

AN AUDIT OF LAPAROSCOPIC CHOLECYSTECTOMY

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ABSTRACT

Objective: To evaluate the morbidity and mortality rates in laparoscopic cholecystectomy.

Material and Methods: This retrospective descriptive study was carried out in surgical "D" ward Khyber Teaching Hospital, Peshawar, from December 2012 to December 2014 in which 233 patients after fulfilling the inclusion and exclusion criteria with symptomatic gallstones disease were enrolled. Demographics, complications of surgery and conversion to open were reviewed from clinical notes and noted on a pre-designed proforma. Data were analyzed using SPSS version 16 and results compared with other studies.

Results: A total of 233 patients were studied during the audit period. Of these 41 (17.6%) were males and 192 (82.4%) were females. Mean age of patients was 36.56 ± 11.32 years. Mean operating time was 56.57 ± 13.95 minutes. Complications encountered during the study include conversion to open cholecystectomy 2 (0.9%), epigastric port site bleeding 3 (1.3%) and port site infection 6 (2.5%). Mean hospital stay was 3.37 ± 2.27 days. There were no cases of umbilical port hernia, bile duct or colonic injury. No mortality was observed in our study.

Conclusion: The various data collected during the audit suggest that the results of laparoscopic cholecystectomy carried in our unit are satisfactory.

Key Words: Laparoscopic, Cholecystectomy, Cholelithiasis, Morbidity, Mortality.

INTRODUCTION

Laparoscopic surgery after its advent represented a revolution in surgery of the biliary tract compared to conventional open cholecystectomy due to its superior results. The first documented surgery through laparoscopy of the gall bladder was performed by Eric Muhe in 1985¹. The first study in this regard was carried out by Perissat and colleagues in 1990 on 157 patients².

After this initial introductory period, laparoscopic cholecystectomy was slowly and gradually accepted by surgeons worldwide. It soon replaced the conventional technique. Since 1990 laparoscopic cholecystectomy has taken the surgical community by storm and now it is considered Gold standard treatment for symptomatic gallstone disease. Several trials have demonstrated the advantages of the laparoscopic approach including reduced post-operative pain, recovery time and duration of hospitalization³. Because of the rapid return to normal activity and aesthetically excellent results the patient driven demand has increased tremendously⁴. The complications associated with laparoscopic

cholecystectomy are more than the open procedure but the benefits outweigh these risks⁵. It can be safely performed as a day case procedure. Several studies were carried out regarding the safety and feasibility of this technique and these were followed by validating Meta analysis based on large number of patients^{6,7}. This revolution was followed by yet another breakthrough which involved endoscopic surgery performed through a natural orifice (NOTES)^{8,9}. Laparoscopic cholecystectomy has now been established as the gold standard treatment for cholelithiasis.

We collected data of all those cases of gall stone disease that underwent laparoscopic cholecystectomy in our unit as an audit to evaluate and analyze the morbidity, mortality and complication rate.

MATERIAL AND METHODS

This study was conducted in surgical "D" Ward of Khyber Teaching Hospital, Peshawar from December 2012 to December 2014. A total of 233 patients were included. All patients above 18 years of age with symptomatic gall stone disease admitted to our unit were included in this study. The exclusion criteria included patients unfit for anesthesia and surgery, those with medical and surgical jaundice, acute cholecystitis, gall bladder mass, empyema gall bladder, patients with bile duct pathology like choledocholithiasis and dilatation >10mm in diameter.

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Base line investigations were performed for all patients which included full blood count, hepatic virology, liver and renal profiles, electrolytes, chest X-ray and Ultrasonography of abdomen. As per local guidelines Echocardiography was performed for select cases where indicated and ECG for patients older than 40 years. Injection cefurixime 1.5gm was given intravenously at the time of induction as a prophylactic antibiotic followed by twice daily dose till discharge from the hospital. The standard four ports technique was used in all cases and the Veress needle was used for creating the pneumoperitoneum. A sub hepatic drain was placed in all patients at the completion of surgery. All patients were followed for six months post-operative and all complications were recorded. Collected data was analyzed with SPSS version 16. Data was expressed in terms of mean, standard deviation and percentage with a p-value of <0.05 considered as statistically significant.

RESULTS

A total of 233 patients were studied and underwent laparoscopic cholecystectomy. Of these,

Table 1: Demographic data and statistical analysis

S. No.	Characteristic	Mean(Percentage) ± Standard deviation
1	Gender;	
	Male	041(17.6%)
	Female	192(82.4%)
2	Female to male ratio	4.68 : 1
3	Age (Years)	36.56±11.32
4	Operating time (minutes)	56.57±13.95
5	Number of gall stones	Multiple 165(70.8%)
		Solitary 43 (18.5%)
		Sludge and acalculous 25(10.7%)

Table 2: Morbidity and mortality of laparoscopic cholecystectomy

S. No.	Characteristic	Mean(Percentage) ± Standard deviation
1.	Hospital stay (days)	3.37±2.27
2.	Bleeding	Epigastric port; 3(1.3%)
3.	Hernia	Not any
4.	Infection	Umbilical port; 5(2.1%)
		Epigastric port; 1(0.4%)
5.	Conversion	2(0.9%)
6.	Mortality	Not any

41(17.6%) were males and 192(82.4%) were females. Female to male ratio was 4.68:1. Majority of patients were in their 4th and 5th decades of life with a mean age of 36.56±11.32 years. In our study the indications for surgery were symptomatic cholelithiasis 196(84%), chronic cholecystitis 36(15.5%) and gall bladder polyp 1(0.5%). Multiple gall stones were observed in 165(70.8%) cases. There were 2(0.9%) cases which were converted to open surgery. The mean operating time for our study was 56.57±13.95 minutes, with a minimum of 30 minutes and maximum of 100 minutes. Demographic data and analysis is given in Table 1.

Table 2 shows data regarding morbidity and mortality. The complications observed were epigastric port site bleeding and umbilical port site infection which was managed accordingly. Most of the patients went home on the second post-operative day with a mean hospital stay of 3.37±2.27 days. Maximum hospital stay was 6 days after the operation in 6(2.6%) patients who had developed pyrexia and vomiting.

DISCUSSION

Laparoscopy has now become the norm of the day and is being extensively used for the whole of alimentary tract. Laparoscopic cholecystectomy has now replaced conventional open cholecystectomy and is the gold standard treatment for symptomatic gall stone disease owing to better results, reduced morbidity and hospital stay¹⁰. However, every surgery is associated with some complications. A literature review of this shows that in many cases these are due to the Veress needle or usage of trocars. The former is due to the blind approach and the latter associated with the 10mm and 5mm sharp trocars. These can result in damage to surrounding organs, vasculature including the aorta and even mortality in rare cases¹¹. Complications associated with the Veress blind approach can be avoided with the open method using the Hasson's cannula.

Injuries of the common bile duct have been shown to be relatively higher in laparoscopic cholecystectomy compared to conventional cholecystectomy. The acceptable values being around 0.6% versus 0.3%^{12,13}. Letwin showed it to be 0.1%¹⁴, Adamson 0.7%¹⁵ and Ahmed 1%¹⁶. We however did not encounter any in our current study. The usual cause is difficult anatomy at the Calot's triangle which can be avoided by adequate case selection, surgeon experience and careful dissection¹⁷. Additional causes could include over traction on the common bile duct by the grasper, ligation and transaction. These injuries are dealt accordingly. Post-operative biliary leakage can be investigated with re-laparoscopy and repaired accordingly.

Bleeding associated with the procedure is a common finding. This could be minor or major and associated with the Veress needle or the actual surgical procedure¹⁸. In our study we encountered 3(1.3%) cases with minor episode of bleeding from the epigastric port site which was managed with sutures. Surrounding viscous injury is another finding associated with the Veress needle, trocar insertion due to its sharp tip, dissection to release adhesions or by thermal injury secondary to electro-cautry burns. Such injuries are usually recognized post-operatively in other studies as well^{18,19}. Any hollow viscous injuries encountered should be primarily repaired, if possible by clips and grasper and if not then by open method and dealt accordingly. However, a following wash of the peritoneal cavity is then mandatory.

The procedure is also associated with infection ranging from minor port site infections to full blown intra peritoneal abscess, however this is a rarity. Of these, they are usually minor ones associated with the umbilical port site as described by Arain et al in 1.63% cases²⁰. In our study we had 6(2.5%) cases of port site infection; umbilical port 5(2.1%) and epigastric port 1(0.4%). Other complications include hernias usually at the Umbilical port site as described by Bhopal et al which can be prevented by closure of the port site wound in layers²¹. In our study we did not encounter any hernias.

In our study we had 2(0.9%) cases of conversion to open cholecystectomy due to difficult anatomy and extensive adhesions. The various causes of conversion to the open technique can include gall bladder mass, empyema and mucocele of the gall bladder, acute inflammatory changes with dense adhesions, difficult anatomy and access. Whatever the cause, the decision to conversion to open should not be delayed as this is better for the patient and the surgeon.

CONCLUSION

Laparoscopic cholecystectomy is a safe and reliable procedure for gall stone disease. With proper training, careful case selection, good visual equipments and very meticulous technique, the morbidity and mortality rates can be expected to be minimum and far less than the conventional open technique.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

- Jan H:** Conceived the idea data analysis, Operating surgeon
- Rafiq MS:** Data collection, Typing the manuscript.
- Khan A:** Data analysis, Operating surgeon.
- Wazir HK:** Bibliography.
- Saeed T:** Interpretation of data, and followup.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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