

# Surgery of Cholelithiasis in Patients Older Than 60 Years

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**Summary.** The results of treatment of 97 elderly and senile patients with complicated forms of GCB are presented. Stage surgical treatment, taking into account the developed criteria for assessing the severity of the patient's condition and the projected risk of developing postoperative complications using preliminary minimally invasive decompression interventions on the biliary tract performed in 42.2% of patients of the main group, made it possible to stop purulent-cholemic intoxication, improve the results of subsequent radical operations. In 15.6% of patients, these interventions were the final method of treatment. The priority staged use of minimally invasive interventions made it possible to significantly reduce mortality, postoperative purulent-septic and extra-abdominal complications (3.1%, 12.4% and 29.9%, respectively).

**Key words:** cholelithiasis, complications, elderly and senile age.

The prevalence of cholelithiasis (GCB) increases dramatically with age. According to WHO, at the age of 70, 15% of men and 24% of women have gallstones; in 90-year-olds, the frequency of GCB increases to 24% and 40%, respectively (1,4,6,7,9). Every year, 4 to 5% of patients with GCB develop complications, such as acute cholecystitis, cholelithiasis, choledocholithiasis and cholangitis. Patients with complicated forms of the disease account for 54 - 65% of the number of patients admitted to hospitals for cholelithiasis. Among patients operated on with acute inflammation of the gallbladder, elderly and senile patients account for up to 30% (2,3,5,8,10).

A feature of acute cholecystitis in old age is a severe, rapidly progressive course of the disease and a large number of complications noted in 70 - 100% of patients. Destructive changes in the gallbladder wall in elderly and senile patients occur in 35 - 97%, perivesical infiltrates in 20 - 31.1%, biliary peritonitis in 9 - 15%, acute pancreatitis in 10 - 51%, perivesical abscesses in 8 - 12% of patients (11,12).

Along with severe complications of acute inflammation of the gallbladder in patients of older age groups, lesions of the bile ducts are frequent (35-60%). In the structure of lesions of the bile ducts, the main place is occupied by choledocholithiasis, accounting for 50 - 78% of all types of pathology.

In patients with acute cholecystitis older than 70 years, the severity of the underlying disease is aggravated by concomitant pathology. At the same time, in the acute period of the disease, the effect of mutual aggravation of the main and concomitant disease is manifested. The latter in the severity of its course often acquires a competing character. By the age of 75, concomitant diseases occur in almost 100% of patients with acute cholecystitis.

Methodological aspects of the diagnosis and treatment of complicated forms of cholelithiasis in elderly and senile patients are described in modern literature, but the authors' arguments are sometimes contradictory and hardly provable, especially in assessing the capabilities of minimally invasive techniques. In numerous studies, the results of surgical treatment do not always satisfy specialists, in 40-65% of cases, patients have septic conditions, as a result of which from 16.5% to 30.0% of observations are fatal.

**Objective of the study:** To improve the results of treatment of elderly and senile patients with complicated forms of cholelithiasis by optimizing the tactical and technical aspects of surgical correction with the priority use of minimally invasive interventions.

**Material and methods.** The subject of the study was an analysis of the results of surgical treatment of patients with 60 years with acute destructive cholecystitis and obstructive cholangitis developed as a complication of cholelithiasis.

In a group of 97 elderly and senile patients operated on in 2019-2022 for complicated forms of GCB, treatment was carried out not only taking into account the severity of acute cholecystitis and cholangitis according to the classification adopted in Tokyo 2018 (Tokyo Guidelines, 2018, TG18 ), but also according to the criteria developed by us for predicting the risk of developing postoperative complications.

To assess the severity of the condition of elderly and senile patients with complicated forms of GCB, we proposed a "Program for assessing the severity of the condition of elderly and senile patients with complicated forms of cholelithiasis and predicting the risk of developing postoperative complications" including more than 40 risk factors.

Depending on the sum of points, 2 categories of severity are allocated. Patients of the 1st category with a score of up to 50 with a moderate severity of the condition and with a predicted relatively low risk of developing postoperative complications. Patients of category 2 with a score of 51 and above belonging to the group with a severe degree of condition and with a predicted high risk of developing postoperative complications.

In accordance with these criteria, 42 (43.3%) elderly and senile patients with a complicated course of gastrointestinal tract are classified in the group with a moderate severity of the condition and a predicted relatively low risk of developing postoperative complications. 55 (56.7%) patients of this contingent are classified as a group with a severe clinical course of the disease and a predicted high risk of developing postoperative complications.

Patients were operated on taking into account the proposed criteria for the severity of the condition, as well as the clinic of the complicated course of the gastrointestinal tract (Table 1,2).

**Table 1.**

**Surgical interventions in elderly and senile patients with a severe degree of condition and a predicted high risk of postoperative complications (n = 64)**

Clinic of the disease	Type of operation		Number of patients	
GCB with the prevalence of the clinic of acute destructive cholecystitis (n = 39)	ЧМХС →	LHE	6	17
	ЧМХС →	MLHE	2	
	CHHMHS + puncture of biloma →	MLHE	6	
	only CHHMHS		3	
	MLHE		14	22
	MLHE, dissection of perivesical abscess		3	
	Laparotomy, HE and abdominal debridement		5	
GCB with the prevalence of the clinic of obstructive cholangitis (n = 25)	EPST and NDS →	LHE	4	20
	EPST and NDS →	MLHE	7	
	EPST only		5	
	EPST and HCHMHS →	MLHE	2	
	ONLY EPST and HCMHS		2	
	MLHE and choledocholithotomy (if EPST is unsuccessful)		5	5

**Table 2.**

**Surgical interventions in elderly and senile patients with an average severity of the condition and a predicted low risk of postoperative complications (n = 33)**

Clinic of the disease	Type of operation		Number of patients	
GCB with the prevalence of the clinic of acute destructive cholecystitis (n = 19)	CHHMHS →	LHE	2	4
	CHHMHS →	MLHE	2	
	LHE		7	15
	MLHE		8	
GCB with the prevalence of the clinic of obstructive cholangitis	MLHE and choledocholithotomy		14	14

(n = 14)			
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With the prevalence of the clinic of acute destructive cholecystitis out of 58 patients, 39 are assigned to the group with a severe clinical course of the disease and a predicted high risk of postoperative complications. In 11 of them, biliary peritonitis was ascertained (diffuse in 5, in 6 delimited in the form of a formed biloma).

Due to the severity of the condition of 17 patients, percutaneous-transhepatic microcholecystostomy (CHHMHS) was performed in stage 1, of which 6 also punctured and sanitized bilomas delimited in the subhepatic space. 2 stage of treatment for 10-14 days, cholecystectomy was performed on 14 patients, of which LCE-6, HE from minilaparotome access-8. 3 patients were discharged without HE with functioning cholecystostomy.

22 patients were operated on in one stage. 17 patients with acute destructive cholecystitis underwent MLHE, of which 3 due to the melting of the wall of the gangrenously altered gallbladder (in fact, an autopsy of a perivesical abscess was performed). 5 patients with a clinic of diffuse bile peritonitis underwent HE with rehabilitation of the abdominal cavity from a wide laparotomic access.

19 elderly and senile patients with a clinic of acute destructive cholecystitis with a moderate severity of the condition and a predicted relatively low risk of developing postoperative complications 15 underwent cholecystectomy (7-LCE, 8-HE from mini-access). Two-stage treatment with preliminary cholecystostomy (CHHMHS) was carried out in 4 patients, and 2 with puncture sanitation of the delimited perivesical biloma. These 2 patients were subsequently treated from mini-access. Another 2 patients after microcholecystostomy underwent LHE.

Thus, 2-stage surgical treatment for complication of GCB with acute destructive cholecystitis in elderly and senile patients was carried out 21 (36.2%) to a patient out of 58. A one-stage radical operation was performed on 37 patients (63.8%).

Cholecystectomy is mostly performed from minilaparotomy access - 35 observations (60.3%). 15 (25.9%) patients underwent LCE, 5 (8.6%) he patients were performed from wide laparotomy access, 3 (5.2%) patients were discharged with cholecystostomy.

In the group of elderly and senile patients with a complicated course of GCB and the prevalence of the clinic of mechanical jaundice and obstructive cholangitis due to choledocholithiasis (n = 39) with a severe clinical course of the disease and a predicted high risk of developing postoperative complications, 25 patients were assigned.

Due to the severity of the condition, 16 (64%) patients with stage 1 treatment successfully performed endoscopic papillosphincterotomy (EPST) followed by nasubiliary drainage (NDD). In 5 (20%) patients, attempts at EPST and NDS were unsuccessful. These 5 patients with a progressive clinic of mechanical jaundice and cholangitis produced HE and choledocholithotomy from minilaparotomy access in the right hypochondrium.

Of the 16 patients who successfully underwent EPST stage 2 after improvement and relief of the cholangiogenic intoxication clinic, 11 produced HE, of which 4 LCE, 7 patients with HE from minilaparothotomic access. 5 patients after successful EPST refrained from radical surgery and they were also discharged from the hospital.

With a combination of the clinic of obstructive cholangitis and acute cholecystitis, 4 patients underwent minimally invasive decompressive transduodenal interventions - EPST with lithoextraction. These patients also underwent CHHMHS. In the future, 2 of them were carried out by MLHE. 2 were discharged from the hospital with a significant improvement in the condition.

14 patients with moderate severity of the condition underwent simultaneous surgical interventions in the volume of HE and choledocholithotomy with external drainage of choledoch from mini-access in the right hypochondrium.

2-stage surgical treatment in the group of elderly and senile patients with the prevalence of the clinic of mechanical jaundice and obstructive cholangitis was carried out 20 (51.3%). The first stage they successfully carried out EPST with NDS, and 2 in combination with HHMBS. After stopping cholangiogenic intoxication, 13 of them were performed by he (LHE-4, MLHE-9) in stage 2. 7 (17.9%) patients with significant improvement after EPST were discharged home for outpatient observation.

19 (48.7%) patients with surgical intervention were performed simultaneously - HE was performed with choledocholithotomy and choledoch drainage. Of these, 5 of this operation was performed with the failure of EPST.

Thus, two-stage surgical treatment was carried out in 27 (42.2%) patients with severe severity of the condition and a high risk of developing postoperative complications. 10 (15.6%) patients were limited to minimally invasive decompression intervention on the biliary tract. A one-stage radical surgical operation was performed in 27 (42.2%) patients, and in 13 (20.3%) it was forced in the presence of a peritonitis clinic (5 patients) or a perivesical abscess (3 patients) or with the failure of EPST.

Two-stage surgical interventions in elderly and senile patients with moderate severity of the condition and a predicted low risk of developing postoperative complications (n = 33) were performed on 4 (12.1%) patients, one-stage radical surgery was performed on 29 (87.9%) patients.

Thus, 2-stage surgical treatment was carried out in only 31 patients, which amounted to 31.9%. These patients, after preliminary minimally invasive decompression of the biliary tract in the second stage for 7-14 days, produced HE, and 12 - LCE, 19 - MLHE.

61 (62.9%) patients of the study group one-stage radical operation - cholecystectomy was performed both from wide laparotomy access in 5 patients with complications of peritonitis, 49 from minilaparotomy access (and in combination with choledocholithotomy to 19 patients), LHE was performed in 7 patients.

Thus, only 19 (19.6%) patients underwent LCE, HE from mini-access 63 (64.9%), from wide laparotomic access 5 (5.1%).

## Results and their discussion.

Stage surgical treatment with preliminary priority use of minimally invasive decompression interventions was used in 42.2% of elderly and senile patients with a severe degree of condition and a predicted high risk of postoperative complications. In 15.6%, they limited themselves to performing only minimally invasive diapaetical and endoscopic transduodenal interventions. The developed therapeutic and diagnostic algorithm for staged surgical treatment, depending on the prevalence of the clinic of destructive cholecystitis or obstructive cholangitis using CHMHS under ultrasound guidance, EPST or a combination thereof, made it possible at the subsequent stage of treatment to perform cholecystectomy by the laparoscopic method in 19.6% and from minilaparotome access - 64.9%.

At the same time, 3 of the operated 97 patients died, the mortality rate was 3.1%. The reason for the unfavorable outcome was acute pancreatitis as a complication of transduodenal endoscopic intervention in 1 patient and ongoing peritonitis in 1 observation. Also in 1 observation, the cause of death is acute cardiovascular failure due to myocardial infarction

Osteoperative complications developed in 12 patients, which amounted to 12.4%. At the same time, bilomas of the subhepatic region were formed in 3 (3.1%) patients who were successfully sanitized by punctures under the control of ultrasound.

In 3 (3.1%) patients, cholemic bleeding from the liver from the area of the transhepatic puncture of the gallbladder was observed. Externally, bile flow was observed in 3 patients, relaparoscopy in 1 case revealed the insolvency of the stump of the cystic duct, which was re-clipped, in another 2 observations, coagulation of the gallbladder bed as a source of bile flow in the abdominal cavity was performed.

Duodenal bleeding was noted in 1 patient after EPST, bleeding was stopped conservatively - hemostatic therapy. In 2 patients, a subdiaphragmatic abscess was formed, sanitized by repeated punctures under the control of ultrasound. In 4 (4.1%) patients, suppuration of the postoperative wound was observed.

Thus, the optimization of the tactical and technical aspects of surgical treatment of elderly and senile patients, taking into account the severity of the patient's condition and the projected risk of developing postoperative complications with the priority use of preliminary minimally invasive decompression interventions, contributed to the early relief of the infectious process, the prevention of the development of biliary and abdominal sepsis, the prevention of the development of cardiovascular and pulmonary complications. due to competing comorbid pathology. I will achievethat decrease in mortality from 8.1% to 3.1%, purulent-septic complications from 32.4% to 12.4%, as well as cardiovascular and pulmonary complications from 41.9% to 29.9%.

## Conclusions.

1. Stage surgical treatment, taking into account the developed criteria for assessing the severity of the patient's condition and the projected risk of developing postoperative complications using preliminary minimally invasive decompression interventions on the biliary tract performed in 42.2% of patients of the main group, made it possible to stop purulent-cholemic intoxication, improve the results of subsequent radical operations. In 15.6% of patients, these interventions were the final method of treatment.
2. The developed therapeutic and diagnostic algorithm for staged surgical treatment, depending on the prevalence of the clinic of destructive cholecystitis or obstructive cholangitis using CHMHS under ultrasound guidance, EPST or a combination thereof, made it possible at the subsequent stage of treatment to perform cholecystectomy by the laparoscopic method in 19.6% and from minilaparotome access - 64.9%.
3. Optimization of the tactical and technical aspects of surgical treatment of elderly and senile patients with complicated forms of GKB, taking into account the severity of the patient's condition and the projected risk of developing postoperative complications with the priority stage use of minimally invasive interventions, significantly reduced mortality, postoperative purulent-septic and extra-abdominal complications (3.1%, 12.4% and 29.9%, respectively), whereas in the comparison group these indicators were 8.1%, 32.4% and 41.9%.

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