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Original Research Article

Assessment of Incidence and Complications Associated with Laparoscopic Cholecystectomy: A Retrospective Study

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ABSTRACT

Background: For treatment of symptomatic gallstones, elective Laparoscopic cholecystectomy (LC) has become the gold standard. While evaluating the need of LC in patients, the risks and associated post-operative complications can neither over-rated nor under-rated. Laparoscopy is not easy for the surgeon, thorough instruction as well as experience being crucial for improvement of results. Contrary to initial reports of an increased complication rate, recent data show that LC entails lower morbidity and mortality rates than open operation. Hence; the present study was planned to assess the incidence of complications associated with LC.

Materials & Methods: The present study included assessment of 200 patients who underwent LC from 2012 to 2015. Information and data regarding all the biliary operations which were performed from June 2012 to July 2015 were assessed and analyzed. Out of all the cases encountered, more than 30% of them were open procedures. All the patients' ages form 15 years to 75 years with more than 65% of the patients in between the group of 60 years. All the result was recorded and analyzed using SPSS software.

Results: 68% of the subjects had chronic calculous cholecystitis while gall bladder mucocele was present in 1 percent of the subjects. Acute cholecystitis was present in 18 percent of the subjects. Sclero-atrophic cholecystitis and Gall stones in gall bladder remnant were present in 2 subjects each. Bile leakage was present in 10 subjects among whom, 5 were treated conservatively, 4 were treated with minimal invasive procedures while in 1 patient, open surgery was carried. In all the 26 subjects with complications, conservative management was done in 7 subjects while treatment with minimal invasive procedure and open surgery was done in 11 and 8 subjects respectively.

Conclusion: High degree of efficiency is offered by minimally invasive treatment in treating complications of LC.

Key words: Cholecystectomy, Complications, Laparoscopic.

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INTRODUCTION

The first cholecystectomy was performed by Carl Langebuch in 1882. 103 years later, the first laparoscopic cholecystectomy (LC) was performed by Prof Dr Erich Mühe in 1985. For treatment of symptomatic gallstones, elective LC has become the gold standard.[1] Patients with acute cholecystitis were contraindication for laparoscopic cholecystectomy in earlier times, and were therefore, managed conservatively and discharged for re-admission in order to have elective surgery performed for the definitive treatment.[2]

In comparison with the delayed cholecystectomy, various randomized controlled trials and meta-analyses had shown the advantages of early surgery in patients during their acute admission period having no significant difference in morbidity and mortality.[3] During the past decade, LC has become the procedure of choice in the surgical treatment of symptomatic biliary lithiasis. The operation is not completely risk-free, some incidents and complications being more frequent than with open cholecystectomy (OC).[4]

While evaluating the need of LC in patients, the risks and associated post-operative complications can neither over-rated nor under-rated. Laparoscopy is not easy for the surgeon, thorough instruction as well as experience being crucial for improvement of results.[5]

Contrary to initial reports of an increased complication rate, recent data show that LC entails lower morbidity and mortality rates than open operation.[6] In view of above literature, the present study was planned to assess the incidence of complications associated with LC.

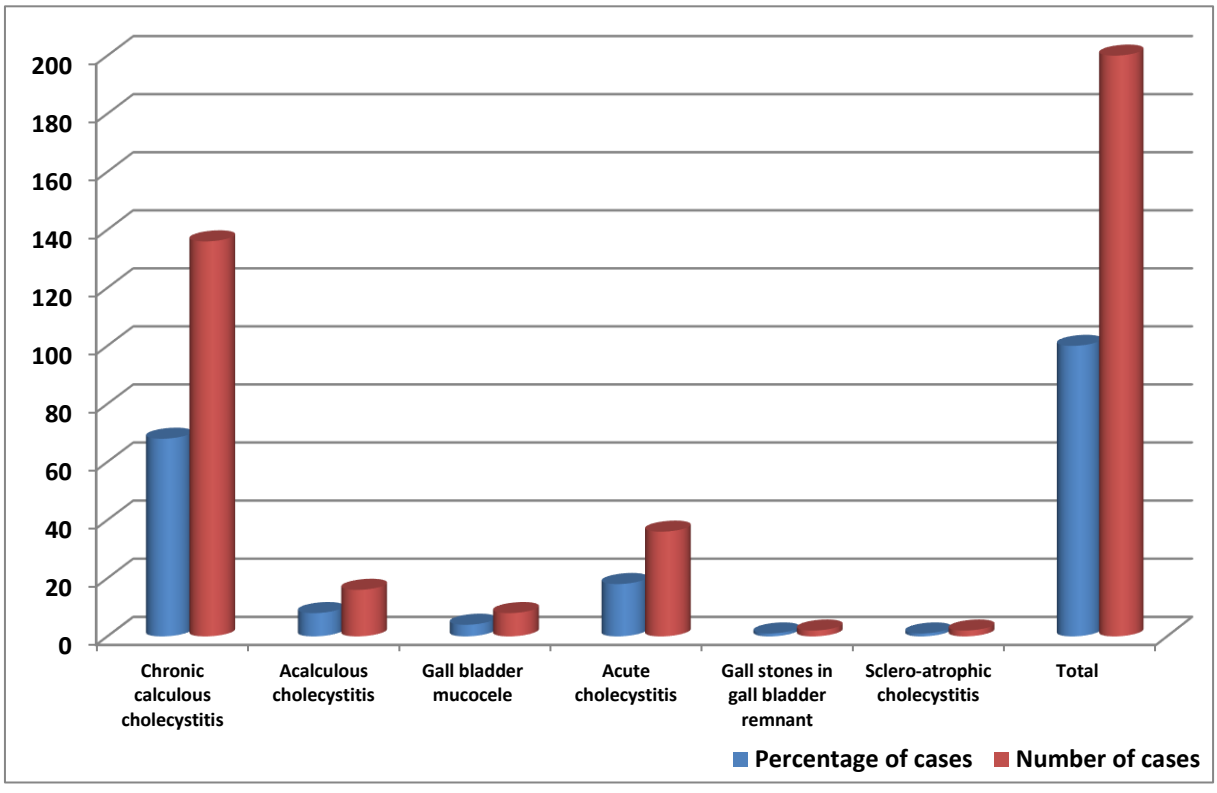
MATERIALS & METHODS

The present study was conducted in the department of General surgery of the medical institute and included assessment of 200 patients who underwent LC from 2012 to 2015. Ethical approval was taken from the institutional ethical committee and written consent was obtained dafter explaining in detail the entire research protocol. Information and data regarding all the biliary operations which were performed from June 2012 to July 2015 were assessed and analyzed. Out of all the cases encountered, more than 30 percent of them were open procedures. Table 1 shows the details of the various LC procedures done in patients included in the present study. All the patients' ages form 15 years to 75 years with more than 65 percent of the patients in between the group of 60 years. Zucker[1] recommended procedure was used for performing LC regarding both placement of the operative team and the sites of trocar insertion. For intra-operative exploration of the main bile duct selective laparoscopic cholangiography was performed when dilatation of the cystic duct (>3 mm diameter) was associated with small calculi in the gallbladder. If stone migration was suspected and the main bile duct could not be explored, ERCP was performed 3–5 days postoperatively. All the result was recorded and analyzed using SPSS software. Chi square test and univariate regression curve was used for the assessment of level of significance.

Table 1: Various operative diagnosis

Diagnosis	Percentage of cases	Number of cases
Chronic calculous cholecystitis	68	136
Acalculous cholecystitis	8	16
Gall bladder mucocele	4	8
Acute cholecystitis	18	36
Gall stones in gall bladder remnant	1	2
Sclero-atrophic cholecystitis	1	2
Total	100	200

Graph 1: Various operative diagnosis



RESULTS

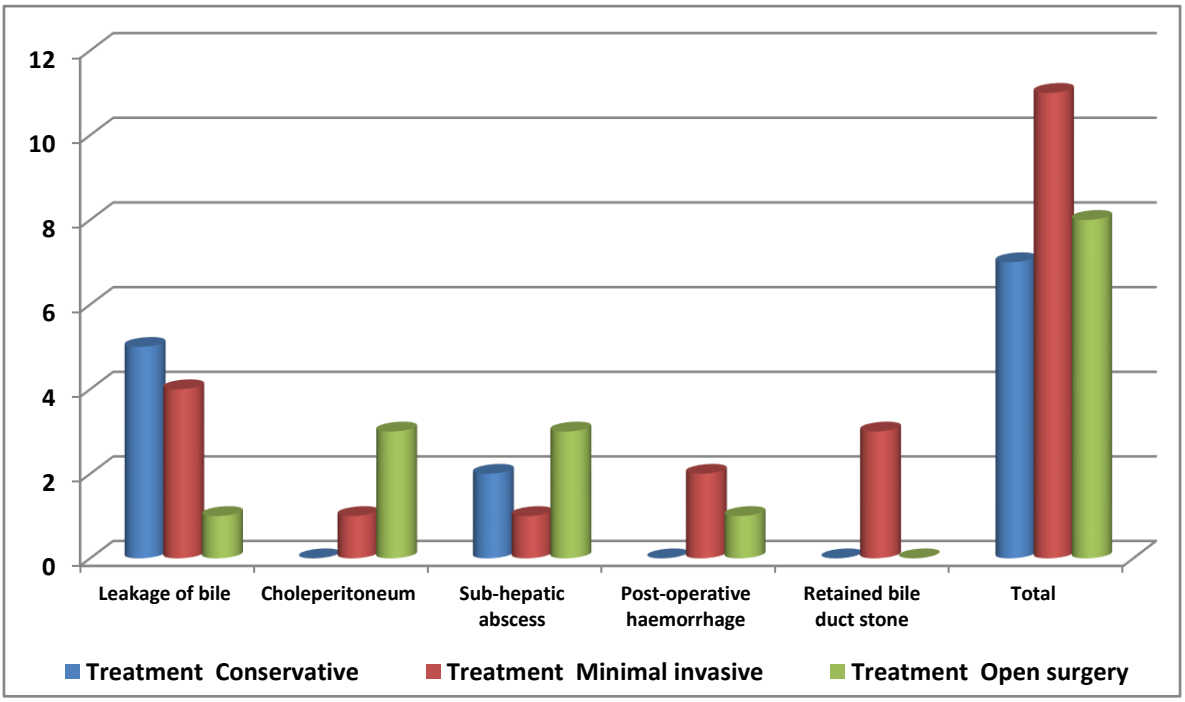
Table 1 and graph 1 show various operative diagnoses. 68 percent of the subjects had chronic calculous cholecystitis while gall bladder mucocele was present in 1 percent of the subjects. Acute cholecystitis was present in 18 percent of the subjects. Sclero-atrophic cholecystitis and Gall stones in gall bladder remnant were present in 2 subjects each.

Table 2 and graph 2 show the post-operative complications and their treatment. Bile leakage was present in 10 subjects among whom, 5 were treated conservatively, 4 were treated with minimal invasive procedures while in 1 patient, open surgery was carried. In all the 26 subjects with complications, conservative management was done in 7 subjects while treatment with minimal invasive procedure and open surgery was done in 11 and 8 subjects respectively.

Table 2: Post-operative complications and their treatment

Complication	Treatment			Total
	Conservative	Minimal invasive	Open surgery	
Leakage of bile	5	4	1	10
Choleperitoneum	0	1	3	4
Sub-hepatic abscess	2	1	3	6
Post-operative haemorrhage	0	2	1	3
Retained bile duct stone	0	3	0	3
Total	7	11	8	26

Graph 2: Post-operative complications and their treatment



DISCUSSION

One of the routinely performed procedures these days is cholecystectomy employed most commonly for intraabdominal surgeries. Laparoscopic removal is now the procedure of choice when cholecystectomy is indicated.[7] However, newer, less invasive techniques, such as natural orifice transluminal endoscopic surgery and single incision LC, are currently being investigated as alternatives to the traditional 4-port laparoscopic removal.[8- 10] Safety data and definitive benefits of these less invasive procedures are lacking. LC decreases postoperative pain, allows earlier oral intake, shortens hospital stay, enhances earlier return to normal activity, and improves cosmesis over open cholecystectomy. Debate exists regarding the occurrence of complications in patients undergoing LC.[11]

Hence; we planned the present study to assess the incidence of complications associated with LC.

In the present study, we observed that Chronic calculous cholecystitis was the most commonly encountered reason for carrying out LC in patients, followed by acute cholecystitis (Table 1, Graph 1). Most of the complications were treated by minimal invasive procedures (Table 2, Graph 2). Duca et al (2003) retrospectively analyzed the incidence and complications in patients undergoing LC. The main operative incidents encountered were haemorrhage (224 cases, 2.3%), iatrogenic perforation of the gallbladder (1517 cases, 15.9%) and common bile duct (CBD) injuries (17 cases, 0.1%). Conversion to open operation was necessary in 184 patients (1.9%), usually due to obscure anatomy as a result of acute inflammation. The main postoperative complications were bile leakage (54 cases), haemorrhage (15 cases), sub-hepatic abscess (10 cases) and retained bile duct stones (11 cases). Ten deaths were recorded (0.1%). Most of the postoperative incidents (except bile duct injuries) were solved by laparoscopic means. Among patients with postoperative complications 28.9% required revisional surgery. In 42.2% of cases minimally invasive procedures were used successfully: 15 laparoscopic re-operations (for choleperitoneum, haemoperitoneum and subhepatic abscess) and 22 endoscopic sphincterotomies (for bile leakage from the subhepatic drain and for retained CBD stones soon after operation). The good results obtained allow us to recommend these minimally invasive procedures in appropriate patients.[12]

Duca et al (2004) retrospectively assessed the mini-invasive treatment of complications associated with LC. Over the last 9 years 9542 laparoscopic cholecystectomies have been performed, of which 13.9% were carried out for acute cholecystitis, 38.4% in obese patients and 7.6% in patients aged > 65 years. The main postoperative complications were bile leakage and choleperitoneum (54 cases), haemorrhage (15 cases), subhepatic

abscess (10 cases) and retained bile duct stones (11 cases). Classic re-interventions were practiced in 28.8% of cases with complications. Mini-invasive techniques were used in 42.2% of cases with complications: laparoscopic re-interventions (15 cases) for choleperitoneum, haemoperitoneum and subhepatic abscess and endoscopic sphincterotomy (22 cases) for prolonged bile leak on subhepatic drain and for early diagnosed remnant lithiasis of the common bile duct. All cases healed. Another 26 patients were treated conservatively. With precise diagnosis and a good indication, the mini-invasive treatment of complications was completed with good results.[13]

Duca et al (2000) analyzed the complications associated with LC procedure. Incidents and postoperative complications of laparoscopic cholecystectomy (LC) are analyzed based on a series of 8002 patients who underwent the procedure during a period of seven years. Conversion rate was 2.02% (161 cases) and 6 (0.07%) deaths were encountered. Intraoperative hemorrhage (2.43%) could be controlled by intraoperative haemostasis in all but 8 patients (bleeding from the hepatic bed and from the cystic artery) which required conversion. Lesions of the bile ducts occurred in 16 patients (0.2%), 13 of them being identified during the operation and solved by conversion or laparoscopic choledochorraphy (for a tangential lesion). Postoperative complications required re-intervention in 45 patients: 11 for bile leak, 19 for choleperitoneum, 6 for hemorrhage, 4 for subhepatic abscesses and 5 for remnant CBD lithiasis. There was 1 puncture of the Douglas pouch in a case of choleperitoneum, 7 laparoscopic re-interventions and 25 open surgery re-interventions. EST solved postoperative bile leaks (from the gallbladder bed) successfully in 7 cases and remnant CBD lithiasis (5 cases). So, 44% of the cases were treated by minimally invasive means (laparoscopic re-interventions or endoscopic procedures). The majority of the incidents and postoperative complications were linked to the presence of an acute cholecystitis and were partially due to some technical limits of the laparoscopic technique of the gallbladder bed peritonisation. The minimally invasive treatment of postoperative complications, was very efficient and offered optimum healing conditions.[14]

CONCLUSION

From the above results, the authors conclude that high degree of efficiency is offered by minimally invasive treatment in treating complications of LC. However, future studies are recommended.

REFERENCES

1. Zucker KA. Quality Publishing Inc; St Louis: 1991. Surgical Laparoscopy; pp. 143–82.
2. Cuschieri A, Berci G. Laparoscopic Biliary Surgery. Oxford: Blackwell Scientific Publications, 1992; 96–116, 134–2.
3. Schol EPG, Go PM, Gouma DJ. Risk factors for bile duct injury in laparoscopic cholecystectomy; analysis of 49 cases. Br J Surg. 1994; 81:1786–8.
4. Wolfe BM, Gardiner BN, Leary BF, et al. Endoscopic cholecystectomy. Arch Surg. 1991; 126:1129–97.
5. Klotz HP, Schlump F, Largiader F. Injury to an accessory bile duct during laparoscopic cholecystectomy. Surg Laparosc Endosc. 1992;2:317–20.
6. Woods MS, Shellito JL, Santoscoy GS, et al. Cystic duct leaks in laparoscopic cholecystectomy. Am J Surg. 1994; 168:560–5.
7. Falor AE, de Virgilio C, Stabile BE, Kaji AH, Caton A, Kokubun BA, et al. Early laparoscopic cholecystectomy for mild gallstone pancreatitis: time for a paradigm shift. Arch Surg. 2012; 147(11):1031–1035.
8. Panagiotopoulou IG, Carter N, Lewis MC, Rao S. Early laparoscopic cholecystectomy in a district general hospital: is it safe and feasible? Int J Evid Based Health. 2012; 10(2):112–116.
9. Sankarankutty A, da Luz LT, De Campos T, Rizoli S, Fraga GP, Nascimento B., Jr Uncomplicated acute cholecystitis: early or delayed laparoscopic cholecystectomy? Rev Col Bras Cir. 2012; 39(5):436–440.
10. Ohta M, Iwashita Y, Yada K, Ogawa T, Kai S, Ishio T, et al. Operative timing of laparoscopic cholecystectomy for acute cholecystitis in a Japanese institute. JSLS. 2012; 16(1):65–70.
11. Johner A, Raymakers A, Wiseman SM. Cost-utility of early versus delayed laparoscopic cholecystectomy for acute cholecystitis. Surg Endosc. 2013; 27(1):256–262.
12. Duca S, Bălă O, Al-Hajjar N, et al. Laparoscopic cholecystectomy: incidents and complications. A retrospective analysis of 9542 consecutive laparoscopic operations. HPB : The Official Journal of the International Hepato Pancreato Biliary Association. 2003;5(3):152-158.
13. Duca S, Iancu C, Bălă O, Al-Hajjar N, Graur F, Puia IC, Munteanu D. Mini-invasive treatment of complications following laparoscopic cholecystectomy. Acta Chir Belg. 2004 Jun; 104(3):309-12.
14. Duca S, Bălă O, al-Hajjar N, Puia IC, Iancu C, Bodea M. Laparoscopic cholecystectomy: incidents and complications. Analysis of 8002 consecutive cholecystectomies performed at the Surgical Clinic III Cluj-Napoca. Chirurgia (Bucur). 2000 Nov-Dec;95(6):523-30.

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