

Minimally Invasive Methods of Treatment of Patients with Acute Cholecystitis

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ABSTRACT

Relevance. Gallstone disease occupies one of the first places among surgical diseases.

Materials and methods. The results of surgical treatment of 138 patients with acute cholecystitis were analyzed. The age of the patients ranged from 18 to 89 years, women predominated - 84.8%. The preoperative diagnosis of acute cholecystitis was based on clinical evaluation, laboratory findings, and radiographic evidence of acute cholecystitis.

Results. Laparoscopic cholecystectomy was performed in 25 (65.8%) patients of group 1 with mild course (Grade I) and 13 (17.3%) patients with moderate course (Grade II). In all cases, the gallbladder was enlarged, tense, often soldered to the greater omentum or surrounding organs. Puncture of the gallbladder with evacuation from 30 to 50 ml of bile was required in 31.6% of cases. Intraoperatively, signs of acute obstructive cholecystitis were detected in 47.4% of patients, phlegmon of the gallbladder with signs of its destruction - in 21% of patients. 36 patients underwent conventional cholecystectomy and 2 patients underwent laparoscopic cholecystectomy with drainage of the common bile duct according to Vishnevsky.

Findings. Laparoscopic cholecystectomy appears to be a reliable, safe and cost-effective procedure for acute cholecystitis. We believe that with a careful approach to acute cholecystitis, laparoscopic cholecystectomy will provide the best treatment for this condition.

KEY WORDS: cholelithiasis, acute calculous cholecystitis, cholecystectomy, choledoch drainage, rehabilitation.

INTRODUCTION

Cholelithiasis occupies one of the first places among surgical diseases. The treatment of cholelithiasis and its complicated forms to date remains one of the most relevant and studied areas of abdominal surgery due to the continuing increase in the frequency of these complications. Acute calculous cholecystitis is detected in 8-13.4% of patients admitted to surgical hospitals. Acute cholecystitis prevails mainly among people of the older age group. In young people, stone bearing is often asymptomatic, only 1-4% of such patients experience bouts of biliary colic. In the absence of treatment, acute obstructive cholecystitis develops in 20% of cases. Often, the inflammatory process proceeds with lightning speed, with the formation of gangrene and perforation of the gallbladder, thereby increasing the mortality rate. The main reason for the occurrence of necrobiotic processes in the wall of the gallbladder is an increase in intravesical pressure. High mortality in elderly and senile patients largely depends on the progressively increasing frequency of complicated forms of acute cholecystitis, in particular obstructive. Destructive forms of cholecystitis in older people are 9 times

more common than in younger age groups. In this regard, the decrease in postoperative mortality in cholecystitis largely depends on timely diagnostic measures and their correct interpretation both at the preclinical and clinical stages, correctly selected treatment [1, 13, 14].

Currently, there are three ways to remove the gallbladder: laparoscopic cholecystectomy; transrectal cholecystectomy from the "mini-access" in the right hypochondrium; traditional cholecystectomy through the median approach [3, 4].

In this regard, the issues of timely diagnosis, rational conservative therapy, the choice of the method and volume of one or another surgical intervention for gallstone disease, determining the timing of the operation, the stages of treatment are still relevant, requiring careful study and standardization.

MATERIALS AND METHODS

The results of surgical treatment of 138 patients with acute cholecystitis were analyzed. The age of the patients ranged from 18 to 89 years (on average 58.7 years), women predominated - 117 (84.8%).

The diagnostic criteria for acute cholecystitis were determined in accordance with the Tokyo guidelines. The risk assessment was based on the APACHE II disease severity classification system (Acute Physiology Assessment and Chronic Health Assessment II). High risk was determined using the APACHE II scale of 7 or more [9, 10, 17] and on the basis of which the treatment tactics were determined.

Preoperative diagnosis of acute cholecystitis was based on clinical assessment (right upper quadrant tenderness, Murphy's sign, fever), laboratory findings (elevated CRP and leukocytosis), and radiographic signs of acute cholecystitis on imaging (thickening of the gallbladder wall, stones, enlarged gallbladder, edema, abscess). Ultrasound was the primary imaging modality in all patients with clinical suspicion of acute cholecystitis. Computed tomography (n = 25; 18.1% was mainly used in patients with severe or diffuse symptoms) and MRI cholangiography (n = 12, 8.7%) was mainly used in patients with suspected bile duct stones in addition to cholecystitis. On imaging, signs of acute calculous cholecystitis were detected in 117 patients (84.8%), and acute cholecystitis without radiologically visible stones - in 9 patients (6.5%). Gallstones without signs of inflammation were seen in 12 patients (8.7%). Histopathological examination revealed acute cholecystitis in 78 (56.5%), gangrenous cholecystitis in 34 (24.6%) and exacerbation of chronic cholecystitis in 26 (18.9%).

All patients were divided into three groups depending on the type of surgery performed: Group 1 included 38 (27.6%) patients aged 18 to 61 years (average 39.5 years) who underwent laparoscopic cholecystectomy, in the 2nd group - 75 (54.3%) patients aged from 26 to 86 years (average 56 years) who underwent intervention from the minilaparotomic access and in the 3rd - 25 (18.1) patients aged 46 up to 69 years (56.5 years), for whom the operation was performed using a traditional laparotomic approach. In the 1st group there were 6 (15.8%) men and 32 (84.2%) women, in the 2nd group - 13 (17.3%) men and 62 (82.7%) women and 3- 2 (8%) men and 23 (92%) women.

RESULTS

Laparoscopic cholecystectomy was performed in 25 (65.8%) patients of group 1 with mild

course (Grade I) and 13 (17.3%) patients with moderate course (Grade II).

Laparoscopic intervention was performed mainly within 24 hours after hospitalization, after preoperative preparation, including antibiotic prophylaxis with broad-spectrum drugs, infusion therapy and according to the standard technique under balanced anesthesia with mechanical ventilation, and completed with drainage of the abdominal cavity. The average duration of the operation was 46.5 minutes.

In all cases, the gallbladder was enlarged, tense, often soldered to the greater omentum or surrounding organs. Puncture of the gallbladder with evacuation of 30 to 50 ml of bile was required in 12 (31.6%) cases. Intraoperatively, signs of acute obstructive cholecystitis were detected in 18 (47.4%) patients, phlegmon of the gallbladder with signs of its destruction - in 8 (21%) patients. 36 patients underwent conventional cholecystectomy and 2 patients underwent laparoscopic cholecystectomy with drainage of the common bile duct according by Vishnevsky.

On days 2-3 after the operation, 23 patients were discharged, which amounted to 60.5%. In the remaining 15 patients, the period of postoperative hospitalization ranged from 4 to 6 days. The reasons for the delay of patients in the hospital were exacerbation of concomitant diseases requiring additional drug correction. In 4 cases, combined interventions were performed: in 2 patients, laparoscopic cholecystectomy was supplemented with cystectomy from the appendages, 1 - cystovariectomy, 1 - prosthetic hernioplasty for umbilical hernia.

Minilaparatom cholecystectomy was performed in 13 (17.3%) patients of group 1 with mild course (Grade I) and 62 (82.7%) patients with moderate course (Grade II). Cholecystectomy was performed from the right-sided transrectal approach. All operations were performed using conventional or special retractor-retractors (SAN) and installation of 4-6 mirrors with variable geometry. The size of the access, as a rule, did not exceed 4-7 cm. The average size of the access was 5.5 ± 0.1 cm. The duration of the intervention in patients who underwent surgery from the minilaparotomic access ranged from 40 to 210 minutes (the average was 63.8 ± 2.2 min).

Cholecystectomy was performed from the cervix or by a combined method according to the standard surgical technique. Bleeding from the gallbladder bed, as a rule, was stopped by coagulation; in some cases, the bed was sutured. Drainage of the common bile duct was performed in 3 patients of the 2nd group. Combined operations were performed in 4 (5.3%) patients of the 2nd group: prosthetics of hernias of the anterior abdominal wall - in 3. Prosthetics of the anterior abdominal wall for incisional hernia was performed in 1 patient of the 2nd group.

Wide traditional laparotomy was performed in 25 patients with severe course (Grade III) of the process. All these cases, the so-called "forced" laparotomic cholecystectomy, where the preoperative period clinically established pronounced infiltrative changes in the right hypochondrium. When deciding the question of the testimony and the timing of the surgical intervention, we adhered to active tactics.

7 (28%) patients underwent surgery 12 hours after hospitalization, 7 (28%) - 24 hours, 5 (20%) - 48 hours, 3 (12%) - 72 hours, and 3 (12%) - for 4 or more days. As can be seen from the data presented, in 76% of patients, the operation was performed within the first 48 hours, adhering to active tactics. Of the total number of patients, 8 (32%) had phlegmonous, 12 (48%) had gangrenous cholecystitis, and 5 (20%) had subhepatic abscess. The duration of the operation from

the traditional approach was within 40-150 minutes (on average, 74.0 ± 5.7 minutes).

Good results were observed in 94.7% of patients in group 1 and in 96% of patients in group 2. Most often, local complications were present after laparotomic cholecystectomies - 7 (16.7%), failure of the cystic duct stump was observed in one case, in 2 cases - bile leakage into the abdominal cavity, in one of them biliary peritonitis developed, which required relaparotomy, after what against the background of the developed acute cardiovascular failure, the patient died; intra-abdominal bleeding was observed in one case, which also required an emergency relaparotomy; subhepatic infiltrate in the postoperative period was formed in 1 patient, conservatively resolved; and suppuration of the postoperative wound was observed in the 1st case. After laparoscopic cholecystectomies performed in 38 patients, 2 (5.3%) complications developed, in one case the postoperative course was complicated by the formation of a subhepatic infiltrate, resolved conservatively, and in the other - by the formation of a subhepatic abscess - it was sanitized by relaparoscopy. After 75 minilaparotomic cholecystectomies, 3 (4%) local complications were observed - in one case, a subhepatic infiltrate was formed, and in two cases there was suppuration of the postoperative wound.

DISCUSSION

Our study has shown the feasibility of laparoscopic cholecystectomy in the treatment of acute calculous cholecystitis. Our patients did not have any special complications during laparoscopic operations. Although bile leakage occurred in two patients with acute cholecystitis, it was not caused by injury during laparoscopic surgery, since none of these cases were converted to laparotomy. However, the desire to avoid switching to laparotomy is reasonable without compromising safety in terms of aesthetic outcome. The main reason for conversion is difficulties during laparoscopic surgery due to severe inflammatory fibrosis. It has been reported that operational difficulties due to inflammation are associated with the time interval between the onset of the disease and the operation [6, 7, 11, 12].

It is generally accepted that the main advantages of mini-access cholecystectomy, in addition to low invasiveness, are the use of standard surgical techniques, the possibility of full revision of the bile ducts and performing cholecystectomy from the bottom, as well as suturing of the gallbladder bed [2]. Nevertheless, the implementation of this variant of cholecystectomy in patients with acute obstructive calculous cholecystitis, undoubtedly, presents particular difficulties. In this regard, many surgeons in such situations prefer to perform operations from the traditional laparotomic approach. In our study, a comparison of the results of cholecystectomy from laparotomic and minilaparotomic approaches was carried out to assess the possibilities of small access in patients with purulent-destructive forms of calculous cholecystitis.

Good results of cholecystectomy from a mini-access, regardless of the form of cholecystitis, were obtained by a number of authors in 92.0-99.3% of patients [3, 15 18]. This coincides with our data for both the 1st and 2nd groups of patients (94.7 and 96%, respectively), which indicates the possibility of surgery from the minilaparotomic approach in this complex group of patients. The total number of complications during this operation was small, and most often wound suppuration was observed, as noted by other researchers [4, 16]. After cholecystectomy from the

minilaparotomic approach, complications such as bile leakage from the bed of the bladder or stump of the cystic duct, the formation of a subhepatic abscess, bleeding, damage to the common bile duct have been described, although their frequency is low [2, 5, 11]. We did not observe such complications.

Thus, the results obtained in this study indicate the high efficiency of cholecystectomy from the minilaparotomic approach in patients with exacerbation of chronic calculous cholecystitis and in patients with acute cholecystitis, including acute phlegmonous and gangrenous cholecystitis. The minilaparotomic approach allows to obtain good immediate results of treatment in most patients, to ensure a low number of intraoperative and postoperative complications. Cholecystectomy from the minilaparotomic approach can be considered as a full-fledged minimally invasive method of surgical treatment of patients with cholelithiasis, including those with purulent-destructive forms of cholecystitis.

CONCLUSION

Laparoscopic cholecystectomy appears to be a reliable, safe and cost-effective procedure for acute cholecystitis. We believe that with a careful approach to acute cholecystitis, laparoscopic cholecystectomy will provide the best treatment for this condition.

Cholecystectomy from the minilaparotomic approach is an effective and safe method of surgical treatment of acute cholecystitis, the number of complications, mortality and rehabilitation time is much better than with traditional surgery.

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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