



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 5.2  
IJAR 2019; 5(4): 100-102  
www.allresearchjournal.com  
Received: 21-02-2019  
Accepted: 25-03-2019

**Rima Sultana**  
Department of General Surgery, IMS  
& SUM hospital, Siksha O  
Anusandhan University, K8, Kalinga  
Nagar, Bhubaneswar, Odisha, India

**Prakash Kumar Sahoo**  
Department of General Surgery, IMS  
& SUM hospital, Siksha O  
Anusandhan University, K8, Kalinga  
Nagar, Bhubaneswar, Odisha, India

**Rasmiranjan Sahoo**  
Department of General Surgery, IMS  
& SUM hospital, Siksha O  
Anusandhan University, K8, Kalinga  
Nagar, Bhubaneswar, Odisha, India

**Suman Saurav Rout**  
Department of General Surgery, IMS  
& SUM hospital, Siksha O  
Anusandhan University, K8, Kalinga  
Nagar, Bhubaneswar, Odisha, India

**Kasturi Bharadwaj**  
Department of General Surgery, IMS  
& SUM hospital, Siksha O  
Anusandhan University, K8, Kalinga  
Nagar, Bhubaneswar, Odisha, India

**AA Naidu**  
Department of General Surgery, IMS  
& SUM hospital, Siksha O  
Anusandhan University, K8, Kalinga  
Nagar, Bhubaneswar, Odisha, India

**K Ujwal**  
Department of General Surgery, IMS  
& SUM hospital, Siksha O  
Anusandhan University, K8, Kalinga  
Nagar, Bhubaneswar, Odisha, India

**M Vishnu Teja**  
Department of General Surgery, IMS  
& SUM hospital, Siksha O  
Anusandhan University, K8, Kalinga  
Nagar, Bhubaneswar, Odisha, India

**Correspondence**  
**Prakash Kumar Sahoo**  
Department of General Surgery, IMS  
& SUM hospital, Siksha O  
Anusandhan University, K8, Kalinga  
Nagar, Bhubaneswar, Odisha, India

## Difficulty in laparoscopic cholecystectomy in post ERCP vs. non ERCP patients

**Rima Sultana, Prakash Kumar Sahoo, Rasmiranjan Sahoo, Suman Saurav Rout, Kasturi Bharadwaj, AA Naidu, K Ujwal and M Vishnu Teja**

### Abstract

Incidence of choledocholithiasis is around 8 to 20 percent among patients of cholelithiasis. Multiple different treatment modalities are in practice. ERCP followed by laparoscopic cholecystectomy is usually the most widely used modality. The procedure includes performing ERCP to remove the CBD stones. We here study the complexity of Laparoscopic cholecystectomy after endoscopic retrograde cholangiography compared with standard Laparoscopic cholecystectomy. We got 47 male and 53 female patients were observed undergoing laparoscopic cholecystectomy. The most common age group being more than 40 years. Most common intraoperative difficulty: Non-ERCP patients contracted gallbladder (38%); post ERCP patients' intraoperative bleeding (64%), followed by dense adhesions (60%). The operating time: Non-ERCP patients 45-90 minutes (70%), Post- ERCP patients >90 minutes (48% Requirement of abdominal drain: Non-ERCP (24%) and Post-ERCP (36%). Postoperative stay: Non-ERCP <4days (62%), Post-ERCP >4days (68%). Over all in concluded that a laparoscopic cholecystectomy after endoscopic retrograde cholangiography is lengthier and more difficult than in uncomplicated cholelithiasis and should therefore be performed by an experienced surgeon.

**Keywords:** laparoscopic, cholelithiasis, ERCP, Endoscopic

### Introduction

Incidence of choledocholithiasis is around 8 to 20 percent among patients of cholelithiasis. Multiple different treatment modalities are in practice [1]. ERCP followed by laparoscopic cholecystectomy is usually the most widely used modality. The procedure includes performing ERCP to remove the CBD stones.

During the procedure, radio opaque dye is injected into the CBD to visualize the CBD. This dye induces inflammation at the CBD and surrounding structure, which can lead to fibrosis. During the procedure of laparoscopic cholecystectomy, dissection of the cystic duct off the CBD marks one of the most important steps of the procedure. Obtaining the critical view of safety between the cystic duct and the CBD helps in safe clipping of the cystic duct and artery [2]. The fibrosis induced during the ERCP procedure can lead to adhesions at the Calot's triangle. This makes the dissection around the Calot's triangle difficult and may lead to inadvertent injury to common bile duct. The aetiology is also thought to be because of disruption of the sphincter of Oddi and subsequent bacterial colonization of the biliary tract leading to inflammation and subsequent scarring of the hepatoduodenal ligament hindering dissection of Calot's triangle [3]. If indeed LC is more difficult after a previous ES it might be beneficial to have these patients operated on by an experienced laparoscopic surgeon to minimize the risk of conversion and intraoperative complications. In this study we assess the complexity of Laparoscopic cholecystectomy after Endoscopic retrograde cholangiography compared with standard Laparoscopic cholecystectomy.

### Material and Methods

This study is a comparative study of patients admitted in IMS & SUM Hospital, a multispecialty 1000 bedded teaching hospital (UG/PG), conducted between time period of July 2016 to June 2018.

The study population consisted of two patient cohorts: patients who had undergone a previous ERCP for choledocholithiasis and patients with cholecystolithiasis who had no previous intervention prior to LC. 100 patients were enrolled with imaging (using ultrasonography) and 50 patients were proven choledocholithiasis. Written informed consent was taken after explaining the nature of the study to the patients. These patients underwent ERCP with or without stenting of common bile duct. There were no reported complications post ERCP.

The inclusion criteria Patients giving consent 50 patients with evidence of CBD stones and undergoing ERCP, 50 patients with evidence of gallstones undergoing elective laparoscopic cholecystectomy, Patients underwent a detailed pre-operative evaluation for co- morbidities, which were controlled before cholecystectomy. In contrast, the exclusion criteria was Patients not giving consent, uncontrolled co-morbidities, patients in pediatric age group, deranged liver and renal function tests, previous upper abdominal surgery, patients undergoing an additional procedure along with laparoscopic cholecystectomy.

These patients underwent a standard four port laparoscopic cholecystectomy after a minimum time period of four weeks after ERCP. The procedures were done under general anesthesia. Procedures that encountered difficulty were converted to open cholecystectomy using a subcostal

incision. The intraoperative findings like intra operative adhesions at Calot’s triangle and gall bladder fossa, blood loss (arbitrarily decided as greater than 50 ml.) and operative time were noted. Post-operative course in ward was noted based on post-operative bile leak, bleeding, wound infection and time to discharge.

**Results**

In this study a patient population of 100 was taken into consideration where 50 patients (25M: 25F:) had underwent ERCP CBD clearance 4 weeks previous to LC and 50 patients (22M: 28F:) had LC for asymptomatic or uncomplicated gallstones.

The study group included 47 males and 53 females which was further divided on basis of age of the patient where 38 patients were <40 years of age and 62 patients were >40 years age group. Intraoperative bleeding was seen in 32(64%) post ERCP patients. This may be attributed to non-delineation of cystic artery and inflammatory changes occurring in the Calot’s area during post ERCP period. 30(60%) patients were found to have dense adhesions, 29(58%) patients had difficulty in dissecting the Calots triangle. These two findings may also contribute to increased incidence of intraoperative bleeding during post ERCP laparoscopic cholecystectomy.

**Table 1:** Percentage of Non ERCP and ERCP with respect other parameters

Difficulties	Contract ed GB	Dense Adhesions	Difficult Calot’s	Bleeding	Perforated/ Gangrenous GB	Dilated cystic duct
Non ERCP	19(38%)	17(34%)	13(26%)	14(28%)	1(2%)	3(6%)
Post ERCP	10(20%)	30(60%)	29(58%)	32(64%)	18(36%)	8(16%)

Average operating time in standard laparoscopic cholecystectomy patients was 45-90 mins (70%) and post ERCP laparoscopic cholecystectomy patients was >90 mins (48%).

**Table 2:** Number of cases with respect to time duration

Operating time	<45 mins	45-90 mins	>90 mins
Non ERCP	12 (24%)	35 (70%)	3 (6%)
ERCP	7 (14%)	19 (38%)	24 (48%)

Biliary spillage and intraoperative bleeding were the two most compelling reasons to put an abdominal drain. In that regard it was seen in 34 patients requiring postoperative intraabdominal drains which constitutes almost 68% of post ERCP patients as compared to non-ERCP where it was required in 19(38%) patients. Postoperative stay was prolonged in post ERCP patients (68%). This was mainly attributed to intraabdominal drain placement in 68% patients.

**Table 3:** Case of none and post ERCP with respect to days

Postoperative stay	<4 days	>4 days
Non ERCP	31 (62%)	19 (38%)
Post ERCP	16 (32%)	34 (68%)

**Discussion**

ERCP is the most readily available and preferred modality for management of suspected CBD stones. However, ERCP is associated with complications such as pancreatitis, hemorrhage, cholangitis, duodenal perforation (5-11%) and mortality of up to 1% [4]. Moreover, failure rates of up to 5-

10 % are not uncommon. In our study, out of the 100 patients studied, 53 % were females and rests were males. Most of the patients in the study were >40 years of age. Dense pericholecystic adhesions had higher incidence in post ERCP patients (60%) whereas in Non-ERCP patients the incidence was 34% amongst which 58%percent of the patients had adhesions at the Calot’s triangle in post ERCP patients [5]. Excessive intra operative bleeding was taken to be in excess of 50 ml. In the study 66% of patients had bleeding in excess of 50 ml in post ERCP patient whereas in ELC the incidence was 34%. The Average operating time in standard lap cholecystectomy patients were mostly 45-90 mins (70%) and post ERCP lap chole patients were mostly >90 mins (48%) [6].

We even observed out of the 100 patients who were taken up for laparoscopic cholecystectomy, amongst which 8 (16%) of them had to be converted to an open technique in post ERCP patients and 2 (4%) in ELC [7]. The conversion rate was seen to have a higher incidence in males (Post ERCP: 14%; Non ERCP: 4%) than females.

**Conclusion**

This study has provided an insight into the Laparoscopic Cholecystectomy and its operative nuances in post ERCP patients. Comparison of 2 different groups provided us with important data for comparison of both ELC and Post ERCP LC. The prevalence of difficulties in ELC and Post ERCP LC patients were graded and comparisons made to establish any particular links. Age, Sex, Intraoperative difficulties like dense adhesions, intraoperative bleeding, distorted Calot’s anatomy were some of the various factors taken into consideration. This study establishes that with incidence of

such increased difficulties in Post ERCP patients undergoing LC, increased postoperative stay and complications, LC in such a setting may be regarded as a difficult one and demands a higher degree of skill set from the surgeon. However, a proper understanding of the prevailing factors, better skill set from the surgeon and a proper pre-operative optimization may translate in reducing morbidity, postoperative stay as well as outcomes in such patients.

### References

1. McAlister V, Davenport E, Renouf E. Cholecystectomy deferral in patients with endoscopic sphincterotomy. Cochrane Database of Systematic Reviews, 2007, (4).
2. Csendes A, Burdiles P, Maluenda F, Diaz JC, Csendes P, Mitru N. Simultaneous bacteriologic assessment of bile from gallbladder and common bile duct in control subjects and patients with gallstones and common duct stones. Archives of Surgery. 1996; 131(4):389-94.
3. Boerma D, Rauws EA, Keulemans YC, Janssen IM, Bolwerk CJ, Timmer R *et al.* Wait- and-see policy or laparoscopic cholecystectomy after endoscopic sphincterotomy for bile-duct stones: a randomised trial. The Lancet. 2002; 360(9335):761-5.
4. Chummy S. Sinnatamby. Last's Anatomy, Regional and Applied. Liver and Biliary tract: 10 edition, 1999, 257-60.
5. Blumgart LH, Fong Y. Surgery of Liver and Biliary Tract. 3rd edition, 1:737-38.
6. Dandan IS, Soweid AM, Abiad F. Choledocholithiasis. eMedicine (web based reference textbook), 2003.
7. Kumar V, Abbas AK, Fausto N. Robbins and Catron Pathologic (Basis of Disease 7th ed Elsevier Saunders).