

OPEN CHOLECYSTECTOMY: LOCAL EXPERIENCE

Muhammad Khan, Munir Ahmad

Department of Surgery, Peshawar Institute of Medical Sciences, Hayatabad, Peshawar, Pakistan

ABSTRACT

Background: Awareness of morbidity as a major surgical constraint has led the surgical fraternity to proceed from conventional to the more recent laparoscopic cholecystectomies. But developing countries still lack the availability of infrastructure and expertise for widespread use of minimal access and open cholecystectomy still continues to be the widely used method. The objective of this study was to determine the peroperative and early postoperative complications of open cholecystectomy.

Material & Methods: This descriptive study was carried out at Department of Surgery, Peshawar Institute of Medical Sciences, Hayatabad, Peshawar. A total of 100 cases with symptomatic cholelithiasis were operated by open cholecystectomy from January 2011 to December 2012. Peroperative and early postoperative complications were recorded.

Results: Among complications of access; difficulty in identification of anatomy was noted in 10% cases. Among procedure complications; vascular injury was recorded in 6%, bile duct injury in 2%, dropped stones in peritoneal cavity in 2%, and perforation of gallbladder in 2%. Postoperative complications on first day after operation i.e. bile leak in drain was noted in 6% and fever in 4% cases. Postoperative complications on first follow-up visit i.e. wound infection was seen in 6% cases, sub-hepatic collection in 4%, and chest infection in 4% cases. Mean hospital stay was 68 hours.

Conclusions: Open cholecystectomy is associated with few per and post-operative complications and we recommend it in the management of cholelithiasis where facilities for advanced surgery are not available.

KEY WORDS: Open cholecystectomy; Peroperative; Postoperative complications.

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INTRODUCTION

Open cholecystectomy used to be the gold standard for more than 100 years. Alexander of Tralles (525-605), a physician of the Byzantine Empire was one of the first to mention gallstones, describing calculi in human livers.¹⁻⁴ Our oldest physical evidence of human gallstones are the 30 stones in the intact gallbladder of a mummified Egyptian Priestess from around 1500 BC. The history of surgery for gallstones is fairly short. Cholecystotomy was reported and recommended by Jean-Louis Petit in 1743 after he had mistakenly opened the gall bladder when attempting to drain what he thought was an abdominal wall abscess. Cholecystostomy then became the favored operation for gallstones and its complications. The first cholecystectomy was carried out on 15th July, 1882 by Carl von Langenbuch.⁵

Corresponding author:

Dr. Muhammad Khan
Assistant Professor
Department of Surgery, PIMS
Hayatabad, Peshawar, Pakistan
e-mail: drmkhanwazir@gmail.com

While in 1913, Spivak performed first cholecystectomy without intraperitoneal drainage. The safety and success of this operation were soon established and cholecystectomy remains the treatment of choice for symptomatic gallstones.⁶ Cholecystectomy is the most common major abdominal procedure performed in Western countries. Carl Langenbuch performed the first successful cholecystectomy in 1882, and for >100 years, it was the standard treatment for symptomatic gallbladder stones. Open cholecystectomy was a safe and effective treatment for both acute and chronic cholecystitis.⁷

It is estimated that about 700,000 operations for biliary tract disease are performed in the United States each year, and nearly 10,000 deaths result from complications or treatment of diseases of the biliary system. A great many of these deaths result from anatomic complications following surgery in elderly patients with comorbid conditions.⁸

Procedures of biliary tract surgery are many and complicated. The hazards in each procedure are similar, however they are considered the anatomic complications that are common to the following three

procedures: cholecystectomy, surgery of the common bile duct, and sphincteroplasty.⁸ While generally a safe procedure with limited morbidity and mortality, open cholecystectomy does carry risk for potential complications. Traditionally, the complication rate of open cholecystectomy has been reported to range from 6-21%.⁹

Open surgery may result in increased postoperative pain, delayed mobility, prolonged hospital stay, adhesion formation and incisional hernia.¹⁰ However, in the developing countries where economic constraints are major concern, open cholecystectomy is still a good alternative in practice with reasonable and acceptable results.¹¹ The aim of this study was to determine the frequency of complications of open cholecystectomy in our setup.

MATERIAL AND METHODS

This descriptive study was carried out at Department of Surgery, Peshawar Institute of Medical Sciences, Hayatabad, Peshawar, Pakistan from January 2011 to December 2012. A sample of 100 patients was selected by convenience sampling. All patients with cholelithiasis were included. Those with diabetes mellitus, hypertension, clinical jaundice, acute pancreatitis, right upper abdominal lump, CBD stones, suspicion of gall bladder malignancy and patients with previous abdominal surgery were excluded.

Permission was taken from Hospital Ethical Committee to conduct the study and written informed consent was obtained from patients. Their demographic details were recorded on a pre-structured proforma. The relevant findings on history and clinical examination were also noted. Appropriate investigations were performed including, routine investigations such as, full blood count, blood urea, random blood sugar, chest x-rays, ECG and serum electrolytes and specific investigations such as Liver functions tests, Serum amylase, abdominal ultrasound, etc. The patients were subjected to open cholecystectomy.

Per operative complications were recorded during the operation. The patients were followed-up daily to detect any early post-operative complication. After discharge, the patients were called one week after surgery and again thoroughly examined and investigated by laboratory investigations and abdominal ultrasound, where appropriate and any complication if detected was recorded.

Data was entered and analyzed by SPSS 12.0. Mean \pm SD was calculated for the continuous variables like age, mobilization after operation, hospital stay after operation. Frequency and percentage was calculated for categorical variable like sex, postoperative complications of procedure like, vascular injury,

injury to CBD, dropped stones in peritoneal cavity, perforated gallbladder, and bile duct injury. Postoperative complications on first day of procedure like, bile leak in drain, fever, jaundice, deep vein thrombosis, and pain at incision site were noted. Postoperative complications on first follow up visit like wound infection, sub-hepatic collection, sub-phrenic collection, chest infection, wound dehiscence and pancreatitis were also recorded.

RESULTS

In this study there were 92 (92%) females and 8 (8%) were male with female to male ratio of 11.5:1. The age mean age was 43.32 \pm 11.98 years with a range of 20 to 70. The majority of patients 44 (44%) were in the age range of 41-50 years. (Table 1)

The complications of access, procedure, post-operative complications on first day of operation and on first follow up visit. (Table 2)

Data of Mobilization after operation showed that mean time (in hours) of mobilization was 8.05 \pm 1.72 (range 6-12 hours). Discharge after operation (hospital stay) showed that the mean stay (in hours) of 68.00 \pm 35.23 (range 34-210 hours).

DISCUSSION

Most cholecystectomies are performed for symptomatic gallstone disease or for complications of the stones e.g. acute cholecystitis, acute pancreatitis, obstructive jaundice.¹² Cholelithiasis is common worldwide. Laparoscopic and open cholecystectomy are the two methods to treat symptomatic gallstones. Cholecystectomy offers 90%-95% cure.¹³

In a study of 1000 patients by Memon et al¹⁴ there were 20.5% males and 79.5% females. The age of patients ranged from 20-70 years. The mean age was 45 years and male: female ratio was 1:4. In many other local and international studies female dominance has also been reported with varying frequencies.¹³⁻²¹ In our study there were 92% females which is in agreement with local and international literature.

Our study results showed that majority of pa-

Table 1: Age distribution of patients for cholecystectomy (n=100).

Age ranges	Frequency
20 – 30 years	12
31 – 40 years	30
41 – 50 years	44
51 – 60 years	6
61 – 70 years	8
Total	100

Table 2: Complications of open cholecystectomy (n=100).

Complications	Frequency
Access:	
Difficulty in identification of anatomy	10
Bleeding from incision site	2
Procedure:	
Vascular injury	6
Injury to CBD	2
Bile duct injury	2
Dropped stones in peritoneal cavity	2
Perforation of gallbladder	2
On first day:	
Bile leak in drain	6
Fever	4
Jaundice	2
Deep vein thrombosis	2
Pain at incision site	2
On first follow up visit:	
Wound infection	6
Sub hepatic collection	2
Sub phrenic collection	2
Chest infection	4
Wound dehiscence	2

tients were in the age range of 41-50 years with mean age of 43 years. Our findings are in agreement with local and international studies.¹⁵⁻²¹

In a local study of 212 patients by Ali et al¹¹ underwent open cholecystectomy without intra-peritoneal drainage for uncomplicated cholelithiasis. Postoperative complications were seen in 13.6% cases. Seroma was the most frequent complication without any evidence of infection seen in 5.66% cases. Other complications included surgical site infection both superficial and deep in 2.35% and 0.94% cases respectively. The bile leakage responded to expectant treatment in only 1.14% cases. Other insignificant problems seen included trivial cough and transient rise in body temperature that subsided spontaneously within next 24 hours in 1.14% and 1.88% cases respectively. Major complications like biliary peritonitis, sub hepatic abscess or Watt man Walter's syndrome were not observed in any case of this series. The incidence of complication (bile leakage) that can specifically be attributed to the no drain technique was observed in only 1.41%. No mortality

was recorded during the period of hospitalization in this series. The overall complication rate and hospital stay was significantly less when compared to open cholecystectomy with intra-peritoneal drain.¹¹

In our study complications of access was found in 10% patients which may be due to patients factors like delayed presentation for cholecystectomy and encountering difficulty in dissection.

In a study¹⁵ per-operative findings included mainly adhesion of gall bladder with surrounding structure (Calot's triangle, stomach, colon and omentum in 47.1% cases) while bile duct injury was seen in 4.71% cases.

In a local study,²² 3 bile duct injuries have been reported among 482 cases. However, early recognition and prompt repair gives good results. Male gender and age >60 are liable for more complications. More complications were also seen in male patients. In the aforesaid study,²² except one case all the CBD injury patients were controlled promptly.

In our study on first postoperative day more complications like bile leakage, fever, jaundice, deep vein thrombosis and pain at incision site was encountered in few cases.

In our study more postoperative complications like wound infection, sub hepatic collection, sub phrenic collection, chest infection, wound dehiscence and pancreatitis were seen in few cases which is not different from reported in local and international literature.

Open cholecystectomy needs a five days hospital stay and a 3-6 weeks period of convalescence.²³ In a study by Leo et al 39.7% patients were discharged within first 24 hours of operation, 30.8% within 24-36 hours and 19.9% within 36-48 hours, so 90.4% patients were discharged within 48 hours of operation. The remaining 9.6% patients had a more prolonged duration of hospital stay.¹⁹

In our study most patients stayed in hospital with mean stay of 68 hours, which are similar to various studies. The mean hospital stay in one study was 8.8 days for open cholecystectomy.²⁴

We are unable to study various patients characteristics, co-morbidities considered a potential risk factors for per and postoperative outcome including BMI and ASA score. Furthermore, it is not linked to a pre-determined standard protocol. We recommend a large multicenter prospective trial to confirm our findings.

CONCLUSIONS

Open cholecystectomy has been associated with few per and post operative complications and we still recommend it in the management of symp-

tomatic cholelithiasis in this part of the country, where less facilities of health resources are available.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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