

Laparoscopic Cholecystectomy With or Without Drain

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ABSTRACT

Objective: To assess the efficacy of drain in laparoscopic cholecystectomy.

Study Design: Randomized control trial study

Place and Duration of Study: This study was conducted at the Department of Surgery, Nishtar Medical University/Hospital, Multan from January 2018 to December 2018.

Materials and Methods: A total 226 patients of both genders undergoing surgical treatment for gall stone disease were included. Patient's ages were ranging from 20 to 60 years. All the patients were randomly allocated into two groups; Group A (with drain placement) and Group B (without drain placement) and each comprised 113 patients. Sign and symptoms were recorded. Complications were noted post-operatively and on 3 months follow-up. Mortality rate was also examined.

Results: There were 70 (61.95%) females and 43 (38.05%) males in group-A while in group-B, 83 (73.45%) were females and 30 (26.55%) were males. All the patients underwent laparoscopic cholecystectomy. Postoperative complications were more in patients who underwent laparoscopic cholecystectomy without drain as compared to those with drain.

Conclusion: The rate of complications was higher in patients who underwent cholecystectomy without drain.

Key Words: Gall stone disease, Drain Placement, without drain, Complication, Mortality

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INTRODUCTION

Gall stone disease is one of the commonest problems 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 surgery.¹ Gall stone disease is generally classified into asymptomatic, symptomatic and complicated. 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 acalculouscholecystitis. Male to female ratio is 1:3.² Presenting complains are pain, nausea, vomiting and fever. Murphy's sign is positive in 40% of the patients. About 85% of the patients have elevated white blood cells count.

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X-ray abdomen is rarely helpful. Technetium iminodiacetic 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 defect in intestine.^{3,4}

Acute calculous 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 1:1.⁵ 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 usefulness of drains in such procedures for gall stone disease. So, we plan to do study to compare the postoperative results in laparoscopic cholecystectomy with and without the drain in our setup.

MATERIALS AND METHODS

This observational study was conducted at department of General Surgery, Nishtar Medical University/Hospital, Multan over a period one year from 1st of January to 31st December, 2018. In this study total 226 patients of both genders with ages 20 to 60 years presented with gall stone disease were included. Patient's detailed medical history including age, sex, residency were examined after taking informed written consent from all the patients. Patients with other abdominal disorders, previous history of gall stone disease and those who were not interested to participate were excluded from the study. All the patients had underwent laparoscopic cholecystectomy. Patients were randomly divided into two groups by using Draws technique. Group-A consist of 113 patients (Cholecystectomy with drain) and Group-B consist of 113 patients (cholecystectomy without drain placement). Sign and symptoms were recorded. Post-operative complications were examined in both groups. Follow-up was done for 3 months post-operatively. Mortality rate was also examined. All the statistical data was analyzed by SPSS 19.

RESULTS

Out of 113 patients, 70 (61.95%) were females and 43 (38.05%) were males in group-A, while 83 (73.45%) were females and 30 (26.55%) were males in group-B. In Group-A, 42 (37.17%) patients were between 20 to 35 years, 46 (40.71%) patients were 36 to 50 years and 27 (23.89%) were above 50 years of age. In Group B, 45 (39.82%) patients were between 20 to 35 years, 47 (41.59%) were between 36 to 50 years and 21 (18.58%) were above 50 years of age. According to the residency status in Group-A 72 (63.72%) patients had rural while 41 (36.28%) patients had urban background and in Group-B, 65 (57.52%) with rural and 48 (42.48%) had urban background. Cholecystectomy with CBD exploration done in 7 patients (3 Group A, 4 Group B), Hypertension found in 28 patients (16 Group A, 12 Group B). Jaundice in 8 (3 in Group A and 5 Group B), Diabetes mellitus found in 30 (14 Group A, 16 Group B). (Table 1)

Symptoms were recorded in Group-A and B such as porcelain gall bladder, hemolytic disorder, polyp, symptomatic gall stone disorder, with micro vascular disorder, empyema gall bladder, post ERCP stone extraction, pancreatitis history, perforation and traumatic gall bladder in 2 and 5, 5 and 1, 4 and 15, 20

and 35, 25 and 29, 27 and 2, 7 and 12, 5 and 4, 6 and 5, 13 and 5 patients respectively. Table 2

According to the complications, surgical site infection found in 12 (10.62%) patients in Group B and 1 (0.88%) patients in Group A, septicemia in 10 patients (2 Group A, 8 Group B), sub hepatic fluid collection found in 15 patients (Group A 1, Group B 14), hematoma in 6 patients (2 Group A, 4 Group B), injury to gut found in 3 patients (Group a 1, Group B 2), bile duct injury found in 5 patients (Group A 1, Group B 4), post-operative jaundice found in 6 patients (2 in Group A, 4 in Group B), biliary stricture found in 3 patients (Group A 1 and Group B 2). There was 1 death recorded and patient belongs to without drain placement group.

Table No.1: Demographic information of the patients

Variable	Group A (n=113)	Group B (n=113)
Sex		
Female	70 (61.95%)	83 (73.45%)
Male	43 (38.05%)	30 (26.55%)
Age (years)		
20 – 35	42 (37.17%)	45 (39.82%)
36 – 50	46 (40.71%)	47 (41.59%)
>50	27 (23.89%)	21 (18.58%)
Residency		
Rural	72 (63.72%)	65 (57.52%)
Urban	41 (36.28%)	48 (42.48%)
Co-morbidities		
CBD exploration	3 (2.65%)	4 (3.54%)
Hypertension	16 (14.16%)	12 (10.62%)
Jaundice	3 (2.65%)	5 (4.42%)
Diabetes mellitus	14 (12.39%)	16 (14.16%)

Table No.2: Symptoms associated to gall stone disease

Symptom	Group A (n=113)	Group B (n=113)
Porcelain gall bladder	2 (1.77%)	5 (4.24%)
Hemolytic disorder	5 (4.24%)	1 (0.88%)
Polyp	4 (3.54%)	15 (13.27%)
Symptomatic gall stone disorder	20 (17.70%)	35 (30.97%)
Microvascular disorder	25 (22.12%)	29 (25.66%)
Empyema gall bladder	27 (23.89%)	2 (1.77%)
Post ERCP stone extraction	7 (6.19%)	12 (10.62%)
Pancreatitis history	5 (4.24%)	4 (3.54%)
Perforation	16 (14.16%)	5 (4.42%)
Traumatic gall bladder	13 (11.50%)	5 (4.42%)

Table No.3: Post-operative complications found in all the patients

Complications	Group A (n=113)	Group B (n=113)
SSI	1 (0.88%)	12 (10.62%)
Septicemia	2 (1.77%)	8 (7.08%)
Gastro hepatic fluid	1 (0.88%)	14 (12.39%)
Hematoma	2 (1.77%)	4 (3.54%)
Injury to gut	1 (0.88%)	2 (1.77%)
Bile duct injury	1 (0.88%)	4 (3.54%)
Post-operative jaundice	2 (1.77%)	4 (3.54%)
Billiary stricture	1 (0.88%)	2 (1.77%)

P-value = 0.035

DISCUSSION

Gall stone disease is the most common disorder found all over the world and surgical treatment for this disorder is the most frequent performing procedure in surgical departments.¹¹ In our study the overall female patients population was high 67.70% as compared to male patients 32.30%. These results shows similarity to some previous study conducted regarding cholecystectomy in which female patients population was high as compared to males 60 to 75%.^{12,13}

In present study, we found that 38.50% patients were ages between 20 to 35 years and 41.15% patients were of ages 36 to 50 years. A study conducted by Abad-ur-Rehman et al¹⁴ reported the mean age of patients was 37.34 years (Range 15 to 68 years). According to the residency status in Group-A 72 (63.72%) patients had rural residency while 41 (36.28%) had urban residency and in Group-B, 65 (57.52%) patients with rural residence and 48 (42.48%) patients had urban residency. Cholecystectomy with CBD exploration done in 7 (3 Group A, 4 Group B), Hypertension was found in 28 patients (16 Group A, 12 Group B), Jaundice in 8 (3 in Group A and 5 Group B) and Diabetes mellitus in 30 (14 Group A, 16 Group B). A study conducted by Abusedra et al¹⁵ shows a little difference to our study regarding comorbidities.

In our study, symptoms were recorded in Group A and B such as porcelain gall bladder, hemolytic disorder, polyp, symptomatic gall stone disorder, with microvascular disorder, empyema gall bladder, post ERCP stone extraction, pancreatitis history, perforation and traumatic gall bladder in 2 and 5, 5 and 1, 4 and 15, 20 and 35, 25 and 29, 27 and 2, 7 and 12, 5 and 4, 6 and 5, 13 and 5 patients respectively. In our study, surgical site infection was found in 12 (10.62%) patients in Group B and in 1 (0.88%) patient in Group A, septicemia in 10 patients (2 Group A, 8 Group B), sub hepatic fluid collection found in 15 patients (Group A =1, Group B= 14), hematoma in 6 patients (2 Group A,

4 Group B), injury to gut found in 3 patients (Group A= 1, Group B =2), bile duct injury found in 5 patients (Group A 1, Group B 4), post-operative jaundice found in 6 patients (2 in Group A, 4 in Group B), biliary stricture found in 3 patients (Group A =1 and Group B =2). These results showed that the rate of complications was high in Group B without drain placement than the drain placement group. Results of our studies shows similarity to some other studies in which those patients who underwent cholecystectomy with drain placement had a low rate of complications than the patients underwent surgical treatment without drain placement.¹⁶⁻¹⁹ Placement of drain is also related to many complications like gut perforation, infection and bleeding. In our study, we found wound infection in 3 patients postoperatively. In our study the overall mortality rate was 0.88% and that patient belongs to without drain placement group. These results were similar to another study in which mortality rate was 0.75% and belongs to without drain placement group.²⁰

CONCLUSION

The morbidity is higher among the patients in which drains were not placed after cholecystectomy as compared to those in which drains were placed because complications were either missed or detected late.

Author's Contribution:

Concept & Design of Study: Abdul Manan
 Drafting: Ashar Ahmad Khan, Irfan Ahmad
 Data Analysis: Muhammad Usman, Tania Mahar, Muhammad Afzal Sajid
 Revisiting Critically: Abdul Manan, Ashar Ahmad Khan
 Final Approval of version: Abdul Manan

Conflict of Interest: The study has no conflict of interest to declare by any author.

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