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Original Research

To compare the differences between laparoscopic cholecystectomies performed with and without drains

Pradeep Kumar Bansal

Assistant Professor, Department of Surgery, Subharti Medical College & Hospital, Meerut, Uttar Pradesh, India

ABSTRACT:

Aim: The purpose of this research is to examine the differences between laparoscopic cholecystectomies performed with and without drains. **Methods:** It was the responsibility of the Department of General Surgery to conduct out this randomized controlled trial single-blind examination. In all, there were one hundred distinct patients included in this study. Patients were divided into two groups: group A were those who were given drains, and group B were those who were not. After the completion of a comprehensive history, physical examination, and investigations that were applicable to the case, the post-operative period as well as any difficulties that arose were assessed. Patients were assigned to different groups by a process that is known as simple random sampling. **Results:** Forty percent of patients with cholelithiasis had drains, whereas the other forty percent did not. 28% of patients with acute cholecystitis and 12% of patients with chronic cholecystitis had drains, whereas 32% of patients with chronic cholecystitis had drains and 48% of patients without drains. G4 was the most common VAS grade among patients with drain, followed by G3 (44%) and G2 (6%). G2 was the most common VAS grade among individuals who did not have a drain (50%), followed by G3 (28%), and G1 (16%). (Table 4). There was a statistically significant difference noticed between the two groups, and the significance level was $P<0.05$. Infection of the wound was seen in 5 (10%) of patients with drains and only 1 (2%) of patients without drains (Table 5); the p value for this comparison was thus 0.007. Hence, a statistically significant difference was found to exist between the two groups that were investigated. **Conclusions:** An competent surgeon may do a laparoscopic cholecystectomy to treat gallstone disease in an uncomplicated patient without the necessity for draining the patient's abdominal cavity in a manner that is reasonably safe. There is a substantial benefit in terms of post-operative discomfort, the use of analgesics, and the length of time spent in the hospital since the drain is not used.

Keywords: laparoscopic cholecystectomies, drains, VAS grade,

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Corresponding author: Pradeep Kumar Bansal, Assistant Professor, Department of Surgery, Subharti Medical College & Hospital, Meerut, Uttar Pradesh, India

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INTRODUCTION

The gallbladder is a reservoir of bile that has the form of a pear and is located on the underside of the liver. It is partly covered by the peritoneum.[1] Because of its anatomical position at the gateway to the hilum of the liver and because of its embryological development, including its numerous variations, the gall bladder is the most common component of the gastrointestinal system, after the appendix, that requires surgical intervention. This is because of its embryological development, which includes its numerous variations. One of the most frequent illnesses of the biliary system, known since ancient times, gallstone disease may only be completely cured via surgical intervention. Gallstones are the most prevalent kind of digestive ailment, as well as the most expensive, and they are a leading cause of hospitalization in India.[2-4] Conventional cholecystectomy has been the treatment of choice for cholelithiasis for more than one hundred years; however, its preference in the surgical community is slowly and steadily decreasing since the invention of minimally invasive surgery such as mini-cholecystectomy and laparoscopic cholecystectomy. Conventional cholecystectomy has enjoyed unchallenged supremacy as the treatment of choice for cholelithiasis.[5,6] On September 12, 1985, a medical practitioner by the name of Med Erich Muhe from Boblingen, Germany, conducted the first laparoscopic cholecystectomy (LC). According to a consensus statement issued by the National Institutes of Health

(NIH) in 1992, LC offers a therapy that is both safe and successful for the majority of people who suffer with symptomatic gallstones. As a result, it has become the treatment of choice for many patients. The use of LC for the treatment of symptomatic cholelithiasis is presently regarded as the gold standard and has garnered almost complete approval in the medical community.[7-9] In point of fact, the laparoscopic cholecystectomy is one of the most spectacular surgical advances of the 20th century, and it has completely changed the way that gallstone disease is treated. It is now considered the gold standard for treating cholelithiasis8,9. After appendectomy, it is the second most frequent procedure in the field of gastrointestinal (GI) surgery. It is also the most common laparoscopic operation done anywhere in the globe.[10] Those who have gallstones may benefit from the laparoscopic cholecystectomy, which is a safe and successful treatment option since it lessens postoperative discomfort, leaves nearly no visible scar, requires a shorter stay in the hospital, and allows patients to go back to work sooner.[11] Laparoscopic cholecystectomy, like all other surgical treatments, is associated with a multitude of consequences. These complications may vary from moderate to severe, and in some cases they can even endanger a patient's life. With laparoscopic cholecystectomy, the most frequent complaints are discomfort in the back, pain in the shoulder tip, and nausea and vomiting. These symptoms are not present in standard laparotomy. Laparoscopic cholecystectomy has included regular drainage in order to reduce the risk of complications like these.[12] In order to prevent the accumulation of bile or blood, which would need open operations, surgeons have developed the practice of regularly draining the area after performing laparoscopic cholecystectomy. A further advantage of draining is that it makes it possible for the carbon dioxide that was insufflated during the laparoscopic procedure to escape via the drain site, so reducing the intensity of the shoulder ache. On the other side, the use of a drain might raise the risk of infective problems and prolong the patient's release. A larger percentage of patients have also been seen to be suffering from feelings of nausea and vomiting. Research have indicated that patients who received drains had a greater wound infection incidence and were in the hospital for longer.[12] Because of this, the use of this technique in elective conventional cholecystectomies has been the subject of much debate. According to the findings of a recent Cochrane Database Systematic Review, drains have typically been utilized for the early diagnosis of bile leaks and any unexpected bleeding, as well as to empty abdominal fluid accumulation without the need for more intrusive operations. The current rate of biliary problems after laparoscopic cholecystectomy (LC) is 0.4% (the range is 0.1–0.9%). Since postoperative hemorrhagic problems are very uncommon, the use of drains is restricted even more. After a cholecystectomy, an easy postoperative recovery is closely related with the lack of subhepatic fluid collections that occurred during the procedure. Since drains are so effective at removing subhepatic collections, one may argue that their usage is necessary to avoid postoperative problems.[13] However, the results of experimental studies showed that when a drain is inserted into a peritoneal cavity that does not contain any fluids, it is quickly surrounded by omentum and within forty-eight hours it is completely occluded. This happens despite the fact that the peritoneal cavity does not contain any fluids. It is generally believed that drains are far more effective in removing bile from the abdominal cavity than other forms of intra-abdominal collections. After LC, patients had a 1.1–7.9% chance of developing a port-site infection, which is considered a mild risk. It would seem that the use of drains reduces the occurrence of this issue, which is likely connected to the presence of a foreign body.

MATERIAL AND METHODS

The Department of General Surgery carried out this randomized controlled trial single-blind research after receiving clearance from both the protocol review committee and the institutional ethics committee. Following receiving the patient's informed permission, a comprehensive medical history was collected from the patient and any relatives present. This research included a total of 100 different patients. Patients were separated into two groups: group A received drains, whereas group B did not. An thorough history, physical examination, and investigations pertinent to the case were carried out, and the post-operative period as well as any problems were evaluated. Patients were divided into groups using a method called simple random sampling. Individuals of any age, gender, or line of work who have been given a diagnosis of cholelithiasis or cholecystitis were invited to participate in this research study.

PATIENTS WITH FOLLOWING CRITERIA WERE EXCLUDED

- Additional diseases, such as stones in the CBD, cholangitis, and blockage of the pancreatic duct
- With cancer of the biliary system
- This research did not include children in its pediatric age group.

After the gathering of the data, the findings were collated and subjected to statistical analysis. In order to achieve the findings, descriptive statistics and the Chi square test were used. The data was analyzed using the computer language R.

RESULTS

In the group that had the drain, there were 44% men and 56% females, but in the group that didn't have the drain, there were 42% males and 58% females (Table 1).

Table 1: Sex distribution

Gender	With drain (group A)=50	Without drain (group B)=50
Males	22 (44)	21 (42)
Females	28 (56)	29 (58)

There was no statistically significant difference between the two groups. The majority of the patients who participated in the research were between the ages of 30 and 40 years old (Table 2).

Table 2: Age distribution

Age groups (years)	Number	%
Below 30	16	16
30-40	26	26
40-50	22	22
50-60	18	18
Above 60	18	18

Forty percent of patients with cholelithiasis had drains, whereas the other forty percent did not. 28% of patients with acute cholecystitis and 12% of patients with chronic cholecystitis had drains, whereas 32% of patients with chronic cholecystitis had drains and 48% of patients without drains (Table 3). There was no statistically significant difference between the two groups.

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)

G4 was the most common VAS grade among patients with drain, followed by G3 (44%) and G2 (6%). G2 was the most common VAS grade among individuals who did not have a drain (50%), followed by G3 (28%), and G1 (16%). (Table 4). There was a statistically significant difference noticed between the two groups, and the significance level was $P<0.05$.

Table 4: Post-operative pain

VAS scores	Drain (%)	Without drain (%)
G1	0	16
G2	6	50
G3	44	28
G4	50	6
G5	0	0

Infection of the wound was seen in 5 (10%) of patients with drains and only 1 (2%) of patients without drains (Table 5); the p value for this comparison was thus 0.007. Hence, a statistically significant difference was found to exist between the two groups that were investigated.

Table 5: Post-operative wound infection.

Post-op wound infection	Drain (%) (group A)	Without drain (%) (group B)
Present	5 (10)	1 (2)
Absent	45(90)	49 (98)

Mean hospital stay in patients with drain was 9.25±2.13 days and patients without drain was 4.21±1.46 days. $P<0.05$, there was statistically significant difference noted between two study groups. Due to the fact that the number of patients who had nausea and vomiting was higher in the group that had a drain (Table 6), the p value was found to be lower than 0.05. Hence, a statistically significant difference was found to exist between the two groups that were investigated.

Table 6: Nausea and vomiting

Nausea and vomiting	Drain (%) (group A)	Without drain (%) (group B)
Present	22 (44)	2 (4)
Absent	28 (56)	48 (96)

DISCUSSION

In the treatment of cholelithiasis, LC is considered to be the gold standard. [14] As compared to open surgery, it provides a number of advantages, including a more expedient recovery, a shorter length of stay in the hospital, a better postoperative result, and fewer

problems. [15] According to the findings of this particular research, there was a statistically significant disparity in the rates of wound infection in group A (10%) and group B (2%).

Halim et al. found results that were similar, and they recommended that drains not be placed during elective LC procedures.[16] On the other hand, Hawasli et al. and their colleagues found that there was no significant difference apparent in the experiments they conducted regarding wound infection. [17] The incidence of nausea and vomiting was somewhat greater among group A (44%), as compared to group B (4%), and the difference was statistically significant (p value 0.05). Another conclusion from this research was that the incidence of nausea and vomiting was slightly higher among group A. Satinsky et al. reported data that were quite similar to what we found, and they indicated that there was a statistically significant difference between the two groups in terms of the incidence of nausea and vomiting. [18]

There was a substantial difference in the level of abdominal discomfort between the two groups, as determined by the VAS score (p value 0.001), which was another important conclusion from this research. Tzovaras et al. also reported results that were quite similar to these. [19] On the other hand, Hawasli and colleagues discovered that while there was a little difference between the two groups in postoperative pain abdomen, it was not statistically significant. In this research, patients who had drains had a mean hospital stay of 9.25 days with a standard deviation of 2.13 days longer than patients who did not have drains (4.21 days with a standard deviation of 1.46 days). There was a statistically significant difference, as shown by a p value of less than 0.05. Guruswamy et al. and Satinsky et al. both came at the same conclusions with their research.[20]

Hence, the benefits of avoiding the insertion of a drain include a shorter length of stay in the hospital, increased patient comfort, and a reduced risk of postoperative problems. On the other hand, drainage leads to an increased risk of wound infection as well as a prolonged stay in the hospital. In cases of acute cholecystitis, the data collected did not support the hypothesis that the drain alleviates the discomfort felt in the shoulder blade or the abdominal region.

CONCLUSIONS

An competent surgeon may do a laparoscopic cholecystectomy to treat gallstone disease in an uncomplicated patient without the necessity for draining the patient's abdominal cavity in a manner that is reasonably safe. There is a substantial benefit in terms of post-operative discomfort, the use of analgesics, and the length of time spent in the hospital since the drain is not used.

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