

Effectiveness of Mininvasive Laparoscopic Cholecystectomy when Stony Cholecystitis is Complicated by Mechanical Jaundice

Nurboboyev Adkhambek Uyunovich

Assistant of Bukhara State Medical Institute, Republic of Uzbekistan, Bukhara

Article Information

Received: December 09, 2022

Accepted: January 10, 2023

Published: February 11, 2023

Keywords: *Cholecystectomy, gallbladder stones, calculus cholecystitis, inflammatory disease, diagnostic and therapeutic algorithm.*

ABSTRACT

Cholecystectomy is especially one of the laparoscopic treatments that many surgical assistants firstly learn and apply. The validity of laparoscopic cholecystectomy (LC) is today indisputable in symptomatic gallbladder stones, other benign gallbladder diseases and early stage malignancy according to certain authors. It is already the most common and widely applied laparoscopic intervention today. Between 20 and 40% of patients with gallstones will develop gallstone-related complications, with an incidence of 1–3% annually; calculus cholecystitis (CC) is the first clinical presentation in 10–15% of the cases.

Relevance. Laparoscopic surgical procedures can now be performed in almost all hospitals and the experience of surgeons is growing day by day. Cholecystectomy is especially one of the laparoscopic treatments that many surgical assistants first learn and use. According to some authors, the effectiveness of laparoscopic cholecystectomy (LC) today is undeniable for symptomatic gallstones, other benign diseases of the gallbladder and malignant neoplasms in the early stages.

The overall prevalence of gallstones is estimated to be 10-15% in the general population, with some variation across countries. Between 20 and 40% of patients with gallstone disease develop complications associated with gallstone disease at a rate of 1-3% per year; calculous cholecystitis (CC) is the first clinical manifestation in 10-15% of cases [1-6]. Cholecystectomy is the most common therapeutic approach for CC and is considered the standard of care for gallstone disease in most patients. However, given the heterogeneity of clinical scenarios, the diversity of hospital facilities, and the availability of specialists, the management of patients with pain in the right hypochondrium may vary. In 2016, the World Society for Emergency Surgery (WSES) published the first edition of their CC guidelines [7] which presented different diagnostic and therapeutic algorithms compared to the Tokyo Guidelines (TG) known at the time as the Tokyo Guidelines 2013 (TG13) [8]. In particular, a direct relationship between CC diagnostic criteria, severity classification, and therapeutic indications described in TG13 is limited by the lack of high-quality evidence. The approach of the WSES guidelines was to simplify the initial management of patients with suspected CC. A review of the literature, discussion of relevant evidence, and statements made during the 2015 Consensus Conference (CC) held in Jerusalem (Third WSES International Congress) supported surgery as the gold standard of care for all patients with CC, with two exceptions: patients who refuse surgery, and patients for whom surgery would be considered "very high risk", although there has not been a clear consensus on

this second issue. Moreover, the 2016 WSES CC Guidelines included discussions on unclear areas such as diagnosis, surgical risk assessment, and appropriate management of associated common bile duct stones (CBDS). In 2017, WSES joined the Italian Society of Geriatric Surgery during a CC dedicated to the management of ACC in the elderly to study this subgroup of frail patients who are considered to be at "very high risk" for surgery. There was no consensus to support surgical treatment of CC in the elderly and consider advanced age as a contraindication for surgery per se. The authors found a significant lack of high-quality research on this topic [9].

The WSES, in evaluating the 2018 edition of TG (TG18) by ACC [10], found that this new edition reached conclusions that were closer to the recommendations of the 2016 WSES guidelines for CC, especially in terms of more liberal indications for surgery, including CC 3 degrees. However, when comparing the WSES and TG guidelines (all revisions), some differences remain, as evidenced by the recommendations in the current updated guidance. A joint event, WSES and TG group could be an opportunity to share experiences from different points of view. Since the publication of the 2016 WSES Guidelines and TG18, the management of patients with high-risk CC has been investigated in a randomized controlled trial (RCT) known as the CHOCOLATE study [11]. Lozen and colleagues compared cholecystectomy with percutaneous catheter drainage in high-risk surgical patients. This study group, along with other experts, contributed to this edition of the WSES CC guidelines.

Chronic cholecystitis is an inflammatory disease that causes immediate symptoms with findings such as increased thickness of the gallbladder wall, swelling, and adherence of adjacent organs along with the omentum. Its most common cause is gallstones. Acute cholecystitis is a serious condition and should be treated. Although laparoscopy was considered contraindicated in acute cholecystitis in the early years of laparoscopy, this opinion soon lost its relevance.[3, 4]

Today, laparoscopic cholecystectomy is of great importance in the treatment of acute cholecystitis, especially in all patients who present early and are able to undergo surgery. Although the rate of complications and transition to open surgery tends to decrease over time with increasing experience, they still remain among the important challenges today. The most important complications of laparoscopic cholecystectomy for acute cholecystitis are biliary tract injury and bleeding.5,6 high safety profile compared to small incision cholecystectomy [8].

One of the complications of calculous holistitis is obstructive jaundice. Despite the progress made in the diagnosis and treatment of obstructive jaundice syndrome, preoperative diagnosis of anic, differential diagnosis of obstructive jaundice, and the correct determination of indications for surgical treatment remain relevant. To solve this problem, it is not enough to use one clinical and laboratory complex. At present, the use of special instrumental research methods remains the leader in this direction.

In this article, we aimed to present retrospectively the complications we encountered with laparoscopic cholecystectomy due to a complication of calculous cholecystitis.

Materials and methods: in order to verify obstructive jaundice of various etiologies, 66 patients with obstructive jaundice syndrome were examined in 2018-2020. The average age of the patients was 50-70 years. The study was conducted in the clinic of "surgical diseases and intensive care" of the Bukhara State Medical Institute as part of the I-II surgical departments of the Bukhara branch of the Republican Scientific Center for Emergency Medical Care. We examined 43 (65.2%) patients with obstructive jaundice syndrome after cholelithiasis (choledocholithiasis), 23 (34.8%) patients with obstructive jaundice syndrome after biliopancreatoduodenal node tumors [7-9].

Results: in 43 (65%) of 66 patients with cholelithiasis, the complication was caused by obstructive jaundice, in 100% - by choledocholithiasis, in 23 (35%) patients - by obstructive

jaundice caused by BPDP tumors. The distribution of patients with BPDP tumors by nosological forms is presented in the table. (Table No. 1).

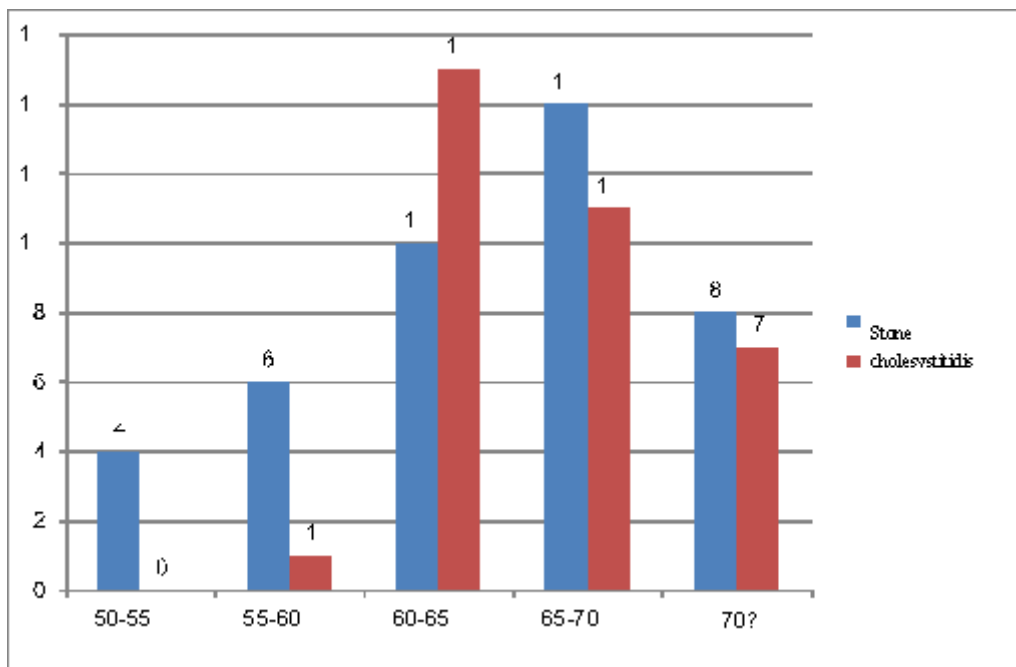
Table No. 1

Localization of tumors	Nasology	Number of patients	
		Aбс	%
Proximal tumors No.=7	Tumors of the gates of the liver (tumors of Klatskin).	7	30,4%
Distal tumors No. = 16	Tumors of the head of the pancreas	13	56,5 %
	Large lobule of the duodenum	3	13,1%
Total		23	100%

As can be seen from the presented results, both obstructive jaundice complication of cholelithiasis and BPDP tumors tend to increase the number of patients with obstructive jaundice syndrome. Thus, the average difference in patients with cholelithiasis during the observation period was 20%, with BPD tumors - 16%.

A significant and stable increase in incidence was observed in patients with tumors of the head of the pancreas and averaged 32%. Over the years, there has been an increase in the volume of the syndrome of obstructive jaundice with good quality and low-quality genesis, not only absolution for patients, but also the improvement of modern diagnostic methods of examination when they are detected.

For our study, 43 patients were selected with a complication of cholelithiasis with choledocholithiasis, obstructive jaundice syndrome. The mean age of the patients was 65 ± 6 years (Fig. 2). Of these, 20 (46.5%) were men, 23 (53.5%) were women. The level of total bilirubin in the blood serum of the taken patients ranged from 220 mmol/l to 560 mmol/l.



Age features of obstructive jaundice syndrome

Patients with BPDP tumors were 14 men (60%) and 9 women (40%). The male to female ratio was 1.5:1 and the mean age was 64.7 ± 5.3 years. The level of total bilirubin in the blood serum of the same patients ranges from 310 $\mu\text{mol/l}$ to 620 $\mu\text{mol/l}$.

The appearance of jaundice in most patients with choledocholithiasis is associated with a characteristic onset of the disease as a result of blockade of the distal part of the common gallbladder, often from 2 weeks to 6 months. In 16 (70%) percent of patients with BPD tumors, the duration of jaundice is 2 to 4 weeks.

It turns out that in about half of the patients treated with bilirubin, its level reached 265 - 350 $\mu\text{mol} / \text{l}$. Choledocholithiasis was accompanied by acute and chronic cholecystitis in 100% of cases. Purulent cholangitis caused complications in 6 (13.9%) patients with choledocholithiasis and in 7 (30.4%) patients with BPD tumors. One additional disease was detected in 45 (68%) patients with obstructive jaundice. At the same time, we take into account the period after surgery (Table 2), which mainly indicates that they cause damage to vital organs, the severity of the underlying disease, the risk of surgery and increased. As can be seen from this table, in patients with obstructive jaundice of the cardiovascular system (ischemic heart disease, hypertension, arrhythmias, etc.) as an additional disease has significantly tripled. A combination of two or more diseases occurred in 7 (10.6%) patients.

The final treatment for 2 (4.7%) patients with severe somatic pathology, whose side effects are an extremely high risk factor, is the implementation of EPCD and intervention in the common bile duct by the traditional method [13-20].

1-stage consisted of 43 (65%) patients who were divided into 41 (95.3%) patients who managed to eliminate choledocholithiasis with endoscopic interventions at the first stage of treatment. After elimination of choledocholithiasis, jaundice and cholangitis, patients underwent the second stage of treatment - cholecystectomy [21-27].

At the 2nd stage of treatment, depending on the method of cholecystectomy, the patients were divided into 3 small groups.

2.1 subgroup (main) - 36 (83.7%) patients who underwent laparoscopic cholecystectomy at the second stage;

2.2 small group - 5 (11.6%) patients who underwent cholecystectomy from minilaparotomic access;

2.3 subgroup - in 2 (4.7%) patients without elimination of choledocholithiasis at the first stage, cholecystectomy and total intervention in the bile ducts were performed in the traditional way.

Conclusion: Laparoscopic cholecystectomy is a candidate for one of the most urgent operations. This is one of the most frequently performed operations in general surgery clinics with a low level of complications, morbidity and mortality, especially in elective conditions. With easier access to technology and a doctor, gallstones are diagnosed more often and surgical treatment is used. However, although the ease of diagnosis has increased, the number of hospital visits for acute cholecystitis has not decreased.[7] As the experience of surgeons increases, the frequency of complications that occur, especially with laparoscopic surgery, decreases. [5, 8] Moreover, it is known that if the patient is operated on as soon as possible after the onset of complaints, the patient experiences fewer complications. Studies have reported that surgeries in the first 72 hours are more comfortable for the surgeon.[9] The most important problem encountered during laparoscopic surgery in patients with acute cholecystitis is dysfunction complexity of the section and operational complications that may arise, respectively.[10] In our series, the reason for switching to autopsy in 3 patients (4%) was the difficulty of complete autopsy and insufficient exposure. Although we switched to autopsy due to bleeding in two patients and biliary tract injury in another patient, the main reason for this was that acute cholecystitis was difficult to autopsy and the anatomy could not be sufficiently disclosed. In many patients with acute cholecystitis, the cystic duct shortens and approaches or adheres to the main bile duct. [10,11] This situation can lead to damage to the biliary tract, especially during traction, such as rupture,

tearing, etc. Sometimes this can lead to a cut in the main bile tract and perception as if it were a cystic duct. One of the complications of laparoscopic cholecystectomy with high morbidity is damage to the biliary tract. This figure ranges from 0.1% to 1%. [2, 12] In the cases we considered, damage to the biliary tract due to traction developed in one patient, and our rate was 1.4%. This figure was consistent with the literature data. The factor that mainly affects the success of treatment for biliary tract injuries is the location of the injury, the time of detection and the experience of the surgeon. The success rate increases as experience in hepatobiliary surgery increases. Therefore, if the injury is detected at an early stage and there is not enough experience, referring the patient to an advanced center will be more accurate both from the point of view of the patient and the surgeon.[6, 13]

REFERENCES:

1. Ахаладзе Г.Г. Гнойный холангит: вопросы патофизиологии и лечения//*Consilium medicum*. - 2003. - №1. - С. 3- 8.
2. Ашрафов А.А., Гадиев СИ. Современные принципы диагностики и хирургического лечения механической желтухи // Тезисы докл. I Московского международного конгресса хирургов. - Москва, 1995. -С . 312- 313.
3. Бабышин В.В., Зезин В.П. Хирургия из минилапаротомного доступа //Хирургия. - 1997. - №12. - С. 28- 29.
4. Гранов А.М., Тютин Л.А. Современные технологии лучевой диагностики опухолей печени и поджелудочной железы / Материалы научной конференции «Новые технологии в диагностике, интервенционной радиологии и хирургии печени и поджелудочной железы». Санкт- Петербург. - 2005. - С.20.
5. Грязнов В.И., Сивоконь Н.И., Перфильев В.В., Петриченко А.В.Лапароскопическая холецистэктомия при желчнокаменной болезни,осложненной холедохолитиазом // *Анналы хирургической гепатологии (Тезисы докл. VI международной конференции хирургов- гепатологов стран СНГ)*. -1998. - Т.3, - №3 . - С. 49- 50.
6. Гринцов А.Г., Хацко В.В., Зубов А.Д. и др. Чрескожнаячреспеченочная холангиостомия в предоперационной подготовке и лечениибольных с обтурационной желтухой // *Современные проблемы хирургическойгепатологии: Материалы 4- й конференции хирургов- гепатологов*. - Тула, 1996.-С . 82- 83.
7. Грубник В.В., Ильяшенко В.В., Герасимов Д.В. и др.Лапароскопические операции у больных с холедохолитиазом // *Анналы хирургической гепатологии (Тезисы докл. VI международной конференции хирургов-гепатологов стран СНГ)*. - 1998. - Т.3, №3. - С. 49- 50.
8. Грубник В.В., Ткаченко А.И., Герасимов Д.В. и др. Эффективностьэндоскопических и чрескожных вмешательств при стриктурах желчных путей /*Материалы X Юбилейной международной конференции хирургов гепатологов России и стран СНГ*. - Москва. *Анналы хирургической гепатологии*. - 2003. -Том 8,- № 2.- С . 88- 89.
9. А.У. Нурбобоев, Г.Ф. Махмудова, А.Ф.Махмудова.Обсуждение Результатов Лечения Больных С Желчнокаменной Болезнью, Осложненной Механической Желтухой //*Central Asian journal of medical and natural sciences*//-2022.- 3 (3), 273-280.
10. А.У. Нурбобоев, МС Шаропова, А.Ф. Махмудова Турли этиологияли механик сарикликни даволашда замонавий минилапаратом усуллар// *Scientific progress*// 3(1), 713-721, 2022
11. G.F.Makhmudova Colposcopic analysis of cervical pathology in women with uterine

- fibroids//Scientific progress// 3(1), 289-296,2022
12. A.U. Нурбобоев, МС Шаропова, А.Ф. Махмудова Турли этиологияли механик сарикликни даволашда замонавий минилапаратом усуллар// Scientific progress// 3(1), 713-721, 2022
 13. MG Fazliddinova, NA Uygunovich, ND Faxriddinova The modern way of diagnosis of cervical pathology in women with uterine fibroids via the colposcopy//Web of scientist: international scientific research journal.-3(02), 1017-1027, 2022.
 14. Nurboboyev A.U., Makhmudova G.F. Miniinvasive approach in the complex treatment of tumor and stone etiology of mechanical jaundice// International journal on Orange technology// Vol 3. Issue 9. Sep.2021.-P. 85-90
 15. Makhmudova G.F. Age-related clinical, anatomical and morphological features of malignant tumors of the cervix// Journal of science and technology//2021.-P.-475-480
 16. Makhmudova G.F., Soxibova Z.R., Mamedov U.S., Nurboboyev A.U. Fertil va keksa yoshli ayollarda bachadon bo'yni xavfli o'smalari tahlili (Buxoro viloyatida)//Oriental Renaissance: Innovative, educational, natural and social sciences//.-2021.-V 8.-B. 175-184.
 17. А.У. Нурбобоев, Г.Ф. Махмудова, А.Ф.Махмудова.Обсуждение Результатов Лечения Больных С Желчнокаменной Болезнью, Осложненной Механической Желтухой //CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES//.-2022.- 3 (3), 273-280.
 18. NA Uygunovich, MG Fazliddinova, SZ Rakhmonova. Laparoscopic Methods in the Diagnosis and Treatment of Emergency Surgical Diseases of the Abdominal Cavity // European Multidisciplinary Journal of Modern Science//.-2022.- 4, 196-202.
 19. GF Makhmudova. COLPOSCOPIC ANALYSIS OF CERVICAL PATHOLOGY IN WOMEN WITH UTERINE FIBROIDS // Scientific progress.-2022.-3 (1), 289-296.
 20. NA Uygunovich, MG Fazliddinova. Miniinvasive Approach in the Complex Treatment of Tumor and Stone Etiology of Mechanical Jaundice // International Journal on Orange Technologies.-2021.-3 (9), 85-90.
 21. Nurboboyev Adhambek Uygunovich. Modern Laparoscopic Methods of Diagnosis and Treatment of Acute Abdominal Diseases// RESEARCH JOURNAL OF TRAUMA AND DISABILITY STUDIES// Volume: 01Issue: 10|Oct–2022 ISSN: 2720-6866.P.62-69
 22. Hakansson K., Ekberg O., Hakansson H.O. MR characteristics of acute cholangitis // Acta Radiol. - 2002. - Vol. 43, N 2. - P. 175- 179.
 23. Han Y.M., Jin G.Y., Lee S.O. et. al. Flared polyurethane- covered selfexpandable nitinol stent for malignant biliary obstruction // J. Vase. Interv. Radiol.- 2003.- Vol. 14, N 10. -P . 1291-1301.
 24. Hunerbein M., Stroszczyński C, Ulmer C et. al. Prospective comparison of transcutaneous 3-dimensional US cholangiography, magnetic resonance cholangiography, and direct cholangiography in the evaluation of malignant biliary obstruction // Gastrointest. Endosc. - 2003. - Vol. 58, N 6. - P. 853- 858.