

## Research Article

# A comparative study of conventional cholecystectomy and laparoscopic cholecystectomy

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## ABSTRACT

**Background:** Laparoscopic surgery is rapidly becoming popular alternative to traditional operative procedure for a variety of diseases. Endoscopic surgery is associated with diminished pain and cosmetic disfigurement as well as quicker resumption of normal activities has accelerated its acceptance by surgeons. This is exemplified by the recent introduction of Laparoscopic Cholecystectomy. The present study shows the comparison between conventional Cholecystectomy and Laparoscopic Cholecystectomy.

**Methods:** This series consists of a study of our first 25 cases of laparoscopic cholecystectomy in Basaveshwara Teaching General Hospital (BTGH) and 25 cases of conventional cholecystectomy done in BTGH.

**Results:** Postop stay in hospital is most important factor which makes lapchole, more favourable than conventional chole. In our study the average stay of lap chole was 3.4 days and that of conventional chole cases was 11.4. So patients who underwent lap chole returned to their routine job/work much earlier than those who underwent conventional chole. This advantage enables lap chole to be more cost.

**Conclusions:** The patients' interest should not be sacrificed in ones urge to boost their ego by being on of the "small select group", who practice laparoscopic surgery.

**Keywords:** Conventional cholecystectomy, Laparoscopic cholecystectomy

## INTRODUCTION

Conventional cholecystectomy has been replaced by laparoscopic cholecystectomy, even though it had standardized and established by itself as the Gold Standard choice of surgery for cholecystectomy for more than a century.

M. R. Cox noted in his series of 418 laparoscopic cholecystectomies that the conversion rate was 33.7% in acute cholecystitis.<sup>1</sup> 21.7% for chronic cholecystitis and 4% in no inflammation group. The conversion rate was highest for emphysema 83.3%, 50% in gangrenous cholecystitis, 21.8% in oedematous cholecystitis and 7% in Mucocoele.

Vogelbach et al conducted a study and chosen 84 conventional Cholecystectomies and 100 Laparoscopic Cholecystectomies for a prospective controlled.<sup>2</sup>

The Hospital stay averaged 11.2 days in CC whereas it was 6.3 days in LC. 18 laparoscopic procedures are converted. There are no serious complications in either group with one re-operation in each group. The author concludes that LC is a safe technique when performed by trained, experienced surgeons, but one should not hesitate to convert into CC when difficult situation arises.

Rizk et al in their study stated that the indications for open Cholecystectomy in the Era of Laparoscopic Cholecystectomy.<sup>3</sup> The following observations are noted:

1. None complicated cholelithiasis because of lack of experienced laparoscopic surgeon and Non availability or breakdown of equipment.
2. Multiple intra-abdominal adhesions
3. Empyema of the Gall Bladder in an old and fragile patient.
4. Conversion to open may be necessary because of bleeding, slippage of cystic duct clip in the presence of severe infection, certain cases of associated choledocholithiasis disease in trained hands.

KIMURA suggests high stringent patient selection criterion. This study reports 0.8% as conversion rate.<sup>4</sup>

Vazzaracted conducted a study in different patients and performed 130 lab choles.<sup>5</sup> Average Hospital stay of the patients was 2.8(1-4) days. The postoperative course was uncomplicated in 108 patients (83.1%). There are 3 abdominal Complications (2.3%) a sub hepatic and perihepatic haematoma evacuated by CT guided drainage, a biliary leak caused by slippage of cystic duct clip, and an iatrogenic injury to CBD treated by Rous-en-Yloop. The reintervention rate was 2.5%.

This analysis emphasizes that training and experience as well as the judicious care should improve the quality of a benign operation that should no harm to the patient.

## METHODS

This series consists of a study of our first 25 cases of laparoscopic cholecystectomy in Basaveshwara Teaching General Hospital (BTGH) and 25 cases of conventional cholecystectomy done in BTGH and Government General Hospital Gulbarga.

All the cases were studied clinically, thoroughly investigated according to a definite proforma and later subjected to either conventional chole or lap chole.

In the present series, all the cases are admitted in surgical units. On admission the patients are interviewed for full clinical history according to definite proforma.

All the patients underwent routine investigation of Blood Hb% Total count, differential count, Erythrocyte sedimentation rate, random blood sugar, Blood secretion and liver function test and urine for sugar, albumin and microscopy along with bile salts and pigments. Abdominal ultrasound was performed in all the cases. Routinely patients were subjected to physical fitness and pre-anaesthetic check up. For all lap choles pre-op Abdominal ultrasound was repeated for CBD clearance to know the length of cystic duct and cystic artery anomaly on the day of surgery. To ascertain the intrahepatic gallbladder or any other anomaly, this was of great help in all the 25 cases.

Diagnosis of cholelithiasis was made in 43 cases, 35 cases were diagnosed as having chronic cholecystitis, 7

cases were diagnosed as acute cholecystitis and 7 cases of empyema Gall Bladder, I case of Asymtomic Gall Bladder calculi. Cholecystectomy was performed as aprimary procedure for treatment. Ryles Tube was passed in all cases. All operations are done under General Anaesthesia.

**Table 1: Comparison of clinical diagnosis.**

Clinicaldiagnosis	Laparoscopic chole cystectomy	Conventional chole cystectomy
Chronic cholecystitis with GB Calculi	17	18
Acute cholecystitis	04	03
Empyema GB	03	04
Asymptomatic GB		
Calculi	01	00
Total No. Cases	25	25

In conventional chole cases, abdomen was opened by Kocher's sub coastal incision, 21 cases underwent "Duct first method" and four cases underwent "Fundus first method".

In some cases with tense gall bladder, gall bladder was aspirated before performing cholecystectomy using a wide bored needle and syringe.

T-tube drainage was done in 2 cases when the CBD was found to be dilated and when there was no free flow of saline when injected through the cystic duct, during surgery intra-operative cholangiography was done to make sure dye passed freely in duodenum. Gall Bladder bed was drained with a corrugated rubber drain for average 48 hours post operatively after which if no leak was present, it was removed.

Routine postoperative management consisted of 02 inhalation, nasogastric aspiration, antibiotics, analgesics and intravenous fluids. Patients were usually kept nil orally for 48-72 hours. Orally fluids were allowed on 3<sup>rd</sup> POD and semisolids / soft diet on 4<sup>th</sup> POD. Drainage site was checked daily on rounds and dressings done when leak was present. The main wound dressing were routinely changed on 4<sup>th</sup> POD. Alternate day wound inspections were done, if necessary sutures were removed on the 8<sup>th</sup>/10<sup>th</sup> POD.

For lap chole case we had a package for the patients. Patient used to stay in hospital for 3 days. Patients used to stay in hospital for 3 days. Patients used to get admitted with all the investigations ready along with physician fitness and a pre-anaesthesia check-up. Patients were kept nil orally lover night and shifted to OT after a repeat abdominal ultrasonography. All cases were done under

General Anaesthesia. Nasogastric surgeon used to be on the left side of the table initially. But later, the operating surgeon was more comfortable between the legs with patient in semilithotomy position. The camera assistant used to be on the left of the table. The second assistant, the staff sister and video monitor on the right side.

In the first 5 cases, pneumoperitoneum was created using standard Veress needle with safety valve. But, because of bad experience with this technique while doing some other procedure, we stopped using it and routinely followed Hasson's technique (open) for creating a pneumoperitoneum. Usually 4 ports were made for the following:

1. Sub umbilical trocar: Through which the scope with camera is passed-size 10mm.
2. 10 mm Trocar: Lateral to midline, just right of falciform ligament, for operating instruments.
3. 5 mm Trocar: In the mid clavicular line in the right hypochondrium for the operating instrument.
4. 5mm Trocar: Little lateral to the above trocar in the anterior auxiliary line for the GB holding forceps.

Later, if necessary, Ryles tube can be passed to drain the GB bed through this port. Last 3 ports, had to be in one line (sub Kocher's incision) for a provision to convert the case into conventional cholecystectomy (open) if necessary. In the above procedure, first, sub umbilical trocar is inserted and the rest of the trocars are inserted under direct supervision and if any adhesions are present were released and cholecystectomy is done with the standard "Calot's triangle first method".

But in two difficult cases of empyema GB, with massive adhesion fundus first method was tried and cases completed, successfully. The Calot's triangle is dissected to skeletonise the cystic duct and cystic artery and titanium clips applied with clip application. 2 clips are applied towards the CBD side of the cystic duct and artery without tenting the CBD and 1 clip for each of the cystic duct and artery towards the gall bladder side. The duct and artery are cut with the lap scissors in between the clips. Then the GB is dissected free of its bed with the help of lap spatula. During this whole procedure judicious use of electrocautery is essential for haemostasis. Later GB bed, sub hepatic area, Morrison's pouch are irrigated with saline and sucked. The GB is removed through the sub umbilical ports after the contents are sucked, stone removed through stone holding forceps. Later the cannulas are removed under direct vision and deflation of the peritoneum was done. The subumbilical port is closed with vicryl/catgut for peritoneum & rectus. The skin is also sutured here, the rest of the ports steri strips are applied usually. The patients were given long acting local anaesthetic around the site of the port for the postoperative pain relief/analgesic. Once the patient is reversed from general anaesthesia, patient shifted to recovery room for

observation for an hour and then shifted to post operative ward.

After 6-8 hours once the patient is fully recovered from GA, patients were allowed sips of liquid orally and were allowed to sit up and move about. Next morning patients were allowed orally, liquids.

## RESULTS

This study is based on analysis of first 25 cases of Laparoscopic Cholecystectomies. This was compared to 25 cases of open Cholecystectomies done during the same period. All the cases were randomly selected for that procedure after diagnosing by Ultrasonography of abdomen.

The final results of the study are as follows:

**Table 2: Comparison of chronic cholecystitis.**

Clinical diagnosis	Laparoscopic chole cystectomy	Conventional chole cystectomy
<b>Chronic cholecystitis with</b>		
GB Calculi	18	17
Acute cholecystitis	03	04
Empyema GB	04	03
<b>Asymptomatic GB</b>		
Calculi	00	01
Total No. Cases	25	25
<b>Post operative stay in hospital</b>		
	3-4 days	11.4 days

Postop stay in hospital is most important factor which makes lapchole, more favourable than conventional chole. In our study the average stay of lap chole was 3.4 days and that of conventional chole cases was 11.4. So patients who underwent lap chole returned to their routine job/work much earlier than those who underwent conventional. Chole. This advantage enables lap chole to be more cost.

Conventional Cholecystectomy, which was a mastered procedure over the last century, was undisputedly the golden standard choice of procedure for Gall bladder removal. Last decade has been the development of laparoscopic surgery advancing at such a breakneck speed with an incredible innovation that hardly few procedures have been left which cannot be handled Laparoscopically. Likewise, Laparoscopic Cholecystectomy has become a routine and has replaced conventional open cholecystectomy not only in the developed countries but is gaining popularity in developing countries like India.

The advantages of laparoscopic cholecystectomy, which can be made out from the present study, are as follows:

- a) There is no scar except the four punctured marks.
- b) There is less pain and patients are discharged from the hospital within 3 or 4 days.
- c) Patients have relatively less post operative surgical complications.
- d) Patient can return to his routine work much earlier.

The disadvantages are:

- a) It requires modern equipment, which are costly.
- b) It requires a trained laparoscopic surgeon, staff nurse for operating and handling the equipment.
- c) Maintenance of the equipment is a costly affair.

It is argued that there shall no longer be ugly scars after laparoscopic cholecystectomy. It should be remembered laparoscopic surgery is not a cosmetic surgery. Laparoscopic surgery is very expensive and has to be used with enough workload to make it cost effective.<sup>4</sup>

## DISCUSSION

There were problems even with century old mastered conventional cholecystectomy but it doesn't require modern sophisticated technology. But there is a major and distinct qualitative change with laparoscopic technique in which operation is conducted visually and by the use of hands for which General Surgeons have been trained. Accidents do occur during the learning curve. For some, it is very small for others it will be longer, with much casualty on the way. Unless centres are established where enough no. of cases are operated with new technique under the supervision of an expert, accidents would continue to occur. Unfortunately, there is only one CBD and the argument that accidents during learning curve are bound to occur, have to be justified when alternative safe methods have been perfected in many parts of the world. From our study, we conclude that laparoscopic cholecystectomy, by trained experienced open surgeon, with use of meticulous surgical technique; can be performed safely without, compromising the patient interest for better patient compliance. It will remain the operation of choice for times immemorial due, not only to its minimally invasive attitude but also prompt patient relief but for LC to be total success it has to be supported by a thoughtful surgeon, who not only focuses his interests on GB, but also knows, when to abandon a laparoscopic procedure and switch to open surgery and relieve patients problem as a whole.<sup>1,3</sup>

Laparoscopic cholecystectomy puts to test the surgeons overall assessment of the process of gall bladder disease, operative skill and technique, for patient's benefit so that he exerts his perfection to ensure that the wizardry of the new equipment is not tempered by the wisdom of his judgement and his past experience.<sup>2</sup> The patients interest should not be sacrificed in ones urge to boost their ego by being on of the "small select group", who practice laparoscopic surgery. On the other hand, as one sees the growth of laparoscopy particularly in relation to cholecystectomy which is the ideal example of the benefit of Laparoscopic surgery, one cannot help but feel that laparoscopic surgeons will not for long be a "small select group", but will soon be merely a large part of the pool of general surgery.

## CONCLUSION

Lastly laparoscopic cholecystectomy definitely has an edge over Conventional Cholecystectomy but for its affordability by the poor.

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