

ANALYSIS OF COMPLICATIONS AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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Abstract

The detailed analysis of 561 operations performed laparoscopic cholecystectomy (LCE) and their complications. Concluded that during this period LCE became the operation of patients' choice with a benign gall bladder diseases, and the key to a successful implementation of LCE are good technical equipment of operating room, highly professional preparation of surgeons performing laparoscopic surgery, a meticulous preoperative examination of patients, strict adherence to the rules of performing laparoscopic surgery and attentive postoperative supervision of patients.

Keywords: Laparoscopic cholecystectomy, intraoperative complications, postoperative complications

Introduction

In recent years is observed a steady upward tendency in the number of patients with cholelithiasis. According to the statistical researches of the last years every fifth woman and every tenth man are suffering from cholelithiasis.

In the past 20 years, laparoscopic cholecystectomy becomes the gold standard of the treatment of calculous cholecystitis. Operation became available not only in leading clinics, but in regional hospitals also ^{2, 3}. Widespread introduction of laparoscopic surgery is predetermined by their obvious advantages over laparotomic interventions and primarily related to minimizing injury of the abdominal wall and early rehabilitation of patients. At the same time, the number of complications after laparoscopic surgery remains a significant ⁴.

Although the total number of complications and mortality in the LCE is considerably less, than in open surgery. To dangerous complications arising directly during the intervention, most authors include the extrahepatic bile ducts injury, damage of abdominal organs, massive bleeding in the zone of operation. Among complications of postoperative period most commonly found biliary peritonitis, bleeding, and abdominal abscesses ^{5, 6, 7}. At emergence of intraoperative complications make transition to open operation. The investigations conducted by Lee H.K. (2005) defined that conversion at a laparoscopic LCE averages 6,2%.

The development of postoperative hernias in patients in locations of trocar wounds occurs in 0,1-0,3 % of patients. Complications such as migration clips or gallstones to the peritoneal cavity were not known in open surgery. Frequency of other complications of LCE does not exceed 1:1000 operations ⁸.

Among the lethal complications due to surgical intervention, there are bilious peritonitis, a necrosis of the liver right lobe as a result of damage and ligation of a hepatic artery, injury of an aorta, destructive pancreatitis. Thus, lethality varies from 0 to 0,1%.(Choi J.Y. et al., 2006)

Problems of prevention, diagnosis and treatment of complications during LCE are far from a final decision.

Careful study of the features of LCE detection of complications and hazards of the operation would increase the safety and effectiveness of this intervention through the development of a complex of preventive measures.

In connection with the above stated, we studied the frequency of complications in LCE.

Materials and methods

There was conducted a retrospective analysis of 731 medical records of hospitalized patients, who were operated on for calculous cholecystitis in various forms of its manifestations in the surgical department of the Regional hospital named G. Sultanov in Pavlodar city. During the period from 2008 – 2012 years LCE performed on 561 (76,7 %) operations, the traditional cholecystectomy performed 170 (23,3 %) operations.

Among patients who underwent LCE majority were patients most of working age from 20 to 60 years - 459 (81,8 %) people, older than 60 years were 102 (18,2%) patient. 156 men were operated (27,8 %) , women - 405 (72,2 %).

In the anamnesis at 54 (9,6%) patients there were various operations on abdominal organs and small pelvis, and also other parts of body. Before LCE 76 patients had undergone more than one operation. Painful attacks the day before or on admission were in 56,4% of cases. The average duration of a disease was equal to $5,3 \pm 0,4$ years.

Method of treatment

All operations are carried out under the endotracheal anesthesia. Operating team consisted of a surgeon, assistant and scrub nurse. Nasogastric tube, urinary catheter and the lower limb bandage or elastic bandages was mandatory.

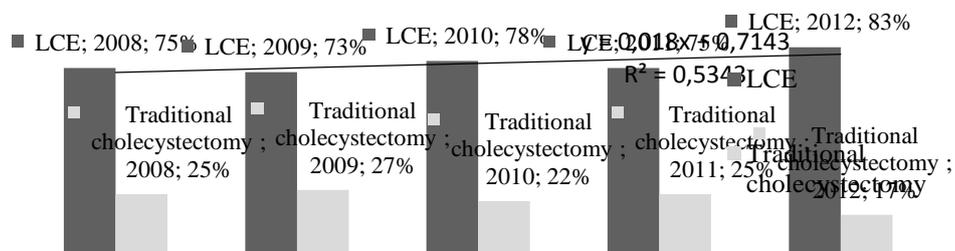
The operation was performed with a stand and a set of tools the company «Karl Storz». LCE was performed according to standard procedures: the imposition of a pneumoperitoneum, the introduction of trocars, revision abdominal cholecystectomy and removal of the gallbladder from the abdomen. Virtually all operations used atraumatic clamps, thus avoiding unnecessary injury of organs and tissues, and as a result of them - hemorrhage and perforation.

At 100 % of the operated patients the operation was ended by drainage of sub hepatic space. Drain was removed on second day in the absence of active discharge (serous fluid, bile) from the abdominal cavity.

Duration of surgery was ranged from 25 to 185 minutes, depending on the nature of the morphological changes of organs and tissues, on average 40-60 minutes.

Research methods. In work used clinical, laboratory, radiological investigation, statistical methods of research.

Results of research. During the investigation there was established, that within five years there is a tendency to prevalence of laparoscopic cholecystectomy over traditional cholecystectomy performed by open way. (picture 1).



Picture 1- Correlation between LCE and traditional cholecystectomy for 2008-2012 period

The presented chart (Figure 1) shows that percentage of LCE remains high annually and the average traditional cholecystectomy performed only to 23% of patients.

In preoperative period revealed the following concomitant diseases in patients undergoing LCE: arterial hypertension, ischemic heart disease, obesity I- IV degree, bronchial asthma, and cirrhosis, umbilical hernia. Data are presented in table 1.

Table 1- Concomitant diseases in patients undergoing LCE

| № | Concomitant disease | Quantity of patients n=561 | % |
|---|------------------------|-------------------------------|-----|
| 1 | Arterial hypertension | 404 | 72 |
| 2 | Ischemic heart disease | 353 | 63 |
| 3 | Obesity I- IV degree | 107 | 19 |
| 4 | Bronchial asthma | 39 | 7 |
| 5 | Cirrhosis | 19 | 3,4 |
| 6 | Umbilical hernia | 24 | 4,3 |

According to table 1, the arterial hypertension more often was revealed (72%), coronary heart disease (63%) is on the second place, and obesity of different degree (19%), in 7% (39 people) cases - COPD. The associated diseases complicated technically performance of LCE such as cirrhosis and umbilical hernia made 3,4% (19 people) case and 4,3% (4,3 persons) case respectively.

LCE performed 93 (16.6%) patients with chronic calculous cholecystitis, and 468 (83.4 %) patients with acute calculous cholecystitis.

In 557 (99,3 %) patients carrying LCE was successful , and in 4 (0,7 %) cases, the observations made on the conversion of traditional cholecystectomy . The reasons for the transition to laparotomy were: severe scar- inflammatory changes in the neck of the gallbladder in three cases and in one case, severe bleeding from the gallbladder bed.

Intraabdominal complications in the early postoperative period after LCE diagnosed in 9 (1,6%) patients. Bile in sub hepatic space was observed in one patient, which resolved conservatively, two patients on the second day after surgery to drain tube has been actively secretes bile. However peritoneal out phenomenon, bile leakage stopped at 5 second night drainage deleted 7 - eighth day, respectively. In the future recovery. One patient formed billiary fistula, fistula closed in a month alone, two patients developed acute pancreatitis, which in the conservative treatment was arrested. One patient developed postoperative billiary peritonitis. Patient underwent relaparotomy, sanitation and drainage of the abdominal cavity, eliminate sources of bile leakage - suturing the gallbladder bed. The patient was discharged out with recovery. Nausea and vomiting after LCE observed in 8,9% (50 people) patients, pain in the shoulders (frenikus - symptom) – 11,9% (67 people) patients. The characteristic of complications is presented in the table 2.

Table 2 – Characteristic of complications after LCE

| № | Type of complication | Quantity of cases n | % |
|---|---|------------------------|------|
| 1 | Biloma in subhepatic space | 1 | 0,2 |
| 2 | Choleresis through drainage tube | 2 | 0,4 |
| 3 | Biliary fistula | 1 | 0,2 |
| 4 | Acute pancreatitis | 2 | 0,4 |
| 5 | Biliary peritonitis | 1 | 0,2 |
| 6 | Nausea and vomiting | 50 | 8,9 |
| 7 | Pain in the shoulders (phrenicus - symptom) | 67 | 11,9 |

In connection with the small injury, applied the anterior abdominal wall, the postoperative period in patients after LCE flowed easier than after a similar traditional surgery performed by laparotomy. Already in the first days after the intervention of pain moderately disturbed patients, reducing the dosage of narcotic analgesics , or opt out of their use. The use of antibiotics is solved individually. On the second day the patient starts walking, bowel function was restored on the third day after surgery. General condition of patients allowed to

discharged them for 3-4 days after the LCE, however, often patients out on 5-6-th day, given that some of the complications can appear in the later period.

Discussion. As a result of our study confirmed once again that the operations LCE become the patients' choice procedure with cholelithiasis. Implementation merged into clinical practice of such concomitant diseases like heart diseases, enuresis, chronic ischemic heart disease, arterial hypertension (AH) (II B, heart rhythm disorders, hormone-dependent bronchial asthma (BA), obesity and extreme extent possible to successfully perform in such diseases and conditions^{9,10}.

Transfer from laparoscopic to open cholecystectomy in the above cases, as well as V.S. Savelyev, S.I. Emelyanov^{11, 12}, is not a complication of surgery. Traditional cholecystectomy should be considered as the most appropriate in this situation type of operating.

Cholecystectomy by open way at sudden disrepair in work of the laparoscopic video equipment which isn't giving in to immediate elimination, and existence of the great technical difficulties connected with formation of dense infiltrate and rough cicatricial adhesions in a hepatoduodenal zone, provides prevention of serious complications.

Blunders runtime LCE help avoid the following measures : careful consideration of all risk factors (renounced adhesions , infiltration of gall bladder, etc.); timely operation cholelithiasis; optimal intraoperative gall bladder and bile ducts , conducting operations in a planned manner; accounting anomalies gall bladder , ducts and blood vessels , increasing the qualification of the surgeon ; clear vision elements gall bladder and duct during surgery , and should not be stopped at the gate of the liver bleeding in a blinded fashion . Injury prevention and gall bladder duct during surgery is more promising than their treatment effects^{13,14} .

Use of complex measures for prevention of complications developed by us at LCE allowed to reduce the average duration of in-patient treatment from 10,5 to 4,5 days.

Conclusion

Thus, intraoperative complications LCE are not inevitable character. Observing technique of surgical interventions, most of them can be avoided or eliminate them without resorting to laparotomy. We see prospects for reducing these complications more careful preoperative evaluation of patients, particularly the elderly, with a long history, severe concomitant diseases and complications of gallstone disease in antibiotic prophylaxis, as well as dynamic control in the postoperative period.

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