ORIGINAL RESEARCH PAPER

Volume-7 | Issue-4 | April-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

RECONSTITUTING LAPAROSCOPIC SUBTOTAL CHOLECYSTECTOMY FOR DIFFICULT GALL BLADDER

Gastroenterology

Dr. Wasif Ali* Associate Professor of Surgical Gastroenterology, Osmania Medical College and Osmania General Hospital, Hyderabad. *Corresponding Author

Dr. R. Pratap Reddy Professor of Surgical Gastroenterology, Osmania Medical College and Osmania General Hospital, Hyderabad

ABSTRACT

To evaluate the short term morbidity of Reconstituting Laparoscopic Subtotal Cholecystectomy(RLSC) in difficult situations during Laparoscopic Cholecystectomy. Of the 614 patients scheduled to undergo Laparoscopic Cholecystectomy between January 2016 and December 2017, 30 underwent RLSC for complicated cholecystitis. Our approach and technique of RLSC is described and also the results of this procedure.All 30 patients underwent RLSC ie., 4.88% of all scheduled Laparoscopic Cholecystectomy patients had to undergo Laparoscopic Subtotal Cholecystectomy. The mean postoperative hospital stay was 3 day (2 – 5 days) and duration of drain was 3 – 5 days (1 – 15 days) two patients (6.6%) had postoperative bile leak and there was no bile duct injury or mortality. RLSC is a safe alternative definitive procedure for difficult gall bladders. It helps in avoiding bile duct injury and also avoids conversion to open surgery.

KEYWORDS

Laparoscopic Cholecystectomy, Subtotal Cholecystectomy, Reconstituting, Laparoscopic Subtotal Cholecystectomy.

INTRODUCTION

Laparoscopic Cholecystectomy is the "gold standard" for gall stone disease. Safe dissection of the Calot's Triangle is the key to this surgical procedure and prevention of bile duct injury the main challange. Performing Laparoscopic Cholecystectomy in certain situations becomes challenging as it has the inherent risk of bile duct injury. When the Calot's Triangle cannot be visualized or the structures in the triangle cannot be safely identified due to abnormal anatomy or pathology, conversion to open surgery is commonly advocated. RLSC is an alternative to conversion to open surgery in such situations and with experience and advances in techniques, Laparoscopic Subtotal Cholecystectomy has become a safe and feasible option to prevent bile duct injury in difficult situations during surgery.

RESULTS:

Of the 30 patients who underwent RLSC there were 16 females and 14 males and the mean age was 54.9 years (28 – 75 years). Indications for RLSC are shown in table I.

Table I indication for Reconstituting Laparoscopic Subtotal Cholecystectomy

Indications	No of patients
1. Acute Cholecystitis	**14**
2. Contracted gall bladder	**11**
3. Mucocele / Empyema gall bladder	**03**
4. Acute cholecystitis with gangrene	**02**

The median length of postoperative hospital stay was 3 days (2 – 3 days) and the duration of drain was 3 – 5 days (1 – 15 days). Early short term morbidity included bile leak in 2 patients (6.6%) of which one settled on conservative treatment in 3 days and one patient had to undergo ERCP and CBD stenting after 10 days for persistent bile leak after which he settled and drain was removed on the 15th day. Three of the patients had minimal intra abdominal collection and all settled with conservative treatment, no patient required any radiological intervention. None of the patients had wound infection, no patient had bile duct injury and postoperative screening US showed that there were no residual stones in the gall bladder stump / cystic duct as shown in table II.

Table II Surgical outcomes of Recostituting Laparoscopic Subtotal Cholecystectomy.

Outcome	No	(%)
Postoperative		
Hospital stay (days)	3	(2 – 5)
Duration of drain (days)	3.5	(1 – 15)
Mortality	0	(0)
Morbidity	5	(16.6%)
Bile leak	2	(6.6%)
Intra abdominal collection	3	(10%)
Surgical site infection	0	(0)
Re intervention	1	(3.3%)
Bile duct injury	0	(0)
Residual stones	0	(0)

PATIENT & METHOD

Between Jan 17 – Dec 17, 314 patient who were scheduled to undergo LC were studied. All patients underwent surgical profile, liver function tests, Ultrasonography as part of regular pre-operative work up for Laparoscopic Cholecystectomy. ERCP or MRI was performed wherever common bile duct stones were suspected based on regular pre-operative workup. In all patients, after establishment of pneumoperitoneum, attempt was made at performing standard laparoscopic cholecystectomy. When dissection of Calot's Triangle was deemed to be difficult and dangerous, decision was taken to perform subtotal cholecystectomy.

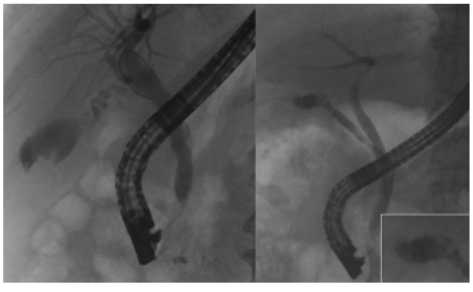

Figure 1. Endoscopic retrograde cholangio-pancreatograms (ERCP) in 2 patients who had subtotal reconstituting cholecystectomies and became symptomatic again. Gallbladder remnants were identified by ERCP as enlarged areas at the end of the cystic duct. Right figure inset shows that stones had reformed or were retained.

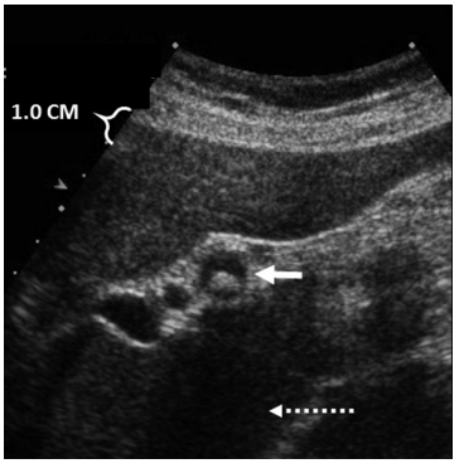

Figure 3. Transabdominal ultrasound of a patient who had a cholecystectomy nearly four years before developing recurrent biliary colic. A small remnant gallbladder with a retained or reformed stone was identified (solid arrow) with acoustic shadow (dashed arrow).

Gall Bladder was dissected around the neck and gall bladder was opened at the neck and contents of gall bladder sucked out and stones removed and placed in a bag, during this step spillage of GB contents and stones into peritoneal cavity was minimized by careful use of suction and stone holding forceps. Once the gall bladder was cleared of the contents the neck / body was incised all around using bipolar and monopolar cautery or energy device (Ligasure). The body and fundus of GB was dissected out and removed in a bag the remnant of gall bladder was washed with saline and checked that no stones are remaining the neck and cystic duct of gall bladder. The neck of gall bladder was closed either by placing an endoloop (Ethicon) around the neck or suturing the opening in neck of gall bladder with 2-0 polygalactin (Vicryl). Saline wash was given and tube drain placed in sub hepatic space.

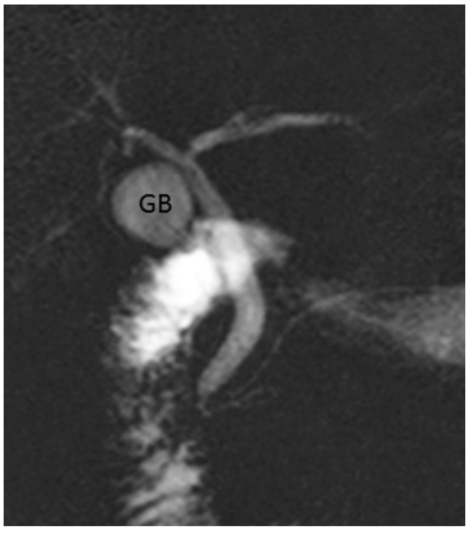

Figure 2. Magnetic resonance image (MRCP) of remnant gall-bladder (GB).

The data in post-operative period analysed included – duration of post-operative stay, duration of drain, post- operative problems. All patients underwent Ultrasonography of the abdomen to look for any intra abdominal collection and any retained stones in the remnant gall bladder and any intervention in post-operative period.

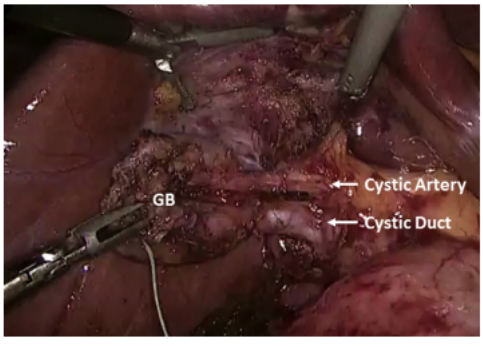

Figure 4. Intraoperative photograph at conclusion of laparoscopic dissection to free a remnant gallbladder (GB) in a patient who had become symptomatic after a previous subtotal cholecystectomy.

DISCUSSION:

Laparoscopic Subtotal Cholecystectomy is an alternative to Open Cholecystectomy when variable anatomy and pathology preclude safe dissection of Calot's Triangle. Different techniques have been recommended for safe management of gall stones in difficult cases like Cholecystostomy, Subtotal / Partial Cholecystectomy and Total Cholecystectomy. Reconstituting Subtotal Cholecystectomy in one of the technique of Subtotal Cholecystectomy which has been popularized by Strasberg et al(1). "Safety first, Total Cholecystectomy second" should be the guarding factor in management of difficult gall bladders as recommended by Pucci et al(2). In difficult gall bladders during Laparoscopic Cholecystectomy conversion to open surgery is commonly advocated, but an alternative approach is Laparoscopic Subtotal Cholecystectomy in order to prevent bile duct injury.

Kaplan et al(3) compared Subtotal Cholecystectomy to Open Total Cholecystectomy in difficult gall bladders and found that the incidence of bile duct injury was 3.3% in Open Total Cholecystectomy group and 0% in Subtotal Cholecystectomy group and the overall incidence of complications in Open Total Cholecystectomy group was 15.2% compared to 14.3% in Subtotal Cholecystectomy group. Van Dijk et al (4) published an article in 2017 in which the post operative bile leak after Reconsituting Subtotal Cholecystectomy was 7% and intervention rate was 26%. Completion Cholecystectomy was peformed in 4% of patients. They concluded that Subtotal Cholecystectomy was a safe technique for difficult cases for which conversion to open surgery will not solve the difficulty of an inflammed Calot's Triangle.

Elshaer et al (5) published a systematic review and meta analysis of Subtotal Cholecystectomy and reported that Laparoscopic Subtotal Cholecystectomy was performed in 72.9% of case and the Laparoscopic approach had less risk of sub hepatic collection, retained stones, wound infection and reoperation but more bile leaks compared to open procedure. The incidence of major bile duct injury requiring biliary reconstruction in Subtotal Cholecystectomy in very low (0 – 0.08%) compared to standard Laparoscopic Cholecystectomy (0.3%). Major concerns with Reconstitution Subtotal Cholecystectomy are – bile leak,spillage of gall bladder contents during surgery, remnant gall bladder stump. Laparoscopic Subtotal Cholecystectomy has higher incidence of bile leak from gall bladder stump and closure of cystic duct is recommended to decrease the incidence of bile leak, but most studies have revealed that bile leak is a minor complication and it will resolve spontaneously or with endoscopic intervention.

Spillage of contents of the gall bladder during Laparoscopic Subtotal Cholecystecomy is unavoidable and it is not the spillage but bacteriobilia that is the significant risk factor for surgical site infections and intra abdominal collections. All precautions should be taken to minimize the spillage and infections - aspiration and suction of contents of gall bladder before opening the gall bladder, irrigation of the area with saline and removal of stones and gall bladder in a bag. Shin et al (6) reported and incidence of postoperative bile leak of 18.2% and intraabdominal abscess requiring intervention of 4.5% after Laparoscopic Subtotal Cholecystectomy compared to 0.48% and 0.19% after standard Laparoscopic Cholecystectomy but no mortalities were reported. The other concern with reconstituting Subtotal Cholecystectomy is the remnant gall bladder stump. Greenfield et al (7) reported an incidence of incomplete resection of gall bladder during Laparoscopic Cholecystectomy in upto 13.3% of patients due to various reasons. Closure of gall bladder stump creates a remnant gall bladder with risk of recurrence of stones in the remnant part. Incidence of recurrence of biliary events was 18% after Reconstituting Subtotal Cholecystectomy and completion cholecystectomy for residual/recurrent stones was performed in 4% of patients who underwent Reconstituting Subtotal Cholecystectomy. Palanivelu et al (8) reported an incidence of 4.19% of remnant cystic duct calculi following Laparoscopic Subtotal Cholecystectomy. This problem can be easily and safely managed by Laparoscopic or Open completion Cholecystectomy. It is much safer to leave a part of gall bladder in presence of inflammation and adhesions of Calot's Triangle than to dissect close to common bile duct and increase the risk of bile duct injury.

REFERENCES:

1. Strasberg SM, PucciMJ, Brunt LM Deziel DJ Subtotal Cholecystectomy – 'Fenestrating' vs 'Reconstituting' sub types and the prevention of bile duct injury : definition of the optimal procedure in difficult operative conditions -J Am Coll Surg 2016;222:89-96
2. Pucci MJ, Brunt LM, Deziel DJ. Safety first Total Cholecystectomy second. J Am Coll Surg 2016; 223:543-544.
3. Kaplan D, Inabalk, Chouliaras K, Low GM, BenjaminE, LamL etal. Subtotal Cholecystectomy and Open Total Cholecystectomy: alternatives in complicated cholecystititis. Am Surg 2014;80:953-955
4. van Dijk AH, Donkervoort SC, Lameris W, devriesE, Eijbouts QAJ, Vrovenraets BC, etalShort and Long term Out comes after a Reconstituting and Fenestrating Subtotal Cholecystectomy J Am Coll Surg 2017; 225:371-379
5. Elshaer M Gravante G, Thomas K, Sorge R, Al-Hamalis, EbdewiH. Subtotal Cholecystectomy for "difficult gall bladders" Systematic review and meta analysisJAMA Surg 2015;150:159-168
6. Shin M,Choi N,Yoo Y, Kim Y, KimS, Mun S. Clinical outcome of Subtotal Cholecystectomy performed for difficult Cholecystectomy Ann Surg Treat Res 2016;91:226-231
7. Greenfield NP,Azziz AS, Jung AJ, Yeh BM, Aslam R Coaklley FV. Imaging late complications of Cholecystectomy. Clin Imaging. 2012;36:763-767
8. Palanivelu C, Ranga rajan M Jategoankar PA, Madan kumar MV Anand NV Laparoscopic management of remnant cystic duct calculi: a retrospective study Ann R Coll Surg Engl 2009:91:25-29