



" LAPAROSCOPIC CHOLECYSTECTOMY WITH PARTICULAR REFERENCE TO CONVERSION RATE – A PROSPECTIVE STUDY"

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ABSTRACT

Background: Problems during laparoscopic cholecystectomy include bile duct injury, conversion to open operation, and other postoperative complications. We retrospectively evaluated the causes for conversion and the rate of conversion from laparoscopic to open cholecystectomy and assessed the postoperative complications.

Material and methods: Total 85 patients were diagnosed as cholelithiasis admitted in respective unit postings of Indira Gandhi Institute of Medical sciences and Aims Patna Bihar. and 53 cases selected for study of laparoscopic cholecystectomy. Workup of patients done with proper history, clinical examination, blood investigations and ultrasonography abdomen.

Results: We performed laparoscopic cholecystectomy in 53 cases with male: female ratio of 1:4.9. Conversion rate was 7.5%. Most common cause of conversion was frozen calot's with adhesions, several other factors aid in conversion like age more than 45 years, male gender and acute phase of cholecystitis.

Conclusion: Laparoscopic cholecystectomy remains the 'gold standard' by which all other treatment modalities are judged. Conversion from laparoscopic to open cholecystectomy should be based on the sound clinical judgment of the surgeon and not be due to a lack of individual expertise. We found that laparoscopic cholecystectomy, when performed in properly selected patients is very much effective in treatment of symptomatic gall stone disease in term of less complication.

KEYWORDS : BMI CBD –common bile duct ,LC –laparoscopic cholecystectomy, LFT liver function test.

INTRODUCTION

Laparoscopic cholecystectomy (LC) is one of the most commonly performed laparoscopic procedures. It requires only a small wound (0.5-1 cm), causes relatively less pain, allows for early ambulation, requires shorter hospital stay and therefore allows early return to work, and is associated with an early return of intestinal movement and a lower incidence of incisional hernia. Laparoscopic cholecystectomy is established as the primary procedure for the vast majority of patients with benign gall bladder disease, both in elective and emergency condition. The ability to accurately identify an individual patient risk for conversion based on preoperative information can result in more meaningful and accurate preoperative counselling, improved operating room scheduling and efficiency, stratification of risk for technical difficulty, and appropriate assignment of resident assistance, may improve patient's safety by minimizing time to conversion, and helps to identify patients in whom a planned open cholecystectomy is indicated.

Since the conversion rate from laparoscopic cholecystectomy to open cholecystectomy is 1.5 to 19%, there is a need to evaluate various factors responsible for difficult laparoscopic cholecystectomy.

The first laparoscopically assisted cholecystectomy was performed by Erich Muhe of Germany. He was greeted with disbelief and outright hostility from academic surgical community. The first laparoscopic cholecystectomy recorded in medical literature was performed in March 1987 by Phillip Mouret in France. Within 5 Years laparoscopic cholecystectomy was adopted rapidly around the world.

AIMS AND OBJECTIVES

To determine the causes of conversion of laparoscopic cholecystectomy to open cholecystectomy.

MATERIALS AND METHODS

The patients with gall stone diseases reporting to surgical OPD of Indira Gandhi Institute of Medical sciences Patna and AIIMS Patna Bihar, screened on the basis of history, clinical examination and investigation.

Patients declared unfit for General anaesthesia or those with

refractory coagulopathy, suspicion of malignancy, previous upper abdominal surgery, cholangitis, cirrhosis and/or portal hypertension, COPD, cholecysto-enteric fistula, morbid obesity and pregnancy were excluded from the study. The patients having history of jaundice/↑ alkaline phosphatase/dilated CBD on USG are subjected to ERCP for confirmation of CBD clearance, are excluded from study.

Investigations

The history, examination findings, records of lab investigations –Hemoglobin, TLC, DLC, Platelet count, PCV, PT/INR, LFT, KFT, Blood sugar, Abdominal ultrasound for hepatobiliary system evaluation. The operative details, intraoperative findings & events and post operative significant events recorded in details which affect the laparoscopic cholecystectomy and conversion. Each patient was asked to attend the follow up clinic at regular intervals after discharge and follow up particulars were also recorded in the proforma.

INCLUSION CRITERIA

The patients of 15 to 70 years age group with Cholelithiasis/ cholecystitis and diagnosed by ultrasonography of abdomen. Patients with CBD calculus, raised ALP, dilated CBD, where CBD exploration is needed, Patients with features of obstructive jaundice, Suspected malignant gall bladder diseases, Patient medically unfit for Laparoscopic surgery, Acute pancreatitis, Perforated / gangrenous GB, Liver cirrhosis. We have done LC 6 weeks after an acute attack of cholecystitis.

EXCLUSION CRITERIA

We had excluded patients with markedly increase abnormal LFT from our study, border line abnormal LFT patient included in our study, with abnormal coagulation profile and platelet count exclude from our study, hemoglobin 9 gm/dl or more included in study diabetic, thyroid abnormality, chronic renal disease patient excluded from study.

USG findings: We had excluded patients with USG finding of dilated CBD/ dilated intra hepatic biliary radicles from our study. Majority of our patients had multiple small gall stones with distended gall, or normal gall bladder. We have selectively excluded patients with contracted gall bladder

and gall bladder containing large (>3cm) calculus from our study, and do preoperative grading of gallstone disease.

Source of data:

All cases of Cholelithiasis from Surgical OPD and patients admitted in surgical wards of Indira Gandhi Institute of medical sciences and Aiiims Patna Bihar.

Method of collection of data:

Patients with Cholelithiasis attending Surgical OPD and/or getting admitted under the Department of Surgery at Indira Gandhi Institute of Medical Sciences, and Aiiims Patna Bihar. Detail history taking & thorough clinical examination as per the structured proforma.

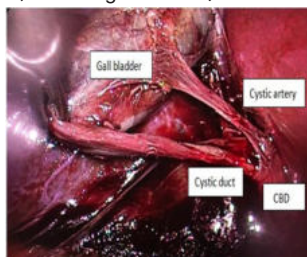
All the laparoscopic cholecystectomy performed in our O.T. on elective basis by various units under the Department of general surgery IGIMS And AIIMS Patna Bihar.

Laparoscope We use rigid 10 mm 30 degree laparoscope having Hopkins rod lens system.

Veress needle -Veress needle is used to establish pneumoperitoneum in blind method. It has an outer cutting needle of 2 mm diameter with an inner simply-loaded hollow blunt stylet with a side hole through its distal tip. When penetrating solid tissue such as abdominal wall, the inner stylet is pushed back, allowing cutting edges of the needle to be exposed.

Insufflator carbon ioxide gas is delivered through this automatic device. Highest flow rate – 20lit/min. We usually set the upper limit of pressur at 12 mm Hg and at medium flow rate.

We use classical four port laparoscopic cholecystectomy. The neck of the gallbladder is this dissected away from its liver bed, leaving only two structures entering the gallbladder- the cystic duct and artery. No structure should be divided until the cystic duct and cystic artery are unequivocally identified. This is the critical view" of safety essential to prevent bile duct injury during LC (*Strasberg et al 1995*)



CRITICAL VIEW OF SAFETY

Completion of Cholecystectomy:

Following clip ligation and division of the cystic duct, the cystic artery is dissected from the surrounding tissue for an adequate distance to permit placement of 3 clips. The surgeon must ascertain that the structure is indeed the cystic artery and not the right hepatic artery looping up onto the neck of the gallbadder or an accessory or replaced right hepatic artery. After an appropriate length of cystic artery has been dissected free, it is clipped proximally and distally prior to its transection. Electrocautery should not be used for this division, as the current may be transmitted to the proximal clips.

OBSERVATIONS AND RESULTS: Age distribution

Table 1:

Age group	Whole group		Successful LC		Converted group	
	No.	%	No.	%	No.	%
15-30	19	36	19	36	0	0
31-45	17	32	17	32	0	0

46-60	11	20.7	8	15.1	3	5.67
>60	6	11.3	5	9.44	1	1.89

Table 2: Sex distribution

Gender	Whole group		Successful LC		Converted group	
	No.	%	No.	%	No.	%
Male	9	17.1	8	89	1	11
Female	44	83	41	93	3	6.9

Male female ratio is 1:4.9

Table 3: Body mass index distribution -

BMI	Whole group		Successful LC		Converted Group	
	No.	%	No.	%	No.	%
18.5-24.9	27	51	26	96.3	1	3.7
>25	26	49	23	88.45	3	11.5

Table 4: Symptoms distribution -

Symptoms	Whole group		Successful LC		Converted Group	
	No.	%	No.	%	No.	%
Acute cholecystitis	4	7.5	3	75	1	25
Chronic cholecystitis	49	92.5	46	93.85	3	6.15

Conversion is more common in acute cases

Table 5: Operative finding –

Finding	Whole group	
Normal anatomy	35	66.03
Long cystic duct	4	7.55
Short cystic duct	2	5.66
Accessory cystic duct	1	1.89
Right hepatic artery loop	1	1.89
Posterior cystic artery	0	0
Cystic duct opening into right sectoral duct	0	0
Frozen calot's	5	9.43
Contracted gall bladder	5	9.43

Table 6: Duration of operation

Duration	No. of cases	%
30-45 min	28	52.84
46-60 min	13	24.52
>60 min	12	32.64

Most of the cases completed within one hours duration is taken from induction to out of anaesthesia .

Table 7: Complications

Minor complications	No. of cases	%
Nausea vomiting	5	9.44
Obstipation	6	11.3
Minimal blood /bile	20	37.75
UTI	0	0
URTI	0	0
Urinary retension	9	17

Table 8:

Major complication	No. of cases	%
Haemorrhage	2	2.87
Port site infection	1	1.89
Bile leak	1	1.89
Duodenal injury	1	1.89
CBD injury	0	0
Bilioma	0	0
Peritonitis	0	0

There is no mortality ,no CBD injury ,no peritonitis ,rest complication manage conservatively and relived without any sequel.

Table 9: Conversion

s.no	Age	sex	BMI	Symptoms	Cause
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1	65	Female	22.6	Cccl	Tear cystic artery
2	50	Female	26.2	Acute chole	Frozen calots with adhesions
3	55	Female	26.4	Cccl	Frozen calots
4	53	Male	26.8	Cccl	Frozen calots

DISCUSSION:

Total 85 patients were diagnosed as cholelithiasis admitted in respective unit postings and 53 cases selected for study of laparoscopic cholecystectomy. Over all conversion rate in our study is 7.5%. Most of our age of the patients were age group 15 to 45 year (68%) but in converted group all 4 patients were more than 45 year of age and P value is 0.00159 which is significant and comparable to Thyagarajan M et al (2017) P value 0.005. Male and female ratio was 1:4.9, in our study there is slight increase of percentage of conversion in males 11% and female 6.9%. In the converted group there was 1 case (3.7%) case of BMI below 25 and 3 patient (11.5%) cases who converted have BMI more than 25 with P Value 0.280 which is more than 0.05 and insignificant comparable to Farkas et al (2012) 3 Over all conversion rate 7.5% is reported in our study is less or equal to reported in many studies. Orlando et al (1993) 4 conversion rate 6.9%, Schlumpf et al (1994) 5 7%, Kante et al (1992) 7.8%, Ashish Pratap Singh et al (2016) 7 7.4%, M Tayeb et al (2005) 8 7.5%. This probably reflect that most of the surgeons who do laparoscopic cholecystectomy here were in learning curve as the surgeon become more experienced the conversion rate gradually become lower. Most common cause of the conversion in our study is frozen calot's and adhesions with P value is 0.00159 which is significant and comparable to M Tayeb et al.

CONCLUSION

Laparoscopic cholecystectomy remains the 'gold standard' by which all other treatment modalities are judged. Conversion from laparoscopic to open cholecystectomy should be based on the sound clinical judgment of the surgeon and not be due to a lack of individual expertise. We found that laparoscopic cholecystectomy, laparoscopic cholecystectomy when performed in properly selected patient is very much effective in treatment of symptomatic gall stone disease in term of less complication, less duration of operation and anaesthesia related complication, cost effectiveness, early return on work and daily routine activity, thus laparoscopic cf few complications.

REFERENCES:

1. Soper NJ, Stockman PT, Dumregan DI, Shley SW. Laparoscopic cholecystectomy: the new "gold standard"? Archives of surgery 1992; 127:917-921.
2. Thyagarajan M et al. Risk factors influencing conversion of laparoscopic cholecystectomy to open cholecystectomy. Int Surg J. 2017 Oct 4(10):3354-3357.
3. Farkas DT et al. The impact of BMI on outcomes after laparoscopic cholecystectomy. Surg Endosc. 2012; NCBI.
4. Orlando R III, Russell JC, Lynch J, Mattie A. 1993 The Connecticut laparoscopic cholecystectomy Registry laparoscopic cholecystectomy. A statewide experience. Archives of Surgery 128: 494-499.
5. Schlumpf R, Klotz H P, Wehrli H, Herzog U. 1994 A nation's experience in laparoscopic cholecystectomy. Surgical Endoscopy 8: 35-41.
6. Kane R, Luie N, Borbas C et al. 1995 The outcomes of elective laparoscopic and open cholecystectomy. Journal of the American College of Surgeons 80: 136-145.
7. Ashish Pratap Singh, Priyank Sharma, Sajith Babu S.M, A.P.S. Gaharwar. Predicting conversion of laparoscopic cholecystectomy: an experience in tertiary care hospital of central India. ISJ vol 3(4) 2016.
8. M Tayeb, Syed Ahsan Raza, MR Khan, R Azmi. Conversion from laparoscopic to open cholecystectomy: multivariate analysis of preoperative risk factors. Open Journal Indexed with Index Medicus & SCI 2005 vol(1):17-20