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EXPERIENCE IN PERFORMING PUNCTURE AND DRAINAGE MINI-INVASIVE INTERVENTIONS UNDER ULTRASOUND CONTROL IN THE DIAGNOSIS AND TREATMENT OF ABDOMINAL DISEASES AND POSTOPERATIVE COMPLICATIONS. Review

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Resume. The article presents a description of the main puncture and drainage interventions, indicating the method of their implementation, techniques, materials used for their implementation. The own experience of application of the specified minimally invasive interventions in treatment of a syndrome of mechanical jaundice of benign and malignant genesis, acute cholecystitis, acute pancreatitis and its complications, hepatic abscesses, limited liquid accumulations of an abdominal cavity and retroperitoneal space is described. The advantages and disadvantages are noted, a comparative assessment is made and recommendations are given for the use of different puncture and drainage interventions depending on the type of pathology in which they are used.

Keywords: mechanical jaundice, endobiliary interventions, percutaneous-transhepatic cholangiostomy, percutaneous-transhepatic cholecystostomy, postoperative fluid accumulations.

An important achievement of the twentieth century was the widespread introduction of new technologies in medicine, including surgery. Traditional operations have been replaced by minimally invasive minimally invasive laparoscopic, X-ray endovascular, endoscopic and percutaneous interventions, which can significantly affect the results of treatment of a wide range of surgical diseases [6, 7]. The combination of ultrasound imaging with invasive interventions has been called ultrasound diapeutics in the scientific literature. It took years to overcome the traditionally conservative psychology of surgeons to achieve recognition of the effectiveness of puncture-drainage invasions of the biliary tract, limited fluid and purulent foci of the liver, pancreas and abdomen under ultrasound control [10, 11].

Most invasive percutaneous interventions are performed under the control of ultrasonic devices equipped with convex and linear sensors 3.5 MHz - 5 MHz, using puncture nozzles or the method of «free hand» (free hand method) and are used mainly for punctures and drainage of large demarcated fluid cavity, pleural cavities, liver biopsy, percutaneous endobiliary interventions [11, 13].

An important advantage of ultrasound-guided percutaneous interventions over X-ray-controlled interventions is the absence of significant radiation exposure to the patient and medical staff, as well as the possibility of dynamic monitoring of the patient.

Invasive interventions on the technique of execution are divided into punctures and drainage, which, in turn, is divided into two-moment and one-moment. Two-stage

drainage includes drainage according to Seldinger's method, one-stage drainage includes stiletto catheter drainage and trocar method.

For punctures flexible needles of various design, 15-25 centimeters long, with a diameter of 16-23 g (1,6-0,6 mm) are used. The choice of design, diameter and length of the needle depends on the purpose and intended depth of the puncture. The flexibility and fineness of the needle allow you to puncture organs that are in physiological motion without any significant risk of damage. Needles with diameters of 16-19 g (1.6-1.1 mm) are used for punctures of liquid formations. For this purpose, Chibs needles are most often used, which are a hollow structure, ultrasonic visualization of which is achieved by the presence of a mixture of air, liquid and tissues in its lumen. Its tip is visualized as a single echo. All invasive interventions are performed under local anesthesia in accordance with the rules of asepsis and antiseptics, less often (in children and restless patients) - under short-term intravenous anesthesia [5, 7, 8].

Various modifications of X-ray contrast catheters are used for percutaneous drainage, most often with the help of outer diameters of lumens 5-15 F on the Charrier scale (corresponds to 1.7-5.0 mm), approximately on the type of «pigtail» with white holes; catheter styles are used for one-stage drainage (Fig. 1). The drainage kit also includes angiographic flexible conductors of various diameters, up to 70 centimeters long (straight and J-type) and soft plastic dilators with a central channel of increasing diameter (7-10 F) to expand the lumen of the channel to the required drainage. Nowadays, disposable sterile kits

Fig. 1. Set for a through catheter (1 - a catheter like Pigtail, 2 - a direct catheter, 3 - a two-component needle).

(needle, conductor, drainage, additional accessories) of various foreign manufacturers (Cook, Somatex, Balton, etc.) are widely used [6, 7].

For the endoprosthesis of the biliary tract uses a set developed by prof. Ivshin VG (Fig. 2), as well as metal mesh braided stents with Wallstent memory with Permalume coating (without WallFlex coating) and delivery system Unistep Plus (Boston Scientific, USA) and Hanarostent Biliary Non-covered, Shim-Hanarostent covered and Hanarostent Biliary

Hilar (MI Tech, Korea) complete with a delivery device with a diameter of 8-10 mm, a length of 50-120 mm (Fig. 3).

Fig. 2. Set for endoprosthesis of bile ducts (A, B, C, D - endoprosthesis for the right lobe of the liver; D - endoprosthesis for the left lobe of the liver; E - angiographic flexible conductor; F - screwdriver)

Fig. 3. Set for endobiliary stenting Hanarostent Biliary (M.I. Tech, Korea) and kit for endobiliary stenting Wallstent (Boston Scientific, USA)

Preparation of patients is carried out according to the generally accepted method for ultrasound examinations. Punctures are performed in the position of the patient on his back or side in accordance with the rules of asepsis under local anesthesia.

The contents obtained by puncture or drainage are subject to cytological, biochemical, bacteriological examination, determination of sensitivity to antibiotics, etc.

In recent decades, in most industrialized countries of the world there has been a steady increase in the incidence

and prevalence of gallstones, especially its complicated forms (choledocholithiasis, mechanical jaundice, acute cholecystitis, purulent cholangitis, stricture of the terminal duodenal cholecystitis etc.), damage and strictures of the bile ducts, benign and malignant tumors of the pancreas, duodenum, bile ducts, liver, etc., which usually also cause obstruction of the biliary tract with the development of mechanical jaundice, purulent cholangitis and other complications (in 20.1- 80.5% of patients with choledocholithiasis, 30-50% - with tumor lesions of the

hepatopancreatoduodenal area, 50-7.20% - with strictures of the extrahepatic bile ducts, etc.) [1, 2, 6, 8].

Mechanical jaundice - is a symptom complex caused by disruption of the natural passage of bile due to obstruction of the biliary tract of benign or tumor origin, which results in cholestasis, biliary hypertension, microcirculation disorders, dystrophy and focal necrosis in the liver parenchyma leading to liver failure. , barrier, synthetic and other liver functions, as well as progressive toxemia due to the entry of toxic products of bile breakdown into the systemic bloodstream, microbial contamination and translocation of intestinal microflora into the portal system with the subsequent implementation of multiorgan failure syndrome, which is one of the most common causes of death [6].

In 23.4-50.1% of patients with MJ (Mechanical Jaundice) is accompanied by purulent cholangitis, which is a consequence of prolonged cholestasis. Given the real threat of the spread of the inflammatory process to numerous, even the smallest bile ducts, acute cholangitis can be manifested by a septic condition, which in biliary hypertension often causes the development of intrahepatic cholangiogenic abscesses, biliary sepsis, resulting in high mortality, resulting in high mortality. data from various authors, in the range of 12.1-31.3%. Its main cause in this category of patients is progressive liver and kidney failure [6, 14].

With complete biliary obstruction of any genesis, rapidly progressing intraductal hypertension is accompanied by the rapid development of endotoxemia, purulent cholangitis, biliary sepsis, bacterial-toxic shock, progressive hepato-renal failure, which necessitates the urgent implementation of surgical with serious metabolic disorders in 50% or more causes death [13, 14, 16].

Today, according to most leading biliary surgeons in the world, the method of choice in the surgical treatment of patients with MJ (Mechanical Jaundice) benign and tumor origin is a two-stage surgical tactic, which involves performing in the first stage of decompression of the biliary tract one of the minimally invasive (endoscopic retrograde or transdermal) in combination with active conservative therapy, and at the II stage - radical surgical intervention aimed at eliminating the main cause of biliary hypertension.

Decompression of the biliary tract is the most important stage in the treatment of severe forms of MJ (Mechanical Jaundice). The nature of the main disease of the Hepatoduodenal area, which led to the development of MJ (Mechanical Jaundice), and its location are crucial in choosing the method and method of restoring bile passage, the arsenal of which in recent decades, especially with the introduction of endoscopic and antegrade endobiliary technology has increased significantly.

Since the mid-1970s, endoscopic retrograde interventions have taken the leading place in the diagnosis and treatment of choledocholithiasis, primarily endoscopic retrograde cholecystopancreatography with

endoscopic papillosphincterotomy (over 30 years). For the first time this method of minimally invasive biliary decompression, independently of each other, was performed in 1974 in Germany by M.Classen and L.Demling, as well as in Japan by K.Kawai and co-workers. This low-trauma, highly effective and relatively close to physiological intervention quickly became widespread in most of the world's leading surgical clinics. In recent decades, in order to decompress the biliary tract and eliminate biliary hypertension, it is performed in 72.4-85.2% of patients with MJ (Mechanical Jaundice) due to choledocholithiasis, limited strictures of the terminal choledochus, duodenum, chronic indurative pancreatitis and more. However, the use of this technique is limited by high rates of complications and mortality, which are 3.3-8.8% and 0.4-1.3%, respectively. The most severe of them are bleeding from papillotomy (1.4-4.0%), the development of acute cholangitis, pancreatitis (0.9-6.3%), perforation of the duodenum (0.2-0.5%), requiring immediate open surgery to correct complications and others [3, 6, 7].

At the present stage of development of biliary surgery, among the various methods of biliary decompression, one of the leading places is beginning to be occupied through skin and transhepatic techniques of reproduction of the biliary tract under ultrasound control. Among them, the most common is due to cutaneous-hepatic cholangiostomy, the results are shown in MJ (Mechanical Jaundice) with high and medium registration of bile flow (choledocholithiasis, strictures, training and tumors of the main bile ducts, duodenum, pancreas, etc.).

Performing cutaneous-hepatic cholangiostomy is a priority in cicatricial stricture of the distal choledochus in combination with purulent cholangitis, which allows for antegrade rehabilitation of bile ducts and their preparation for subsequent dilatation of the stricture, endoprosthesis or stenting [7, 9, 10]. Increasingly common in biliary surgery for MJ (Mechanical Jaundice), acute cholecystitis is cutaneous-hepatic cholangiostomy for biliary decompression, as well as rehabilitation of the gallbladder in patients with extremely severe somatic condition, which becomes an obstacle to more complex surgery [12, 15, 16, 17] (Fig. 5).

Antegrade percutaneous-transhepatic endobiliary interventions are a set of minimally invasive techniques, each of which involves solving a specific diagnostic or therapeutic goal, and their use in various combinations - to eliminate MJ (Mechanical Jaundice) and prepare for palliative or radical treatment of patients, and may be the final method of treatment inoperable patients with malignant lesions of the hepatopancreatoduodenal area.

These techniques differ favorably from open surgical interventions with laparotomy access with low trauma, lower incidence of complications. The use of antegrade endobiliary interventions makes it possible to perform cholangiography, which allows to determine the level, length and nature of obstruction of the biliary tract.

Fig. 4. Percutaneous-transhepatic cholangiostomy under ultrasound control

Fig. 5. Percutaneous-transhepatic cholecystostomy under ultrasound control

Therefore, endobiliary puncture interventions are divided into diagnostic and therapeutic, among which there are:

1. Percutaneous-transhepatic puncture cholangiography;
2. Multivariate percutaneous-transhepatic cholangiostomy;
3. Percutaneous-transhepatic cholecystostomy;
4. Antegrade bile duct endoprosthesis;
5. Antegrade stenting of the bile ducts.

Depending on the direction of bile drainage (outside or in the lumen of the gastrointestinal tract) after the intervention, as well as taking into account the time interval (duration) - simultaneously or delayed, there are:

1. External drainage.
2. One-time internal drainage.
3. Delayed internal drainage.

Performing percutaneous-transhepatic cholecystostomy under ultrasound control, according to most biliary surgeons, is a priority in the localization of the biliary block distal to the confluence of the gallbladder into the common bile, provided that the patency of the first of them under the following conditions (Fig. 6.):

- with slight dilatation of the bile ducts, which complicates the performance of percutaneous-hepatic cholangiostomy;
- with a significant increase in the size of the gallbladder;
- with a perfect fit of the gallbladder to the lower surface of the liver.

The method of performing percutaneous-transhepatic cholecystostomy under ultrasound control, which is successful in the vast majority of patients, is a simple and minimally traumatic method of biliary tract drainage, which can be effectively used in inoperable patients with MJ at high risk of any other surgery to provide temporary or permanent decompression of the biliary tract.

In patients with MJ (Mechanical Jaundice) tumor origin, which is due to different in nature and prevalence of malignant neoplasms, the tactics of antegrade endobiliary interventions involve achieving biliary decompression during the preparation of the patient for

Fig. 6. Percutaneous-transhepatic cholecystostomy, fistulography. Cholelithiasis, a stone of the distal choledochus

radical or palliative surgery (or may be the final method of treatment).

Irrespective of the reasons which have caused MJ (Mechanical Jaundice), medical tactics usually assume performance of antegrade external drainage (ED) of bilious channels. After achieving biliary decompression, the mode of ED can be switched to the mode of internal drainage (ID). In 1978, F. Burcharth proposed a method of transpapillary antegrade endoprosthesis, and subsequently introduced endobiliary ante- and retrograde

Fig. 7. Percutaneous-transhepatic cholecystostomy, fistulography. Cancer of the head of the pancreas with a block at the level of the upper third of the choledochus

prosthesis of the bile ducts under X-ray television, ultrasound or choledochoscopic control.

Biliary prostheses are a segment of a polymer tube made of synthetic materials - Teflon, polyurethane and other materials of sufficient length to restore the passage of bile into the duodenum from the part of the choledochus, which is above the site of obstruction. Teflon and polyurethane endoprotheses have better characteristics (better slip, inlay resistance, etc.).

Endoprosthesis (EP) of the bile ducts is performed in order to restore the natural passage of bile in the gastrointestinal tract, eliminate the inconvenience of catheter drainage and improve the quality of life of the patient (Fig. 8).

Indications for EP are:

1. predicted life expectancy of patients with malignant tumors of the biliopancreatoduodenal area, not more than 6 months;
2. old age, and / or exhaustion, and / or severe condition of the patient;
3. complete pathomorphosis of a malignant tumor after radiation therapy or combination therapy.

Endoprosthesis has a number of advantages over external drainage of the biliary tract:

- no risk of complications, educational injections of the proximal end of the drainage of the external (pain, infection of the wound at the injection and fixation of drainage, bile infection and the development of cholangitis, dislocation or accidental removal of drainage of another);
- no need for daily repeated inspection for drainage and the place of its introduction;
- lack of negative psychological impact on the patient by reminding him of the presence of permanent drainage, serious illness and future surgery;
- ensuring a more efficient digestive process by restoring the physiological passage of bile into the duodenum.

The accumulated experience in the use of antegrade endoprosthesis and stenting of the biliary tract indicates their high efficiency as a method of restoring bile outflow in MJ of benign and tumor origin. In some cases, arthroplasty is an alternative to palliative surgery, which is especially important for elderly and senile patients with metastatic cancer of the pancreas, duodenum, etc.

Antegrade decompression of the bile ducts allows to eliminate cholemia in 90% of patients, exceeds the results of the surgical method in terms of complications, mortality, life expectancy, reduces the patient's stay in the hospital. Until recently, mortality from complications of interventional drainage of the bile ducts reached 20-30% of cases, in recent years did not exceed 3-4.2%, which was made possible by improving the technique of interventions and the quality of postoperative care.

Thus, in wide clinical practice today many effective methods of antegrade decompression of a biliary tract

at MJ (Mechanical Jaundice) of any genesis are widely enough used.

Among the problems of emergency surgery of the abdominal cavity, one of the leading places is acute cholecystitis (AC), which is second only to acute appendicitis. Its frequency, at present, reaches 17-18% of all cases of diseases of the abdominal cavity, which necessitate emergency surgery [16, 17]. About 40% of such patients are people older than 60 years. Although today the algorithm of surgical tactics in the treatment of this pathology is clearly defined, which provides priority for cholecystectomy, the question of determining the amount of primary surgery in elderly and senile patients with severe comorbidities, which causes the progression of the syndrome of mutual burden significantly increases the operational and anesthetic risk [14, 18]. The situation is complicated by the rapid increase in destructive changes in the gallbladder, which further exacerbates the already serious condition of patients. Effective in such cases is the decompression of the biliary tract due to percutaneous-transhepatic cholecystostomy in patients with preserved patency of the vesical duct (Fig. 9).

Fig. 9. Microcholecystostomy in a patient with acute calculous cholecystitis, gallbladder empyema

Most intensively, in recent years, percutaneous interventions in combination with video laparoscopic and other minimally invasive interventions are used in the treatment of complications of acute destructive pancreatitis, dramatically changing the situation in the tactics of management and treatment of this pathology.

Acute pancreatitis is one of the most severe in the clinical course and consequences of surgical diseases of the abdominal cavity, which is still accompanied by high mortality (25-41%), which does not tend to decrease due to the complexity of pathogenesis, difficulties in diagnosis and treatment. 18% of patients with acute destructive pancreatitis develop phlegmon of the retroperitoneal space, 10% - pseudocyst of the pancreas, 5% have bleeding into the cavity of the omental sac with the formation of hematomas, 1-9% - an abscess is

Fig. 8. Stages of antegrade endobiliary stenting in a patient with Klatskin's tumor (1 - percutaneous-transhepatic cholangiostomy; 2 - tumor recanalization; 3 - delayed external-internal drainage; 4 - stent installed in the common hepatic duct; 5 - computed tomography after 2 months after stenting)

formed. Crucial in the treatment of this pathology is the timely implementation of adequate surgery [4, 8, 10, 11]. However, today there is no single concept in determining the timing and scope. Most researchers are inclined to think about the ineffectiveness of early laparotomies, which in most cases usually end in simple drainage of the omental sac, abdominal cavity and retroperitoneal space. On the other hand, the rapid development of endogenous intoxication syndrome and, as a consequence, the threat of such a formidable complication as multiple organ failure, force the surgeon to perform surgery with a significant risk to the patient's life. Based on the above, a possible way to solve this problem, in parallel with intensive care, is to perform percutaneous minimally invasive interventions under ultrasound control, which can mostly ensure the aseptic nature of pancreatic necrosis, reduce the possibility of bacterial translocation to the destruction zone.

The appearance of effusion in the parapaneuric zone in acute pancreatitis, in combination with unclear course of the disease, is an indication for percutaneous puncture followed by examination of the aspirate to determine the aseptic or infected phase of the disease. The following cytological, bacteriological and biochemical researches allow to establish the diagnosis with accuracy to 100%, to correct medical tactics at various stages of development of acute pancreatitis, to predict and prevent development of various complications.

In edematous acute pancreatitis, percutaneous interventions are used only for diagnostic purposes (obtaining an aspirate for laboratory tests), as well as to combat severe pain (chemical denervation by alcoholization of the solar plexus).

Puncture techniques for limited complications of acute pancreatitis are used:

1. As a method of radical treatment of delimited retroperitoneal inflows, phlegmon, abscesses and cysts.
2. As a stage of preparation for the next radical surgical treatment.

One of the most serious and formidable complications of acute pancreatitis is the formation of false cysts of pancreatogenic origin. If surgical tactics in the case of formed pancreatic cysts are quite clearly defined today, in the case of unformed pseudocysts the possibility and necessity of their surgical treatment have been actively discussed recently. If until recently the indications for the use of diabetic technology were traditionally considered suppuration, compression, pain and biliary syndromes, a rapid increase in the size of the cyst, recently a growing number of pancreatologists are inclined to believe that the question of timing of surgery to diagnose acute pancreatitis decided in favor of its puncture and drainage, even in the uncomplicated course of the cyst. It is during the formation of the cyst capsule (3-6 months) most often the development of life-threatening complications (suppuration, bleeding).

Pseudocysts of small volume (50-350 ml) and diameter (6-7 cm) can be cured by aspiration-puncture method, regardless of the nature of the pathological process (infected or aseptic). Typically, a small volume of pseudocyst indicates no connection to the pancreatic duct (Fig. 10).

Drainage of cysts at an earlier date can prevent potentially life-threatening complications (rupture of the pseudocyst with the appearance of its contents in the abdominal cavity, bleeding into the cyst cavity, suppuration of the cyst).

Transcutaneous treatment interventions and established pseudocysts may be effective if they have no connection to the ductal system of the gland.

Fig. 10. Puncture of the cyst of the head of the pancreas

Purulent complications of necrotic pancreatitis remain the leading cause of death in this disease. As the echosemiotics of pancreatic necrosis and its complications have been studied in depth, the first reports of the possibility of ultrasound-guided puncture interventions in limited purulent postnecrotic formations have emerged.

Percutaneous interventions are relatively safe, highly effective in the diagnosis and treatment of patients with extensive purulent-inflammatory processes of the pancreas, allow to obtain good results in the treatment of patients at increased surgical risk, and in some cases avoid surgical treatment or relaparotomies.

Quite often phlegmons of retroperitoneal tissue, by the end of the 2nd week of their development, cause the formation of small or large intestinal fistulas. Prior to the introduction into clinical practice of minimally invasive techniques that allow X-ray examination of foci of destruction of retroperitoneal tissue, intestinal fistulas were considered rare complications of destructive pancreatitis. The use of percutaneous interventions for large retroperitoneal phlegmons is the primary surgical manipulation, which allows, first of all, to clarify the diagnosis (bacteriological studies and correction of antibacterial therapy, contrast studies to determine the length of foci of destruction and their possible connection with the abdominal cavity). Opportunities to stabilize the patient's condition (puncture and drainage of foci available for interventions) with subsequent surgical treatment in a more favorable period.

Analysis of research shows that, despite the high level of development of modern purulent surgery, the development of new methods of surgery, a powerful arsenal of highly effective antibacterial drugs, improving the basic principles of antiseptics and preventive measures, the treatment and prevention of limited purulent foci of the abdominal cavity. resolved [10, 11]. However, in a significant percentage of cases, traditional surgical interventions for abscesses may be limited to the rehabilitation and external drainage of the abscess, which is almost indistinguishable from the ultimate goal of percutaneous interventions. Performing medical punctures involves maximum removal of the abscess, repeated remediation of cavities with solutions of antiseptics and the introduction of broad-spectrum antibiotics (until receiving an antibioticogram), and then, as with drainage, etiotropic antibacterial therapy. In some cases (in the presence of thick manure or small sequesters) transdrainage administration of proteolytic enzymes is used.

The choice of drainage method, two-time according to the method of Seldinger, or one-time according to the method of a stiletto catheter, depends on the location and size of the purulent focus. It is possible to correct the number and location of drainages during treatment, which is an important feature of this method of treatment.

Control over the dynamics of the hearth is carried out using ultrasound, less often - by performing

abscessography or computed tomography (Fig. 11). If necessary, Seldinger drainages can be replaced with drainages of larger or smaller diameter, their location can be corrected during treatment.

Fig. 11. Abscesses of the right lobe of the liver. Puncture and drainage of abscesses. Abscessography

Criteria for the effectiveness of this method of treatment is the stabilization of the general condition of the patient, a sharp decrease or disappearance of secretions or the most pathological formation in the control study.

Criteria for treatment and cessation of treatment are as follows:

1. Reduction of the residual cavity to 1/3 of the original.
2. A small amount of discharge from the cavity or its complete absence.
3. Change in the nature of secretions (from purulent to serous).
4. Stabilization of the general condition of the patient.
5. Steady tendency to normalization of laboratory parameters.
6. Negative results of control bacteriological research.
7. Disappearance or reduction in the volume of reactive effusion in the abdominal or pleural cavities.

At the sizes of abscesses to 4-5 centimeters preference is given to puncture treatment. The size of the abscesses is more than 5 centimeters, the presence of several foci or the ineffectiveness of puncture treatment are indications for percutaneous drainage or a combination of techniques.

In the treatment of long-term abscesses with a thickened capsule, thick contents, the presence of sequesters, as well as the presence of several connecting cavities, trans-drainage administration of protein enzymes is effective, which can reduce drainage time by 4-5 gains.

Fig. 12. Appendicular abscess. Puncture of the abscess

Due to skin intervention, they have also been shown to be effective in the treatment of post-traumatic, primarily unorganized or privately organized hematomas of the liver, post-traumatic white and bone livers, which are bent.

At extraorganic localization of the limited purulent pathology (abscess) the choice of a technique is defined by an arrangement of the purulent center concerning abdominal organs, ie degree of its availability and the sizes.

The subphrenic location of the abscess is an indication for drainage by one of the methods, most often a stylet catheter with the preferred installation of two catheters or double lumen drainage for permanent irrigation of the pathological cavity. Terms of drainage at this pathology fluctuate from 7 to 21 days.

At a subhepatic arrangement or interloop localization of abscesses medical punctures are used because most often these abscesses of the small sizes with limited availability to them (loops of intestines). The number of interventions varies in the amount of 1-3 - in the subhepatic location, and 3-6 - in inter-loop abscesses (Fig. 12).

Thus, percutaneous interventions are highly effective minimally invasive methods of surgical treatment of various postoperative formations of purulent-inflammatory origin (bile inflows, unorganized hematomas, abscesses), and which in 51.4-65% of cases may become the final method of their treatment. Percutaneous echo-controlled invasions are used to eliminate unlimited intra-abdominal and retroperitoneal fluid accumulations (ascites, reactive pleurisy), primarily with small amounts of fluid, which makes it difficult and dangerous to use traditional techniques. These interventions are an effective method of treating early

postoperative complications in abdominal surgery, which requires widespread clinical use in surgical hospitals in the country.

Punctures and drainage under the control of sonography should be considered the method of choice in the treatment of a number of surgical diseases of the abdominal cavity, retroperitoneal space.

The total positive effect in the form of complete healing of abscesses and other fluid postoperative formations of the abdominal cavity and its organs by percutaneous interventions under the control of ultrasound is about 85-97%.

Comparative safety, speed of execution, informativeness and efficiency, high economic efficiency - determining factors for wide clinical introduction in domestic medicine of a method of percutaneous interventions under the control of ultrasound. However, it should be noted that the implementation of these interventions under the control of ultrasound requires strict adherence to the indications, the technique of execution. They must be performed by highly qualified specialists with knowledge of the basics of radiation diagnostics, surgery, topographic and ultrasound anatomy in a specialized surgical hospital equipped with modern equipment and tools.

Clinic of the Department of Surgery №1 Bogomolets National Medical University has experience in the successful treatment of more than 1,000 patients with diseases of the abdominal cavity, in which puncture methods of surgical treatment were used.

CONCLUSIONS

1. Percutaneous-transhepatic interventions under ultrasound control are one of the most effective methods of biliary decompression in MJ (Mechanical Jaundice)

of tumor and benign origin, in the treatment of intra-abdominal abscesses and other fluid accumulations of the abdominal cavity, retroperitoneal space, etc.

2. Diagnostic punctures under the control of ultrasound - a method of differential diagnosis of limited pathology of the abdominal cavity and its organs, which increases the efficiency of detection of purulent pathology to 100%.

3. Bacteriological examination of the obtained aspirate allows to determine the microflora, sensitivity to antibacterial drugs and to conduct etiotropic therapy.

4. Clear definition of access for percutaneous interventions under the control of ultrasound, compliance with all techniques, complete rehabilitation of the biliary tract or purulent foci in combination with comprehensive conservative treatment of patients - the main components of achieving a positive result.

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ДОСВІД ВИКОНАННЯ ПУНКЦІЙНИХ ТА ДРЕНУЮЧИХ ХІРУРГІЧНИХ МІНІІНВАЗИВНИХ ВТРУЧАНЬ ПІД УЛЬТРАЗВУКОВИМ КОНТРОЛЕМ У ДІАГНОСТИЦІ ТА ЛІКУВАННІ ЗАХВОРЮВАНЬ ОРГАНІВ ЧЕРЕВНОЇ ПОРОЖНИНИ ТА ПІСЛЯОПЕРАЦІЙНИХ УСКЛАДНЕНЬ.

Огляд

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Резюме. У статті представлено описання основних пункційних та дренуючих втручань з указанням методики їх виконання, техніки, матеріалів, які використовуються для їх виконання. Описано власний досвід застосування вказаних мініінвазивних втручань у лікуванні синдрому механічної жовтяниці доброякісного та злоякісного генезу, гострого холециститу, гострого панкреатиту та його ускладнень, печінкових абсцесів, обмежених рідинних зкупчень черевної порожнини та заочеревинного простору. Відмічено переваги та недоліки, проведена порівняльна оцінка та надані рекомендації щодо застосування різних пункційно-дренуючих втручань залежно від виду патології, при яких вони використовуються.

Ключові слова: механічна жовтяниця, ендобіліарні втручання, черезшкірно-черезпечінкова холангіостомія, черезшкірно-черезпечінкова холецистостомія, післяопераційні рідинні зкупчення.

ОПЫТ ВЫПОЛНЕНИЯ ПУНКЦИОННЫХ И ДРЕНИРУЮЩИХ ХИРУРГИЧЕСКИХ МАЛОИНВАЗИВНЫХ ВМЕШАТЕЛЬСТВ ПОД УЛЬТРАЗВУКОВЫМ КОНТРОЛЕМ В ДИАГНОСТИКЕ И ЛЕЧЕНИИ ЗАБОЛЕВАНИЙ ОРГАНОВ БРЮШНОЙ ПОЛОСТИ И ПОСЛЕОПЕРАЦИОННЫХ ОСЛОЖНЕНИЙ. Обзор

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Резюме. В статье представлены описание основных пункционных и дренирующих вмешательств с указанием методики их выполнения, техники, материалов, используемых для их выполнения. Описан собственный опыт применения указанных миниинвазивных вмешательств в лечении синдрома механической желтухи доброкачественного и злокачественного генеза, острого холецистита, острого панкреатита и его осложнений, печеночных абсцессов, ограниченных жидкостных скоплений брюшной полости и забрюшинного пространства. Отмечены преимущества и недостатки, проведена сравнительная оценка и даны рекомендации по применению различных пункционно-дренирующих вмешательств в зависимости от вида патологии, при которых они используются.

Ключевые слова: механическая желтуха, эндобилиарные вмешательства, чрескожно-черезпеченочная холангиостомия, чрескожно-черезпеченочная холецистостомия, послеоперационные жидкостные скопления.