

MODERN PRINCIPLES OF SURGICAL MANAGEMENT IN ACUTE CHOLECYSTITIS COMPLICATED WITH CHOLEDOCHOLITHIASIS (literature review)

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Abstract

According to the literature review of the last decade, the article discusses aspects of surgical tactics in acute cholecystitis complicated by choledocholithiasis. The absence of a unified view on the choice and sequence of endoscopic methods of treatment, as well as the timing of operations, depending on the nature of the complications of acute cholecystitis, was noted. The conflicting opinions of surgeons about the role of various methods of treatment indicate the need to clarify the indications for existing methods of treatment and the choice of rational options for surgical tactics.

Keywords: *acute cholecystitis, choledocholithiasis, surgical tactics.*

INTRODUCTION

The problem of surgical treatment of patients with acute calculous cholecystitis (ACC) complicated by choledocholithiasis (CLT) is one of the most difficult in emergency biliary surgery. An important role in the treatment of this pathology is played by the diagnosis of not only ACC and CRT, but also the determination of the place and effectiveness of the traditional, endovideosurgical and minimally invasive technologies used [2, 9, 21, 32].

Along with severe complications of acute inflammation of the gallbladder in patients with frequent lesions of the bile ducts (35-60%). In the structure of lesions of the bile ducts, choledocholithiasis occupies the main place, accounting for 50–78% of all types of

pathology. In patients, along with choledocholithiasis, cholecystitis is often accompanied by stenosis of the major duodenal papilla (MDP), which is detected in 5–20 % of cases during primary operations on the biliary tract. As a result of the close anatomical and functional relationship between the biliary and pancreatic systems, 10–25% of patients with inflammatory pathology of the biliary tract have a pancreatic lesion. With the localization of inflammatory changes in the pancreas in the region of the head, the terminal section of the choledochus is involved in the pathological process, followed by the development of cicatricial stricture. Obstructive jaundice is a frequent and formidable complication in patients with acute cholecystitis. In patients of older age groups, it occurs twice as often as in

younger patients, and is 28-35%. Biliary hypertension "due to lesions of the hepatobiliary duct" contributes to the development of cholangitis [1, 6, 7, 8, 11, 25, 31].

Wang D. (2017) indicates that with non-tumor lesions of the bile ducts, the causes of jaundice are: - in 62.5%, choledocholithiasis, including 12.5%, combined with stenosis of the obstructive duct; – in 13.8% stenosis of the OBD without choledocholithiasis; - 20.0% and 1.5% have indurative pancreatitis and perivesical infiltrate with compression of the common bile duct; – 2.5% have primary sclerosing cholangitis (38).

Insufficient information content of the traditional diagnosis of acute cholecystitis and its complications led to the widespread introduction of special methods into practice. Ultrasound and endoscopic examinations (laparoscopy, duodeno- and choledochoscopy), computed tomography and direct X-ray contrast examinations of the bile ducts are widely used. Instrumental studies allow diagnosing erased forms of the disease, assessing the severity of inflammation in the gallbladder wall, and determining the prevalence of the pathological process in the abdominal cavity [7, 13, 30].

The most important aspect of the treatment of acute cholecystitis is the choice of surgical tactics. For decades, two opposing surgical tactics have been used. Conservative-expectant tactics consisted of enhanced complex drug therapy in the acute period of cholecystitis and radical surgery after the inflammatory process had subsided, a thorough examination and preparation. Active surgical tactics in acute cholecystitis involves the operation at the height of the attack in the early stages (up to 72 hours) after the patient's hospitalization. Most

surgeons are in favor of expanding the indications for surgical treatment, since in the early stages of the disease and with a low degree of operational and anesthetic risk, cholecystectomy (open or laparoscopic) is usually safe (operative mortality is from 0 to 1%). At the same time, postoperative mortality, especially in elderly and senile patients, remains high - from 2.5 to 7% [10, 14, 22, 25].

In addition to determining the timing of surgical interventions, the issue of the volume of surgery in the "acute" period of cholecystitis and at the height of jaundice in patients with a high degree of surgical risk remains controversial. Due to the high degree of operational risk due to concomitant diseases, cholecystostomy has been used in surgery for many years as an alternative to cholecystectomy, which accounted for 10–12% of the number of operated patients with acute cholecystitis. In recent years, open cholecystostomy has been replaced by percutaneous cholecystostomy performed using ultrasound or computed tomography [1, 4, 34].

The introduction of sparing methods of gallbladder decompression under laparoscopic and ultrasonic control into surgical practice made it possible to avoid surgery at the height of an attack of acute cholecystitis. Operations began to be performed on a delayed basis after careful medical preparation, which made it possible to reduce mortality. There is evidence in the literature that percutaneous cholecystostomy is cost-effective and simple for high-risk patients with acute calculous cholecystitis [2, 10, 13, 18].

Khadzhibayev A.M. (2010), Hope W. (2017) believe that percutaneous cholecystostomy has replaced open cholecystostomy, as it has become no less effective and relatively safe

with a low morbidity and mortality rate. Its advantage over open cholecystostomy is that it can be done in bed under local anesthesia without the need for a laparotomy. There are two approaches to the gallbladder: the transhepatic and transperitoneal approaches. The transhepatic approach reduces the risk of bile leakage, injury to the colon and mesenteric vessels, but carries the risk of pneumothorax and bleeding from the liver parenchyma. The transperitoneal approach reduces the risk of bleeding and secondary contamination of the liver with infected bile, but increases the risk of biliary peritonitis, colonic perforation, portal vascular injury, and catheter displacement after gallbladder decompression [17, 27].

When analyzing the results of laparoscopic and ultrasonic cholecystostomy, it can be noted that they are comparable in terms of the efficiency of gallbladder decompression, the percentage of complications and the immediate results of treatment. Both types of non-operative decompression of the gallbladder are not competing. The elimination of acute inflammation of the gallbladder occurs due to a decrease in biliary hypertension, a decrease in tension, restoration of blood circulation in its wall and sanitation of the cavity. Thanks to puncture and drainage of the gallbladder in 60% - 75% of patients after the relief of acute cholecystitis and drug correction of concomitant diseases, it is possible to reduce the degree of operational risk and perform radical surgical treatment in the cold period [18, 19, 21, 34].

The main problem occurs in the remaining 30–45 % of patients who, due to the severity of concomitant diseases and age, cannot undergo radical surgery after decompressive cholecystostomy. This is the so-called group of "untouchable" patients, which is 1 - 5% of the

total number of patients with acute cholecystitis [15, 31].

Mattilia A. (2017) notes that from the category of patients who, due to the severity of concomitant pathology, were discharged home after decompressive operations, from 22 to 80% of patients were again hospitalized with a relapse of the disease in the next 6-18 months. After laparoscopic decompression of the gallbladder, the morphological picture of acute inflammation persists in 40% of patients. The cause of such a torpid course of the inflammatory process is unresolved cholecystolithiasis (31). This indicates that laparoscopic and ultrasonic cholecystostomy should not be considered as the final step in the treatment of acute cholecystitis.

Even the introduction of laparoscopic cholecystectomy into surgical practice does not change the overall picture. Laparoscopic cholecystectomy for acute complicated cholecystitis is performed predominantly (56-80%) after preventive percutaneous cholecystostomy or endoscopic papillosphincterotomy (EPST) [2, 16, 19, 23].

Of particular relevance is the treatment of acute cholecystitis complicated by obstruction of the bile ducts due to choledocholithiasis and papillostenosis. Literature data indicate a trend towards a decrease in the morbidity of surgical treatment of bile duct pathology due to the widespread use of endoscopic techniques. Modern principles of treatment in these cases are focused on performing laparoscopic cholecystectomy with endoscopic papillotomy [12, 14, 16, 19, 26, 32].

The absolute indication for EPST is limited in extent stenosis of the terminal part of the choledochus and the channel of the OBD, isolated or combined with choledocholithiasis. Relative indications of ST EP are multiple

small stones of hepaticocholedochus, acute biliary pancreatitis, chronic recurrent pancreatitis, persistent spasm of the sphincter of Oddi. However, EPST, performed before or after removal of the gallbladder, is difficult with the anatomical features of the major duodenal papilla and its location in the diverticulum, pronounced papillitis and adenoma, edema and deformity of the duodenum [12, 13, 33].

The availability of ST-EP and its high efficiency attract the attention of surgeons. Due to the low traumatism, it almost completely replaced transduodenal surgical operations on the major duodenal papilla. In most cases, EPST has become an alternative to surgical intervention in patients with severe obstructive jaundice and cholangitis who have undergone cholecystectomy or have a high degree of surgical risk. EPST can be an independent operation or precede other transpapillary operations (lithotripsy, lithoextraction), creating conditions for their implementation. Contraindications to EPST are extended stenosis of the terminal part of the choledochus, the location of the OBD in the diverticulum, pancreatitis of non-biliary etiology, duodenostasis, blood clotting disorders, severe condition of patients, limiting the duration and timing of the operation [4, 22].

With choledocholithiasis after EPST, two options for tactics are possible: active (destruction or extraction of calculi) and passive (waiting for spontaneous discharge of calculi). In the latter case, the ratio of the diameter of the stone and the terminal section of the common bile duct plays a decisive role. Stones up to 10 mm in diameter usually pass spontaneously. In patients with a aggravated anamnesis, if there is a risk of stones in the terminal part of the choledochus, as well as with a combination of choledocholithiasis and

cholangitis, multiple small stones, it is advisable to perform lithoextraction. The need for lithoextraction occurs in 22-46% of patients. However, persistent removal of stones leads to an increase in the duration of the operation. Lithoextraction is contraindicated for stones whose diameter exceeds the size of the terminal part of the choledochus. To increase the effectiveness of endoscopic treatment of choledocholithiasis after EPST, it is possible to use mechanical, electrohydraulic, laser contact biliary lithotripsy [26, 29].

For all types of endoscopic operations, there are technical limits and they cannot be overestimated. It is tactical errors due to the expansion of indications for endoscopic treatment and the unreasonable increase in its duration that lead to an increase in the number of complications and progression of the disease. Regardless of the tactics used in relation to the stones of the common bile duct after EPST, almost all researchers report one or another frequency of failures, when the stones of the common bile duct do not pass into the duodenum on their own and cannot be removed with the help of instruments. Efficiency rates of endoscopic papillosphincterotomy in bile duct decompression range from 85 to 95%, complications - from 5 to 13%, mortality - up to 1.5% [32].

According to E.I. Galperin (2019), EPST surgery is a method of treatment for up to 75% of patients, while in others it can be regarded as a method of preoperative decompression of the bile ducts. In some cases, after EPST, a surgical operation should be performed in a timely manner [4].

The impossibility or inefficiency of endoscopic methods of treatment limits the possibility of using a two-stage variant of treatment tactics. Clinical experience has shown that open and

endoscopic papillosphincterotomy are functionally not inferior to each other.

Complications of EPST in the treatment of choledocholithiasis and papillostenosis are acute pancreatitis, retroduodenal perforation, bleeding and acute cholangitis (same as in transduodenal OST). The overall complication rate, according to different authors, ranges from 7 to 15% [5, 10, 21].

The method of one-stage minimally invasive correction of the entire pathology of the biliary tract, used in the clinic, includes cholecystectomy and conventional abdominal operations on the ducts from a mini-access, as well as combined endoscopic papillosphincterotomy, performed on the operating table with oral fibroduodenoscopy video support. Two methods of papillotomy introduction are used - antegrade and retrograde. Clinical practice testifies to the desire of surgeons for one-stage minimally invasive treatment of acute and chronic calculous cholecystitis complicated by pathology of the bile ducts. For this purpose, when performing cholecystectomy from laparoscopic or minilaparotomic accesses, choledocholithiasis and papillostenosis are simultaneously eliminated using various minimally invasive techniques [31, 36].

In acute cholecystitis, active surgical tactics are the most justified. 2-10% of patients with perforations of the gallbladder and the occurrence of local or widespread peritonitis are urgently operated on. Urgent operations within 48-72 hours from the moment of admission are performed in 53-79% of patients with destructive forms of acute cholecystitis. In forced emergency surgical treatment of acute cholecystitis, it is necessary, after assessing the nature of the pathological process, to

simultaneously perform an intervention on the extrahepatic bile ducts [2, 3, 8].

In severe condition of patients and the risk of expanding the scope of the operation, cholecystectomy and drainage of the choledochus should be limited, and after the operation, EPST should be performed. If the nature of the disease does not require emergency or urgent surgery, it is necessary to adhere to the principle of eliminating jaundice before surgery using EPST. Currently, EPST with lithoextraction is most often performed before cholecystectomy in order to reduce the volume and risk of surgery in elderly and debilitated patients, both in elective and emergency biliary tract surgery [7, 9, 13].

However, an analysis of the results of treatment and complications allows some researchers to conclude that in patients with a high risk of surgery, the method of choice should be endoscopic papillosphincterotomy without subsequent cholecystectomy, and in patients with minimal risk, only surgery, without prior endoscopic papillosphincterotomy, as it is an additional risk factor. Perhaps endoscopic treatment of pathology of the bile ducts without the subsequent cholecystectomy. However, after EPST, the need for cholecystectomy occurs in 18-37% of patients due to the development of destructive forms of acute cholecystitis. Therefore, the expansion of indications for endoscopic treatment in non-operated patients is not justified, since not only the main focus of stone formation (gall bladder) is preserved, but conditions are also created for infection to enter the biliary tract from the duodenum. An exception should be only those patients in whom decompensation of severe concomitant diseases and advanced age will not allow even minimal surgical intervention. In elderly and senile patients and in the presence of severe concomitant pathology, the expansion

of the scope of surgical intervention is undesirable and threatens with great complications. In such a situation, surgeons tend to limit themselves to minimal intervention on the OBD and the common bile duct with postoperative endoscopic correction of the pathology of the bile ducts [17, 19, 21, 24, 28, 32].

CONCLUSION

Despite the favorable results of combined endoscopic and surgical treatment of gallbladder disease and duct pathology, some surgeons consider it illogical to perform two procedures, each of which increases the number of complications and the risk of death, if one of them is sufficient. Considerable experience of such interventions has been accumulated, however, there are no clear recommendations in the literature on restoring the disturbed outflow of bile into the duodenum during operations at the height of an attack of acute cholecystitis, especially in patients of older age groups. Further studies are needed to clarify treatment tactics.

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