

Drain Versus No Drain in Cholecystectomy; Still a Dilemma Our Experience

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Abstract: *Lap cholecystectomy is the gold standard treatment for cholelithiasis. Currently usage of prophylactic drain in every patient is still under research and debate. Although drainage may offer some benefits but there is no single study which recommends usage of the drain in fact there are studies which recommend no routine usage of drains as it increases the complications rate and cost of the healthcare.*

Keywords: Lap cholecystectomy, suction drain, collection,

1. Introduction

The gallbladder is a pear-shaped reservoir of bile situated on the inferior surface of the liver, partially covered by peritoneum. Gall bladder, by virtue of its anatomical position at the gateway to the hilum of the liver and by virtue of its embryological development including its numerous variations, is the commonest component of gastrointestinal system after the appendix requiring surgical intervention.¹ Laparoscopic cholecystectomy is a safe and effective treatment for patients with gallstones. It reduces post-operative pain with minimal scar with short hospital stay and early recovery. This new minimal invasive procedure has become the gold standard in the management of cholelithiasis as well as in acute appendicitis.² Laparoscopic technologies have progressed to single-incision laparoscopic surgery (SILS) and natural orifice trans-luminal endoscopic surgery. Laparoscopic cholecystectomy (LC) is the current preferred method of cholecystectomy. The role of routine drainage after LC to decrease postoperative morbidity is still an issue of considerable debate. The main reason to use drains in laparoscopic cholecystectomy is to avoid bile and blood collection requiring subsequent open procedures and to reduce postoperative Pain. Cholecystectomy without sub hepatic drainage was first described in 1913, and since then surgeons were divided whether to use it as a routine drainage or not in uncomplicated cases.⁴ Most surgeons continue to use routine sub hepatic drain for the fear of bile leak and bleeding.^{5, 6} Another reason for draining is to allow CO₂ insufflated during laparoscopy to escape via the drain site leading to decreased shoulder pain.⁷

Therefore we conducted a study to assess the usefulness of drain in elective LC and whether not using a drain will lead to increased mortality and morbidity.

2. Material and methods

The study was conducted in Department of General Surgery, SKIMS Medical College Srinagar, on eighty patients of gall Bladder disease admitted for Lap cholecystectomy. After

obtaining written informed, the patients were divided into two groups- Group (drain) and Group (no drain) Group (drain): (n= 30) Sub-hepatic space was drained by a suction drain which was brought out through lateral most port Group (no drain): (n= 30) Non-drainage of Sub-hepatic space

Inclusion criteria

- Age group 20-60 years
- Symptomatic cholelithiasis
- Patients undergoing elective laparoscopic cholecystectomy

Exclusion Criteria

- Obstructive Jaundice
- Conversion to open surgery
- Intraoperative hemorrhage
- Intraoperative biliary tract injury
- Performance of any additional procedure

Written informed consent was obtained in all the cases. CBC, urine analysis, liver-function tests, pre-operative chest x- ray, ECG and ultrasonography of intra and extra-hepatic biliary tract was done in all cases. All patients were subjected to Laparoscopic cholecystectomy. General anesthesia was utilized. Laparoscopic cholecystectomy was performed using four port technique. In 30 patients (no drain group) non-drainage of sub-hepatic space was used, in the drain group sub-hepatic space was drained by a suction drain which was brought out through lateral most port. Socio-demographic data of the patient including age, sex, any past history of illness if present and investigations including USG findings were recorded in proforma. All the patients in both groups were evaluated for outcome measures postoperatively including Abdominal pain (Visual Analogue Scale), Shoulder pain, Drain site infection, Wound infection, Fever, Duration of post-operative hospital stay, Nausea, Vomiting, Hemorrhage. Postoperative pain was assessed by Visual Analogue scale. All the patients were given analgesics as required after assessing pain. The wound infection was recorded by examination of wound daily for any discharge and/or redness. All patients were given respiratory physiotherapy, and were made ambulatory in the

post-operative period as early as possible. The data was compiled and assessed statistically.

3. Results

Both the groups (with drain and without drain) included same number of patients, 30 in each group. Average age of the patients in drain group was 37.25 years and 38.90 years in without drain group. Male to female ratio in drain group was 1:3.7 and in no drain group 1:3.8 and the overall ratio was 1:3.75. Mean operative time in drain group was 58 ± 6 minutes and in no drain group was 45 ± 5 minutes. Operative time was more in drain groups compared to no drain group. Incidence of pain which was assessed by VAS and requirement of analgesics was more in drain groups compared to no drain group. No. of the patients staying in the hospital for more than one day was higher in drain group, 11(36.66%) and 5(16.66%) in no drain group. Removal of drain was not possible at 24 hours due to persistent amount of drainage; however none of them had bile or blood. Postoperative complications were more frequently seen in drain group but the differences were statistically not significant. Pain in the right shoulder was more often observed in No drain group. Nausea, vomiting was more common in Drain group. Only one patient had superficial wound infection of the epigastric port and one had pneumonia in the postoperative period in Drain group. (table 1). In all patients with drainage, the drain content was sero-sanguinous and serous. There was no bile leak in drain group. None of the patients in drain group required re-drainage after the removal of drain. Patients in no drain group were assessed clinically as well as radiologically for the presence of collection. Ultrasound abdomen to assess the collection was advised only if suspected clinically by the presence of increased in severity or persistence of pain, prolonged ileus (> 48 hours), fever and abdominal signs of localized or generalized peritonitis. Three patients in no drain group had pain persisting for more than 48 hours hence ultrasound was done to look for collection which revealed minimal collection in gall bladder fossa not requiring any intervention. Their pain subsided gradually with symptomatic treatment. There were no deaths and reoperations were also not needed. After discharge, all patients returned for follow up on the 7th and on the postoperative 30th day.

4. Discussion

Laposcopic cholecystectomy is the gold standard for the treatment of cholelithiasis. When compared to open surgery it offers various benefits like faster recovery, shorter hospital stay, and better postoperative outcome and fewer complications. Sub hepatic drainage after cholecystectomy, open or laparoscopic, is still an unsolved debate. Complications and post-operative course is somewhat similar in both groups as has been found in many studies and the study which we have done showed comparable results between two groups. Many studies concluded that drain has no advantage and it just prolonged the hospital stay of the patient leading to increase cost of health care. Gurusamy KS et al found wound infection was more in patients who underwent laparoscopic cholecystectomy with use of drain⁸, as found in our study where patients with drain had more

complication rates including wound infections. Sims was the first surgeon who used prophylactic drains after gynecologic operations in the last quarter of the 19th century.⁹ Since that time; surgeons have routinely used prophylactic drainage of the peritoneal cavity after abdominal surgery. Many surgeons now consider that drainage of the peritoneal cavity is impossible and, therefore, placing drain after abdominal surgeries is useless. Even after many studies demonstrating no advantage of placing prophylactic drain, many surgeons are still inserting drains due to fear of post-operative intra-abdominal collections. Our study showed better results in no drain group but further studies with larger number of patients can be more helpful in future. Large trials maybe needed for accurate assessment and guidelines for post op prophylactic drainage after lap cholecystectomy.

5. Conclusions

Although drains are necessary in certain conditions, but in laparoscopic cholecystectomy there is no clearcut practical benefit of drainage on routine basis.

It offers no benefit in terms of postoperative abdominal pain reduction, shoulder pain reduction, nausea, vomiting and fever in postoperative period. On the other hand it prolongs the hospital stay can also increase the chances of wound infection. In addition it adds to pain and discomfort on the drain site. So drain use is not recommended as a routine practice in laparoscopic cholecystectomy.

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Tables:

Table 1: Post op complications

Outcome	Drain Group, n (%)	No drain group, n (%)
Hospital Stay >2 days	11 (36.66)	5 (16.66)
Nausea	21 (70)	9 (30)
Vomiting	12 (40)	7 (23.33)
Pain on Right Shoulder	3 (10)	4 (13.33)
Surgical Site Infection	1 (3.33)	0
Pneumonia	1 (3.33)	0