ANALYSIS OF THE CAUSES OF POSTOPERATIVE MORTALITY IN CHOLELITHIASIS

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Annotation. *This article presents modern approaches to the application of operations performed by traditional and laparoscopic methods for cholelithiasis. The possibilities of modern endovideosurgery for cholelithiasis are described in detail.*

Key words: *acute cholecystitis, postoperative mortality.*

Introduction. The problem of surgical treatment of acute cholecystitis remains one of the most pressing in emergency surgery of the abdominal cavity. This is due to both an increase in the number of operated patients with complicated cholelithiasis, including elderly and senile people, and the absence of a tendency to reduce the number of unsatisfactory surgical outcomes. Postoperative mortality in acute cholecystitis ranges from 7–10% [3]. Adverse outcomes primarily occur among patients with concomitant diseases, mainly over 60 years of age. In these

patients, the mortality rate from acute cholecystitis often reaches 27% [2]. The introduction of new surgical treatment technologies into the practice of clinical surgery, such as laparoscopic cholecystectomy, opens up new prospects in the radical treatment of patients with acute calculous cholecystitis [1]. However, the widespread use of endovideosurgical treatment of complicated cholecystolithiasis cannot but rely on the experience of previous generations of surgeons, who formulated the basic principles of treatment of this common disease. Therefore, it would be quite logical to conduct a retrospective analysis of the causes of mortality in surgical treatment of acute cholecystitis with a critical assessment of diagnostic, tactical and technical errors made by doctors when treating patients with cholelithiasis. Studying the reasons for unsatisfactory results of surgical treatment of acute cholecystitis will allow us to develop principles for the prevention of complications when performing both traditional and endovideosurgical interventions, and an algorithm for measures for their timely recognition and elimination.

Material and methods. In order to assess the factors influencing the results of surgical treatment of patients with complicated cholelithiasis, we analyzed the results of treatment of 1210 patients with acute cholecystitis who were treated from 1997 to 2022 in the emergency surgical department of the Samarkand branch of the Russian Scientific Center for Emergency Medicine. 832 patients were operated on using the traditional laparotomy method; 451 patients (32.6%) underwent laparoscopic cholecystectomy. Over a 25-year period, 87 patients out of the total number of operated patients died, thus the postoperative mortality rate was 6.3%.

Results and discussion. Among the 87 deceased patients, the majority were people (82 patients, or 94.3%) of older age groups, including 24 patients (27.6%) over 60 years old, 25 (28.7%) over 70 years old, 25 (28.7%) over 70 years old, and 25 (28.7%) over 70 years old. years - 33 (37.9%) patients. According to our observations, the dynamics of gender differences tended to increase among female deaths. Thus, the ratio of men and women among those who died over 60 years of age was 1:1.4 (men - 10, women - 14), among people over 70 - 1:1.8 (men - 9,

women - 16), among patients older 80 years old - 1:2.3 (men - 10, women - 23). It is noteworthy that the overwhelming number of patients (81, or 93.1%) were admitted later than 1 day from the onset of the disease. The main reasons for late admissions were untimely seeking medical help and attempts at self-medication (59 patients, or 67.8% of those admitted late). Diagnostic errors at the prehospital stage, which caused late hospitalization, were observed in 28 patients (32.2%), and underdiagnosis of acute cholecystitis due to errors by ambulance workers was noted in 11 (12.6%) patients, and by clinic doctors in 9 (10, 3%), infectious diseases hospitals - in 5 (5.7%), doctors on duty in emergency departments - in 3 (3.4%) patients. Almost all deceased patients operated on for acute cholecystitis, especially older age groups, were diagnosed with concomitant diseases (chronic ischemic heart disease, hypertension, chronic obstructive pulmonary disease - COPD, diabetes mellitus, etc.). The first place among concomitant diseases was occupied by cardiovascular pathology. 35% of patients were diagnosed with 3 or more concomitant diseases, 2 diseases - in 37%, and in 28% of clinical cases - 1 disease. The presence of severe concomitant pathology in combination with acute cholecystitis mutually aggravated the condition of the patients and required the active involvement of therapeutic specialists in the treatment of patients. It should be noted that acute cholecystitis in elderly and senile patients often proceeded atypically, under the guise of other diseases of the abdominal organs or other extra-abdominal diseases, as a result of which the disease in a number of patients remained unrecognized. This led to long-term conservative treatment by general practitioners or attempts to self-medicate patients. Delay in hospitalization of patients due to late seeking medical help or due to underdiagnosis of the inflammatory process in the gallbladder, due to objective and subjective difficulties, led to hospitalization of patients in the surgical department in the presence of destructive cholecystitis in combination with peritonitis, obstructive jaundice, cholangitis, purulent intoxication. A study of mortality showed that destructive cholecystitis was observed in 94% of deceased patients, while the phlegmonous form was noted in 62%, and gangrenous cholecystitis in 30% of patients. Peritonitis was observed in 15 patients,

including local in 10 and widespread in 5. In 37 patients, acute cholecystitis was combined with choledocholithiasis, and in 23 patients obstructive jaundice and cholangitis were noted. In 8 patients, acute cholecystitis was combined with destructive pancreatitis. In two cases, the formation of internal fistulas was noted, in particular between the gallbladder and the colon in one patient and the gallbladder and duodenum in the second patient. Analyzing the connection between the occurrence of adverse outcomes and late admission of patients to a surgical hospital, with signs of destructive cholecystitis already developed in most cases, it should be noted that one of the ways aimed at improving the results of treatment of patients with acute cholecystitis is to reduce the length of hospitalization in the surgical department of patients, especially the elderly and senile age, reducing diagnostic errors by pre-hospital medical workers and non-surgical hospital doctors. One of the means of early diagnosis of the inflammatory process in the gallbladder is the use of ultrasound diagnostics. Ultrasonographic semiotics of acute cholecystitis, especially its calculous variant, is well developed and is based on identifying changes in the gallbladder, such as an increase in the size of the gallbladder, thickening of its wall and changes in the internal environment with the presence of hyperechoic suspension, layering, wedged calculus, reaction of paravesical tissues with signs of paravesical infiltrate or abscess, as well as identifying the reaction of surrounding lymph nodes in the form of local lymphadenitis. Equipping a wide network of outpatient and inpatient medical institutions and infectious diseases hospitals with diagnostic equipment will significantly increase the level of recognition of cholelithiasis and reduce the number of late admissions of patients with acute cholecystitis to a surgical hospital. An important prognostic factor is the timing of surgery in patients with acute cholecystitis. According to our data, 17 (19.5%) patients were operated on on the 1st day after admission to the hospital; 33 (37.9%) were operated on later than 24 hours. 37 patients (42.5%) were operated on 2 days or more later. The later the operation is performed when cholecystitis progresses, the more complications are detected, the more difficult the surgical intervention, and the more problematic the patient’s salvation. Therefore, one of the ways to reduce

mortality from acute cholecystitis is the wider introduction of early surgical interventions into practice. The optimal time for surgery should be the first 2 days after hospitalization. This time, as a rule, is enough to conduct a full examination, including consultations with related specialists, to determine the dynamics of the course of acute cholecystitis, the presence or absence of an effect from conservative therapy. Since 1997, our clinic has used laparoscopic technology in the treatment of acute cholecystitis, and as experience has accumulated, there has been a significant shift in the vector of emergency surgical care towards endovideosurgical interventions. If in 1997 the ratio of traditional and laparoscopic interventions for acute cholecystitis was 10:1, then in 2006 it was already 1:2. When studying the nature of the surgical interventions performed in deceased patients, it turned out that the main type of surgical treatment was cholecystectomy, which was performed via laparotomy in 84 (96.6%) patients. In 38 (43.7%) patients, cholecystectomy was combined with choledocholithotomy and external drainage of the common bile duct, in 2 (2.3%) patients, removal of the gallbladder was accompanied by choledochoduodenoanastomosis, in 2 (2.3%) - separation of the internal fistula between the gallbladder and duodenum. Cholecystostomy was performed in 1 patient. In 2 (2.3%) deceased patients, cholecystectomy was performed laparoscopically. In 8 (9.2%) patients, due to the presence of concomitant pancreatitis, along with bile decompressive surgery, drainage of the omental bursa was performed. Operative and tactical errors during surgical intervention were noted in 9 (10.4%) patients. We included refusal of surgical cholangiography and revision of the common bile duct, if indicated, as tactical errors. In the postoperative period, due to undiagnosed choledocholithiasis and increasing biliary hypertension, failure of the cystic duct ligature was noted in 5 (5.7%) patients with the development of external biliary fistula in 3 patients and diffuse biliary peritonitis in 2 patients. 4 (4.6%) patients were re-operated for increasing obstructive jaundice and cholangitis, but all had a fatal outcome from progressive cholangitis and the formation of multiple liver abscesses. Operative and technical errors were noted in 4 (4.6%) patients who died. In one case, during cholecystectomy, a patient had damage to the

common bile duct resulting in peritonitis; in the second, there was damage to the right branch of the hepatic artery with the development of necrosis of the right lobe of the liver and liver failure. In both cases, damage to functionally significant elements of the hepatoduodenal ligament was facilitated by gross changes in topographic-anatomical relationships in the subhepatic space, difficulties in identifying vascular-secretory structures, as well as insufficient experience of operating surgeons. In 1 patient, intestinal eventration was noted; in 1 patient, after catheterization of the subclavian vein, tension pneumothorax developed. In the prevention of deaths caused by tactical and technical errors of surgeons, hospitalization of patients in a specialized department and advanced training of surgeons in matters of biliary tract surgery are of great importance. The causes of death of patients operated on for acute cholecystitis are numerous and varied. Their nature is given in the table.

Causes of death in patients with acute cholecystitis

Causes of death	Number of patients	%
Purulent-septic complications	32	36,8
Acute cardiovascular failure	29	33,4
Liver failure	10	11,5
Pancreatic necrosis	4	4,6
Pneumonia	5	5,7
Pulmonary embolism	5	5,7
Acute cerebrovascular accident	2	2,3
Total	87	100

Among the immediate causes of death, purulent-septic complications were noted in 32 (36.8%) patients and were the most common cause of death. The reason for the progression of purulent complications in the majority of patients was a

delayed operation, due to either untimely access by patients for medical help, or long-term, unsuccessful, conservative treatment. All patients who died from purulent-septic complications were operated on using traditional laparotomic access, while among 451 patients operated on laparoscopically, no fatal purulent-septic complications were observed. Therefore, the need to expand the indications for surgical treatment of patients with acute cholecystitis in older age groups and to change the direction of surgical treatment towards wider use of endovideosurgical technology should not raise doubts. Acute cardiovascular failure was observed in 29 (33%) patients, and it was the cause of death in 2 patients after laparoscopic cholecystectomy. It should be noted that in 18 of 29 patients who died from acute cardiovascular failure, death occurred in the first 2 days after surgery. Acute liver failure was noted in 13 (19.1%) patients. The genesis of these complications clearly shows a connection with the presence in patients with acute cholecystitis of concomitant severe cardiovascular pathology and pre-existing liver damage caused by complicated cholelithiasis. Therefore, along with early surgery and radical, technically flawless removal of the gallbladder and correction of concomitant pathology of the bile ducts, competent anesthesiological and resuscitation care for patients with destructive cholecystitis is of great importance in the successful outcome of the operation. In our opinion, regardless of the type of operation, traditional or laparoscopic, patients with destructive cholecystitis, especially the elderly and senile, should be hospitalized in the intensive care unit for 1–2 days to correct existing and possible disorders of the cardiovascular and hepatorenal systems. Among other causes of death, pancreatic necrosis was noted in 4 patients (4.6%), pneumonia - in 5 (5.7%). Age-related changes in blood vessels in geriatric patients, disorders of the blood coagulation system that arose in the postoperative period affected the nature of such postoperative complications as pulmonary embolism in 5 (5.73%) patients, acute cerebrovascular accident in 2 (2.3%) patients. %) of patients.

Conclusions. 1. The most common direct cause of death of those operated on for acute cholecystitis is purulent-septic complications caused by a delayed

operation, due to either late treatment of patients for medical help, or prolonged, unsuccessful, conservative treatment.

2. Among the deceased patients, patients of older age groups predominate, with concomitant severe cardiovascular pathology and pre-existing liver damage caused by complicated cholelithiasis, which leads to the occurrence of acute cardiovascular failure in the postoperative period in 33.4% and acute liver failure in 19 .1% of cases.

3. Improving the results of surgical treatment of patients with acute cholecystitis should be based on early diagnosis of the disease and timely hospitalization of patients in a surgical hospital, reducing the time of conservative treatment and introducing early operations for destructive forms of the disease complicated by choledocholithiasis, obstructive jaundice, cholangitis, especially in elderly and senile age, wider introduction of video laparoscopic technology and improvement of anesthesiological and resuscitation care for patients.

LITERATURE

1. Бронтвейн А.Т. Оптимизация диагностики и лечения острого холецистита: Автореф. дис. … канд. мед. наук.—М., 2001.— 16 с.

2. Затевахин И.И., Цициашвили М.Ш., Дзарасова Г.Ж. Острый холе цистит: диагностика и лечение // Вестн. РГМУ.—2000.— № 3.—С. 21–26.

3. Сорокин А.С., Топчиашвили З.А. Анализ летальности при холецистите и некоторые пути ее снижения // Вестн. хир.—1979.— № 1.—С. 18–22.

4. Элмурадов Г. К., Шукуров Б. И. ВИДЕОЭНДОХИРУРГИЯ В ДИАГНОСТИКЕ И ЛЕЧЕНИИ РАЗРЫВОВ ДИАФРАГМЫ //THEORY AND ANALYTICAL ASPECTS OF RECENT RESEARCH. – 2022. – Т. 1. – №. 7. – С. 40-58.

5. Глушков Н.И., Скородумов А.В., Турина А.В., Филатов М.В. Малоинвазивные вмешательства в лечении желчнокаменной болезни // Кубанский научный медицинский вестник. .—2007.— № 2.—С. 64–67.

6. Хаджибаев Ф.А., Шукуров Б.И., Элмурадов Г.К, Мансуров Т.Т. Возможности лучевой диагностики закрытых травм живота (обзор литературы). // Журнал Вестник экстренной медицины. – 2021. – Т. 14. – № 5. – С. 114-118.

7. Хаджибаев Ф.А., Шукуров Б.И., Элмурадов Г.К., Мансуров Т.Т. Возможности ультразвукового исследования в оценки характера и тяжести закрытой травмы живота. // Журнал Вестник экстренной медицины. – 2021. – Т. 14. – № 6. – С. 14-19.

8. Хаджибаев Ф.А., Шукуров Б.И., Элмурадов Г.К., Мансуров Т.Т. Применение эндовидеохирургической техники в диагностике и лечении торакоабдоминальных ранений // Биология ва тиббиёт муаммолари. – Самарканд 2021, №6.1 (133). - С. 414-422.

9. Хаджибаев Ф.А., Алтыев Б.К., Шукуров Б.И., Элмурадов Г.К. Мансуров Т.Т., Элмурадов К.С. Возможности эндовидеохирургической техники в диагностике и лечении разрывов диафрагмы // Проблемы биологии и медицины. – Самарканд 2021, №6.1 (133). - С. 414-422.

10. Хаджибаев Ф.А., Шукуров Б.И., Элмурадов Г.К., Мансуров Т.Т. Результаты лапароскопического и традиционного хирургического лечения закрытых травм живота // Журнал Вестник экстренной медицины – 2022. – Т. 15. – № 1. – С. 12-20.

11. Xadjibaev A.M., Shukurov B.I., Pulatov M.M., Elmuradov G.K. Method of ultrasound assessment of the nature and severity of a closed abdominal injury // Art of Medicine. International Medical Scientific Journal The USA. North American Academic Publishing Platforms. – 2022. – Volume-2. Issue-3, P.44-51.

12. Элмурадов Г.К., Шукуров Б.И., Пулатов М.М. Қорин бўшлиғи ёпиқ жароҳатларида миниинвазив диагностика ва даволаш имкониятлари // Биомедицина ва амалиёт журнали – 2022. – Т.7. – №6. – 394-401.

13. Elmuradov G.K., Shukurov B.I., Pulatov M.M., Xursanov Yo.X. Ultrasound examination results in closed abdominal injuries // Биология ва тиббиёт муаммолари. – 2023. – №19 (142). – С. 132-136.

14. Elmuradov G.K., Shukurov B.I., Pulatov M.M., Axmedov R.F. Radiation diagnostics of closed abdominal injuries. (view literature) // Биология ва тиббиёт муаммолари. – 2023. – №1(142). – С. 332-336.

15. Элмурадов Г.К. Современные взгляды к ведению больных с закрытой травмой живота. // Биология ва тиббиёт муаммолари. – 2023. – №2(143). – С. 289-294.

16. Mustafakulov E.B., Elmuradov G.K., Normamatov B.P., Djuraeva Z.A. Severe associated trauma to the abdomen diagnosis and treatment. // European Journal of Pharmaceutical and Medical Research, – 2020. – Vol 7. Issue 6, P.113-116

17. Янгиев Б.А., Элмурадов Г.К., Мансуров Т.Т. FAST-протокол ультразвукового обследования в диагностике закрытых травм живота // Материалы 16-й Республиканской научно-практической конференции «Актуальные проблемы организации экстренной медицинской помощи: Роль и место мининвазивных технологий в экстренной медицине» (Самарканд, 21 мая 2021 г.). Журнал Вестник экстренной медицины. – 2021. – Т. 14. – № (2). – С. 90-91.

18. Хаджибаев А.М., Шукуров Б.И., Элмурадов Г.К., Элмурадов К.С. Результаты применения лапароскопии при закрытых травмах живота // Сборник материалов XVII Республиканской научно-практической конференции «Актуальные проблемы организации экстренной медицинской помощи: Инновации в экстренной медицине» 14.10.2022г. Наманган. Журнал Вестник экстренной медицины. – 2022. – Т. 15. – № 3-4. – С. 170-171.

19. Хаджибаев А.М., Рахимова Р.А, Элмуродов К.С, Шукуров Б.И., Элмурадов Г.К. Шкала ультразвуковой оценки объема гемоперитонеума у больных с травмой живота // Сборник материалов XVII Республиканской научно-практической конференции «Актуальные проблемы организации экстренной медицинской помощи: Инновации в экстренной медицине» 14.10.2022г. Наманган. Журнал Вестник экстренной медицины. – 2022. – Т. 15. – № 3-4. – С. 172.

20. Элмурадов Г.К., Янгиев Б.А., Шукуров Б.И., Пулатов М.М. Диагностическая и лечебная лапароскопия у больных с закрытой травмой живота // Problems of modern surgery. International scientific and practical

conference with the participation of foreign scientists. Materials. 12 october, 2022 Andijan. P.377.

21. Хаджибаев А.М., Шукуров Б.И., Пулатов М.М., Элмурадов Г.К. Миниинвазивные методы диагностики и лечения при закрытых травмах живота. // Журнал Вестник хирургии Казахстана. – 2022. – № 4(73). – С. 19-24.

22. Элмурадов Г.К., Мизамов Ф.О., Мансуров Т.Т. Результаты видеолапароскопии у больных с закрытой травмой живота // «Достижения фундаментальной, прикладной медицины и фармации» Материалы 76-ой Международной научно-практической конференции студентов медицинских вузов и молодых учёных (Самарканд, 20-21 мая 2022 г). Биология ва тиббиёт муаммолари. – Самарканд. 2022(спецвыпуск) – С. 490-491.

23. Элмурадов Г.К., Шукуров Б.И., Пулатов М.М. Сонографическая оценка характера и тяжести закрытой травмы живота // Материалы юбилейной (70-ой) научно-практической конференции ГОУ «ТГМУ им. Абуали ибни Сино» «Современная медицина: традиции и инновации» с международным участием 25 ноября, 2022. –Т.1. – С.560-561. – Душанбе.

24. Янгиев Б.А., Шукуров Б.И., Пулатов М.М. Применение эндовидеохирургической техники у болных с закрытой травмой живота // “Учения Авиценны и современная медицина” II-ая научно-практическая конференция с международным участием. Бухара, 6-7 декабря 2022г. Фундаментал ва клиник тиббиёт ахборотномаси-Бухоро, 2022-№3(3)-с-246.

25. Элмурадов Г.К., Шукуров Б.И., Хурсанов Ё.И. Видеоэндохирургия в диагностике и лечении разрывов диафрагмы // Theory and analytical aspects of recent research Turkey. International scientific-online conference. Part 7, Issue 1: August 27th 2022.-P.47-49.

26. Elmuradov G.K., Yangiev B.A., Pulatov M.M., Xursanov Y.E., Umurzoqov B.A. Qorin bo‘shlig‘i yopiq jarohatlarida sonografiya va videolaparoskopiyani qo’llash // Research Focus, Uzbekistan international scientific journal. – 2023–Vol 2. Issue 1, P. 173-180.