

Original Research Article

Comparative study of laparoscopic cholecystectomy with and without drains

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ABSTRACT

Background: Gallstones and cholecystitis are very common pathologies in surgical practice. Laparoscopic cholecystectomy (LC) is the preferred procedure to remove the gallbladder (GB) worldwide. The main objective of this study was to evaluate the merits and demerits of placing drain after LC and to find out the clinico-pathologic conditions in which the placement of drain was justifiable.

Methods: 100 patients who underwent LC were divided into 2 groups, group A (patients with drain) and group B (patients without drain). Interventional type, single-blind study was done. Complete history, evaluation and relevant data of both groups were done and analysed using descriptive statistics and Chi square test.

Results: In group A, 44% were males and 56% females whereas in group B, 42% were males and 58% were females. There was a statistically significant difference (p value<0.05) between 2 groups in Visual analog scale (VAS) grading. Wound infection was seen in 14% in group A and 02% in group B; mean hospital stay in group A was 8.38±1.86 days and in group B was 4.68±1.25 days. Nausea and vomiting were noted in 46% among group A and 04 % among group B.

Conclusions: Placement of drain after LC has nothing to offer, in contrast, it was associated with more pain. It would be reasonable to leave a drain if there was worry about an unsolved or potential bile leak only.

Keywords: Laparoscopic cholecystectomy, Subhepatic drain

INTRODUCTION

Gallstones and cholecystitis are very common pathologies in surgical practice. LC nowadays is the preferred procedure to remove GB. This is a common digestive disorder worldwide; with incidence varying from 6-20%.¹ Two surgical approaches are conventional and laparoscopic. Better cosmetic results, shorter hospital stay, early recovery and return to physical activity and work have all contributed to the popularity of LC, establishing it as the gold standard of treatment of cholelithiasis.² With the advent of LC, the use of drainage of hepatic bed after LC may be justified because of the increased incidence of

biliary injury and consequently bile leakage. Prophylactic drainage after abdominal surgery has been widely used either to detect early complication, such as postoperative haemorrhage, leakage or to remove collections such as ascites, blood and bile.³

It is now considered that prophylactic drainage is not necessary after elective LC for asymptomatic cholelithiasis and chronic cholecystitis.⁴ Nevertheless, some surgeons advocate that drainage of the abdominal cavity has no advantage for detecting bile leakage or bleeding and it does not help prevent post-operative morbidities.⁵ The main reason for drainage of subhepatic

space after LC is the fear of bile leakage that may cause biliary peritonitis.⁶ The need to put the drain has always been a controversial subject mainly due to the risk of infection, pain and hospital stay.⁷

The main objective of this study was to evaluate the merits and demerits of placing drain after LC and to find out the clinico-pathologic conditions in which the placement of drain was justifiable.

METHODS

This study was done on 100 patients admitted under the Department of General Surgery in A. J. Institute of Medical Sciences and Research Centre, Mangalore between October 2018 and September 2020 undergoing LC. Approval from the Institutional ethics committee was obtained. Interventional type single-blind study was done. Patients were divided into 2 groups; A with drain and B without drain. A complete history, physical evaluation, the relevant investigations were done and the post-operative period and complications were assessed.

Patients were grouped by simple random sampling.

Inclusion criteria

Patients of all ages, sex or occupation who are diagnosed to have cholelithiasis or cholecystitis were included.

Exclusion criteria

Patients with following criteria were excluded- (a) other pathologies like CBD stones, cholangitis, pancreatic duct obstruction; (b) with biliary malignancy; and (c) pediatric age group.

After the data collection, the results were tabulated and statistically analysed. Descriptive statistics and Chi square test were used to obtain the results. R- programming was used to analyse data.

RESULTS

In the drain group, 44% were males and 56% were females whereas in without drain group, 42% were males and 58% were females (Table 1). The difference was not statistically significant.

Most of the patients in the study were between the age group of 31-40 years (Table 2).

Table 1: Sex distribution.

Gender	With drain (group A)	Without drain (group B)
Males	22 (44)	21 (42)
Females	28 (56)	29 (58)

Table 2: Age distribution.

Age groups (years)	Number
21-30	14
31-40	26
41-50	22
51-60	19
Above 60	19

Amongst cholelithiasis patients 40% had drain and 40% without drain. Amongst acute cholecystitis patients, 28% had drain and 12% without drain and amongst chronic cholecystitis patients, 32% had drain and 48% without drain (Table 3). The difference was not statistically significant.

Table 3: With or without drain.

Diagnosis	Drain (%)	Without drain (%)
Cholelithiasis	20 (40)	20 (40)
Acute cholecystitis	14 (28)	6 (12)
Chronic cholecystitis	16 (32)	24 (48)

VAS grade in patients with drain was G4 (48%), G3 (47%) then G2 (5%). VAS grade in patients without drain was G2 (48%) followed by G3 (31%) then G1 (16%) (Table 4). P<0.05, there was statistically significant difference observed between the two groups.

Table 4: Post-operative pain.

VAS scores	Drain (%)	Without drain (%)
G1	0	16
G2	5	48
G3	47	31
G4	48	5
G5	0	0

Wound infection is noted in 7 (14%) with drain and 1 (2%) without drain group (Table 5), hence p value was 0.007. So there was statistically significant difference noted between the two study groups.

Table 5: Post-operative wound infection.

Post-op wound infection	Drain (%) (group A)	Without drain (%) (group B)
Present	7 (14)	1 (2)
Absent	43 (86)	49 (98)

Mean hospital stay in patients with drain was 8.38±1.86 days and patients without drain was 4.68±1.25 days. P<0.05, there was statistically significant difference noted between two study groups. Nausea and vomiting was noted in 23 (46%) with drain and 2 (04%) without drain group (Table 6), hence p value was less than 0.05. So, there

was statistically significant difference noted between the two study groups.

Table 6: Nausea and vomiting.

Nausea and vomiting	Drain (%) (group A)	Without drain (%) (group B)
Present	23 (46)	2 (4)
Absent	27 (54)	48 (96)

DISCUSSION

LC is the gold standard for the treatment of cholelithiasis.⁸ When compared to open surgery it offers various benefits like faster recovery, shorter hospital stay and better postoperative outcome and fewer complications.⁹ The present study reported a significant difference in the rate of wound infection in group A (14%) as compared to group B (2%).

Similar findings were reported by Halim et al and it advised not to place drain after elective LC.¹⁰ However Hawasli et al with their team reported that no significant difference was present regarding wound infection in their trials.¹¹ Another finding in this study was that the incidence of nausea and vomiting was slightly higher among group A (46%) as compared to group B (4%) and the difference was statistically significant (p value<0.05). Similar findings were reported by Satinsky et al which stated that there was statistically significant difference in the incidence of nausea, vomiting among the 2 groups.¹²

Another major finding of this study was that there was a significant difference in pain abdomen as assessed by VAS grade in both groups (p value<0.001). Similar findings were also reported by Tzovaras et al.¹³ However Hawasli et al found that there was a minor, but not a statistically significant difference between 2 groups in postoperative pain abdomen. In this study mean hospital stay in patients with drain was 8.38±1.86 days and patients without drain were 4.68±1.25 days. There was a significant difference with a p value<0.05. Similar findings were given by Guruswamy et al and Satinsky et al.¹⁴

Thus, the advantages of not inserting a drain are reduction of hospital stay, patient comfort, and lower incidence of postoperative complications. On the other hand, drainage results in a higher wound infection rate and longer hospital stay. Data was unable to prove that the drain has any effect on either abdominal or shoulder tip pain in the setting of acute cholecystitis.

CONCLUSION

From the results of this randomized controlled trial, it appears that the routine use of a drain in elective laparoscopic cholecystectomy has nothing to offer; in contrast, it is associated with increased pain. It would be reasonable, however, to leave a drain if there is a worry about an unsolved or potential bile leak, bearing in mind

that drain placement, although sometimes providing a false sense of security, does not guarantee either prevention or treatment of postoperative bile collections, bleeding, or bile peritonitis.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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