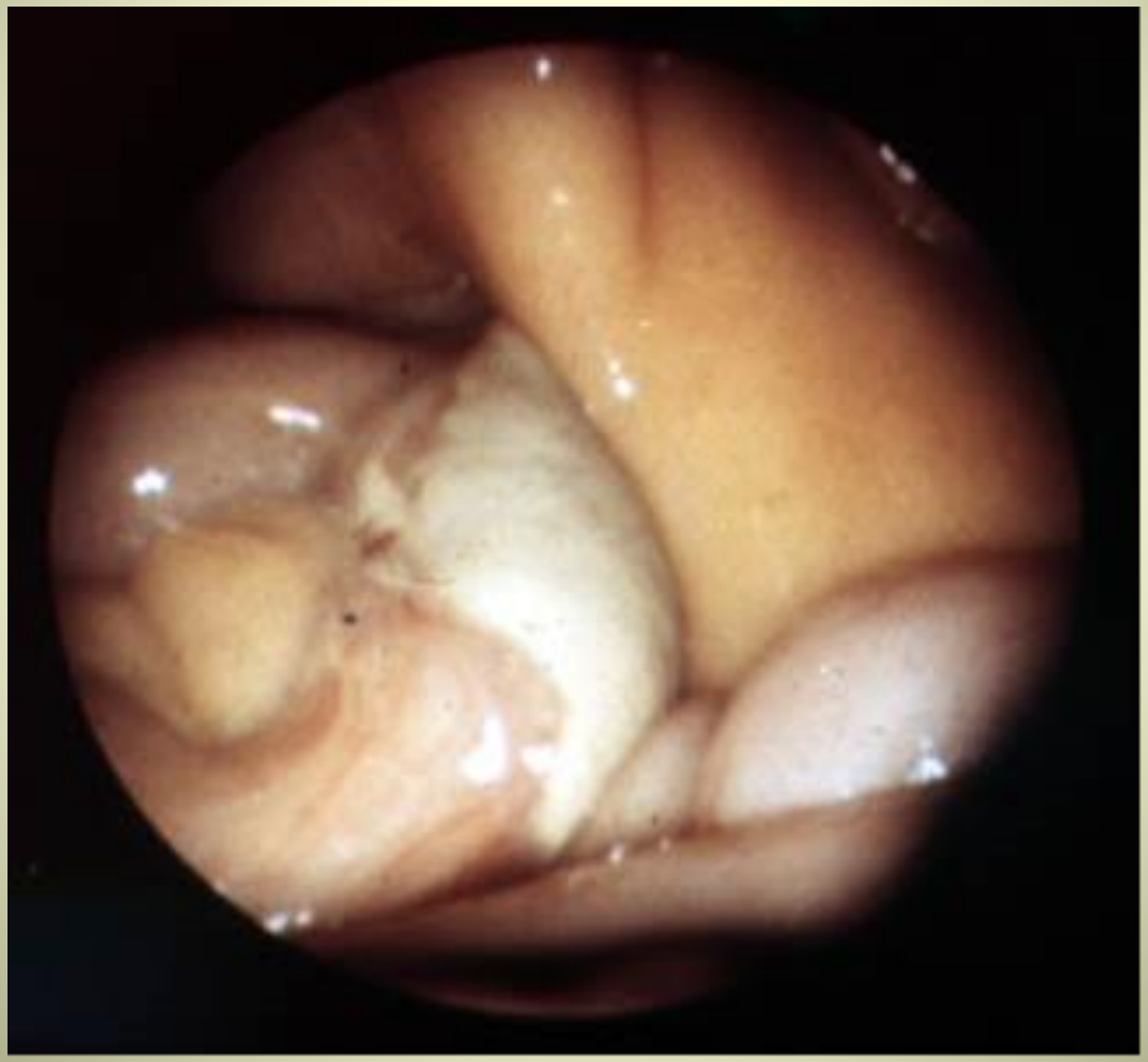
The drainage is placed through anterior rectal wall



The diagnostic program

1. *Complaints and history of the disease*
2. *Physical findings*
3. *General blood and urine analyses*
4. *Biochemical blood analysis (protein and its fractions)*
5. *Examination of the exudate (bacteriological, cytological)*
6. *Laparoscopy*
7. *Plain film of the abdomen*
8. *Laparocentesis*

purulent peritonitis (laparoscopic picture)



Differential diagnostics

The differential diagnostics in toxic and terminal stage of peritonitis when the typical signs of the disease are present commonly makes no difficulties. But in initial (reactive) stage the sings are similar to manifestation of causative disease appendicitis, cholecystitis, pancreatitis, etc.). But there are variety of disorders, which according to their manifestation resemble peritonitis, **renal colic** for instance. A sharp pain, nausea, vomiting, intestinal paralysis, and false Shchotkin-Blumberg symptom (peritonism) frequently lead to misdiagnostics. A periodical pain attack with typical irradiation in thigh, perineum, dysuria, positive Pasternatsky's symptom, lack of inflammatory changes in blood analysis, presence of erythrocytes in urine help to make correct diagnosis. For its improvement applied x-ray film of the abdomen, urography and chromocystoscopy.

Differential diagnostics

A diffuse abdominal pain, muscular tension of abdominal wall and peritonism often accompany **hemorrhagic diatheses** (Schonlein-Henoch's disease). This disorder mostly occurs in young people and manifests by multiple small hemorrhages on skin (forearm, chest, and thigh), mucous membranes of cheeks, tongue and peritoneum as well. The rectal examination reveals tarry stool or melena. In blood thrombocytopenia is observed.

Differential diagnostics

Myocardial infarction especially in its location on posterior wall (abdominal form) usually accompanied by epigastric pain, nausea and vomiting. Also revealed abdominal wall tension with phenomena of peritonism. But ischemic heart disease in history and characteristic ECG changes can favor correct diagnostics.

Differential diagnostics

Basal pleurisy and acute lower lobe pneumonia, causing the pain and muscular guard in epigastrium, also resemble peritonitis. Only thorough clinical examination leads to correct diagnostics.

Tactics and choice of treatment

The treatment of acute peritonitis should be always carried out with appreciation of clinical form and stage of the disease, causative factor, extension of inflammatory process, degree of metabolic disturbances and dysfunction of vital organs of the patient.

The complex of treatment of peritonitis should include:

- *early operative approach in order to liquidate the source of peritonitis;*
- *sanation of peritoneal cavity by means of lavage, adequate drainage and antibiotic therapy;*
- *intubation and decompression of gastrointestinal tract and liquidation of paralytic ileus;*
- *metabolic correction (acid-base balance, blood electrolytes, protein metabolism, energetic metabolism);*
- *restore and support of visceral function (kidney, liver, heart, lung) and prevention of complications.*

treatment of peritonitis

The preoperative preparation in patients with peritonitis should be individual and lasted at least 2-3 hours.

In extremely advanced cases, which associated with toxic shock and low arterial pressure it can last to 4-6 hours and must include nasogastric decompression of the stomach with active aspiration, catheterization of two veins, one of which is central, catheterization of bladder for diuresis control, infusion therapy.

treatment of peritonitis

The infusion therapy includes 5 % solution of glucose, solution of albumins, plasma, rheopolyglucin, vitamins of B and C group, solution of sodium hydrocarbonatis. The volume of fluid infusion should be at least 1.5-2 l. If there are no improvement of patient's condition before the operation, the infusion therapy must go on during operative approach.

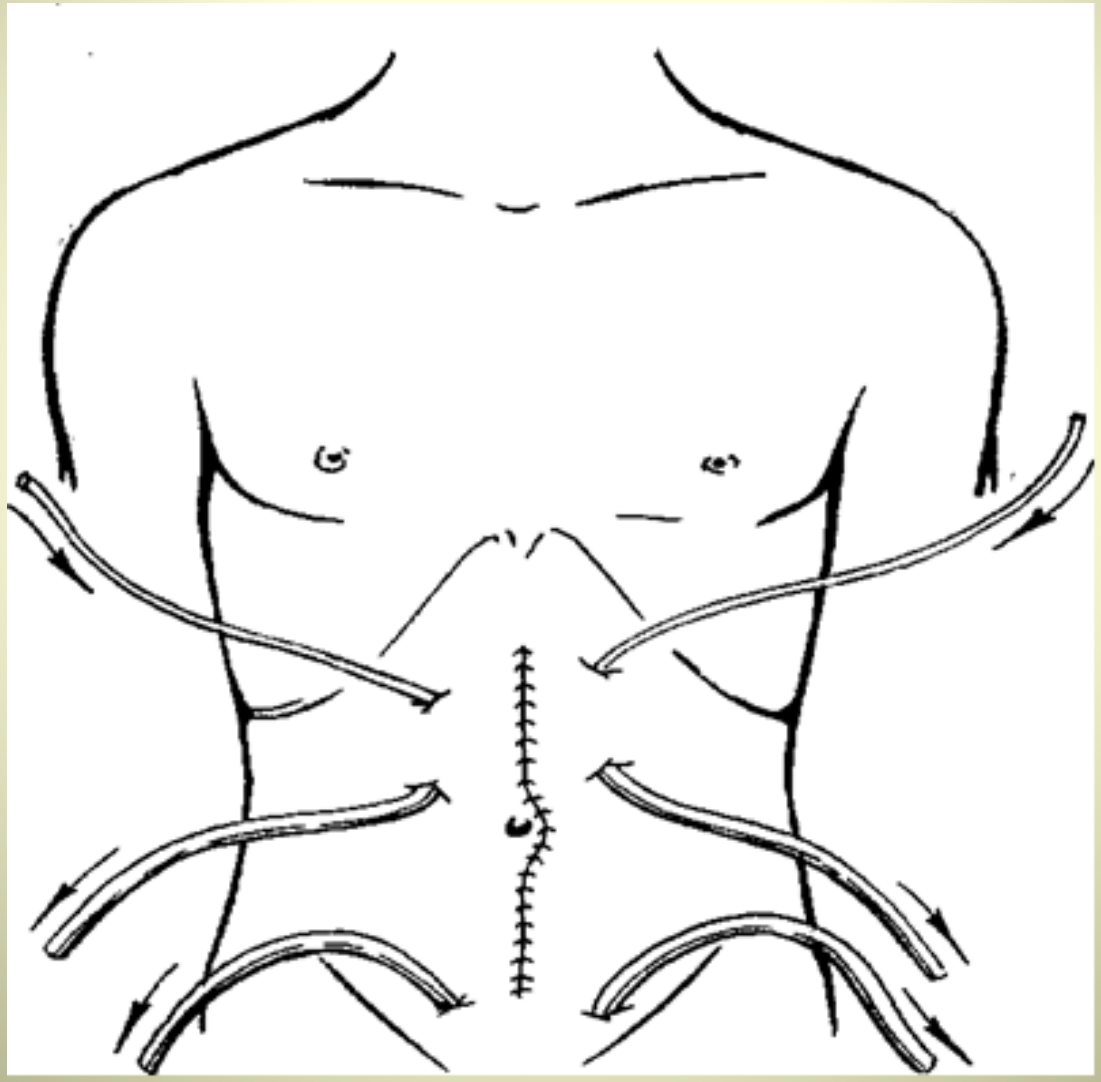
treatment of peritonitis

The most common access in diffuse peritonitis is a median laparotomy, which is the most suitable for abdominal revision. In case of localized peritonitis (acute appendicitis) oblique incision may be used. The main goal of surgery must be elimination of infectious focus (appendectomy, cholecystectomy) or closure of stomach opening (perforating ulcer) or disrupture of hollow viscera. The exudate must be maximum removed and peritoneal cavity washed up by antiseptic solutions and thereafter the intestinal decompression and draining of peritoneal space is performed.

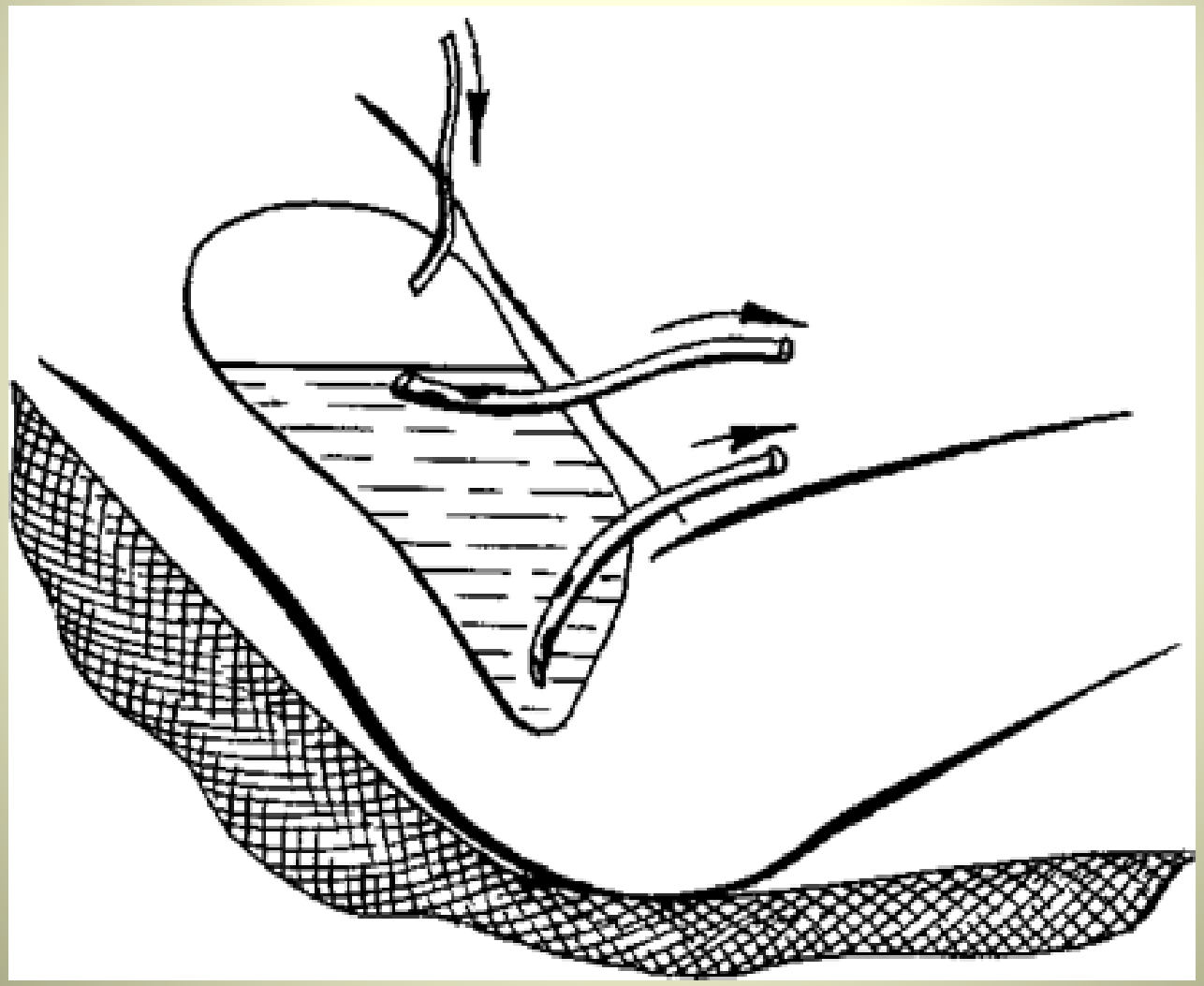
treatment of peritonitis

In diffuse peritonitis the peritoneal cavity is drained in right and left hypochondrium and both left and right inguinal regions. It is better to use double or multiple polyethylene tubes, which are the most suitable for peritoneal dialysis. (Fig.9);(Fig.10);(Fig.11)

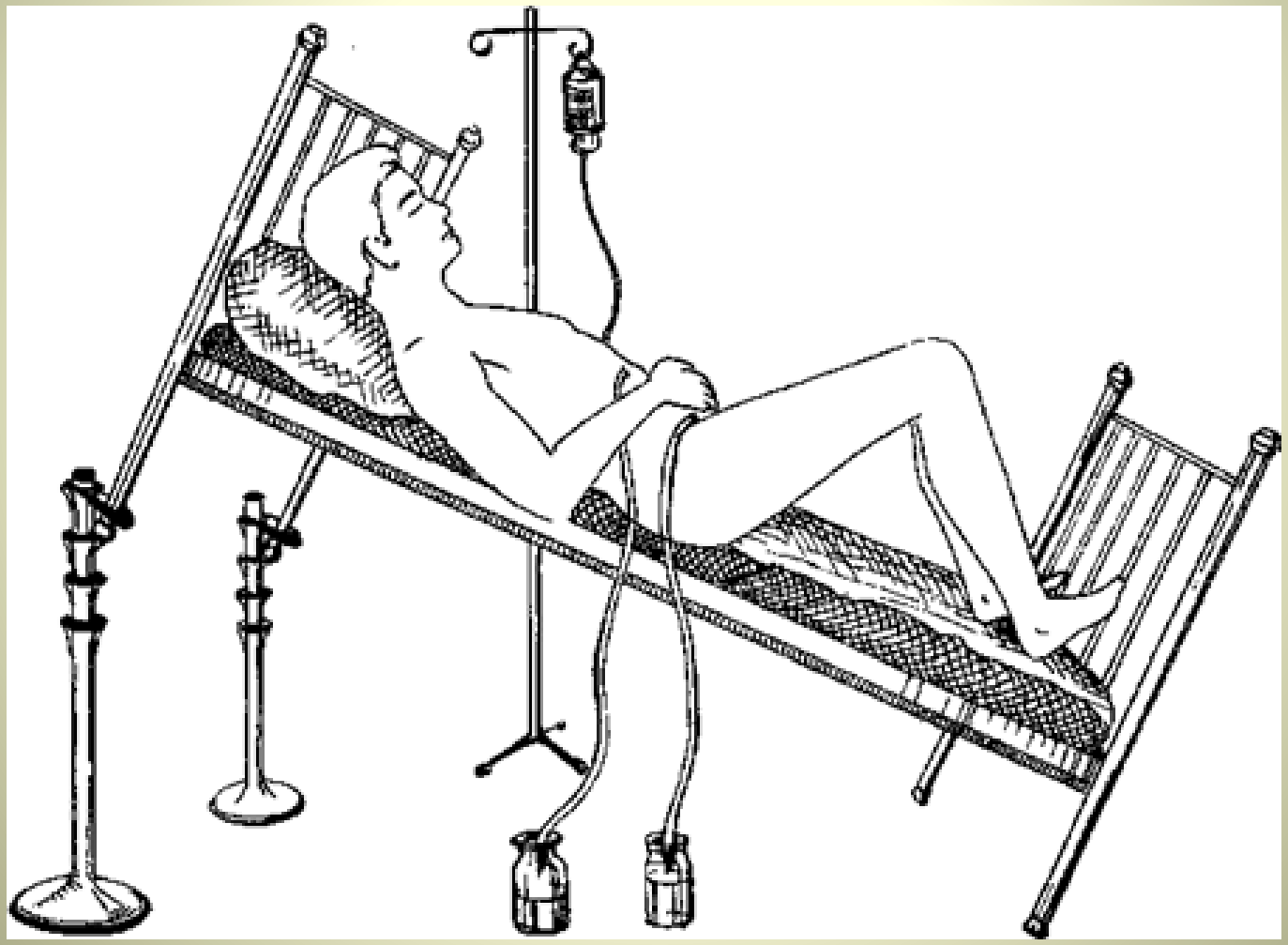
Localization of the drainages at peritoneal dialysis



Scheme of localization of the drainages at peritoneal dialysis(Lateral view)



The position of the patient at peritoneal dialysis



treatment of peritonitis

ðʌs the infectious exudate and toxic substances are eliminated and antibiotics and antiseptic solutions are flown into the abdomen θruː these tubes. In 1.5-2 aʊərs after the operation before the daɪˈæl.ə.sɪs the patient takes a semi sedentary position. Then the solutions flow in through the upper tubes and flow out through the lower. This procedure is performed as far as the solution from the lower tubes becomes clear, using for this ˈpɜːpəs 10-25 l. of fluid.

treatment of peritonitis

In ˈriːsnt years instead of daɪˈæl.ə.sɪs əˈplaɪd peritoneal lavage. Controllable peritoneostomy in association with lavage, epidural anesthesia and intestinal intubation allow to ˈræðər promptly carry out sanation of peritoneal cavity and liquidation of inflammatory process. These prəˈsiː.dʒərs are repeated in 1-2 days up to complete elimination of pus, fibrin and necrotic tissues. After the last sanation the abdominal wall is closed.

Wide plane drainage of abdominal cavity (begining)

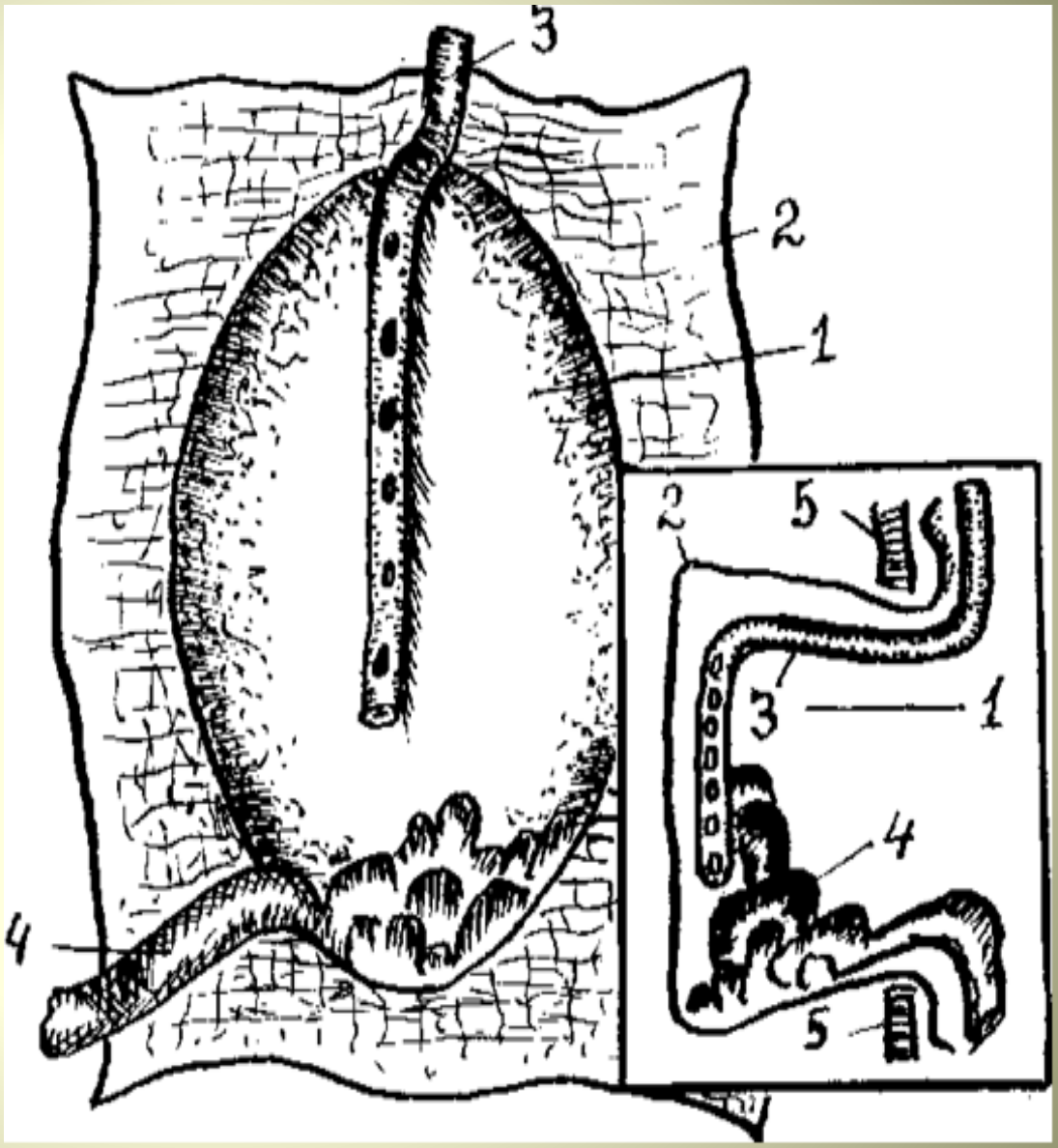
1-bottom of operative wound

2-gauze(matrix)

3-tube for irrigation

4-gauze drainages

5-laparotomy wound margins



Wide plane drainage of abdominal cavity (finishing)

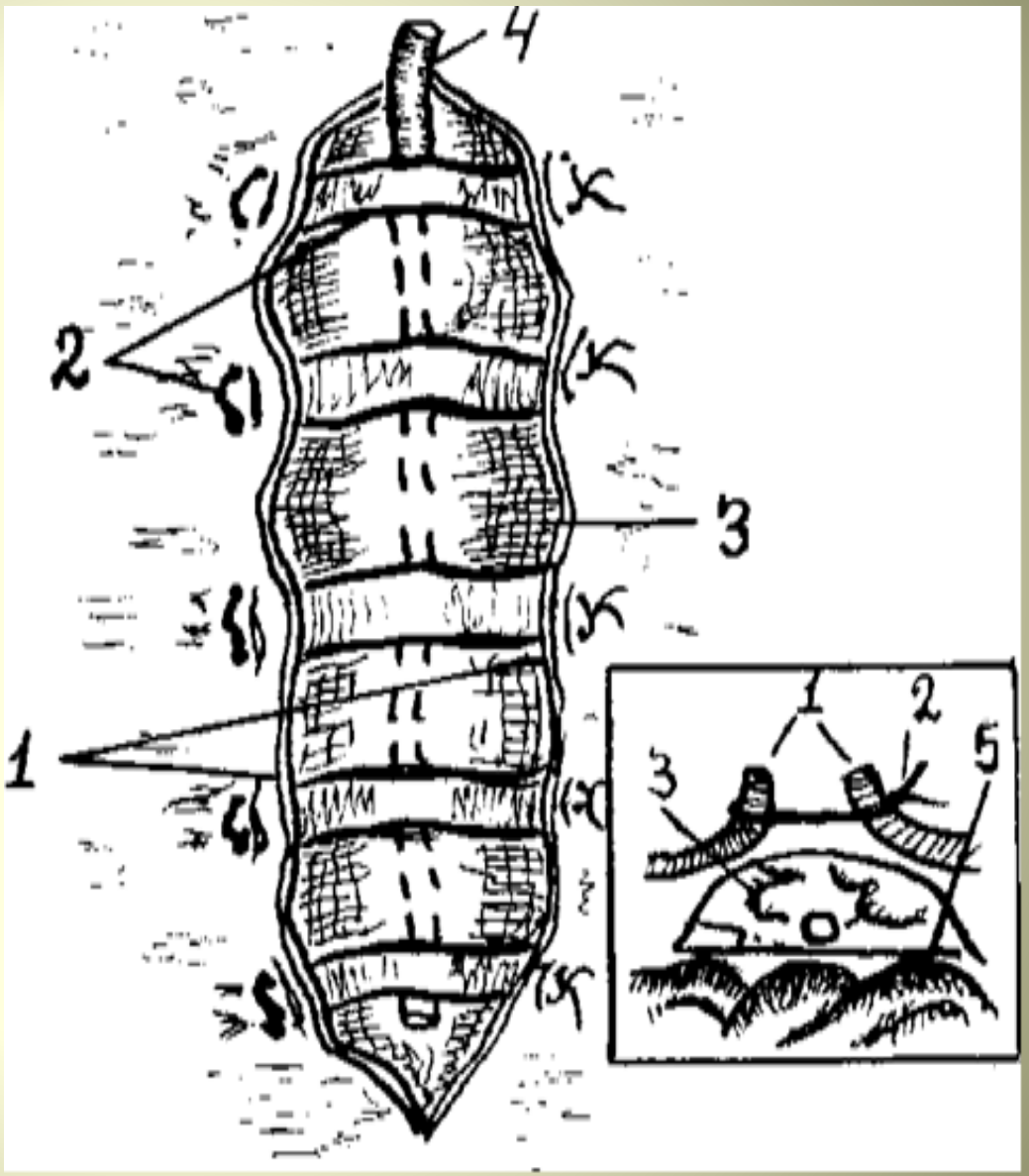
1-laparotomy wound margins

2-sutures on the skin

3-gauze(matrix), which covers drainages

4-tube for irrigation

5-intestines



treatment of peritonitis

Antibacterial therapy is performed by means of intraabdominal and parenteral (intramuscular, intravenous, endolymphatic) ədˈmɪn.ɪ.stin of antibiotics. It is dɪˈzaɪə.rə.bl̩ to use broad-spectrum antibiotics and after results of antibioticogram possible to apply dəˈrekt correction. The antibiotics are ədˈvaɪ.zə.bl̩ to use in combination with sulfanilamides, metrogyl, immunostimulators.

treatment of peritonitis

A ˈstrʌgl against paralytic ileus is a very important in the complex of treatment of peritonitis. It should begin during operation by means of intestinal decompression, mesenteric blockade, gastric lavage, and detoxycation therapy. For restitution of peristalsis used proserin, 10 % solution of sodium chloride, hypertonic enema.

treatment of peritonitis

One of the most important factors in the treatment of peritonitis is the complete restore of the volume of circulating blood, correction of acid-base balance, blood electrolytes, protein metabolism. The total amount of fluid is calculated with account of its loss during vomiting, urinary excretion, drainage dɪsˈtʃɑːdʒ **and also respiration.**

treatment of peritonitis

For energetic compensation ɪnˈfjuːz concentrated solution of glucose, sorbitol and lipid emulsion. Also plasma, ɪˈrɪθ.rəʊ.saɪt and blood transfusions are used.

In order to prevent hypoxia ˈɒk.sɪ.dʒən therapy or hyperbaric oxygenation are əˈplaɪd

THE END

THANK YOU
FOR ATTENTION