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ORIGINAL ARTICLE

Outcome of laparoscopic cholecystectomy in terms of complications in Lady Reading Hospital Peshawar.

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ABSTRACT… Objective: To evaluate the outcome after laparoscopic cholecystectomy in terms of these complications in our setup. **Study Design:** Descriptive Cross-sectional study. **Setting:** Department of General Surgery, MTI-Lady Reading Hospital Peshawar. **Period:** July 2018 to June 2019. **Material & Methods:** A total of 115 patients undergoing laparoscopic cholecystectomy were enrolled in this study and were assessed for the development of various postoperative complications. **Results:** The mean ± SD age of study participants was 45.92±5.41 years. Females (n=67; 58.2%) outnumbered males (n=48; 41.7%) in this study. Most common complication was port site infection noted in 7 patients (6.1%) with gall bladder perforation being second most common complication observed in 6 patients (5.2%). Post-operative fever was noted in 4 patients (3.5%). **Conclusion:** In our study the majority of patients undergoing laparoscopic cholecystectomy recovered uneventfully without any mortality. Port site infection was the most common complication and gall bladder perforation was found to have statistically significant association with all the complications.

Key words: Gall Bladder, Gall Stones, Hemorrhage, Intra-Abdominal Collection, Laparoscopy, Paralytic Ileus.

INTRODUCTION

Laparoscopic cholecystectomy is the most common surgery performed by general surgeons requiring basic laparoscopic instruments.[1] More than 80% of cases with stones in gallbladder are asymptomatic and gallstones cause symptoms only in a small number of cases (1%-4%) each year.[1] While a "watch and wait" approach is recommended for asymptomatic cases of gallstones, surgery is the treatment of choice for symptomatic gallstones.[2,3] Before the adoption of laparoscopic cholecystectomy, open surgery was the treatment of choice for removal of gall stones. However, laparoscopic removal of gall bladder has become the method of choice[4,5] because of certain benefits associated with it, e.g., it is minimally invasive procedure;[5] cost effectiveness; association with short operating time as well as a shorter stay in hospital and fast post-operative recovery of patients following laparoscopic cholecystectomy.[2,6] Nowadays Laparoscopic Cholecystectomy is considered as a day care surgery with patients being counseled regarding postoperative morbidity in difficult cases.[1]

An overall morbidity of around 5% has been attributed to laparoscopic cholecystectomy and includes a number of complications such as surgical site infection, perforation of gall bladder, injury to/ligation of bile ducts, visceral injury, intra-abdominal collections/abscesses, biliary/feculent peritonitis.[3,4,7-9] In addition to these complications, post-operative pain and fever, ileus, intra-operative or postoperative hemorrhage following laparoscopic cholecystectomy have also been reported in literature.[8-9] A 0.2%-2% incidence of bile leak has been reported following laparoscopic cholecystectomy.[8] Duca et al reported a 2.3% incidence of intra-operative hemorrhage,15.9% intra-operative gallbladder perforation and a 0.1% incidence rate for common bile duct injuries in over nine thousands cholecystectomies performed over a period of nine years.[9]

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There are also reports suggesting that the development of post-operative septicemia, intra-abdominal adhesions, intra-peritoneal abscesses, cutaneous fistulas and in some cases obstruction of small intestine result from perforation of gall bladder during laparoscopic cholecystectomy.[10]

The main aim of this study was to evaluate the incidence of these complications after laparoscopic cholecystectomy in our setup and to compare it with other national and international studies.

MATERIAL & METHODS

This descriptive cross-sectional study was conducted in General Surgery Department of MTI-Lady Reading Hospital Peshawar from July 1, 2018 to June 30, 2019 after obtaining ethical approval from the hospital ethical committee. (Ref: No.154/LRH/MTI). Patients undergoing laparoscopic cholecystectomy with age between 25 to 60 years were enrolled in this study. Patients with concomitant chronic disease such as hypertension, diabetes mellitus, immune compromised state such as HIV infection or long-term immunosuppressive therapy for medical conditions, chronic kidney disease, with co-existing biliary or hepatic duct stones and gall bladder malignancy etc were excluded from the study. This study enrolled a total of 115 patients.

A number of clinical outcomes such as postoperative pyrexia, port-site infection, formation of intra-abdominal abscesses, paralytic ileus, biliary leak and intra-operative hemorrhage were assessed in this study.

The patients were admitted to the hospital and pre-operatively managed as per department protocols. A pre-operative ultrasound scan was done for assessment of gallbladder size, gall bladder wall thickness, and fluid collection around the bladder. Laparoscopic cholecystectomy was performed under general anesthesia in reverse Trendelenburg position. Four port technique was the standard approach performed in all patients. Pneumoperitoneum was created by insufflation of CO_2 via the umbilical port using a 10 mm trocar following which another 10 mm trocar was used to insert the epigastric port under vision. Two 5 mm ports were also inserted into the abdomen in right mid-clavicular and Right anterior axillary line. Laparoscopic cholecystectomy was performed as per standard protocols. Patients were administered prophylactic antibiotics per-operatively. The data was entered into and analyzed using IBM SPSS 21. Numerical variables were described as mean ± SD while categorical variables were described as frequencies and percentages. The outcome variable i.e., presence of complications was stratified by age, sex and gall bladder perforation. Post stratification chi-square test was applied and a p value less than 0.05 was taken to be significant.

RESULTS

Total of 115 patients were enrolled in this study. The mean ± SD age of study participants was 41.8 ± 7.3 years with a range of 25-60. (Table-I) Females (n=67; 58.2%) outnumbered the males (n=48; 41.7%) in this study. The mean ± SD operative time for laparoscopic cholecystectomy was 40 ±15 minutes and length of Hospital stay of patients was 3±1.5 days.

Age (Years)	Frequency (%)
25-40	53 (46.1%)
>40-50	48 (41.7%)
>50-60	14 (12.2%)
Total	115 (100.0%)

Table-I. Age categories.

The most common reason for laparoscopic cholecystectomy was symptomatic gall stone disease (n=96; 83.47%), followed by acute calculous cholecystitis (n=16; 13.91%) and acute gallbladder empyema (n=03; 2.6%).

Overall, complications were observed in 11 (9.5%) patients, of which majority of the patients had combination of two or more complications. Port site infection was seen in 7 (6.1%) patients with gall bladder perforation being the second most common complication noted in 06 (5.2%) patients. The most common reason for gall bladder perforation in our study was dissection in the wrong plane of hepatic fossa in three patients (2.61%), followed by gallbladder traction (n=1; 0.86%) and extraction of gall bladder via

port site (n=2; 1.73%). Frequency of different complications in the study participants is shown in Table-II). The incidence of these complications was significantly associated with the perforation of gall bladder (p =<0.005). (Table-III) No statistically significant association was noted between occurrence of complications and age of study participants (p =.1) as well as gender of the patients (p =.4).

Variable	Frequency (%) Percentage	P-Value
Port site infection	7 (6.1%)	.1
Gallbladder Perforation	6 (5.2%)	.3
Post Op Pyrexia	4 (3.5%)	.1
Intra-abdominal collection	3 (2.6%)	.6
Paralytic Ileus	2 (1.7%)	.2
Hemorrhage	2 (1.7%)	.8
Bile Leak	0 (0%)	

Table-II. Frequency of various complications.

Variable	Gall Bladder Perforation		P-Value
	Yes	No	
Port site Infection	4 (66.7%)	2 (33.3%)	< 0.001
Pyrexia	3 (50%)	3 (50%)	< 0.001
Intra-abdominal collection	2 (33.3%)	4 (66.7%)	< 0.001
Paralytic Ileus	1 (16.7%)	5 (83.3%)	0.004
Hemorrhage	2 (33.3%)	4 (66.7%)	< 0.001

Table-III. Association of gallbladder perforation with other complications.

DISCUSSION

The best treatment practiced widely by medical professionals for patients with gall stones is cholecystectomy performed by laparoscopic approach.[11] This is because laparoscopic cholecystectomy offers a number of advantages over traditional approach for removal of gallbladder, i.e., minimal scar formation, a shorter hospitalization, lesser morbidity after surgery and early mobility.[12]

In this study, we found 7 (6.09%) cases of port site infection, with the umbilical port being the most common infected port. Four of them were noted in patients with gallbladder perforation and this association was found to be statistically significant (P=<0.001). Amreek F et al found that port site infection was more common in patients with difficult gall bladder in which laparoscopic cholecystectomy was converted to open technique i.e 9.6% vs 2.4%.[3] We report 5.2% incidence of gall bladder perforation in our study. Miodraget et al[13] also reported a similar incidence of gall bladder perforation but this is well below that reported in literature i.e., 16%-26.3%.[14-16] Post-operative pyrexia and Hemorrhage were other immediate postoperative complications that occurred in 4 (3.5%) and 2 patients (1.7%) respectively in our study. Rice DC et al[10] found that post-operative pyrexia was more common in patients with gall bladder perforation and spillage of gall stones. We also found the same association in our study (p-value <0.0001) Duca et al[9] and Miodraget et al[13] reported 2.3% and 3.6% incidence of intra-operative/intra-abdominal hemorrhage. Bile leak has been reported in as much as 16% of all patients undergoing laparoscopic cholecystectomy and in 83% of patients who have had perforation of gallbladder during laparoscopic cholecystectomy.[11,18] It was also the most common complication in a study by Rishi et al[19] but we did not report any bile leak in our cases undergoing laparoscopic cholecystectomy. Intra-abdominal collections, paralytic ileus are other complications of laparoscopic cholecystectomy.[14] Amreek F et al[3] reported 0.7% rate of intra-abdominal collection. In our study there were 3 cases (2.6%) of intra-abdominal collection and 2 cases (1.7%) of paralytic ileus who recovered uneventfully except one case of intra-abdominal collection that needed image-guided drainage.

We found that incidence of all these complications was significantly associated with the perforation of gall bladder (p =<0.005). Some studies have reported male gender and age significant risk factors for gall bladder perforation and other complications during laparoscopic cholecystectomy[10,14,20-22], however, we did not find any statistically significant association between these complications and gender of patients (p=>0.4). Similarly, no statistically significant association was noted between occurrence of complications and age of study participants

(p=0.1). The main limitation of our study is shorter duration of study with a smaller number of patients from a single institution. To support our data further studies on more patients are required on larger scale from multiple centers to determine the exact incidence of these complications.

CONCLUSION

In our study the majority of patients undergoing laparoscopic cholecystectomy recovered uneventfully without any mortality. Port site infection was the most common complication and gall bladder perforation was found to have statistically significant association with all the complications.

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3	Maham Qazi	Data analysis & Interpretation.	
4	Danyal Anwar Shiraz	Article & Abstract.	
5	Hafiz Niamat Ullah	Data collection & Assembly.	
6	Muhammad Kalim	Critical revision the article.	