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Observational Study on Conversion of Laparoscopic Cholecystectomy to Open Cholecystectomy and Its Causes

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Abstract

Introduction: *Minimal invasive surgery has largely replaced conventional open procedures to large extent, one such case is Cholecystectomy and has become gold standard procedure of choice for Cholecystectomy and this study aims to study the rate and causes of conversion of laparoscopic Cholecystectomy into open Cholecystectomy.*

Materials and Methods: *A prospective non randomized observational study was done on 50 consenting patients undergoing laparoscopic Cholecystectomy in Department of General Surgery in Rajah Muthaiah Medical College, Chidambaram from June 2016 to June 2019. Patients are selected on the basis of purposive sampling method after fulfilling the inclusion and exclusion criteria.*

Results: *Out of 50 patients included in the study. Most common age group requiring laparoscopic Cholecystectomy is 30 to 50 years and females were found to be 80% of the targeted sample. Higher BMI and emergency laparoscopic intervention resulted in higher conservion rate of 50% and 100% respectively. Chronic disease like diabetes in both open and Laparoscopic group was found to be 50% and hypertensive was found to be 50% and 4.2%.*

In setting of acute cholecystitis and CBD calculus conversion rate was found to be 6% and 100% respectively. Incidence of complications was 50% in the converted group compared to 4.2% in Laparoscopic Cholecystectomy

Conclusion: *In our study we conclude that, in acute disease conversion rate is high, presence of adhesions and inflammation intraoperatively is a key factor. The rate of conversion and bile stone spillage is proportional to the severity of disease.*

Keywords: *Open Cholecystectomy, Gallstones, Laparoscopic Cholecystectomy, CBD stones, Acute cholecystitis.*

Introduction

In era of minimal invasive surgery, laparoscopic Cholecystectomy played a important role in popularising and replacing conventional open Cholecystectomy procedures. Now Laparoscopic Cholecystectomy is the procedure of choice for gallbladder disease compared to open Cholecystectomy.

Gall stone disease is a frequently occuring disease in India, although most cases are asymptomatic, still gall stones disease contribute substantially to health care costs and it's complications are life threatening. Laparoscopic Cholecystectomy is universally adopted due to appeal of diminished pain and fatigue, early return to normal activities and superior cosmesis had made it gold standard.

Approximately 75% of all Cholecystectomies are preformed laparoscopically and conversion to open procedure ranges from 5% to 10% worldwide. The National In of health postulated that the outcome of Laparoscopic Cholecystectomies would be greatly influenced by surgeon specific factors such as training, experience, skill and judgement. In addition, numerous patient and disease related factor such as male gender, obesity, old age (>65 years), prior abdominal surgery, acute Cholecystitis and anamolous anatomy have been reported as significant risk factors for conversion of Laparoscopic to open procedures.

The study aims at observing these factors and identifying the conversation rate and factors causing the conversion.

Materials and Methods

A non randomized prospective observational study conducted in Department of General surgery in Rajah Muthiah Medical College, between the period of June 2016 to June 2019 and patients are selected on purposive sampling method based on the inclusion and exclusion criteria were included in the study. Patients included in the study of after obtaining consent and detailed history, general physical examination and neurological examination. Routine investigations such as complete hemogram, TLC, DLC, ESR, FBS, RFT and LFT and other investigations such as ECG, Chest X-ray etc are done.

Among these patients conversion of Laparoscopic procedure into open procedure were evaluated and following data such as intraoperative findings like adhesions, excessive bleeding, any untoward event if present were included and collected data is analysed and compiled.

Results and Discussion

The findings of the study are:

Most common age group that is involved in gall stone disease requiring surgical intervention is 30 to 50 years around 80% and females 62%. Higher BMI had a higher rate of conversion around 50%. 100% of the emergency cases need conversion.

In the present study, 68% of cases were done for the symptomatic gall stone. The two cases which required conversion were for post ERCP and acute cholecystitis. Both cases had severe adhesions intra-operatively.

All cases in our stud had right upper quadrant pain at least once in their lifetime, only 14% in laparoscopic group and 50% in converted group had fever.

Both cases were diabetic in the converted group as compared to none in the non converted group, 50% were hypertensives in the converted group as compared to 4.2%. In the non converted group.

Intra operative complications like omental adhesions, perforation, inflammation, bleeding, bile leak were seen in 50% converted cases as compared to 29.2%, 18.8%, 18.8%, 22.9%, 27.1% in the non converted group.

6% of the acute cholecystitis (1 of 17) needed conversion and 100% of those who showed a CBD calculus needed conversion.

In 22% there was spillage of stones in laparoscopic group as compared to 50% in the open group, this spillage occurred prior to conversion.

The incidence of complications were 50% in the converted group compared to 4.2% in laparoscopic group.

Table 1: Age Distribution

Age	Laparoscopic	Laparoscopic converted to open
less than 30	1	0
30-40 years	22	1
41-50 years	17	0
51-60 years	6	0
more than 60 years	1	1

Table 2: BMI

SURGERY	BMI (kg/m^2)	Frequency	Percent
Laparoscopic	19-24.9	47	97.9
	25-29.9	1	2.1
	Total	48	100
Laparoscopic converted to open	>30	1	50
	19-24.9	1	50
	Total	2	100

Table 3: Distribution of Pathology of Cases

Diagnosis	Laparoscopic	Laparoscopic converted to open
Stones	34	0
Polyp	2	0
Chronic cholecystistis	12	0
Post ERCP	0	1
Acute cholecystitis	0	1

In our study 68% of cases were done for symptomatic gall stones .the two cases which required conversion were these for post ERCP and acute cholecystitis both cases had severe adhesions intra-operatively.

Table 4: Associated Co-Morbidities

Surgery	Diabetes Mellitus	Hypertension	Diabetes Mellitus	Hypertension
Surgery	Diabetes Mellitus	Hypertension	Diabetes Mellitus	Hypertension
Laparoscopic	3	2	6.3	4.2
Laparoscopic converted to open	2	1	100	50

Both cases were diabetic in the converted group as compared to none in the non converted group, 50 % were hypertensive's in the converted group as compared to 4.2% in the non converted group respectively.

Table 5: Ultrasonography

Surgery	Ultrasound	Frequency	Percent
Laparoscopic	Multiple gall stones	6	12.5
	Acute cholecystitis	16	33.3
	Chronic cholecystitis	26	54.2
	Total	48	100
Laparoscopic converted to open	Acute cholecystitis	1	50
	Chronic cholecystitis	1	50
	Total	2	100

6% of acute cholecystitis (1 of 17) needed conversion and 100 % of those who showed a CBD calculus needed conversion.

Conclusion

In our study we concluded that

- In acute disease the chances rate of conversion is higher
- Presences of adhesions and inflammation intraoperatively is s key factor, The rate of conversion and the bile stone spillage ids proportional to the severity of the disease.
- In acute cases the chances of perforation was around 80.5% and in chronic disease 13.75 percent
- The intraheaptic gall bladder,
- Those with short cystic duct and frozen Calots had a higher rate.

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