**ODESA NATIONAL MEDICAL UNIVERSITY**

**Department of Surgery №3** **with course of neurosurgery**

**METHODOLOGICAL RECOMMENDATIONS 3 THEME STUDY:**

**"** **INJURY OF** **LIFE** **.** **CLOSE INJURY.** **LIFESTYLE AND RISK WARNING** **".**

for students of the Faculty of Dentistry

Approved at the methodical meeting of the department

" 28 " \_\_ \_ 08 \_\_\_ 201 5 р. Minutes No. 1 \_

From av. Department, professor                    AS Sleep

**Odessa** **-** **201** **5**

**Topic of the lesson** **:** " **INJURY OF** **LIFE** **.** **CLOSE INJURY.** **LUNG AND RISK WARNING** . »- 2h

1. **Actuality of theme.**

The severity of the clinical course and the results of traumatic damage to the abdominal organs characterizes this pathology as one of the major causes of urgent surgery. In our man-made age, each year, the number of traumatic injuries increases, and there is no hope for their decrease. Abnormal injuries have been known to surgeons since ancient times, they bring extremely severe physical and mental suffering to patients, and often poses a threat to the lives of patients. In the beginning of the 20th century damage to the abdominal cavity was fatal. But, despite significant achievements in the organization of surgical care for the population, abdominal trauma often ends lethally. Providing surgical care to patients with abdominal trauma remains a complex and not always solvable problem, one of the main roles in which timely diagnosis and emergency transport of patients to the surgical hospital is playing.This is evidenced by the high mortality of patients with abdominal trauma in the Tyumen region (1 place in terms of mortality).

Objectives of the course:

On the basis of knowledge about the pathophysiological processes that occur in the body of the patient with abdominal trauma, etiology, clinics and principles of treatment of patients with this pathology, be able to put and justify a complete clinical diagnosis, conduct preoperative training, and in the future, depending on the clinic and operational findings, to determine the tactics of surgical treatment.

**2. General goals** : To get acquainted with the current state of the pathology and its prevalence.

2.2. Educational goals: To familiarize with the contribution of domestic scientists to the study of the problem of traumatism and the development of the latest methods of diagnosis and treatment; be able to explain to the patient about his condition and convince the need for treatment / including operative /.

2.3. Specific goals:

**- know:**

- Anatomy of the abdominal cavity and retroperitoneum;

- Pathophysiology of the peritoneum

- Clinical abdominal trauma, differential diagnosis of various injuries;

- Fundamentals of preoperative preparation and postoperative management of patients with abdominal trauma.

- Modern methods of treatment of abdominal trauma, their advantages and disadvantages;

- Postoperative complications of abdominal trauma.

2.4. On the basis of theoretical knowledge on the topic:

**- be able to:**

Conduct a clinical examination of a patient with an injury;

To conduct differential diagnostics with other acute surgical diseases;

Read the results of laboratory and instrumental research methods;

Establish and justify a complete clinical diagnosis.

2.5. Have a presentation:

About the course and stages of surgery in case of abdominal trauma;

2.6.Make giving first medical aid to victims at the scene.

**3. Contents of the lesson:**

**3.1.** **Structural-logical scheme of the content of classes;**

**3.2.** **Content of the theme** :

Methodical recommendations on the topic: "Injuries to the abdomen". Contains brief information on the structure, content of the topic, system, form of organization, training goals, equipping classes. For self-study, the most fundamental literature sources on the diagnosis, tactics and treatment of abdominal traumas are proposed. Situational tasks are proposed for controlling the level of students' knowledge.

The questions of the basic disciplines necessary for mastering of the given theme.

1. Normal anatomy:

1) Anatomy of the organs of the abdominal cavity and retroperitoneum;

2) Anatomy of the peritoneum and the anterior abdominal wall.

2. Topographic Anatomy and Operative Surgery:

1. Topographic anatomy of the abdominal cavity and retroperitoneal space;

2. Types of cuts on the abdominal wall with abdominal trauma;

3. Types of intestinal sutures;

4. Rules for performing PHO wounds.

3. Pathophysiology:

1) Pathophysiological changes of the peritoneum and abdominal organs during trauma.

4. Propaedeutics of internal diseases:

1) Methods of physical and laboratory studies of the abdominal cavity 5. Roentgenology:

1) X-ray methods for the study of patients with abdominal trauma (radiography, microscopy).

If patients with damage to the abdominal organs do not provide timely complete surgical care, then the fatal outcome becomes almost inevitable. Spontaneous recovery occurs, but it is accidental, and it can not be predicted in advance that a combination of favorable moments that lead to a successful outcome.

The situation is currently orthodox, however, three quarters of a century ago, it was a chimera. From ancient times, it is possible to trace the evolution of the technique of treating wounds of the head, chest, limbs. Well, "it concerns the wounds of the abdomen, then the data about them is rather fragmentary, and an independent problem" they have not been in the past centuries. The abdominal wounds, of course, were inflicted both during wars and in everyday life. Single recovery after surgical interventions was described, but they met so rarely that on the basis of them could not be created a method of active treatment of abdominal damage. But otherwise it could not be in the anti-septic and anti-anaporous era, when laparotomy was unbearable for the patient and in essence hopeless.

Damage to the abdomen in peacetime occurs relatively rarely, accounting for 0.5-1% of all injuries. In the war, 4-5% of all wounded are diagnosed with abdominal organs damage. Damage to the abdomen is divided into closed and open. In peacetime, locked damage prevails, ranging from 54.2% to 62%.

Closed damage to the abdominal cavity

Closed abdominal injuries are characterized by the integrity of the skin. They originate from a direct impact on the stomach, when falling from a height, from body pressure in landslides and destruction of buildings, from the action of air and water explosive waves. Among the damaged damages are the damage to the abdominal wall and internal organs.

Closed abdominal wall damage

They can be accompanied by severe muscle ruptures and hemorrhage in the subcutaneous and abdominal tissue. When damage to the upper and lower abdominal arteries, hemorrhages can become life-threatening victims. With abdominal wall damage without rupture of the arteries, pulse, respiration, and vomiting are rare. Abdominal pains and tenderness of the abdominal wall are usually observed. The most disturbing symptom is the protective tension of the abdominal muscles. It can be expressed, but in such cases it is often confined to the field of use of force. Unlike damage to the internal organs, this is a local tension in the abdominal wall, which is not accompanied by the symptom of Shchetkin-Blumberg.

In the formation of hematomas in the thickness of the abdominal wall, it is not always easy to distinguish it from infiltrates located in the abdominal cavity. Diagnostic problem is allowed by examination of the abdominal wall at its active voltage at the moment of self-lifting of the patient in bed. Intra-abdominal education ceases to be determined under a tight abdominal wall, while vnutristenochnoe - does not disappear and is quite clearly contoured in the thickness of the abdominal wall.

It is not always easy to distinguish between damage to the abdominal wall and damage to the abdominal organs. A mistake in the diagnosis can lead to dangerous consequences, especially if the patient goes from under the supervision of a surgeon. Therefore, after an abdominal injury, in the presence of pain in any character, the patient should be hospitalized.

Closed damage to the abdominal organs

Allocate damage to hollow and parenchymal organs. Damage to hollow organs is observed in 39.5% of cases, parenchymal-32.8%, damage to the urinary tract in 24.7%, and damage to the vessels or diaphragm in operations-in 3% of cases. Closed internal abdominal damage in 25% of cases is characterized by a combined lesion of organs. In addition, related complications are not rarely observed. The combined damage to the internal organs, as well as the related damage, sharply complicates the course of abdominal damage and greatly affects the incidence of damage to the abdominal cavity organs.

Damage to hollow organs

There are clogging, crushing, partial and complete ruptures of the entire thickness of the body's wall. A voiced body filled with liquid content or a gas blast ruptures more easily than empty. The degree of body filling, especially the liquid content, determines the intensity of the spread of peritonitis. The abdominal wall is heavily damaged by a stomach a lot.

Bursts of intestine are characterized by the presence of hematoma. Hematoma of the small intestine is formed more often in the submucosal layer, as the serous covering of it is closely related to muscle, hematoma of the colon is more common in the serous membrane. Surface hematomas are not dangerous. Hazardous hematomas, even small, but infiltration all the thickness of the blocked wall of the intestine. In such cases, necrosis of the wall is highly probable and dangerous. It leads, more often to 3-5 days, to the sudden development of severe perforation peritonitis.

Damage to the stomach is rare (4,2% of all damaged abdominal cavities). Gaps are more often localized on the front wall, but possible gaps in the area of ​​the bottom and back wall.

The duodenal gut is damaged in 2% of cases. Distinguish the retroperitoneal and intraperitoneal bowel damage. The first ones are characterized by the development of retroperitoneal phlegmon against the background of severe sepsis and subsequent peritonitis.

The small intestine is damaged by 26.2%, and the integrity of the initial and final parts of it is more often disturbed.

Damage to the large intestine occurs in 7.1% of cases. The most dangerous retroperitoneal ruptures are the colon, because when they are revised, they lead to severe phlegmons of retroperitoneal fiber.

The rectum is well protected by the pelvic bones, but its possible discontinuities in case of falling, sharp abdominal pressure, stomach upset, especially in cases where the anus is closed. In case of fractures of the pelvis, the gut is damaged by fragments of the bone. Rectal gaps are almost always observed in the area of ​​the anterior wall.

Damage to the bladder with closed abdominal trauma is divided into internal and intracranial. The incidence of intra-abdominal damage to the bladder, isolated and combined, is 8% of the total number of damaged abdominal organs. In the mechanism of rupture of the bladder, the degree of its filling is of great importance. Urine that flows into a free abdominal cavity leads to the development of peritonitis.

Damage to parenchymal organs

Almost identical frequent lesions of the liver and spleen (16,3-15,4%). With massiveness, brittleness and good fixation of the liver, the lesion of the bladder is almost completely transferred to the tissues of the organ. The spleen is easily torn due to the large blood supply and tenderness of its tissue.Damage to the liver, as well as spleen, occur without disturbing the integrity of the capsule (subcapsular and central hematomas) and with imperfections in the integrity of the capsule (cracks and tears, tears and smashings).

In case of damage to the body without disturbing the integrity of the capsule, if it is small, the initial symptoms are negligible, but later, sometimes in 1-2 weeks, even with a slight muscular effort, a rupture of a capsule with massive hemorrhage in the abdominal cavity may occur - the so-called 2h- phase rupture of the organ (spleen, liver).

Damage to the liver with a violation of the integrity of the capsule can be very diverse - from a small crack to large breaks with the separation of the liver. Clinical course is determined depending on the degree of tissue damage. Small single superficial cracks can almost never be seen clinically. Major breaks, besides the danger of lethal bleeding and biliary peritonitis, cause serious disorders of liver function and sometimes severe intoxication on the basis of absorption of products of decomposition of the liver tissue.

Damage to the liver may be accompanied by ruptures of large bile ducts and gall bladder. They are not very unusual and deserve serious attention. Unrecognized during the operation of biliary tract damage lead to the development of general biliary peritonitis. Isolated lesions of extrahepatic bile ducts and gallbladder are rare.

The damage to the spleen, despite the fact that it is better protected by the ribs and has smaller dimensions than the liver, is often encountered. The soft tissue of the spleen with its large blood supply, and especially in the pathological increase in the organ, is easily broken.

Collapse is a frequent spleen damage spider. It develops immediately after damage to the organ and is characteristic both for acute and for two-phase rupture. With full separation of the spleen from the leg, death occurs quickly. If they have time to deliver the patient to the operating room, then the surgeon has a few minutes in order, without delay, to open the abdominal cavity, to find and clamp the leg of the spleen and to engage in replenishment of blood loss. When spleen tissue ruptures, in most cases during the preoperative preparation, after transfusion of the ampulla of the blood, collapse passes and signs of serious damage to the abdomen complicated by internal blood loss. Clinical picture of rupture of the spleen is determined by internal bleeding. The degree of expressiveness of symptoms depends on the severity of the injury, the time elapsed since the injury, and the compensatory capacity of the body. Fainting, pallor of the skin, cold sweat, frequent small pulse develop immediately after injury. They can be defined as the general reaction to injury without organ breakdown, and internal bleeding. The general reaction is removed in the coming hours. With internal hemorrhage, symptoms persist, and with continued bleeding, they increase. Massive bleeding leads to rapid development of the phenomena of acute blood loss. The degree of severity of symptoms of acute blood loss to a degree depends on the compensatory capacity of the body. In one patient, the phenomenon grows violently, and in another drop in blood pressure and the increase in pulse rate develops slowly.

In order to damage the spleen, besides the symptoms of internal bleeding, quite characteristic pains in the region of the left hypochondrium. Often, pain is given to the shoulder blade and left shoulder. Sufficiently pathognomonic, but not always the symptom of "Wanki-Bastanki". The patient lays on the left side or sits, crouching, with hips pressed to the abdomen. When removing a patient from this position, he immediately strives to take a previous posture and instinctively creates a rest for the damaged area. Respiratory excursions of the left half of the abdominal wall are limited. The abdominal wall is tense. The degree of stress is different, until it is always clearly expressed in the left hypochondrium, and the greatest 'pain' is determined there. When the shock of the abdominal wall is usually not present. Symptom Shchotkina-Bljumberga is often determined throughout the abdomen (but in the left hypochondrium it is always clear, the symptom persists and in shock, but it is only a mimic.In percussion, a dyspnea is established in the left hypochondrium, with a large accumulation of blood in the abdomen the cavity with a change in the position of the body of the patient drowning moves with a change in body position.

If the spleen ruptures with preservation of the capsule, the initial symptoms of injury can quickly pass. The patient comes in a satisfactory condition. Symptoms of subcapsular rupture of the spleen are meager. Stretching the capsule poured into the blood causes pain in the breath, I feel fullness in the left hypochondrium. The severity of these signs depends on the amount of blood, "swollen under the capsule. Pains can be very intense. In some cases, the breaks, especially small ones, proceed well and end with the formation of cysts. In other cases, the capsule rupture occurs unexpectedly and the picture of the internal bleeding of one or another force develops. Two-phase splits of the spleen are described in different terms, up to 2 weeks or more after "primary injury." In this case, any re-injury, and sometimes just a sharp change in body position can lead to a rupture of the capsule.

Pancreas is rarely damaged due to its deep position. With strong blows and compression of the abdomen it crushes on the spine. In the deep position of the gland trauma most often combines with damage to neighboring organs. Damage to elements of the solar plexus causes the development of severe shock. Violation of the whole parenchyma of the gland leads to fatty necrosis and vascular thrombosis.

Damage to the kidneys, isolated and combined, occurs in 16.7% of abdominal damage.

Among the closed damages of the kidneys are distinguished:

1. Surface damage, which includes: subcapsular hematoma with 'minor damage to the renal parenchyma, surface ruptures of the renal parenchyma with a rupture of the fibrous capsule and the formation of prickly hematoma.

2. Deep kidney breaks reaching the cups and bowl and accompanied by significant hemorrhage and urinary infiltration. The latter is developing very quickly if the ureter sealed clots.

3. The crushing kidneys, sometimes dividing it into separate parts. Bleeding at the same time can be very strong and moderate due to thrombosis mashed vessels.

4. Full or partial kidney lead to kidney legs.

Injury to the abdomen

Open injuries - abdominal injuries are stab (knife), and gunshot. In peacetime, in most cases there are stab wounds. Progress them much more easily than closed damages and the more gunshot wounds.

Gunshot wounds of the abdomen is the most severe type of injury because of the vastness of tissue destruction and a large number of complications. The most difficult flow shrapnel wounds.

With gunshot wounds wounds dangerous shot from the shotgun at close range. In such cases, rapid and highly skilled surgical care. Injuries small fraction of long distances with significantly less dangerous.

Open abdominal injuries fall into two main groups - nepronykayuchi and penetrating. The basis of the assigned maintenance or breach of integrity peritoneal cover the belly. Penetrating injury more dangerous, but within both groups of possible injuries of varying severity. By penetrating wounds include favorable flow peritoneal leaf damage only, however, with intact peritoneal cover damages .vnutrennyh bodies. Its penetrating abdominal injuries account for 75% -25% nepronykayuchi.

Nepronykayuchi injured abdomen. In nepronykayuchyh abdominal injuries most of the damaged abdominal wall. However, it is possible damage to the stomach. These include pozaocherevynni injury sabretache colon, kidney, blood vessels and bruises intraperitoneal rupture of the stomach "at a distance" indirect action of firing a projectile. In practice, all these injuries are usually treated as a penetrating injury.

Penetrating abdominal injury

Penetrating abdominal wounds are rarely isolated. Often there are combined organ damage. Practically it is important that only 50% of gunshot wounds entrance wound localized opening in the abdominal wall, the other half injury inlet is on the chest, lumbar, sacral region, the buttocks and thighs.

Intra-abdominal injuries are divided into wound hollow and parenchymal organs.

Diagnosis of abdominal injury

For any injury of the abdomen can ignore the danger of death, so the diagnosis should be made as soon as possible. The main problem is not recognizing the damage of an organ of the abdomen, and the establishment of indications for urgent surgery. In all circumstances the time factor plays a crucial role in rescuing the wounded with injuries of the abdomen.

Injury of abdominal diverse in nature, location and volume of lesions, resulting in different clinical characteristics of them. Determined by the severity of the shock, hemorrhage and peritonitis.

Shock-characteristic condition of patients with damage to the stomach. He observed 72% of IB penetrating wounds of the abdomen. However, the shock may not be the apparent "damage to the stomach and lesions develop in just the abdominal wall. Rate shock in abdominal organ damage varies within wide 'range. In addition to the nature of the injury, type of transport, duration and timing of transportation in the hospital, 'great importance neuro-psychological and physical condition of the victim at the time of injury. It defines a large share of the body's response to trauma, injury clinic and effectiveness of treatment.

Bleeding is crucial in the current shock. peritonitis, and hence the 'injury cases. The accumulation of blood in the stomach to some extent noted in 80.4% of cases. Number poured into the abdominal cavity blood is a measure of the severity of injury and its flow.

With extensive destruction of parenchymal organs and massive blood loss immediately following the injury develops collapse. If the blood loss is compatible with life after a while comes a temporary compensation. An examination of the victim has been a sharp pallor, cold .pot, convulsive twitching of muscles often had 1puls, a sharp drop in blood pressure. This extreme degree of internal bleeding. Developed with compensation for temporary and unstable.

Compensation bleeding is caused by rapid breathing, tachycardia acceleration of blood flow, reducing peripheral arteries and veins to the mobilization of blood from the depot and the "flow of tissue fluid in the bloodstream. For small blood loss compensatory mechanisms quickly reduced vascular tone, volume and speed of blood circulation. This restoration of flow of fluid from the tissues belongs essential role. Determination of hemoglobin and number of erythrocytes IB earlier terms did not give a complete picture of the extent of blood loss, blood thinners comes later.

Corpuscular volume is determined by centrifugation of blood in capillary tubes. Normally in a healthy human red blood cells constitute 42-46% and plasma - 54-58% of blood volume. Determining the amount of red blood cells and the proportion of blood is of great clinical significance. Reducing the total volume of red blood cells and specific âåñà drop of blood at blood loss' come quickly. After 4-6 hours after the injury observed decrease of red blood cells. the intensity decrease their volume indicates the degree of blood loss.

Peritonitis - develops in one way or another (degree of damage in all organs of the abdomen. The most pronounced its development if damaged hollow organs.

The survey has just arrived wounded in the stomach should begin to assess its general condition and behavior.

Symptoms with absolute certainty indicate injury of the abdomen, no. Diagnosis is based on the evaluation of general and local symptoms.

Symptoms of damage to the stomach numerous. They can be divided into two groups. The first group includes the initial symptoms of the peritoneum, manifested in the form of defensive reactions. The second group - symptoms of peritonitis develops.

Early symptoms of peritoneal syndrome combined into initial signs of peritoneal this syndrome include mainly three symptoms: abdominal tension, its non-participation in breathing and SHCHetkina-Blumberg symptom.

Finger study rectal necessary in all cases. Having .krovy vials are indisputable sign of damage to the rectum. In some cases, even when highly placed colon injuries on fingers detected blood. The presence of blood in the rectum installed more than wound holes in it; last in some cases are not available for thumb or hidden in the folds of mucous membrane and are not detected due to the small size. Damage to the rectum can be applied shards of broken pelvic bones. Digital examination in such cases are severe bone chips located in close proximity to the bowel wall, 'or perforyruyuschye it. Power abdominal wall, its non-participation in breathing,SHCHetkina positive symptom-Blumberg and tenderness are combined initial and reliable syndromes with peritoneal lesions stomach. In the presence of this syndrome indications for immediate surgery can not be disputed, and other symptoms of wait no reason.

The pain occurs when damaged abdomen, usually, but it is not always evidence of damage to the abdominal cavity.

Trauma - an act instantly. It is often perceived as a strong, dull staggering blow. Pain develop somewhat later and can be very intense. In a state of shock and blood loss in the perception of pain is reduced, and the heavier the shock, the less pronounced pain symptom. Gradually progressive pain with convincing evidence of permeable nature of the injury.

The frequency and filling of pulse characteristics are most loyal to assess the general condition of the victim. In the first hours after the injury of the abdomen can be uryazhen pulse 60-80 beats per minute. When degradation, further development of peritonitis there is increased heart rate, which is steadily growing. Even more important for symptom assessment of the injured are filling ratio pulse; its completeness before changing frequencies. Rapidly progressive reduction of filling pulse indicates the severity of the wounded. Satisfactory filling rate, even at a frequency of 120 beats per minute, can be regarded as a favorable prognostic sign.

Big heart rate - a sign of peritonitis, but often spilled when the operation much can not wait. A large pulse with short time elapsed after the injury, is a poor prognostic sign. Inverse relationship, ie moderate Increased heart rate at considerable time after injury, shows a small lesion or distinguishing inflammation.

Dry language is often an early sign of peritonitis. However, the lack of dry speech in any way does not speak against starting peritonitis. In wounded in the stomach in some cases language humidity is kept long.

Great diagnostic value has the form of oral mucosa and conjunctiva. Pale mucous membranes suggests a degree of internal bleeding and the depth of shock. In more severe cases, mucous membrane color takes cyanotic shade.

Percussion determination of liver dullness is important in the diagnosis of abdominal injuries. Its absence may be a sign of penetrating wounds. More accurate is the X-rays to determine the presence of free gas in the abdominal cavity. When wounds colon and stomach presence of free gas under the dome of the diaphragm is almost a rule.

Blunting percussion sound flat abdomen indicates the presence of free fluid in the abdomen (blood, gastrointestinal contents, bile, urine, fluid). Often this symptom observed in the liver and spleen injuries with extensive hemorrhage into the abdominal cavity.

Nausea and vomiting are frequent, but not constant symptoms. Usually they poya1vlyayutsya when damage to the stomach is not in doubt. Delay of the chair and gases with peritonitis is quite significant symptoms, but rather late and prognostic determinant for diffuse peritonitis and indicates the development of intestinal muscle paralysis. Diagnostic same respect in the first 6-18 hours after injury, this feature is not critical.

Blood in the urine is an indisputable sign of injury to the urinary tract. When a clot or blockage of the ureter at its full dissolution of blood in the urine can not be. Significantly to diagnose, but very unstable urine is a sign of .ranы. Begins urinary infiltration is determined over the pubis and the perineum.

In all cases where the clinical signs are not sufficient to confirm or reject the damage to the stomach, doubts may be possible in three ways: observation, debridement and laparotomy. Observations of the victim may decide the diagnosis and assess the situation. But the danger waiting can not diminish. You can watch, but not passively wait for the development of symptoms, as you may lose time for successful intervention.

The second option for diagnosing issues with open abdominal injuries are debridement abdominal wall. However, experience shows that the progress of the wound channel (in the muscles of the abdominal wall during surgery easily lost, which could lead to a false diagnosis.

The most sure way to solve diagnostic test is doubt laparotomy. It should be borne in mind that attempt to examine the abdominal cavity with a small incision, usually is defective. Diagnostic laparotomy should be done with the middle section of sufficient length, only under this condition it is the most accurate and least traumatic.

Features of treatment of patients with associated abdominal injuries

Damage to abdominal organs are absolute indication for emergency surgery regardless of the nature of other components combined injury. Only long profuznoe intrapleural bleeding, massive rupture of the lung tissue, bronchial gap, increasing intracranial hematoma is competing diagnoses that cause not initially conduct the operation on the organs of the abdomen.

Surgery for abdominal organ damage (if it is not continued vnutrybryushnom bleeding) should be carried out after obtaining the effect of complex antishock measures.

Pain in modern conditions should be shared with the mandatory use of muscle relaxants.

Surgical access. An essential condition for successful operation on the injury of the abdomen is a wide abdominal incision. In the analysis revealed during such operations (on large clinical material research institute emergency them. NV. Sklifosofskiy) tactical errors found that 78% of these errors were due to insufficient cut the abdominal wall. Narrow access does not allow for a complete revision and requires a set of intra manipulation, especially in the presence of flatulence.

When surgery for injuries of the abdomen in all cases shall apply universal access-wide median laparotomy. In the absence of clear data on intra precise localization of damage should be srednesredynnuyu laparotomy. Incision of abdominal wall after previous revisions if necessary extend up or down. With difficulty manipulation damaged right lobe of the liver, spleen, diaphragm deep-seated divisions median laparotomy incision should translate into the type of Rio Branco. To do this, from the lower angle of the wound incision laparotomnoy kosolateralno and continue upwards along the intercostal and lumbar nerves, while crossing the rectus abdominis.

Much attention should be given careful isolation laparotomnoy wounds, prevent pollution containing infected abdominal cavity. After dissection of the aponeurosis otseparyrovanoho well before dissection peritoneum (when no operation is performed on the ongoing internal bleeding) we filed all over to the edge of aponeurosis individual nodes seams multilayer gauze othorazhyvayuschuyu subcutaneous fat layer and skin. Floor napkins are folded several times sheet (or towel), which fix clamps Mykulychi dissected peritoneum.

Revision of the abdominal cavity. With the opening of the abdominal cavity and sometimes it reveal accumulation of gas or liquid contents, indicating the nature of the damage. If there is a significant accumulation of blood often indicates a rupture of the liver, spleen, mesentery of the small intestine, blood is collected in sterile scoop sterile dishes, adding to it the necessary amount of 4% solution of sodium citrate. In the absence of damage to hollow bodies and signs of infection after a blood test for hemolysis (centrifugation) reynfuzyruyut. Identified exudate, pus, intestinal contents, urine is removed using electric pumps, being careful not to contaminate them circumference of the surgical field.

The absence of abdominal intestinal contents is not always a possibility only on this basis to exclude damage to the intestine. In some cases, the gap to the area of ​​the small intestine is attached and the adjacent intestinal loop reflex paresis due to intestinal contents for some time hardly enters the abdominal cavity. Therefore, each emergency laparotomy careful examination should always be subjected to all parts of the intestine.

When closed abdominal trauma most often suffers small intestine. If you find a defect of the intestinal wall ulcer wound closed slightly moistened swab, which firmly holds the assistant with a damaged loop of intestine, preventing further leakage of intestinal contents portions. Taking all measures to ongoing revision does not cause pollution to other parts of the abdomen. If the audit should reveal the peritoneum intestinal need to mobilize the duodenum by Kocher section of intestine peritoneum along the edge and carefully examine the back wall. vyvshaya

Signs of damage are prosvechyvayuschee duodenum through bile peritoneal leaf color, puffiness, ymbybytsyya blood, emphysema (gas bubbles) of the retroperitoneal fat gut. Intraoperative entering the duodenum to probe methylene blue solution facilitates diagnosis. The presence of hematoma in pancreatoduodenal zone and fundamentally ripples transverse colon can be a sign of damage to the pancreas as well. In such cases a complete audit trail to penetrate through the digestive colon bundle in omental, the peritoneum cut along the top edge of the pancreas and explore it. The large hematoma in the area of ​​a kidney requires dissecting the peritoneum to audit the kidney and its vascular legs.

Finding the gas bubbles in the lateral parts of the retroperitoneal space and dingy colors available there hematoma can be suspected rupture of the posterior wall of the ascending or descending colon. In such cases, the peritoneum cut along the lateral channel and mobilize located mezoperitonealno Department intestine.

Large hard retroperitoneal hematoma can result from very rarely observed in blunt trauma gap

After inspecting the intestines, bladder, inspection and palpation of the entire liver, spleen, palpation of both mandatory dome diaphragm perform a thorough audit of the retroperitoneal space. Hematoma ripples located near the intestinal wall, as these hematomas may result from rupture the bowel wall in an area located between two bryushynnыmy leaves. Neobnaruzhenye this gap may be the cause of death of the patient.

Eliminating lead from kidney vascular legs should first revise the transition area iliac vessels in the pelvis (known cases of rupture of blood vessels by direct impact, prydavlyvayuschem them to a relatively sharp bone edges unmarked line).

In the presence of pelvic fractures large retroperitoneal hematoma and sometimes there is no damage to major vessels.

Naturally, the data preoperative examination of the patient should largely guide the search for intraoperative pathology. However, the revision in all cases must be complete, or may remain undetected related serious injury.

General information about intestinal seam. If the damage is hollow organs of the abdominal cavity, if the operation is not completed withdrawal of intestinal stoma, there is a need identified suturing wounds or bowel resection with anastomosis overlay. In these cases, use some form of intestinal suture.

Hand intestinal suture. Most surgeons during routine and emergency operations in the stomach and intestines prefer the familiar, which became a standard double-row suture intestinal Lambert - Alberta. In this first series, usually impose kethutovoy continuous thread, which is poured after each stitch so the seam does not weaken and become hemostatychnыm. However hemostatychnist achieved thus causing ischemia broad band sewn fabrics, which affects the process of regeneration. In addition, upon application seam on the front lip mucosa anastomosis poorly dressed body lumen and its edges between the individual stitches thread inevitably prolabyruyut out. After the imposition of the second row of stitches areas poorly seasoned mucous covered walls of sewn and are in a confined space between the two rows of stitches.This leads to inflammation of the formation microabscesses in the thick seam.

Although good tightness created technically correct shipping second (sero-muscular) suture, and provides most of the healing, but the seam-Albert Lambert must recognize not perfect. If the planned operation failure of the seam (except colon) develops relatively rare, when interference on traumatic damage to the intestinal combined trauma (t. E. When interventions are performed usually at a relatively later date, the contamination of the abdominal cavity and greatly weakened by trauma and shock patients) seam-Albert Lambert poses a serious threat. With operations in the colon after the imposition of joint and in planning operations is often observed failure of the joint. Not only in trauma, but also for other operations on the stomach and intestines, we strongly recommend using another type of double row intestinal suture, using first-line method Pirogov.

NI Pirogov suggested imposing row seam sew serous membrane and muscle, holding the needle at the edge of the mucosa. Recommended VP Mateschukom (1951) tying the knots of the lumen facilitates the discharge of the yarn and is a valuable improvement suture Pirogov.

However, any type of node-row suture premature cutting of at least one base metal, solving at least one of the many knots can lead to disaster. That this should be explained t ^ t the fact that quite a focal physiologic row suture Pirogov - Mateshuka using relatively few surgeons. At the same time the use of second-line seam makes the safe keeping all advantages of a seam Pirogov. This node seam can be successfully replaced by a continuous ketgutovyh but without flashing mucosa.

Imposing recommending such joint exercise follows. For the planned opening lines (or section) stitched together conduct of sharp scalpel incisions and muscular serous membrane to the submucosal layer. Ligated vessels submucosal layer using obkalyvanie their kethutovoy needle with a thin thread. You can use nerozsmoktuvalnym and material, as well as postoperative ligature rejected the lumen of the body. After opening the mucosa close to the continuous catgut ligatures impose obvivnym simple suture anastomosis on both lips so that were stitched serous membrane and muscular with submucosal layer. After submucosal layer needle should pass near the edge of the mucosa.

Remember that 75% of the strength of the bowel wall is provided submucosal layer. Neproshyvanye mucosa is practically not affect the mechanical strength of the seam.

The mucous membrane continuous seam ketgutovyh imposed on the basis of N. Pirogov, never prolabuye between the walls and the edges of its good contact with each other. Maximum noninvasive and thoroughness of the imposition of the seam, as evidenced by our experimental observations provide the healing of moderate inflammatory reaction. Even a number of the seam could provide healing intestinal wounds, but for greater security we always impose the second row. The second row of stitches may be a hub silk and continuous use of fine chrome catgut. If possible, it is best to use atravmatycheskymy needles. We prefer to apply first the inner (first) row of stitches on the back and front lip anastomosis, covering it then circulatory second row seam.

An indispensable condition for imposing anastomosis should be to ensure the total absence of tension sewn s body art. In the event of tension necessary to mobilize more or resort to the filing bodies to a particular abdominal wall sutures, relieve tension in the zone of anastomosis.

Recommended type double row stitching seam without mucosal we have experienced in many hundreds of operations. It eliminates most of the shortcomings inherent in a standard two-row and single row suture Pirogov Mathes eshuka, increasing at the same time their advantages. The failure of this type of seam (as phenomena anastomositis) at its technically correct imposition and without prior peritonitis occurs rarely.

This seam we recommend the imposition of a anatomozov and suturing wounds in the intestine and stomach.

Mechanical seam. Reduce the time it takes to impose anastomosis can use at home suturing devices PPP-25, CC-28, vocational school, NZHKA. In addition, these devices enable the well to form anastomosis even when executing novice surgeon.

However, the use of suturing devices need not preclude the imposition of the second row a plain stitch, hand sero-muscular suture. In addition, every seam, is it thread by hand or mechanically connecting tissue with metal staples, along the channel formed around suture material and inevitably soobschayuschehosya with the lumen of the hollow body leakage always occurs infected contents into the thick of the ' yednuvalnyh tissues. This inevitably leads to more or less pronounced inflammatory process in any type of intestinal suture.

Said lack of intestinal suture with no compression connecting hollow organs based on the action long compression fabrics. This principle was well known connections late last and early this century and widely used in the application of a button Murphy and its modifications. However, the technical possibilities of the period were not allowed to remove a number of negative features compressing designs. The emergence of new modern materials and modern technology level of compression again make use of the connection tissue urgent task.

In the Research Institute of Emergency them. NV. N. Sklifosovsky Kanshin (1972) in collaboration with a group of designers and aprobuvaly developed new types of devices, allowing impose anastomoses using the principle of long-term compression.

For imposing on colon anastomosis designed device that is light ring compressing elements snabzhenыe prokalыvayuschymy and locking pins shock absorbers. Three replaceable head system to overlay anastomoses three different diameters (from a wide anastomosis for rectal ampoule to a relatively narrow yleokoloanastomoza). Engineering application of this device is different from the use of PPP-25, CC-28 and vocational school, besides not having mandatory imposition of additional sero-hand circular muscle suture.

The needles pierce the tissue compressing elements connected in the zone, which is exposed to compression under the influence of shock absorbers, and rejected mumyfytsyruetsya with sdavlyvayuschymy elements into the lumen through the intestinal tube 7-9 days after surgery. Fusion tissue occurs in the intestinal walls collision outside the zone compression. Because of crushed tissue infection can penetrate the seam zone, so in that developed only minimal inflammatory response.

When using the device for the imposition of colonic anastomoses must follow to squeeze diameter smaller than the diameter of the rings was a cross-section of intestine. You must install the device in the desired variable head, whose diameter corresponds to the diameter of the squeeze ring.

Connections on the basis of tissue compression with subsequent rejection crushed tissue can be obtained and when imposing anastomosis using conventional devices, suturing intestinal walls with metal clips. For this purpose Kanshin N. (1976) proposed to strengthen the working surfaces sshyvayuschey of staff elastic pads.

The ends of the metal clips at the time of insertion pierce the first one pad and then the walls of both body and finally the second pad. Going further, the end clips under the influence of special profile of the holes hard and fixed machine bent pads in position, retains compression achieved in between the walls connected bodies. Besides the fact that this type seam at the seam there is aseptically performed well and perfect hemostasis, which is using suturing devices without gaskets is not always reliable.

For circular apparatus (vocational school, PPP-25, CC-28) Kanshynыm N. (1977) was a special attachment that allows you to remove stubborn head after insertion hole through a ring gaskets without dismantling the instrument. The device can be used to NZHKA imposition of anastomosis gaskets without using any complicated additional devices.

On the suturing of the device NZHKA gasket (the strip of plastic film) can be strengthened with thin rubber homutkov, prytyskuyut pads to the metal at the base Branche outside location staples.

After the rejection crushed and deprived of blood supply to tissues, soft gaskets (rings, plate) easily migrate along with the clips in the digestive tract, standing out in 8 - 12 days after surgery the natural way out. In the anastomosis is not any foreign bodies that can support the inflammatory process.

Damage hollow organs.

As with the closed and open when injury appears most frequently injured transverse colon, second in frequency takes sigmoid colon damage, third-ascending and descending. The rectum is damaged relatively rare.

Upon detection of colon vnutrystenochnoy hematoma hematoma zone should dip into the fold of the intestinal wall using gray-serous sutures.

If injuries do not penetrate the intestine (serous and muscular rupture membranes) wound ushyvayut nodal silk sutures or continuous ketgutovyh sero-muscular suture.

Tactics in penetrating colon rupture should be different depending on the period of time since the injury, and the severity of the associated inflammatory response peritoneum.

During the operation produced the first 6-7 hours after the injury in the absence of pronounced signs of purulent peritonitis wounds do not apply to the mesenteric edge of the bowel are subject to closure (wound edges smashed it should whip out obkalыvanyem vascular submucosal layer). At wounds that apply to the mesenteric region, as well as many wounds located on one intestinal loop, or if a wound large extent damaged section of intestine should rezekuvaty overlay anastomosis hand seam (without flashing mucosa!) End-to-end or mechanical anastomosis end to end or end to side.

Mechanical anastomosis devices may be imposed KC-28, vocational school, or NZHKA Kanshyna apparatus. When damaged resection sigmoid device inserted through the anus and impose anastomosis end-to-end methodology used at the front resection of the rectum.

If necessary rezekuvaty ascending or descending colon should be all over the respective side channel along the intestine and peritoneum cut bluntly separated from the intestine posterior abdominal wall, thus providing large intestine motility. Blood supply gut is not broken. To report a similar free mobility of the transverse colon must cross (between ligatures) gastro-colon to separate bundle or last gut with greater omentum.

Intestinal rezetsyruyut, perezhav its pre Kocher clamps. Then, removing the clip located on the leading end of the intestine, imposing circular sero-muscular (kysetnyy) kethutovыy seam and outlet end of the intestine sewed kethutovoy thread clamp surrounding stitches, as do while taking in duodenal stump with gastrectomy. Removing Kocher clamp, thread stitches nezatyanutыe more relaxing between them in the intestine impose a particular staplers without hard head. At a distance of 5- 10 cm from the end wall of the intestine pierce rod system and establish a persistent head. Remove the clip about the end of the intestine, is introduced into this end of the head staplers and tighten kysetnyy seam.

After cutting excess suture thread kysetnoho bring together heads of staff to appear on the device control rod skobochnoho hole (using apparatus Kanshyna produce convergence heads all the way). Produce and stapling device removed. Delays obvivnym stitches to suture loop outlet, thereby closing the intestine. One of the ends of the thread impose a second (sero-muscular) series seam. Additionally impose several key top silk sutures.

When using the device duzhkovym create the second row of stitches anastomosis. When applying the anastomosis using the apparatus can be limited to 2-4 Kanshyna support sero-muscular sutures imposed outside location compressing elements.

In operation performed in conditions of peritonitis, suturing wounds and colon anastomosis imposing too often lead to failure of joints even when forming unloading intestinal ostomy. When peritonitis tend not leave the intestinal sutures in the abdominal cavity. Used occasionally intestinal suturing wounds vshyvanyem bowel loops wound in the abdominal wall in terms of peritonitis rarely leads to success, as the seams are cut in a few days, the wound suppurate abdominal wall and bowel fistula with the new slips into the abdominal cavity.

Moving intestine with peritonitis in terms stitched wound in his pocket zacherevnyy usually also does not help the patient.

When peritonitis damaged area protyvobrыzheechnoy wall of the colon must be printed on the anterior abdominal wall (through a special cut) as a colostomy, using techniques recommended in the double-barreled imposing unnatural anus. Abdominal incision should be small, corresponding deduced drawn out twice intestinal loops. When intestinal loop must be fed with a rubber tube introduced her dense core.

If inactive damaged part of the intestine, it should mobilize, as colon must be removed outside without any tension.

When wound, mesenteric exciting part of the intestine, the intestinal tube must traverse both ends and bring it to the front abdominal wall through two narrow kontraperturы. However, the mere filing of the walls of the intestine to the skin edges in terms of peritonitis seams can quickly prorizatysya. Therefore deduced intestine can plunge into the abdominal cavity. For the prevention of this serious complication we have developed special tactics output intestine.

When peritonitis before crossing (or resection) guts we pinch it Kocher clamps and cross on the edge of the clamp. To intestinal content does not pollute the operating field while displaying guts, he and the other end is to temporarily ushyvaem. You can cross the gut apparatus NZHKA with silicone gaskets. Then pieces of intestine to be output wipe solution yodonata. Output gut (through a small counterpuncture) should be at least 5 to 6 cm above the skin.

Bred end of the intestine freely without peretyskayuchy its lumen, surrounded by several rounds gauze pad whose width should match the length of the displayed areas of the intestine. To set up around the gut clutch kept solidity, surface tour gauze fix seams to be separate layers. Then remove the intestine derived from temporary seam disclose gut and filed its circular socket as the top of the gauze sleeve.

Once again emphasize that gauze sleeve must not violate derived permeability of the intestine.

Thus, the gut appears not fixed to the skin, and high above it to the gauze. Clutches we do not remove long as the colon is not zrostetsya of the anterior abdominal wall.

When fistula formed in this way become operational, in the early days of the plastic bag immersed kalopryemnyka deduced intestine with gauze sleeve.

When executing important that the hole in the abdominal wall strictly consistent diameter deduced intestine. When excessive bowel hole will coalesce with bad abdominal wall and next to it can happen эventratsyya other intestinal loops. When excessively narrow hole except lumen compression, would be impaired blood flow to the intestine; arising as a result of the pronounced swelling of the intestinal wall contribute to the gradual traction additional sections of intestine from the abdominal cavity outside.

In identifying postoperative edema growing deduced intestine is necessary under local anesthesia somewhat expand the hole in the abdominal wall (which fully applies to the output proboscis small intestine).

In the presence of the above indications for resection of the colon in conditions of peritonitis (after resection) instead of imposing anastomosis should bring out both its end by the method described above. Leave abdominal stitched tightly outlet end of the intestine with peritonitis dangerous.

If the damage in terms of colon peritonitis should cross the sigmoid and bring out separately both its end, as double-barreled imposing unnatural anus not completely exclude the possibility of entering the rectum intestinal contents. The edges of the wound similarly disconnected rectum is advisable to combine multiple seams, fyksyrovav one of them end dvuhprosvetnoy silicone tubes intended for the aspiration of flushing. And wound up with peritonitis should protect against abdominal swabs.

In some cases, such tactics can be used in the localization of damage in other parts of the low-mobility colon, intestine when mobilization is difficult. This operation must combine with section rolling department bowel above the area of ​​damage to output outside both ends by the method described above.

2. Damage to the small intestine. Surgical management of lesions of the small intestine should not significantly different from the above tactics recommended by us with the trauma of the colon. Thus, the intervention produced to develop peritonitis (for small intestine during the first 18 hours, and sometimes longer), you can resort to suturing wounds or the resection of the bowel anastomosis overlay. Unlike colon damage the small intestine is sometimes on some over isolated from the ripples that an indication for resection of the bowel area deprived of blood supply.

In the presence of purulent peritonitis suturing wounds of the small intestine, much less impose anastomosis almost always ends with an adverse outcome. Thus, of the 16 victims have in our institute in terms of peritonitis was imposed enteric anastomosis, 12 died as a result of failure stitches. Therefore, when expressed purulent peritonitis we consider it necessary to withdraw intestinal stoma is damaged not just Tolstoy, but the small intestine.

This tactic is unlikely to cause someone objections if damaged terminal ileum, as a constant final yleostomoy can live for many years. At the same time full of high intestinal fistula seemingly incompatible with life and should lead to fast depletion, electrolyte shifts and irreversible death of the patient. However, as shown by a number of our observations, technically correctly imposed artificial end fistula even the initial section of the small intestine during rdda special measures and implementation of well-organized patient care not only leads to death, but with severe peritonitis caused by damage to the intestine, is the only way save the patient's life.Drive and removes rough end of the small intestine should be removed in two through hobotkov located a short distance from each other kontraperturы and gauze to fix the clutch, as described above (see. See "Damage to the colon").

In cross-bowel loop outlet should make a soft (preferably thin-walled sylokonovuyu) tube, which later used for disposal released from the top of the stoma chyme. Conventional medical tube of red rubber is not suitable for this purpose, since peritonitis may cause bedsore penetrating the small intestine, which we observed in our practice.

When, after reduction under the influence of the therapy to become operational manifestations of peritonitis top fistula content obtained from it during the day repeatedly injected at the bottom fistula. The longer proboscis removed the top fistula, the easier to collect his selection in the film ostomy pouching system. For ease of recycling chyme soft tube introduced in allocating a loop of intestine, can be connected with a hose that runs from the crater, fortified medical tripod (Fig. 40).

For elimination pronounced paresis of the gastrointestinal tract of the patient can begin to feed liquid food continuing to enter the lower exhaust all the content allocated overhead fistula. If peritonitis can not cope, then after some time (3 weeks after surgery) can restore the continuity of the digestive tract surgery.

Gaps duodenum discussed in the section on injuries of the retroperitoneal space. 3. Gaps stomach. Damage to the gastric blunt trauma are rare and usually relate to or cardia gastric body. In practice often have to deal with knife and gunshot wounds of the body. Rupture of the stomach may occur while the diaphragm rupture. The wound of the stomach should take in hand bifariamous seam.

4. Damaged and I gallbladder. Strain serous membrane gallbladder sewed on a thin thread atraumatic needle. When the through its dissolution should take a typical cholecystectomy. Uncomplicated cholecystectomy does not require a supply of tampons. But by remote gallbladder bed must install a silicone tube with side holes, holding its end to stuffing the hole. The other end of the tube through the puncture of the abdominal wall displays outside.

In the absence of the discharge tube was removed 2 days after surgery.

5. Damage to the urinary puzы ovarian cancer. Such damage often be combined with fractures of the pelvis usually can not diagnose before surgery. At the time of the events in protivoshokovym damaged urinary bladder WMO should be a permanent catheter.

In intra-abdominal wound of the bladder before suturing must carefully inspect the inner surface of the body to exclude additional injuries. If the wound does not pass to vnebryushynnuyu of the bladder, it can take in bifariamous seam (proshyvayuchy submucosal layer) without imposing эpytsystostomы, limiting the use of early postoperative indwelling catheters.

Vnebryushnoy wounds of the bladder, in addition to closure, require the imposition of mandatory drainage and эpytsystostomы okolopuzыrnoy fiber. Instead, used in the past by drainage okolopuzыrnoy fiber Buyal'skiy - Mc Uorteru with conducting rubber tube through the hole zapyratelnoe can use dvuhprosvetnыm silicone neprysasыvayuschymsya drainage conducted through a puncture of the abdominal wall or drainage of mykrokanalom washing. Permanent postoperative aspiration prevent the development of urinary zatokiv.

Damage parenchymal organs.

1. Damage to the spleen. If the stab wounds sometimes it is possible to take in the wound spleen, then the rupture caused by blunt trauma, as a rule, should be splenectomy. In the absence of contraindications spend reynfuzyyu poured into the abdominal cavity blood.

2. Damage to the liver. Closed liver damage usually divided into damage without violating the integrity of the capsule (contusion, subcapsular hematoma, deep hematoma of the liver) and in violation of the integrity of the capsule (rupture, separation of the body, crushing), specifying accompanied or damage of parenchymal hemorrhage or bleeding from large vessels .

The most frequently observed rupture of liver tissue (usually upper surface). In 20% of observed crushing, 25% - podkapsulnыe and intrahepatic hematoma.

The main task in surgery on the liver damage is stop the bleeding and remove non-viable liver tissue.

Surface (depth of 1- 2 cm ) crack, do not give bleeding, do not require suturing. Deeper damage proetsyruyuschyesya not to undergo major hepatic vessels, nodes ketgutovyh sewed seams, pre lyhyrovav found bleeding vessels. It is desirable to capture stitches put in the wound area well krovosnabzhennoho greater omentum (omentum flap isolated not be used because, nekrotyzyruyas, it may promote infection).

When suturing are very curved barbed needle that allows the entire thickness of full flash and bottom edges of the wound. Leaving neushytыh cavities ( "dead spaces") leads to the formation of intrahepatic hematomas give further serious complications. To not prorizuvalysya seams, and tied them to delay until after the final imposition of stitches. Assistant brings finger wound edges and surgeon tying stitches alternately tightening them not too tight.

In the presence of broken edges of excised wounds on the type of surgical treatment, removing all non-viable tissue. Bleeding vessels open and intrahepatic bile ducts ligated.

If you can not quickly stop the massive bleeding from the blood vessels of the liver, hepatic be pinched duodenal connection by entering finger in the gland opening. By reducing the degree of compression, detect and ligated liver bleeding vessels. Term shutdown liver blood flow should not exceed 10 minutes. In rare necessary to extend this term has occasionally stop compression, restoring a while patency of the portal vein and hepatic artery.

Broad wound formed after excision of tissue is broken, often can not take in the way described above. After careful hemostasis the wound can cover greater omentum, fyksyrovav it to the wound edges slightly zatyahyvaemыmy seams and placing under seal perforated (preferably two or translucent) silicone tube for the outflow of blood and bile in the postoperative period.

For use in liver rupture gauze swabs, very popular in the past, now the attitude has changed dramatically. It tampons are often the main cause of severe postoperative complications (recurrence of bleeding, festering) and the death of the patient. By tamponyrovanyyu gauze can go as extreme measure only if it is impossible to stop the bleeding by other methods. However, the temporary use of intraoperative swabs moistened with hot isotonic sodium chloride solution is convenient and rational techniques.

Until recently there was wide admiration Resection, lobэktomyyamy with liver injury should be treated critically, not overly expanding the scale of operations, particularly in patients with combined trauma. It should seek to remove non-viable tissue and stop the bleeding. Lobectomy to achieve this is necessary in a very small number of victims. Great help in determining the scope of intervention allows selective angiography.

The operation to end mandatory supply of brine silicone drain the liver that is removed only after complete cessation of discharge him.

Damage of the retroperitoneal space.

1. Damage to the duodenum. Rupture of the retroperitoneal duodenum often has cross direction. Sometimes there is a complete transverse rupture intestine. After economical excision wound edges impose double-row suture. At full circular rupture impose anastomosis end to end. Peritoneal colon sewed on possible perytonezyruya Li Niya her joints. In the retroperitoneal space through the bowels, peritoneal side of the colon establish dvuhprosvetnuyu silicone tube constant aspiration of flushing. The free end of the tube withdrawn out through the puncture of the abdominal wall to the right of the middle section. Care should be taken that the drainage tube is not faced with a line of stitches on the gut. In the duodenum transnazalno (or type gastrostomy mi) injected probe for decompression.

When the surgeon uncertainty in the reliability of the duodenum imposed on the joints, besides draining retroperitoneal fat and overlay mykrohastrostomы establishment of the duodenum relatively mild drainage tube has side openings must cross the initial section of the small intestine and, departing at 50 to 70 cm from intersection, to impose a shaped anastomosis on the Roux. The free end cross-gut should be removed in the left upper quadrant as the ultimate stoma (eyunostoma for Maidla Parish). Eyunos-Volume allows full enteral feeding, bypassing the duodenum and simultaneously utilize chyme, aspyryruemыy of the duodenum.

If there is a large defect wall of the duodenum, which is difficult to take in the usual way in the early stages of this defect can anastomozyrovat loop of jejunum.

With intervention, which occurred in a later date, when it turns abscess retroperitoneal fat, simple suturing wounds or ulcers on her anastomozyrovanye jejunum and not promising prognosis tends to be unfavorable. In a desperate operation can recommend entering the intestine through a wound not prysasыvayuscheysya dvuhprosvetnoy tube for continuous aspiration in the postoperative period. The wound gut bifariamous should sew seam to the tube.

The second drainage tube (dvuhprosvetnuyu for continuous aspiration with flushing) set in the region nahnoyvsheysya retroperitoneal hematoma. Rear leaf carefully sewed peritoneum (preferably with strengthening lines of stitches gland) and put on eyunostomu Maidla Parish.

In the absence of special Winternitz hose can use two simple rubber tube ends are put on the spur of the two glass tee. In the machine of the tube on which is prysmoktuvaty air, cut some small side holes. When washing periodically disconnecting electric pumps can be used for infusion prysasыvayuschuyu up with it in different parts of the abdominal cavity fluid from the vessel, attached to a high tripod.

Suitable for washing all that is in the sterile operating fluid (Furacilinum, novocaine or isotonic sodium chloride solution), which is not to cause hypothermia patient must first warmed to body temperature.

Under no washing, no draining at the abdomen, peritoneum can not be wiped with gauze. When washing delicate underwater light rubbing contaminated visceral and parietal peritoneum can be carried out only finger in a rubber glove, removing the unstable fixed with peritoneal contaminated imposition of fibrin, a little "propoliskuyuchy" intestinal loops in a lot of liquid. We specifically pay attention to this issue in view of the fact that in the peritoneum peritonitis injury will occur much more difficult.

Pierce the abdominal wall should not perpendicularly, but obliquely to the tube without inflection at an acute angle penetrated the abdominal cavity in the right direction. The skin around the tube proshyvayutsya strong thread and fix it up, which can be worn as a rubber clamp.

Gauze pads permissible to install in the abdomen just hard to stop capillary bleeding continued and in extremely rare cases, specific indications, when, for example, separating them securely disconnected ushytuyu wound rectum.

With peritonitis should also drain the stomach and small intestine original. For this purpose transnazalno injected into the stomach relatively thin tube that has multiple side holes. Namatsavshy probe arm through the wall of the stomach, the surgeon helps direct it into the duodenum. Assistance lean probe in the gut may submit a proposal Voykova BA (1972) set in the lumen of the probe multiple thin metal rings that provide these parts of stiffness. Capturing fingers through the wall of the stomach, and intestine, these dense areas, the probe can easily spend Treyttsa links below.

Side openings in the wall of the probe aspiration allow both the jejunum, so both the stomach from the duodenum.

Laparotomnoy suturing wounds. Vshyvaty wound laparotomnuyu necessary in the presence of complete muscle relaxation. First put on the navel aponeurosis 2-3 nodal seam and then ushyvayut continuous filament kethutovoy peritoneum. For aponeurosis suturing is necessary that its edges were well otseparovanы of subcutaneous fat layer, as bad collision sewn aponevrotychnoyi tissue interposition of adipose tissue creates the risk of postoperative эventratsyy.

One of the reasons is also эventratsyy insertion of only one median aponeurosis without needles lateral fusion zone front and rear walls of the vagina rectus abdominis muscle. Middle aponeurosis, especially in its large width, relatively easily splits in the transverse direction, in the same division on its front and back walls of the vagina rectus abdominis muscle is a complex web of fibers, preventing cutting threads.

When suturing aponeurosis below the navel, in an area where there is no direct posterior vaginal wall muscle during surgery for the injury, given the inevitable postoperative abdominal distention, it is appropriate to impose 8-shaped seams less prone to eruption.

In underdeveloped subcutaneous fat layer and moderate pollution abdomen can recommend the imposition of skin petlevydnыh (vertical matratsnыh) Donati stitches with which both sewed seams removable subcutaneous fat layer and skin. In the seam for reliable elimination cavity in the subcutaneous fat layer must capture aponeurosis. Node unlike conventional skin suture is placed near the seam line, not in place vkola needle.

When expressed, especially of excessive subcutaneous fat layer in patients with damage to the hollow organs of the abdomen is always a high risk laparotomnoy festering wounds. One of the most effective methods to prevent festering in such cases is draining subcutaneous fat layer in Redon constant aspiration in the early postoperative period. At the same time the wound stitched wound was evacuated secret (blood, tissue fluid), which is a good breeding ground for microorganisms and is one of the main factors contributing to the development of postoperative suppurations. No "graduates" can never provide complete removal inevitably accumulates in wounds and content. Creates a wound in long-term aspiration of dilution also facilitates the closing of its walls, acting as a wall of the syringe towards the wound sterile liquid, easy to wash annular drainage. When you remove the ring one end of the drainage cross at his skin that comes with a removal of skin sutures.

Features of treatment in the postoperative period. Affected operated without peritonitis, permitting other components of combined injuries, must soon step up in bed, allowing you to sit in 1-2 days after surgery.

Timing of feeding depends on the location of intra damage and reverse the rate of postoperative paresis stomach and intestines. Closure in early lesions and iliac colon allows (in the absence of pronounced paresis) to appoint small portions of the liquid the next day after surgery. If drinking during the first days does not cause stagnation and vomiting, then we can begin to feed liquid food.

General therapeutic measures and infusion tera - Pius made by the nature full amount of damages for a conventional surgery indications.

When using a modified drainage Redon (or annular drainage) through a puncture rubber tube 2-3 times a day administered by syringe sterile liquid (Furacilinum etc.), thus carrying out irrigation main channel drainage. In contaminated wounds can be administered antiseptic or antibiotic solution temporarily, to create exposure peretyskayuchy with a hose, in which the aspiration.

Remove Redon drainage should be no earlier than 2 days after surgery.

As part of this book lacks the ability to elaborate the entire complex treatment. held at peritonitis. When traumatic peritonitis treatment is not fundamentally different from other treatment of diffuse peritonitis, including peritonitis appendicular origin.

A patient with peritonitis in the postoperative period should be in a position with raised head end of the bed. Unfortunately, according to the known demand surgery is often neglected. Removing content tonkokyshechnoyi transnazalnomu probe in such a position of the patient should be carried out by means of a long aspiration with low dilution.

In the absence of a hospital environment for continuous accurate control of the level of electrolytes in the body and environment in the drilling fluid, we do not recommend the use of classical peritoneal dialysis. Excretion of toxic products in these cases appropriately performed using forced diuresis.

Introduced into the abdominal cavity mykroyrryhatorы to use for periodic exposure to an antibiotic solution.

Most popular now new broad-spectrum antibiotics. However, although penicillin has long been considered an effective tool not influence the microflora vыsevaemuyu with peritonitis, when entering it into the abdominal cavity (with intervals of 3-4 hours) to 24 000 000-30 000 000 IU per day with simultaneous intramuscular 8000000 - 16000000 units per day, we repeatedly sought treatment in patients with severe peritonitis.

Conventional methods of diagnosing bacterial environments without the use of special and complex anaerobic chambers, unfortunately, does not give a complete picture of the association of microorganisms that cause peritonitis, resulting in the treatment of peritonitis no information about the sensitivity to antibiotics. Therefore rely solely on determining susceptibility to microorganisms form vыsevaemoy not always true.

In any case, large doses of penicillin in the treatment of peritonitis often give a clear positive effect is not always clear to data obtained about sensitivity.

Benzylpenicillin can be combined with semisynthetic penicillins.

What antibiotics have not been applied, enter them into the abdominal cavity should be pretty dilution, a large amount of solvent in the first place that the solution penetrated all parts of the abdominal cavity, secondly, that excessively high concentration of the antibiotic did not cause peritoneal irritation. In position Fovlera fluid and injected into the abdominal cavity fluid gradually flows down to the pelvis. For active for removing fluid described above through-drain to one end of its constant aspiration podlyuchayut rendered using эlektrovybrootsosa. Thus through the other end of the drainage tube supplied air to prevent prisasyvanija lateral drainage holes adjacent structures. Not disabling aspiration drainage tube periodically washed with sterile liquid.

In the treatment of severe peritonitis should be used the full range of modern facilities. SRI ambulance name MV. Sklifosovsky we use forced diuresis, drainage thoracic lymph duct in the neck with a return into the bloodstream purified lymph. Individually assign infusion therapy, immune therapy, parenteral nutrition, including a complete set of amino acids, fat emulsion. We produce electrical stimulation of intestinal peristalsis, while reducing the pronounced paresis assign slow early introduction to probe a lean gut adjustment salt solutions of similar concentration to the intestinal chyme, enter the nutrient mixture. Patients used hyperbaric oxygen therapy, physiotherapy, etc.

The treatment of local complications. When festering wounds laparotomnoy (as with festering almost any other wounds) we gave up the traditional breeding of plugging the wound edges. Instead, the entire length of the wound nahnoyvsheysya set dvuhprosvetnymi silicone drainage, wide channel which has a small lateral openings. In the narrow channel tube introducing needle connected to a drip system health. Great feed tube with a glass adapter connects with a hose going to the capacitance of the negative pressure.

In the absence of special dvuhprosvetnoy drainage tube can use ordinary silicone tube entering its thin dense enough clearance mikroirrihator. Tightness is achieved while holding mykroyrryhatora a tube through a glass tee rubber sleeve as shown.

For a relatively small cavity nahnoyvsheysya wound continuously aspiration (using эlektrovybrootsosa) on a wide canal dvuhprosvetnoy tube while the constant drip infusion of sterile fluid through a thin channel. Continuous irrigation drainage tube prevents its blockage: As fluid accumulation immediately removed along with the drilling fluid in the system of tubes in a sealed glass jar.

For large purulent cavities with fluid evacuation detachment tissue formed from lateral spurs may be insufficient. In these cases, we use fractional washing not only the drainage tube, but also the purulent cavity, filling it periodically promыvnыm solution. Especially important method takes in patients with combined trauma when immobilized patient with the presence of fractures of the spine, extremities, prolonged coma dramatically complicates treatment tampon use, requiring frequent changes of dressings.

If aspiration treatment of ulcers abdominal desirable to use non-conventional эlektrovyb rootsosom, giving dilution procedure 120- 140 cm of water. c., and created on its basis LL Lavrynovych aspirator, which allows to accurately adjust the parameters of dilution. If dilution in excess of 50 cm of water. c., to the intestinal wall suction holes drainage tube can cause intestinal perforation and fistula development.

In the absence of adjustable suction level of vacuum in the cavity intra-abdominal abscess should be introduced neprysasыvayuschuyusya drainage tube, the design of which is described above.

Aspiration of washing we have repeatedly and successfully used during open abdominal abscess in intestinal fistula. Dvuhprosvetnaya drainage tube thus should have a diameter slightly larger than normal.

In the event of failure in the postoperative period stitched seams or joints intestinal anastomotic wound shows relaparotomy emergency. The symptoms of this complication are often blurred and often manifested increasing intoxication, tachycardia, diffuse abdominal pain, intestinal paresis in the absence of muscle tension and with clearly distinct symptom SHCHetkina - Blumberg.

Tactics in insolvency seams should be the same as during the initial operation produced about intestinal damage in the later stages, when already developed peritonitis. Once again I emphasize that with purulent peritonitis should not resort to closure defects intestine. In the abdomen with peritonitis should remain intact intestinal loops only.

In conclusion, we emphasize that the treatment of purulent processes by impermeable drainage to irrigation and aspiration needed experience known and extremely conscientious attitude to the duties of all medical personnel involved in treating the patient.

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**Teaching materials was ace. A. clerks**

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