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RETROSPECTIVE STUDY OF COMPLICATIONS AND CONVERSION OF LAPAROSCOPIC CHOLECYSTECTOMY

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ABSTRACT: BACKGROUND: Laparoscopic Cholecystectomy (LC) remains "gold standard" for symptomatic and complicating gallbladder stone disease. Conversion to Open Cholecystectomy (OC) fails to give the intended benefits to the patients. The conversion rate has varied from 3% to 10%. We intend to retrospectively analyze the conversion and complications of LC. **OBJECTIVES:** 1. To determine the conversion rate of laparoscopic cholecystectomy (LC) and its causes at selected hospitals in Hassan district. 2. To assess complications following laparoscopic cholecystectomy. **METHODS:** The study period was conducted on patients undergoing LC in two years from Nov 2012 to Oct 2014. Systematic chart review of all cases of LC was done. 185 cases of LC were analyzed with regard to demographic profile, conversion and surgical procedure related complications. **RESULTS:** There were 188 cholecystectomy done during that period. Of which LC was planned in 185 cases and successful in 182 patients. 3 cases were converted due to various reasons. There were also 18 instances of complications. **CONCLUSIONS:** Reducing the conversion in LC will definitely add to the success of overall management of patients with gallbladder stone disease. Conversion can still a failure though not a complication. The overall complication is low with LC and conversion to OC is also low. This is the current trend around the world.

KEYWORDS: Symptomatic gallbladder stone, Laparoscopic Cholecystectomy, conversion, complication.

INTRODUCTION: Laparoscopic cholecystectomy (LC) remains gold standard treatment for symptomatic and complicating gallbladder stone disease.^{1,2} It is going to remain the same in the foreseeable future on the basis of current evidence and research. LC is now by far the most common surgical procedure in the domain of General Surgeon. As the absolute numbers of LC is increasing, the numbers of complications are also more.³ One issue that is not grouped among complications is conversion to OC. However it is still failure in the sense that intended benefits could not be ensured to the patients. Any efforts to reduce the conversion rate are welcome from the patient satisfaction point of view. Analysis of complications related to surgical procedure which are the traditional reasons for conversion and the rate of conversion will add to the success of LC.

MATERIALS AND METHODS: Retrospective chart review of all LC between Nov 2012 and Oct 2014 was included in the study. It is our practice to take up all cholecystectomy for LC. Those patients who had medical co morbidities which precluded GA, especially pneumoperitonium were excluded. Patients who needed CBD exploration were excluded. So also a patient who was not willing for LC was excluded.

All our patients underwent LC under general anesthesia with endotracheal intubation. Standard four port technique was employed. Majority were performed using Veress needle

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pneumoperitonium method. Of late we are using intra umbilical incision open method. The standard Calot's triangle dissection with window of safety guidelines were strictly adhered to.

The slandered guidelines were adhered to convert. The accepted reasons for conversion like difficult/frozen Calot's, excessive bleeding which couldn't be controlled laproscopically, undue delay in progressing/time taken for the procedure. We also considered the effects of pneumoperitonium and inability to manage by anesthesiologist.

The demographic parameters of patients like age gender were analyzed. The time taken for the completion of the procedure was analyzed. The conversion rate was noted and the reasons for them were analyzed. Associated medical illness like diabetes was noted. Incidences of complications were studied. Patients were followed up for variable time from two years to one month.

RESULTS: 185 patients underwent LC for symptomatic and complicating gallbladder stone disease during the two year study period from Nov 2012 to Oct 2014. Three more patients needing cholecystectomy underwent direct OC (One gangrenous cholecystitis, one cardiac patient and one was adamant to avoid LC).

AGE PROFILE: Our patients were aged between 14-80 years. The average age was 41.6 years. Majority of our patients were in 31-50 years age group.

GENDER PROFILE: More than 75% of our patients were ladies. 144 were women compared to 41 men patients.

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OPERATIVE TIME: The overall operative time ranged from: 25 min to 150 min. The average operative time was 50 min.

COMPLICATIONS: There were 18 instances of complications occurred in 15 patients. Three of them had more than one complication. Bile spillage from gall bladder was the most frequent complication followed by stone spillage. One patient had heavy bleeding needing blood transfusion. She had portal cavernoma and eventually needed conversion for control of bleeding.

Complications	No.	Rate
Wound infections:		
Minor:	03	1.6%
Major:	01	0.5%
Persistent:	Nil	
Hernia:	Nil	
Bleeding (needing transfusion)	01	0.5%
Bile spillage	10	5.40%
Stone spillage	04	2.16%
Bile duct injury	Nil	
Port Hernias	Nil	

Table 1: Complications noted among the study subjects following LC (n=185)

CONVERSION: of the 185 patients, 182 had successful completion of LC. Three patients needed conversion (1.6%). Two of them had the so called frozen Calot's triangle and dissection could not be performed safely.

DISCUSSION: LC has replaced OC as the method of cholecystectomy.^{4,5} The advantages of LC over OC are well-known. Gall bladder stone disease is more common among women than in men. The same is observed in our study and comparable to accepted gender profile.⁶ 78% of our patients were women. Some studies have observed higher percentage of men patients in studies done with reference to acute cholecystitis.^{7,8} But overall gall bladder disease is still common among women (3-4:1 in favor of women).⁶ The average age of our patients is 41.6 years. Maximum incidence of gallstone disease is found in fourth and fifth decade. It is a disease of fair, forty (and fourth decade!), fertile, fatty females.¹ The application of laparoscopic technique for cholecystectomy is expanding very rapidly. It has also increased the number of cholecystectomy. Like any other surgical procedure it is not without complications. However life threatening complications are rare.

The complications described in LC can be grouped as injuries during access, during dissection of gall bladder, complications during removal of gallbladder (including bile and stone spillage), port site complications and nonsurgical complications like due to pneumoperitoneum and positioning of patient.⁷

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Injuries during insertion of Veress needle are low. Vascular injury, excessive bleeding, bowel injuries are significant complications during this step.^{3,6} There were no Veress needle injuries in our study. Similarly there were no injuries during insertion of trocars. The primary trocar is at the greatest risk of causing injuries. The incidence of working port related injury should be negligible due to strict adherence to the policy of insertion under vision.

Bile duct injury is a serious and sometime life threatening complication of LC. Bile duct injury was reported as high during the initial days of LC. However as the time passed, the procedure was standardized and safety principle have been evolved, the same has stabilized 0.5-1.4%.⁶ The incidence is also low as the experience of the surgeon increases. We did not experience any bile duct injury either early or late. The follow up duration of our patients is 1 month to 2 years.

Bile spillage from gallbladder is a minor complication which can be taken care by thorough wash. We had bile spillage in 10 patients. Early bile spillage during dissection of Calot's triangle or close to bile duct makes surgeon worry about bile duct injury. Spillage of stones is a concern though. It is estimated to occur in 10-30% of cases.⁷ It was 2.7% in our study. All efforts should be made to retrieve spilled stones; but conversion to retrieve them is not mandatory.⁷

Port site complications like infection, sinus formation and hernia can occur in LC. We had 3 cases of port site infection (1.7%) which were treated by conservative means. It is likely to occur in about 1.4-4.5%.⁷ It is our practice to give intravenous antibiotic at the time of insertion. We also avoid bile contamination of the port site and wash thoroughly in the event of contamination.

The conversion rate in our study is 1.67% which is within the current range (1.88-3.13%).⁹ The accepted conversion rate was 5-10% a decade ago is probably not true now.⁶ There is a definite downward trend in conversion in recent publications.¹⁰ Many series have no conversion over a large number of cases.¹¹

Fortunately there were no deaths in our study.

CONCLUSION: LC is the most common laparoscopic procedure and probably the most common surgical procedure done by general surgeons. The complication and conversion rates are decreasing over a period of time. They tend to decrease further as the number of procedures done by the operator increase. It can be performed with minimal morbidity, high success and negligible or no mortality.

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