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Research Paper

Complications of Laparoscopic Cholecystectomy : A Review and Experience of 500 Cases

Medical Science

KEYWORDS : Laparoscopic cholecystectomy, Complication, Bhopal Population.

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ABSTRACT

Introduction: Laparoscopic cholecystectomy provides a safe and effective treatment for symptomatic gallstones.
Objective: The aim of our survey was to study complications of Laparoscopic cholecystectomy in Bhopal population
Material and Methods: The study was conducted in the department of General surgery at L N Medical College and Research Centre, Bhopal. The study has included 500 patients who underwent laparoscopic surgeries for various ailments between April 2010 and April 2016. The procedure was carried out standard four port technique.
Result : In the current study result shows that the males were 311 (62.2%) and females 189 (37.8%). Age ranged from 20- 60 years. Main complication observed that were Lung emboli 25 (5%), hematoma 40 (8%), Thrombophlebitis 07 (1.4%), Sub hepatic abscess 35 (7%), shoulder tip pain 32 (6.4%), Chest infection 46 (9.2%), UTI infection 51 (10.2%).
Conclusion: Laparoscopic cholecystectomy is better method in operation and treatment of the gallbladder than open method. All complication were manageable with minimum morbidity..

INTRODUCTION:

Untreated gallstones can cause life-threatening illnesses such as acute cholecystitis, cholangitis, acute pancreatitis and jaundice. Cholecystectomy is the surgical removal of the gallbladder. Laparoscopic cholecystectomy (LC) was first performed in Lyon, France by Philleppe Mouret, Qubios and persatt in 1987[1]. Laparoscopic cholecystectomy provides a safe and effective treatment for symptomatic gallstones. It is an old and invasive procedure called open cholecystectomy.

Now a day's open cholecystectomy is replaced by Laparoscopic cholecystectomy as the first choice of treatment for gallstones and inflammation of gall bladder. Occasionally for some technical reasons Laparoscopic cholecystectomy would be converted to open cholecystectomy[2]. Gall stone disease is a major health problem worldwide particularly in younger generation[3].

Laparoscopic cholecystectomy is performed through a single incision in the umbilicus. This technique is called Laparoendoscopic Single Site Surgery or "LESS" or Single Incision Laparoscopic Surgery or "SILS". Pankaj Garg et al[4] demonstrated that SILS does have a cosmetic benefit over conventional four hole laparoscopic cholecystectomy while having no advantage in postoperative pain and hospital stay. Incidence of wound complication, specifically development of hernia has been noted with SILS[5]. SILS has been associated with a higher risk of bile duct injury[6].

Laparoscopic cholecystectomy is associated with minimal risk to the patients and high degree of relief from symptoms. Few studies suggested that advantages of LC are reduction of - postoperative pain and infections, recovery time, reduction in trauma of access without compromise to exposure of operative field, and better cosmetic outcome[7].

Unique complications are associated with gaining access to the abdomen for laparoscopic surgery. Inadvertent bowel injury or major vascular injury are uncommon but potentially life threatening complications, usually occurring during initial access[8-9]. Common complications involving laparoscopic surgeries included omentum, GIT, vascular, genitourinary systems, and the rare complication are pyoderma gangrenosum and port site infections[10].

The aim of our survey was to study complications of Laparoscopic cholecystectomy in Bhopal population.

MATERIAL AND METHODS :

This study is a prospective study, which included 500 patients who had Laparoscopic cholecystectomy and who satisfied the standards for this study. All the patients underwent LC from November 2012 to April 2016 in the department of General surgery at L N Medical college and Research Centre, Bhopal. Patients' age ranged between 20 to 60 years.

Patients who are willing to participate in the study were included. Patients' medical history, physical examination, the questionnaire containing self-answered, close-ended questions. The investigations highlighting hepato biliary system including size of common bile duct, chest X-ray, ECG, Ultrasound of abdomen, Complete blood picture, Erythrocyte sedimentation rate, blood urea, and liver function test, blood sugar were done in respective departments.

Laparoscopic cholecystectomy was done by the four port technique. Once the surgery was finished, wounds were assessed clinically and in case of infections they were treated with regular cleaning and dressing with antibiotics.

We excluded below listed patients from this study :

1) Gall bladder carcinoma conformed by pathologist.

2) Patients who are interested in open cholecystectomy,

3) Patients who refuse to participate.

Ethical approval was granted by the Institutional Ethics Committee (IEC). Data were computer analyzed using Microsoft Excel 2010 and SPSS Software.

RESULT:

The study included 500 patients. Table no 1 shows that out of 500 patients male were 311/500 (62.2%) and female 189/500 (37.8%). Mean age of male 43 and female 37 respectively.

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	Sex	Laparoscopic cholecystectomy
Number of Patients	Male	311 (62.2%)
	Female	189 (37.8%)
Mean Age	Male	43
	Female	37

Table No -1 Distribution of Mean age and Number of patients underwent to Laparoscopic cholecystectomy.

S. No	Complication	Number	Percentage
1	Lung emboli	25	5%
2	Hematoma	40	8%
3	Spilled Stones	22	4.4%
4	Bile leakage	98	19.6%
5	Thrombophlebitis	07	1.4%
6	Sub hepatic abscess	35	7%
7	Port Hernia	10	2 %
8	Shoulder tip pain	32	6.4%
9	Chest infection	46	9.2%
10	UTI infection	51	10.2%

Table No -2 Complications after Laparoscopic cholecystectomy.

The above table no 2 shows that most common complication in laparoscopic cholecystectomy were: Gall bladder perforation and bile leakage 179 (35.8%) second common complication is spilled stones 75 (15%). In our study we observer that most uncommon complication is Thrombophlebitis.

S. NO	Port site	Complication	Number of patients
1	Umbilical port site	Hernia	10
		Omental entrapment	04
		Port site metastasis	04
		Infection	10
2	Supra pubic port site	Infection	6
3	Left iliac port site	Infection	3
4	Epigastric port site	Infection	01

Table No: 3 Port site and type of complication

Most common port site involved were umbilical port site. Two patients had omentum related complications at the port site. Those were immediate postoperative herniation/ entrapment of the omentum from the site of umbilical port. There was four case of port site metastasis. The patient underwent laparoscopic assisted hemicolectomy for adenocarcinoma of the ascending colon. Bleeding was managed with electrocoagulation or lateral compression of ports.

DISSCUSION:

This study conduct in department of General surgery at L N medical college and research centre. Now a days laparoscopic cholecystectomy and choledocholithotomy are being practiced reports from various centers are encouraging. Laparoscopic cholecystectomy in relation to open has showed some of advantages such as limited postoperative pain, excellent cosmetics, shorter recovery periods, reduction in hospitalization time, improved postoperative pulmonary function and reduction in hospital costs are the major advantages of this method[11]. Jatzko et all found, according to their study, that laparoscopic cholecystectomy is far more favorable method comparing to open technique [12].

In our study hemorrhage occurred in 21 (4.2%) patients, while it is reported up to 3.18% by Khush Muhammad Sohu et al[13] in his study. While gall bladder stones spilled in peritoneal cavity in 4.4% cases. Feng et al reported 7.25% incidence of spilled gall stones[14]. Gallstone spillage during laparoscopic cholecystectomy is common with the reported incidence of 6%–30% [15-17]. The time interval between the surgery and the complications of spilled stones varies from as short as one month to as long as 20 years [18] with a peak incidence usually around four months. In our study 90 %of participants believed that spillage of gallstone during surgery should be included in informed consent but only 54% were practicing the same.

The current study most complication we observed were in Lung emboly 25 (5%), hematoma 40 (8%), Thrombophlebitis 07 (1.4%), Sub hepatic abscess 35 (7%), shoulder tip pain 32 (6.4%), Chest infection 46 (9.2%), UTI infection 51 (10.2%). All complication are similarly to other studies.

Bile duct injury is one of the serious complications. Our study result shows that 19.6% patient having bile leakage. Common cause of leakage is cystic duct due to improper clip placement or thermal injury. Other cause is gall bladder bed and CBD injuries. Bile leakage and bleeding may determine sub hepatic abscess formation. Huang et al[19] reported 3 such complication in group of 350 LCs. To minimize the CBD injuries. Three rules were observed throughout our study. Full dissection of Calot's triangle before clipping, Dissection of cystic duct to display T junction with CBD and If anatomy unclear conversion to open cholecystectomy.

Complication like bleeding and common bile duct injury could have been avoided with the experienced laparoscopy surgeons. Postoperative bile leak and choleperitoneum were avoided by clipping these ducts. Few studies claimed that there was a higher conversion rate when junior surgeons are operating[20]. Klotz HP [21] demonstrates on post mortem studies bile leakage presence in 3.5 % of individuals. However, infective complications are noticed more often in elderly patients because of poorer immunological reaction[22].

Various factors are related to port site complication like the need for longer trocars, thick abdominal wall, need for larger skin incision to expose fascia adequately. Laparoscopic procedures have a reduced incidence of PSIs and other wound related complications[23]. In our study we observed that Umbilical port site was the most common site of PSI followed by Supra pubic port site. Port site bleeding occurs due to injury of epigastric vessels can be related to carelessness during the operative procedure usually during the placement of secondary trocars which should be placed under direct vision and with prior illumination of the abdominal wall. Bleeding points can usually be identified and managed with electrocautery.

Four patients were found to have omentum related complication. Various factors are attributed to the occurrence of these complications including a) removal of the ports prior to complete deflation of the peritoneal cavity, b) inadequate/faulty closure of the port site incisions, and c) large incision at the port site[24]. Other complication with port site are : 1) Leaking port:, 2) Port site pain, 3) Failed entry, 4) Nerve injury. The incidence of Port Site Hernia (PSH) in a range of laparoscopic procedures has been described as between 0.14% and 22%[25]. In addition to pain, PSH can lead to severe complications, including bowel obstruction, strangulation, and perforation.

CONCLUSION :

It can be concluded that laparoscopic cholecystectomy is better method in operation and treatment of the gallbladder than open method. All complication was manageable with minimum morbidity. Four port laparoscopic cholecystectomy has proven to be a safe procedure with maximum benefits to the patients including reduction of - postoperative pain and infections, recovery time, shorter hospital stay compared to open cholecystectomy. But soon it has been noticed that the method showed impressive learning curve and problems decreased rapidly with growing experience.

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