



RISK FACTORS DETERMINING CONVERSION OF LAPAROSCOPIC CHOLECYSTECTOMY TO OPEN CHOLECYSTECTOMY

General Surgery

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ABSTRACT

BACKGROUND: Gall stones is one of the most common diseases in man and one of the global health problem. The patients are normally asymptomatic, and this condition is normally detected with ultrasound evaluation for a totally unrelated disease. Of late, laparoscopic cholecystectomy has become a gold standard method for the treatment of gall stones. This is mainly due to its lower morbidity and mortality, thus returning to the normal activity sooner, lesser number of hospital days and lesser pain postsurgery. In spite of all this, around 2-15% of the patients need to convert from laparoscopic to open surgery due to different reasons. **METHODS-**A prospective study was conducted among 134 patients posted for elective laparoscopic cholecystectomy over a period of 2 years from 1st april 2019 to 31st March 2020. Of 134, fifteen cases (11.2%) got converted into open cholecystectomy. Various factors that can affect the conversion were studied. The statistical analysis was done with Fisher's Exact probability test and P value of < 0.05 considered to be significant. **RESULTS-** Conversion to open cholecystectomy was needed in 15 patients (11.2%). Factors associated with the conversion include age >60years, Male gender, Obesity, previous Abdominal surgeries, Gallbladder wall thickness >4mm and presence of pericholecystic fluid. **CONCLUSION-** Identifying the risk factors may help to predict the difficulty of the procedure and this would help the surgeon to better inform the patients about the risk of conversion from laparoscopic to open cholecystectomy.

KEYWORDS

laparoscopic, open, cholecystectomy, conversion, gall stones

INTRODUCTION

- Gall stones is one of the most common diseases in man and one of the global health problem. The patients are normally asymptomatic, and this condition is normally detected with ultrasound evaluation for a totally unrelated disease.
- Of late, laparoscopic cholecystectomy has become a gold standard method for the treatment of gall stones.
- This is mainly due to its lower morbidity and mortality, thus returning to the normal activity sooner, lesser number of hospital days and lesser pain post-surgery.

In spite of all this, around 2-15% of the patients need to convert from laparoscopic to open surgery due to different reasons.

This could be due to complications which may be related to anaesthesia, increased incidence of iatrogenic lesions mainly to the biliary tract, thermocoagulation, pneumoperitoneum and etc. This issue can be further complicated if there is any anatomical defect, or chronic or acute inflammation.

- The conversion, more than a complication, is a wise decision, to avoid further risks or damage to the patient. However, the contra indications is longer operation and hospital stay time, chances of higher morbidity and higher hospital costs.
- Therefore, there is a need to identify the risk factors that may lead to a conversion to open cholecystectomy. Sometimes, in most of the simple cases complications such as bleeding and accidental lesions, pneumoperitoneum may arise for the simplest of the reasons, which makes open surgery the only choice.

Some of these risk factors can be assessed before the surgery itself, based on various clinical, laboratory and instrumental parameters of the patients.

Identification of these markers would help the attending surgeon to plan his procedure.

Thus, in the present study, we identified a few of the factors that would predict the outcome of surgery and the need for an open surgery.

AIMS AND OBJECTIVES

To study and identify the risk factors responsible for conversion of laparoscopic cholecystectomy to open cholecystectomy.

To suggest guidelines and predicting factors for planning the conversion of laparoscopic to open cholecystectomy.

METHODOLOGY

A prospective study was conducted among 134 patients posted for elective laparoscopic cholecystectomy over a period of 2 years from 1st

april 2019 to 31st march 2020. Of 134, fifteen cases (11.2%) got converted into open cholecystectomy. Various factors that can affect the conversion were studied.

Detailed demographic details such as age, height, weight, BMI. Detailed physical and clinical examination including Ultrasound was done for all the patients and the results were noted.

Details of previous surgical history, of the present illness and any other comorbidities present were also taken down in detail. Blood was collected from all the patients for routine investigations such as complete blood picture, random blood sugar levels, liver and kidney profile, viral markers etc.

The laparoscopic surgery was performed by an experienced surgeon using standardized technique with four ports and the surgeon.

standing the left side of the patient. Diathermy coagulation was used for the Calot's triangle dissection.

The dissection of the gall bladder from the liver bed was done either with a hook or with scissors.

The statistical analysis was done with Fisher's Exact probability test and P value of < 0.05 considered to be significant.

RESULTS

Conversion to open cholecystectomy was needed in 15 patients (11.2%).

Table 1- Reasons for conversion.

Reasons for conversion	n=15
Dense adhesions between GB and bowel	7 (46.67%)
Inability to define anatomy at Calot's Triangle	2 (13.3%)
Bleeding from cystic artery injury	2 (13.3%)
Bleeding from GB bed	1 (6.67%)
Choledocholithiasis	1 (6.67%)
Bile duct injury	1 (6.67%)
Equipment failure	1 (6.67%)

Factors associated with the conversion include age >60years, Male gender, Obesity, previous Abdominal surgeries, Gallbladder wall thickness >4mm and presence of pericholecystic fluid.

Table 2: Summary table of results of variables.

Patient group	No. of patients	Completed	converted	P
Total	134	119	15	

Male	32	27	5	0.2
Female	102	92	10	
<60 yrs	121	110	11	
>60 yrs	13	9	4	0.2
Non obese	91	84	7	
Obese	44	6	8	0.009
Prev surgery	3	2	1	
Comorbidity +	30	25	5	
GB wall thickened	36	32	4	0.04
Abnormal LFT	113	102	11	0.04
Leucocytosis	35	29	6	
Pericholecystitis	7	4	3	

DISCUSSION

Laparoscopic cholecystectomy is converted to open cholecystectomy only in cases when a safe completion of the former procedure cannot be ensured.

Rather than a failure of surgery, it is a good judgment by the attending surgeon, to avoid the forthcoming complications of the laparoscopic cholecystectomy.

Thus, the identification of factors which can predict the conversion of the surgery helps in proper perioperative planning of the surgery including counseling of the patients and relatives.

In the present study, the conversion rate from laparoscopic cholecystectomy to open cholecystectomy was 11.2%. Less than 3% rate were reported by Constantini et al, 5.35% was reported by Bhar et al. A very high rate of 25% was reported by Licciardello et al.

There was not much difference in the gender among the patients who got converted.

This was seen in other similar studies, where there was no significance difference in the number of males and females.

However in many of the studies laparoscopic cholecystectomy conversion to open cholecystectomy was seen more in the males rather than the females due to anatomical difficulties as well as more adhesions in males.

Age seemed to be one of the risk factors for conversion, In present study, a higher rate of conversion was seen among the patients above 60 years of age.

Similar results were reported from other studies such as Constantini et al, where also the elderly showed a higher rate of conversion. Several other studies in the literature also showed similar results.

Freid et al, Liu et al and Brodsky et al also have reported >60 years to be of a significant value.

The reason could be attributed to the fact that the elderly patients have a chronicity of the gall bladder disease, thus with more episodes of acute attacks, thereby causing fibrotic adhesions.

This repeated attack of cholecystitis and complicated biliary disease in the elderly has been demonstrated in many other studies.

Obesity and overweight seemed to be one of the risk factors for the conversion in present study.

This was corroborated by studies by Fried et al in their study. Hutchinson et al reported that an increase in BMI above the normal levels increased the chances of conversion rate from laparoscopic to open.

Pericholecystitis was also observed in significantly higher numbers in the patients undergoing open cholecystectomy compared to the other group. Similar results were observed by several other authors.

CONCLUSION

Identifying the risk factors may help to predict the difficulty of the procedure and this would help the surgeon to better inform the patients about the risk of conversion from laparoscopic to open cholecystectomy. Increased age, obesity, tenderness in the right hypochondrium, increased leucocyte levels, acute cholecystitis, previous abdominal surgeries, Gallbladder wall thickness >4mm and presence of

pericholecystic fluid are the predisposing factors for the conversion of laparoscopic cholecystectomy to open cholecystectomy. A complete knowledge of these factors before surgery can help the surgeon to decide the plan of action and necessary precautions to be taken.

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