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Effectiveness Mininvasive Laparoscopic Cholecystectomy during the Complication of Acute Cholecystitis

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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; acute calculus cholecystitis (ACC) is the first clinical presentation in 10–15% of the cases.

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

Laparoscopic surgical procedures can today be performed in almost all hospitals and the experiences of surgeons are increasing day by day. 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.[1–3] It is already the most common and widely applied laparoscopic intervention today.

The estimated overall prevalence of gallstones is 10–15% in the general population, with some differences across countries. Between 20 and 40% of patients with gallstones will develop gallstone-related complications, with an incidence of 1–3% annually; acute calculus cholecystitis (ACC) is the first clinical presentation in 10–15% of the cases [1–6]. Cholecystectomy is the most common therapeutic approach for ACC and is considered the standard of care for gallstone disease for the majority of patients. However, considering the heterogeneity of clinical scenarios, the variability in hospital facilities and in the availability of expertise, the management of patients with right upper quadrant abdominal pain may vary. In 2016, the World Society of Emergency Surgery (WSES) published the first edition of their guidelines for ACC [7], which presented different

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diagnostic and therapeutic algorithms, compared with the Tokyo Guidelines (TG), known at that time as Tokyo Guidelines 2013 (TG13) [8]. In particular, the direct link between diagnostic criteria for ACC, severity classification and therapeutic indications described in the TG13 are limited by lack of quality evidence. The approach of the WSES guidelines was to simplify the initial management of patients presenting with suspected ACC. The literature review, the discussion of the relevant evidence and the statements made during the consensus conference (CC) held in Jerusalem in 2015 (Third WSES International Congress) supported surgery as the gold standard treatment for all patients with ACC, with two exceptions: patients who refuse surgery, and patients for whom surgery would be considered as 'very high risk', although no clear consensus was reached on this second issue. Moreover, the 2016 WSES Guidelines on ACC included discussions on unclear areas, such as diagnosis, evaluation of the surgical risk and appropriate management of associated common bile duct stones (CBDS). In 2017, the WSES joined the Italian Society for Geriatric Surgery during a CC regarding the management of ACC in the elderly, with the aim of investigating this subgroup of fragile patients, considered at 'very high risk' for surgery. There was lack of agreement supporting the surgical management of ACC in the elderly and considering old age as a contraindication for surgery by itself. The authors found substantial lack of high-quality studies on this topic [9]. The WSES, after evaluating the 2018 edition of the TG (TG18) on ACC [10], found that this new edition reached conclusions that were closer to the recommendations of the 2016 WSES guidelines on ACC, especially in terms of a more liberal indication for surgery including grade 3 ACC. However, some differences remain when comparing the WSES guidelines and the TG (all editions), as evident in the recommendations in the current updated guidelines. A combined event, WSES and TG group could be an opportunity to share experiences considering different perspectives. Since the publication of the 2016 WSES Guidelines and the TG18, the management of the high-risk patients with ACC was investigated in a randomized controlled trial (RCT), known as the CHOCOLATE trial [11]. Loozen and collaborators compared cholecystectomy to percutaneous catheter drainage in high-risk surgical patients. This research group has joined with other experts in contributing to this edition of the WSES guidelines on ACC.

Acute cholecystitis is an inflammatory disease that generates urgent symptoms with exploration findings such as increased wall thickness of the gallbladder, edema and adherence of adjacent organs along with the omentum. Its most common cause is gallbladder stones. Acute cholecystitis is a serious condition and should be treated. Although laparoscopy was considered contraindicated in acute cholecystitis in the first years of laparoscopy, this opinion lost its validity in a short time.[3, 4]

Today, laparoscopic cholecystectomy is essential in the treatment of acute cholecystitis particularly in all patients who have applied in the early period and can tolerate surgery. Although the rates of complication and conversion to open surgery tend to decrease over time with the increasing experience, they are still among the important problems today. The most important complications of

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laparoscopic cholecystectomy in acute cholecystitis are the biliary tract injuries and bleeding.[5, 6] laparoscopic cholecystectomy is less prone to injuries to the gastrointestinal wall, greater omentum, and peritoneum during operation [7], which avoids intraoperative hemorrhage and suggests a higher safety profile versus small-incision cholecystectomy [8].

In this article, **we aimed** to retrospectively present the complications that we encountered in laparoscopic cholecystectomy due to acute cholecystitis.

Materials and methods: for the purpose of verification of mechanical jaundice with different etiology, 66 patients with mechanical jaundice syndrome were investigated in 2018-2020 years. The average age of the patients was 50-70 years. The research was carried out in the clinic of "surgical diseases and intensive care" of Bukhara State Medical Institute in the concentration of I-II - surgical departments of Bukhara branch of the Republican Scientific Center for emergency ambulance. 43 (65.2%) patients with mechanical jaundice syndrome after gallbladder stone disease (choledocholithiasis), 23 (34.8%) patients with mechanical jaundice syndrome after BPDP (Biliopancreatoduodenal place) tumors were studied [7-9].

Results: 43 (65%) out of 66 patients with gall stone disease complication was caused by mechanical jaundice, 100% by choledocholithiasis, 23 (35%) patients by mechanical jaundice BPDP tumors. The distribution of patients with BPDP tumors by nosological forms is presented in Table. (Table № 1).

Table № 1

Localization of tumors	**Nazology**	**Number of patients**	
		Абс	**%**
Proximal tumors №=7	Liver gate tumors (Klaskin tumors).	7	30,4%
Distal tumors № = 16	Tumors of the head part of the pancreas	13	56,5 %
	Large duodenal lobule Tumors	3	13,1%
Total		**23**	**100%**

As can be seen from the presented results, both the complication of gall stone disease with mechanical jaundice and BPDP tumors have a tendency to increase in the number of patients with mechanical jaundice syndrome. Thus, the average difference in patients with gall stone disease during the observation period was 20%, with bpdz tumors 16%.

A significant and stable increase in the incidence was observed in patients with tumors of the head of the pancreas and was an average of 32%. Over the years, there has been an increase in the volume of

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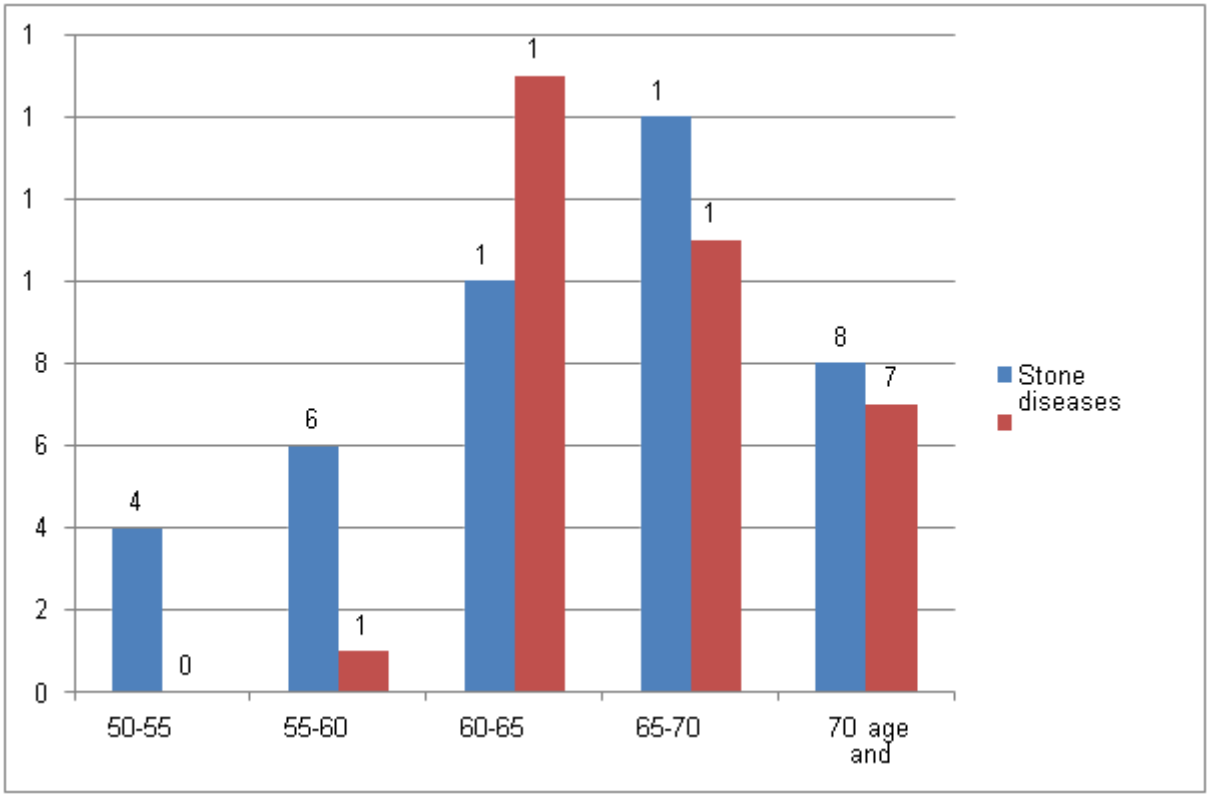
the syndrome of mechanical jaundice with good quality and poor quality of Genesis, not only the absolution of patients, but also the improvement of modern diagnostic methods of examination in their detection.

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



Age-specific features of mechanical jaundice syndrome

Patients with BPDP tumors were 14 men (60%) and 9 women (40%). The ratio of men and women was 1,5: 1 while the average age was 64,7 ± 5,3 years. The total bilirubin level in the blood serum of the same patients is from 310 mkmol/l to 620 mkmol/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 ut Yulin, often from 2 weeks to sung. In 16(70%) percent of patients with BPD tumors, the duration of jaundice is from 2 to 4 weeks.

It turns out that in about half of the patients who received bilirubin, the level was up to 265 - 350 mcmol/l. Choledocholithiasis was accompanied by acute and chronic cholecystitis in 100% of cases.

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Purulent cholangitis caused complications in 6 (13.9%) patients with choledocholithiasis and 7 (30.4%) patients with BPDP tumors. An additional disease was detected in 45 (68%) of patients with mechanical jaundice. At the same time, we take into account the period after the operation (Table 2), which basically 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, patients with mechanical jaundice of the cardiovascular system (ischemic diseases of heart, hypertension, arrhythmias, etc.) as a additional diseasesmuch tripled. A combination of two or more diseases occurred in 7 (10.6%) patients.

Table 2. Co-morbidities with mechanical jaundice syndrome in studied patients

Additional diseases	Amount,%	
	Stone diseases (№ = 30)	**BPDP tumors (№ = 15)**
Ischemic diseases of heart	9 (30%)	3 (21%)
Heart rhythm disturbances	2 (6,6%)	1 (6,6%)
Hypertension disease	5 (16,7%)	2 (13,3%)
Ulcer of the stomach and duodenum	3 (10%)	2 (13,3%)
Diabetes	2 (6,6%)	2 (13,3%)
Patients with acute violation of blood circulation in the main brain of Anamnesis	2 (6,6%)	1 (6,6%)
Combination of two or more diseases	4 (13,3%)	3 (21%)
Others	3 (10%)	1 (6,6%)

The final method of treatment for 2 (4,7%) patients with severe somatic pathology and whose side effects are extremely high risk factor is ESPCDS making and intervention in the common bile duct by the traditional method[13-20].

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

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

2.1 subgroup (main) - 36 (83.7%) patients undergoing laparoscopic cholecystectomy in the second stage;

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2.2 small group-5 (11.6%) patients undergoing cholecystectomy from the minilaparotomic approach;

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

Conclusion: Laparoscopic cholecystectomy is candidate to be one of the day case surgeries. It is one of the most performed operations in general surgery clinics with low complication, morbidity and mortality rates especially under elective conditions. Due to the easier access to technology and doctor, gallbladder stones are diagnosed more frequently and surgical treatment is applied. However, although the ease of diagnosis has increased, applications to hospitals due to acute cholecystitis have not decreased.[7] As the experience of surgeons increases, the rates of complications encountered especially in laparoscopic surgery decrease.[5, 8] Moreover, it is known that if the patient is operated as soon as possible following the start of the complaints, less complication is observed in the patient. In the studies conducted, it has been reported that the operations in the first 72 hours are more comfortable in terms of the surgeon.[9] The most important problem encountered during laparoscopic surgery in patients with acute cholecystitis is dis section difficulty and operative complications that may occur accordingly.[10] In our series, the reason for conversion to open in 3 patients (4%) is completely dissection difficulty and exposure deficiency. Although we converted to open due to bleeding in two patients and biliary tract injury in another patient, the main reason for all of these was that acute cholecystitis caused dissection difficulties and anatomy could not be revealed sufficiently. In many patients with acute cholecystitis, cystic duct is shortened and approached or adhered to the main bile duct.[10,11] This situation can lead to biliary tract injuries especially during traction such as rupture, tearing, etc. It can occasionally lead to dissection of the main biliary tract and perception as if it is the cystic duct. One of the complications in laparoscopic cholecystectomies with high morbidity is biliary tract injuries. This rate varies between 0.1% and 1%.[2, 12] In the cases that we examined, biliary tract injury due to traction developed in one patient and our rate was found as 1.4%. This rate was in line with the literature. The factor that mostly affects the treatment success in biliary tract injuries is the location of the injury, the time of detection and the surgeon's experience. The success rate increases as the hepatobiliary surgery experience increases. Therefore, if the injury is detected in the early period and there is not enough experience, referring the patient to an advanced center will be more accurate in terms of both the patient and the surgeon.[6, 13]

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