

Morbidity in Surgery for Gall Stone Disease: Comparison between Drain Placement and Nonplacement

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ABSTRACT

Aim: To determine the post-operative complications in surgical treatment of gall stone disease in relation to drain placement; being practiced in Surgical department of Allama Iqbal Memorial Teaching Hospital, Sialkot.

Study Design: Prospective, comparative study.

Time and Place of study: Department of Surgery; Allama Iqbal Memorial Teaching Hospital, Sialkot. From 1st August 2015 till 31 August 2017.

Methods: In a period of 3 years, all patients admitted serially were operated and data was collected prospectively. Patients were classed into two groups Group I with drains and Group II without drains. Postoperative course in the hospital and in outpatients during follow up was monitored and complications recorded; similarly the cost associated with antibiotic therapy and being away from the job was monitored. Data was collected and analyzed using SPSS v 20.

Results: Out of 550 patients who were included in the study, in 109 patients after cholecystectomy drains were placed and it was designated as Group I; while Group II had 441 patients. Laparoscopic cholecystectomy was done in overall patients. The complications encountered are shown in detail in results. We had increased morbidity in group II patients while we encountered 4 mortalities unrelated to surgical procedures.

Conclusions: The morbidity is higher among the patients in which drains are not placed after cholecystectomy as compared to those in which drains are placed. The complication rate is low with placement of drains as complications are detected and treated as and when it happens while these are either missed or detected late and leads to severe morbidity, re-exploration and in some cases mortality in patients when the drains are not placed.

Key words: Gall stone disease, drains, fistula, subtotal excision

INTRODUCTION

Gall stone disease is one of the commonest problem being faced on the surgical floor. Since the advent of Ultrasound it is diagnosed more often and there is stress over the surgeons to make protocols for whom surgery should be offered as well as to avoid unnecessary surgery¹. Gall stone disease is generally classified into Asymptomatic, symptomatic and complicated groups. Surgery is indicated in relation to symptoms and to safe-guard against life threatening complications. Acute cholecystitis is an inflammation of gall bladder. It can cause severe peritonitis and death unless treated properly. Among 95% of the patients it is calculous-cholecystitis, while in 5% of the patients it is acalculous cholecystitis. Male to female ratio is 1:3². Presenting complaints are pain, nausea and vomiting, fever. Murphy's sign is

positive in 40% of the patients. About 85% of the patients have elevated white blood cells count. X-ray abdomen is rarely helpful. Technetiumiminodi acetic acid scan is most specific test. Ultrasound abdomen can accurately detect gallstones. Complications like pericholecystic abscess, cholecystoenteric fistula, perforation, empyema, and gallstone ileus may be present. The mortality rate due to complications is 20%. Cholecystectomy should be done as soon as possible when the patient becomes fit for surgery. The appropriate treatment for acute cholecystitis is cholecystectomy. The mortality and morbidity rate after surgery remains the same whether it is performed early or six weeks after the resolution of acute phase. Cholecystectomy, irrigation and drainage of abscess, evacuation of bile are the definitive treatments for the complications of acute cholecystitis. Fistula is treated by cholecystectomy and closure of intestine^{3,4}.

Acute acalculous cholecystitis, acute postoperative cholecystitis, acute post-traumatic cholecystitis occur after burns trauma, operations childbirth, multiple transfusions, bacterial sepsis, and debilitating diseases. The female to male ratio is 1:

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1.5. However the incidence of gangrene and perforation remains the high. The etiology is unknown or may be multifactorial like sepsis, stasis, and ischemia. The clinical features are pain, tenderness, and fever^{5,6}. Practice of cholecystectomy is now shifted almost to laparoscopic approach but open cholecystectomy remains the main stay in complicated disease^{7,8}. After surgery placement of drains merits as per disease status and operative course and quality which is safety as well as one cause of morbidity. After elective cholecystectomy, drains are not placed unless and until bile leaks^{9,10}. No study has been conducted previously in our hospital to evaluate the quality and outcome of such procedures for gall stone disease. So, we wanted to determine the statistics of causes, indications of type of surgery and its complications in our patients at department of Surgery, Allama Iqbal Memorial teaching hospital Sialkot.

PATIENTS AND METHODS

Between June 2015 and August 2017; A total of 550 patients undergoing cholecystectomy and other procedures for gallstone disease were included who attended OPD for regular follow up for at least 3 months after discharge from the hospital. These patients were grouped in group I and II depending upon placement and non-placement of the drains. Follow up visits conducted and performas/questionnaire filled, while subsequent visits were conducted. Following data were recorded: Age, Indication of surgery, Date of Cholecystectomy, Associated diseases, Investigations, Blood CE, Bilirubin, alkaline phosphatase, serum amylase, placement or non-placement of drains, Complications like wound infection, hematoma, subphrenic or subhepatic abscess, biliary fistula, intestinal injury and jaundice; Further intervention like Antiseptic dressings, reoperation, transfusions, Placement of T-tube, antibiotics, repeat investigations. Expenses of cholecystectomy inclusive of hospital bill, cost of OT medicine, postoperative antibiotics etc., Expenses of additional procedures. Investigations like ultrasound abdomen and liver function tests were repeated in follow up visits. Minimum 3 months follow up was mandatory for inclusion in the study.

RESULTS

Total of 613 patients with gall stone disease were admitted in the surgical department during the study period: but only 550 patients fulfilled the inclusion criteria. The general data of our patients in the study is shown in Table I. We have to place T-Tube in 12 cases after common bile duct exploration. Table II

shows the causes and indications of operative intervention. Complication data is shown as follows: About 145 patients had complications the spectrum is shown. Group I patients had 26 varied complications out of 109 total patients while 119 patients out of 441 in Group II had problems. In patients with postoperative jaundice, the work up showed only 5 cases of biliary stricture while rest had it due to medical reasons.

Table I: General Demographic Data (n=550)

Age	15 to 68 years (mean 37.34 years)
Sex M:F	88: 462(1 : 5.25)
Diabetes mellitus	113(20.54%)
Hypertension	69(12.54%)
Jaundice	17(3.09%)
Group I- Drain placed	109(19.81%)
Group II- Drain not placed	441(80.18%)
Open cholecystectomy	225(40.90%)
Laparoscopic cholecystectomy	325(59.09%)
Cholecystectomy	509(92.54%)
Cholecystectomy with CBD exploration	12(2.18%)
Subtotal excision of gall bladder	29(5.27%)

Table II: Indications = 550 (100%)

Indications	Group I	Group II
Porcelain gall bladder	0	9(2.04%)
Hemolytic diseases	13(11.92%)	0
Gall bladder Polyp	5(4.58%)	33(7.48%)
Symptomatic gall stone disease	19(17.43%)	223(50.56%)
gall stone disease with micro-vascular disease	25(22.93%)	157(35.60%)
Empyema gall bladder	29(26.60%)	0
Post ERCP stone extraction	2(1.83%)	13(2.94%)
History of pancreatitis	4(3.66%)	3(0.68%)
Perforation of Gall Bladder	6(5.50%)	3(0.68%)
Traumatic Gall Bladder	6(5.50%)	0

Table III: Morbidity (n=550)

Complications	Group I	Group II
Wound infection		22 (4.98%)
Septicemia	3 (2.75%)	17(3.85%)
Sub-hepatic/Gastro-hepatic fluid collection	5 (4.58%)	29 (6.57%)
Hematoma/ hemorrhage	2(1.83%)	19 (4.30%)
Injury to gut	1(0.91%)	5(1.13%)
Pericholecystic fluid	3(2.75%)	6 (1.36%)
Bile duct injury	1(0.91%)	6(1.36%)
Postoperative Jaundice	4(3.66%)	11(2.49%)
Biliary stricture/ fistula	1(0.91%)	4(0.90%)
Mortality	1(0.91%)	3(0.68%)

DISCUSSION

Comorbid factors encountered like Diabetes mellitus, hypertension, Jaundice were 113(20.54%), 69(12.54%) and 17(3.09%). In our study, male to female ratio of 1: 5.25 which is the 2:1 in study by Abusedera M.A et al¹¹.

The mean age was 37.34 years with range of 15–68. Most of the patients were in group 25–50 years. While the mean age was 71.5±14.2 with range 37--93 in study by Date RS et al¹² and 64_+14 in study by Abusedera M.A et al¹¹. Mean age was 48 yrs with range 34---72yrs with male to female ratio 1:5 in study by Karimian F et al¹³.

The procedures like subtotal excision of gall bladder had to be done in cases of empyema gall bladder in 29(5.27%) patients. T-tube placement in patients after CBD exploration was done in 12(2.72%).

In our study, complications like Pericholecystic fluid collection was in 3(2.75%) in patients with drain placement, Sub-hepatic/Gastro-hepatic fluid collection 5(4.58%) while it was 6(1.36 %) and 29(6.57%) in Group II patients; while same complications that is Sub-hepatic fluid collection is 22% in study by Picchio M. et al¹⁴ and sub-hepatic bile collection is 8.33% in study by Karimian F et al¹³.

Septicemia in 3(2.75%) and 17(3.85%) in two groups while in study by Abusedera M.A et al and Septicemia is 0 in study by Karimian F et al¹³. In our study biliary leakage/ injury 1(0.91%) and 6(1.36%) in two groups while it is 0.4% in study by Picchio M et al¹⁴ and 2-3% in study by Lucarelli P et al¹⁵.

Hemorrhage/ hematoma formation was in 21 patients and 2(1.83%) and 19(4.30%) in group I and group II in our study 17% while it is 1.9 % in study by Picchio M et al¹⁴. In our study, indications of surgery were perforation of gall bladder 5.50% 0.68% while it is 61% detected by ultrasound and 78% detected by C.T in study by Stood et al¹⁶, perforation was 86.6% in study by Date R.S et al¹².

We encountered 4 mortalities and all mortalities were related to general condition and delayed septicaemic presentations of the patients. No surgery related deaths were recorded in our patients while it is 10.8% in study by Date R.S et al¹².

Grey Areas: Sample size with equal number of patients would have elaborate clearly the different morbidities in our study.

CONCLUSIONS

The morbidity is higher among the patients in which drains are not placed after cholecystectomy as compared to those in which drains are placed. The complication rate is low with placement of drains as

complications are detected and treated as and when it happens while these are either missed or detected late and leads to severe morbidity, re-exploration and in some cases mortality in patients when the drains are not placed.

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