Journal of Surgical Sciences (2015) Vol. 19 (2) : 48-51

JOURNAL OF SURGICAL SCIENCES

Original Article

LAPAROSCOPIC CHOLECYSTECTOMY- A SAFE TREATMENT OPTION FOR GANGRENOUS CHOLECYSTITIS AND EMPYEMA GALLBLADDER IN EXPERIENCED HANDS

Samiron Kumar Mondal[1], Sharmistha Roy[2]

Abstract:

Background: Laparoscopic cholecystectomy has become the gold standard of treatment for gall stone disease and in acute cholecystitis. But controversy persists regarding laparoscopic approach to gangrenous gallbladder and empyema gallbladder due to the risk of life threatening complications. We share our experience in a tertiary care multidisciplinary diabetic hospital where we encounter significant number of patients with empyema Gallbladder and gangrenous gallbladder because most of our patients are diabetic and hence immunocompromised.

Purpose of this study was to evaluate the safety of laparoscopic procedure for the treatment of empyema of gallbladder and gangrenous gallbladder in an experienced hand.

Methods & Materials: Between January 2013 and January 2015 we performed 1191 cases of laparoscopic cholecystectomy. Empyema gallbladder and gangrenous gallbladder were found per operatively in 345 and 53 cases respectively.All were managed by laparoscopic procedure except two cases, where conversion to open cholecystectomy was needed.

Result: The mean operating time was 72 minutes(45-100 minutes) in empyema gallbladder. In gangrenous cholecystitismean operating time was 80 minutes(60-100 minutes). Total number of patients (including empyema gallbladder 345 and gangrenous cholecystitis 53) were 398. Among them 52 patients (13%) had excessive bleeding(>100ml) from calot's triangle or gallbladder bed in liver. Spillage of stones occurred in 28 patients (7%). 1 patient had common bile duct injury (.25%). Gallbladder retrieval was difficult in 71 patients (18%). In the post operative period 21 patient (5%) developed minor port infection in the umbilical port. 9 patients (2%) developed chest infection, and 1 patient (.25%) developed MI. 356 patients (89%) were discharged within 72 hours of surgery.

Conclusions: Innovative technique, appropriate instruments, knowledge about the possible risks and way to manage them, with expertise in intracorporeal suturing and knotting are an essential pre requisites to attempt these cases. Operating time is more but post operative recovery is prompt. Hospital stay is significantly less than open cholecystectomy. Laparoscopic cholecystectomy is a safe procedure in cases of Empyema and gangrenous gallbladder, provided the surgeon is experienced enough and has a low threshold to convert to open cholecystectomy at anypoint of time.

Key Words: Empyema Gallbladder, Gangrenous Gallbladder, Laparoscopic Cholecystectomy

1. Associate Professor, BIRDEM General Hospital and Ibrahim Medical College
2. Assistant Professor, BIRDEM General Hospital and Ibrahim Medical College.

Correspondence to: Samiron Kumar Mondal, Associate Professor of Surgery, BIRDEM General Hospital and Ibrahim Medical College, Tel: 01711821893, e-mail: drshamiron@yahoo.com

Received March 03 2015 **Accepted** April 07 2015

Introduction:

Laparoscopic cholecystectomy has dramatically changed the outcome of patients with symptomatic gallstone disease.Empyema of the gallbladder, and gangrenous cholecystitis are potentially fatal complications of gallstone diseases. It is characterized by suppuration and or gangrene superimposed on

acute cholecystitis. It used to be a contraindication for Laparoscopic cholecystectomy because of fear of life-threatening complications [1-5]. Empyema Gallbladder and gangrenous gallbladder is also considered as one of the commonest reasons for the conversion from laparoscopic cholecystectomy to open procedure[6] .Increasing experience and technology in the field of laparoscopic surgery has brought a significant change to this scenario. A good number of studies have reported Laparoscopic Cholecystectomy to be safe and effective option in acute cholecystitis and associated conditions like empyema of the gallbladder [7-11].Inspite of many positive reports, the safety of laparoscopic surgery in such acute conditions is still under evaluation. This is our experience in a tertiary care hospital, which is the chief referral destination of all complicated diabetic patients with surgical conditions from all over the country.

Our Series: The first laparoscopic cholecystectomy of Bangladesh was done in our institute in 1992. Since then the process of evolution, evaluation, innovation and re-evaluation is going on. This is our experience in a single unit in the Department of Surgery, BIRDEM, Dhaka.

Methods:

This is a cross sectional observational study. Purpose of this study was to evaluate the safety of laparoscopic procedure for the surgical treatment of empyema gallbladder and gangrenous gallbladder. Between January 2013 and January 2015 ,1191Laparoscopic cholecystectomy was done. Out of which there were 345 cases of Empyema and 53 Cases of Gangrenous cholecystitis. Cholelithiasis with normal gallbladder wall thickness and mild to moderate adhesion was found in 787 patients. 6 patients had fibrosed and contracted gallbladder.

Patient Profile: The age of patients with these complication ranges between 35-80 years (mean age 57 years), with slight male predominance (216 males). Male female ratio was 1.2:1.All of them were diabetic except 2. The time laps between onset of symptom and presentation ranges from 2days to 2weeks (mean time laps 8 days). Most cases of late presentation were initially treated in local clinics conservatively and then referred to BIRDEM as symptoms failed to resolve. In all cases total WBC count was high (13,000-20,000), and USG suggested thick walled Gallbladder with or without pericholecysticoedema or collection in 298 cases. 172 patients developed right sided pleural effusion and/or right basal pneumonitis as a reactive change.

Operative details: Operation was done within 12-36 hours of patient admission/transfer to our unit. All cases were approached laparoscopically with preoperative counseling and consent of the patient to open operation any time and every time necessary.

In the empyema group significant omental, colonic, and duodenal adhesions were present. Blunt dissection with a lower suction pressure was helpful in most cases. Aspiration of Gallbladder content initialy was helpful in most cases for holding and retracting the thick walled gallbladder. In all cases Gall bladder was delivered in endobag to prevent port contamination, and normal saline wash was given to the peritoneal cavity.Average operating time was 72minutes (45-100min).

In the Gangrenous cholecystitis group localised or generalized biliary soiling was found in the peritoneal cavity when camera was introduced. Greenish or black gangrenous patches give way as soon as triangle the Gallbladder was manipulated. Holding the Gallbladder with bowel forceps and blunt dissection at calot's and a lot of patience was key to success. In all cases Gallbladder was delivered in endobag and normal saline wash was given to the peritoneal cavity and a drain kept in morrison's pouch. Mean operating time was 80minutes (60-100min).

Conversion: Two cases needed conversion-one for type-2 Mirrizi; other one for injury to common bile duct which was identified peroperatively and both were managed accordingly.

Outcome: In the post operative period patient's general condition improved rapidly. In most of the cases no injectable analgesics were required after 48 hours. Drains in selected cases were usually removed on 1st or 2nd POD. Most patients were discharged within 72 hours with oral antibiotics and analgesics. 42 patients stayed longer than 3 days as they had a serious pre existing heart and or lung condition, 10 out of them had to be treated in ICU/CCU.

There were no case of inadvertent undiagnosed CBD injury or post operative biliary leakage. Minor infection in umbilical port occurred in 21 cases with uncontrolled diabetes. There were no mortalities.

Overall patient satisfaction after the procedure and at follow up was very encouraging.

Results:

Table-I

Patient Demography and perioperative data (n=398)

Age in years		35-80	Mean-57
M: F ratio			1.2:1
Clinical Features			
•	Pain in right hypochondrium	398	100%
•	Fever·	391	98%
•	Vomiting	255	64%
•	Palpable Gallbladder	327	82%
USG findings			
•	Distended Gallbladder	297	74.6%
•	Thick walled gallbladder	250	62.8%
•	Sludge in Gallbladder	287	72%
•	Pericholecystic fluid collection	192	48%
Per operative difficulties		52	13%
•	Bleeding>100ml	28	7%
•	Spillage of Stones	1	.25%
•	CBD injury		
•	Difficult Gallbladder retrieval.	71	18%
Post Operative Complications			
•	Port site infection	21	5%
•	Chest infection	9	2%
•	Post operative MI	1	.25%

Discussion:

Laparoscopic cholecystectomy has become the treatment of choice for symptomatic gallstone disease with or without complication[12]. The increased incidence of complication reported in previous studies [13] has decreased to an acceptable level with increased experience [7-11]. The reason for conversion to open cholecystectomy in earlier studies[14] like duodenal injury is no longer an indication now a days. Because with development of expertise in intracorporeal suturing and knotting this can well be managed laparoscopically. In some studies delay in surgery in an attempt to resolve the acute condition conservatively first, or reluctant patient's relatives to give consent for surgery in a toxic patient[14] has resulted in acute oedematous inflammation to turn into dense adhesion and obscured calot's anatomy[15-18], then they had to convert to open and or do a partial cholecystectomy. In our unit our target was always to minimize delay in surgery as far as possible, with a view to remove septic foci first and then toxic patient will improve automatically. So pericholecystic-oedema was often helpful for us to complete whole dissection including calot's by blunt dissection with suction nozzle and a gauze piece without any use of hook and diathermy. This increased our operating time significantly, but the post operative comfort that our patients got was completely worth it. The two cases that we converted to open procedure had distorted anatomy resulting in CBD injury in one patient. A cholecystectomy that is difficult in laparoscopy is also a difficult one in open procedure. The case of type2 mirrizi was managed by primary repair of CBD and the case of CBD injury was managed by hepaticojejunostomy in the same sitting. Patients are well on followup. The difficulties that we faced in calot's triangle were similar to other studies[15] Aspiration of Gallbladder Contents before manipulating it was helpful as shown in other studies[19]. Patience and perseverance is key to successful completion of such cases by laparoscopy.

Conclusion:

Laparoscopic cholecystectomy in empyema and gangrenous cholecystitis has shown acceptable morbidity and no mortality in our series. The analysis of our study and literature review has shown that this procedure was associated with less intraoperative blood loss, shorter hospital stay, less wound infection and less postoperative pain.

References:

1. Larson GM, Vitale GS, Casey J, Evans JS, Gilliam G, Heuser L, et al. Multipractice analysis of laparoscopic cholecystectomy in 1,983 patients. Ann J Surg. 1992;163:221–6.
2. Nottle PD. Percutaneous laparoscopic cholecystectomy: Indications, contra-indications and complications. Aust NZJ Surg. 1992;62:188–92.
3. Dubois F, Levard H, Berthelot G, Mouro J, Karayel M. Complications of celioscopic cholecystectomy in 2006 patients. Ann Chirr. 1994;48:899–904.
4. Reddick EJ, Olsen D, Spaw A, Baird D, Asbun H, O'Reilly M, et al. Safe performance of difficult laparoscopic cholecystectomy. Am J Surg. 1991;161:377–81.

5. Schimmer BD, Edge SB, Dix J, Hyser MJ, Hanks JB, Jones RS. Laparoscopic cholecystectomy: A choice for symptomatic cholelithiasis. Ann Surg. 1991;213:665–77.

6. Koperna T, Kisser M, Schulz F. Laparoscopic versus open treatment of patients with acute cholecystitis. Hepatogatroenterol. 1999; 46: 753–7.

7. Miller RE, Kimmelstiel FM. Laparoscopic cholecystectomy for acute cholecystitis. Surg Endosc. 1993;7:296–9.

8. Wilson RG, Macintyre IM, Nixon SJ, Saunders JH, Varma JS, King PM. Laparoscopic cholecystectomy as a safe and effective treatment for severe acute cholecystitis. Br Med J. 1992;305:394–6.

9. Al Salamah SM. Outcome of laparoscopic cholecystectomy in acute cholecystitis. J Coll Physicians Surg Pak. 2005;15:400–3.

10. Laine S, Gullichsen R, Rantala A, Ovaska J. Laparoscopic removal of the acutely inflamed gall bladder. Ann Chirgynaecol. 1996;85:213–5.

11. Pisanu A, Altana ML, Cois A, Uccheddu A. Urgent cholecystitis: Laparoscopy or Laparotomy? G Chir. 2001;22:93–100.

12. Hunter JG. Acute cholecystitis revisited. Get it while it's hot. Ann Surg. 1998;227:468–9.

13. Hunt DR, Chu FC.Gangrenous cholecystitis in the laparoscopic era. Aust N Z J Surg. 2000; 70:428–30.

14. Malik A, Laghari AA, Hussain KA, Memon A, Mallah Q et al. Laparoscopic Cholecystectomy in empyema of gallbladder: An experience at Liakot University Hospital, Pakistan. J Minim Access Surg. 2007; 3(2):52-6.

15. Eldar S, Sabo E, Nash E, Abrahamson J, Matter L. Laparoscopic cholecystectomy for various types of gallbladder inflammation. A prospective trial. Surg Laparosc Endosc. 1998;8:200–7.

16. Amendolara M, Perri S, Pasquele E, Biasiato R. Surgical treatment in acute cholecystitis emergencies. Chir Ital. 2001;53:375–81.

17. Gharaibeh KI, Qasaimeh GR, Al-Heiss H, Ammari F, Bani-Hani K, Al-Jaberi TM, et al. Effect of timing of surgery, type of inflammation, and sex on outcome of laparoscopic cholecystectomy for acute cholecystitis. J Laparosendosc Adv Surg Tech A. 2002;12:193-8.

18. Ishizaki Y, Miwa K, Yoshimoto J, Sugo H, Kawasaki S. Conversion of elective laparoscopic to open cholecystectomy between 1993 and 2004. Br J Surg. 2006;93:987-91.

19. Tseng LJ, Tsai CC, Mo LR, Lin RC, Kuo JY, Chang KK, et al. Palliative percutaneous transhepatic drainage of gallbladder empyema before laparoscopic cholecystectomy. Hepato-gastroenterol. 2000;47:932–6.