



Laparoscopic subtotal cholecystectomy for complicated gall bladder surgeries: Experience at our setup

* Prashant K. Dhannur, Krishna Prasad and Gaurav Prasad

Post graduate in Surgery, SDUMC, Kolar

**Corresponding email:prashantdhannur@gmail.com*

ABSTRACT

Laparoscopic Cholecystectomy is one of the common surgical procedures performed. But complicated gall bladder pathologies like chronically inflamed GB, Gangrenous GB, Emphyema GB can make dissection around the Calot's triangle difficult with high risk of injury to CBD and hepatic artery or its branches. Thus, subtotal cholecystectomy can be considered as a safe alternative in the management of patients with complicated GB where the degree of inflammation precludes safe visualization of the biliary structures. To assess the safety and efficacy of laparoscopic subtotal cholecystectomy for complicated gallbladder in our institution. It is a retrospective study. All the patients who underwent laparoscopic subtotal cholecystectomies by the same surgeon from January 2014 to November 2014 in our institution, was included in the study. Surgeon's experience of laparoscopic subtotal cholecystectomies, its safety and efficacy, associated surgical difficulties, and post-operative complications was studied. Laparoscopic subtotal cholecystectomy is a safe, effective and an alternative procedure for complicated gallbladder surgeries

Keywords: Laparoscopic Subtotal Cholecystectomy, Complicated Gall Bladder, Calot's triangle, surgical difficulties.

INTRODUCTION

Laparoscopic Cholecystectomy is one of the common surgical procedures performed. Since its introduction in the early 1990s, it has replaced open cholecystectomy as the surgical procedure of choice for symptomatic gallstones. Whichever approach is used, standard cholecystectomy requires safe dissection of the structures in Calot's triangle.^[1] But the complicated gall bladder pathologies like chronically inflamed GB, Gangrenous GB, Emphyema GB can make dissections around the Calot's triangle difficult with high risk of injury to CBD and hepatic artery or its branches.

When the "critical view of safety" (positive identification of biliary anatomy) cannot be obtained during dissection of Calot's triangle, conversion to open surgery is advocated to prevent bile duct injury.^[2] However, this may result in increased postoperative pain, delayed mobility, prolonged hospitalization, adhesion formation and incisional hernia formation. In addition, conversion does not necessarily improve exposure or facilitate cystic duct identification.^[3] Thus, experienced laparoscopic surgeons feel comfortable proceeding laparoscopically using alternative approaches and techniques.

Laparoscopic subtotal cholecystectomy (LSTC) has been reported to be a safe and feasible alternative to conversion to open surgery during difficult laparoscopic cholecystectomy in case of complicated GB where the degree of inflammation precludes safe visualization of the biliary structures^[4]. Thus an attempt was made to assess the safety and efficacy of laparoscopic subtotal cholecystectomy for complicated gallbladder in our rural setup.

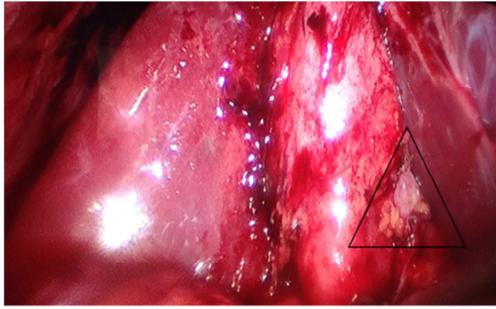


Figure 1.1

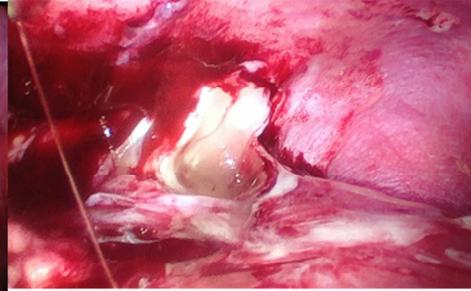


Figure 1.2

MATERIALS AND METHODS

It is a retrospective study. All the patients who underwent laparoscopic subtotal cholecystectomies by the same surgeon from January 2014 to November 2014 in our rural tertiary setup, was included in the study. Surgeon's experience of laparoscopic subtotal cholecystectomies, its safety and efficacy, associated surgical difficulties, and post-operative complications was studied.

The study included 6 patients who were admitted to RL Jalappa surgery department. A detailed history, clinical examination, LFT and abdominal ultrasonography were performed.

Patients were planned for standard Laparoscopic cholecystectomy. The surgery was converted to LSTC when Complicated GB was noted intra-operatively, where the dissection of Calot's triangle was deemed unsafe (Fig1.1).The technique of LSTC involved a standard four port approach.GB was punctured and the infected bile was aspirated. Most of the gallbladder was excised, leaving only a portion of neck of the gallbladder in place. All gallstones were retrieved and extracted along with the excised gallbladder .Hemostasis of the stump secured with bipolar diathermy. The gallbladder fossa was lavaged with normal saline and metrinadazole. The cystic duct and artery were occluded using clips. Drain was placed in the sub-hepatic space which was left in place for 2 days up to 7 days. Intravenous antibiotic (Piperacilin+Tazobactam 4.5g, Ornidazole 500mg) followed by oral antibiotics were given and its duration depended on post-op recovery and drain *in situ*. Patients were followed up for 2 months with monthly USG abdomen which revealed no residual stones or collection.

RESULTS

Out of 6 patients who underwent laparoscopic subtotal cholecystectomies, four were Empyema GB (Fig1.2), one chronically inflamed GB and one Gangrenous GB (Table 1).All patients, who were unable to undergo early surgery, received antibiotics. Majority of the GB was removed in all the cases, leaving only a portion of neck in place. Median operative time was 110 min and more time was spent on GB fossa lavage. The median duration of postoperative hospitalization was 9 days. Subhepatic drains remained in situ with median duration of 3.5 days .No complications or conversion to open surgery were encountered(Table 2).

Table 1: Patient details

Sl/no	AGE	SEX	INTRA-OPERATIVE FINDINGS	OPERATIVE TIME (MIN)	DRAIN IN PLACE (DAYS)	POST OPERATIVE HOSPITAL STAY(DAYS)	HISTOPATOLOGICAL REPORT
1	34	F	Grossly distended severely inflamed GB with purulent exudate, calculi and gangrenous patch at the fundus	140	7	12	Gangrenous GB
2	60	M	Grossly distended tense severely inflamed GB filled with seropurulent exudate, sludge, multiple calculi with phlegmon formation	130	4	10	Empyema GB
3	32	M	Grossly distended severely inflamed GB filled with purulent exudate, sludge and calculi	95	2	8	Empyema GB
4	45	F	Grossly distended severely inflamed GB filled with seropurulent exudate, multiple calculi with pericystic collection	100	5	10	Empyema GB
5	42	F	Grossly distended inflamed GB filled with purulent exudate, sludge, and multiple calculi	120	3	7	Empyema GB
6	39	F	Chronically inflamed, shriveled GB filled with calculi and pus	90	2	6	Acute on chronic Cholecystitis

Table 2: Median values

Median values	n=6
Operative time (min)	110 (range 90–140)
Postoperative hospital stay (days)	9 (range 6–12)
Drain placed (days in place)	3.5 (range 2–7)
Conversion and complication rate (%)	0

DISCUSSION

Subtotal cholecystectomy was first reported by Madding in 1955 as a replacement for cholecystectomy and as a rescue procedure in cases of technically difficult total cholecystectomy (TC). His technique involved incising the GB at the fundus down to 1 cm from the CD, followed by excising the redundant GB wall.^[5]

Subtotal cholecystectomy was performed by piecemeal excision of the GB, starting at the Hartmann pouch and leaving a rim of the posterior wall attached to the liver. The mucosa of this remnant was coagulated or left intact, and the CD was closed from within the GB with a purse-string suture. This technique was adopted by numerous surgeons with minor modifications.^[6-8]

With the introduction of laparoscopic cholecystectomy by Muhe (1985) and Mouret (1987), LSTC was considered a rescue technique in cases of difficult GBs to avoid misidentification injuries of the bile duct and vascular structures from severe inflammations that otherwise would have required conversion to an open cholecystectomy.^[9]

Bickel and Shtamler (1993) described their successful experience in the treatment of 6 patients with the use of LSTC. They opened the GB with hook diathermy and resected only the anterior wall, leaving the posterior wall attached to the liver, which was coagulated at a later point in the operation.^[10] However in our study most of the gallbladder was excised, leaving only a portion of neck of the gallbladder.

Muquim et al reported 3.9% bile leak after laparoscopic cholecystectomy. With cystic duct ligation as 2% of them due to major bile duct injury. Rooh et al had spillage of stones in laparoscopic Cholecystectomy.^[11]

L.Shariyeh et al reported 8% bleeding from liver bed in Laparoscopic Cholecystectomy and needed conversion to open cholecystectomy;16.3% of patients,the bleeding was from the Calot's triangle due to dissection and 5% of them needed conversion to open cholecystectomy.^[12]

Tariq I Al- aubaidi et al reported 165 post-operative bile, 4% postoperative chest infection and 8% port site infection.^[13]None of these complications were noted in our study. Residual gallstones are more often reported in cystic duct remnants. The possible etiology of such an occurrence is often a failure to define the cystic duct, CBD junction.^[14]No attempt such as milking the stone proximally was tried as maneuver may fragment the stone which may pass into the common duct and lead to biliary colic in the postoperative period.

CONCLUSION

Laparoscopic subtotal cholecystectomy is a safe and effective rescue procedure that lowers the conversion rate in complicated and technically difficult GB surgeries. It is also found to be an effective means in avoiding any possible injury to biliary tract in complicated GB pathologies. Although LSTC has shown good results in our study, further more studies with large sample size would reinforce this study.

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