



## **A Drain versus No Drain Study in a Rural India Population with Laparoscopic Cholecystectomy**

<sup>1</sup>Dr. Swathi Punnana, <sup>2</sup>Dr. Kanna Chandra Varma, <sup>3</sup>Dr. Mohammed Raziya Sultana Begum, <sup>4</sup>Dr. Didla Satya Rajakumari, <sup>5</sup>Dr. Rapaka Ashok Reddy

<sup>1,2,3,4</sup>PG Scholar, Department of General Surgery, Great Eastern Medical School and Hospital, Srikakulam, India

<sup>5</sup>HOD, Department of General Surgery, Great Eastern Medical School and Hospital, Srikakulam, India

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**Corresponding Author:** Dr. Swathi Punnana, PG Scholar, Department of General Surgery, Great Eastern Medical School and Hospital, Srikakulam, India

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### **Abstract**

#### **Introduction**

Cholecystectomy is the second most common operation in gastrointestinal surgery after appendectomy in India because gallstones are the most common and costly digestive disease and are the major cause of hospitalization; laparoscopic Cholecystectomy (LC) is accepted universally for the treatment of cholelithiasis. However, drain versus no drain has remained a controversial issue.

#### **Materials and Methods**

Out of 45, these cases were randomly divided into the drain and without drain groups. The same antibiotics were given to both groups postoperatively. Every patient has undergone LC by the standard four-port

method. The post-surgical complications were noted and compared.

#### **Results**

The post-surgical complications such as infections of the wound, post-surgical pain, block, age, duration of hospital stay, post-LC morbidity, and chest infections were significantly higher in drain patients as compared to no-drain patients.

#### **Conclusion**

It is observed that the use of a drain in the elective LC did not provide any benefit to patients; rather, it increased wound infection and increased the duration of hospital stay. Hence, the use of a drain is not recommended as routine practice after LC.

## Introduction

Gallstone disease is the state of stones or calculi in the biliary tree and gallbladder lumen. This widespread digestive illness affects anywhere from 6–20% of people. [1] Surgery is the only effective treatment for symptomatic gallstones. Both traditional and laparoscopic surgery are options. In 1882, Carl Langenbuch successfully removed the first gallbladder due to stone disease. [2] The preferred care method for symptomatic gallstone disease has steadily changed from open Cholecystectomy (OC) to laparoscopic Cholecystectomy (LC). The success of this procedure has made it the gold standard for treating cholelithiasis. Benefits include better cosmetic outcomes, a shorter hospital stay, early healing, and a return to physical activity and employment. [3,4,5]. Fear of bile leakage into the gallbladder fossa and subsequent bile peritonitis is the main justification for draining the subhepatic area during Cholecystectomy. Nowadays, there is debate over the idea that surgical drainages can act as an early indicator of bile leakage, impending bile peritonitis, or intra-abdominal haemorrhage. The need for a drain has always been a contentious topic in surgery, owing to the risk of ascending infection, discomfort, and hospitalization. Fear of bile leakage into the gallbladder fossa and subsequent bile peritonitis is the main justification for draining the subhepatic area during Cholecystectomy. Therapeutic drains are a necessity, but prophylactic drains are in question. Higher wound infection has been reported in the drain group. Hospital stay has also been prolonged, as none of the patients can be discharged on the same day. Therefore, the current study is designed to assess the benefits and drawbacks of the drain in patients undergoing laparoscopic

Cholecystectomy and to identify the clinicopathologic circumstances in which drain insertion is appropriate.

## Aim

To compare postoperative abdominal complications associated with elective Cholecystectomy with drain versus without drain placement.

## Materials And Methods

After receiving the patient's written informed consent, the current prospective study was carried out on 45 patients hospitalized for laparoscopic Cholecystectomy in the department of general surgery at Great Eastern Medical School & Hospital.

## Type of Study

Prospective study, n = 45.

## Inclusion Criteria

- All cholelithiasis patients who were diagnosed, admitted, and consented to a cholecystectomy were counted in the study.

## Exclusion Criteria

- Gallstone with any other accompanying intraoperative findings like ascites and tuberculosis suspected mass.
- Gallbladder carcinoma with gallstones
- Cholelithiasis with intraoperative suspicion of choledocholithiasis
- Incidental cholecystectomies with other procedures.

Patients who were scheduled for laparoscopic Cholecystectomy for conditions such as acute cholecystitis, chronic acalculous cholecystitis, chronic calculous cholecystitis, mucocele gall bladder, etc., were chosen for this study. Standard tests are required based on a thorough clinical examination, an in-depth history review, and an abdominal USG. Following preparation for surgery, an elective cholecystectomy was carried out. Each case was examined regarding

postoperative abdominal complications such as wound infection, biliary peritonitis, subhepatic collection/abscess, postoperative pain, and hospital stay. Subhepatic collection was measured by ultrasound abdomen in laparoscopic Cholecystectomy without a drained group. The subhepatic collection was measured by ultrasonography abdomen plus collection in a drainage bag in cases of laparoscopic Cholecystectomy with a drain group.

**Observation & Results**

A total number of 45 patients underwent laparoscopic Cholecystectomy in the department of General Surgery, Great Eastern Medical School & Hospital.

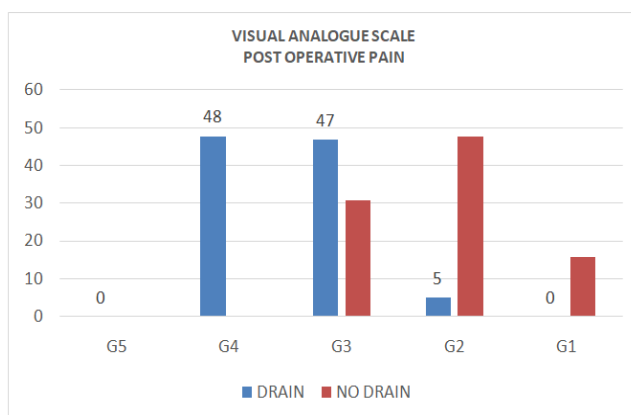
These cases were split into the drain and non-drain groups at random.

The following outcomes were achieved.

**Post Operative Pain**

- In this study, the VAS (VISUAL ANALOGUE SCALE) grade in drain patients was G4 (48%), G3 (47%), and G2 (5%).
- The VAS (VISUAL ANALOGUE SCALE) grade in the group without drain was G2 (48%), followed by G3 (31%) and G1 (16%).
- P<0.001, a statistically significant difference between the two groups was detected.

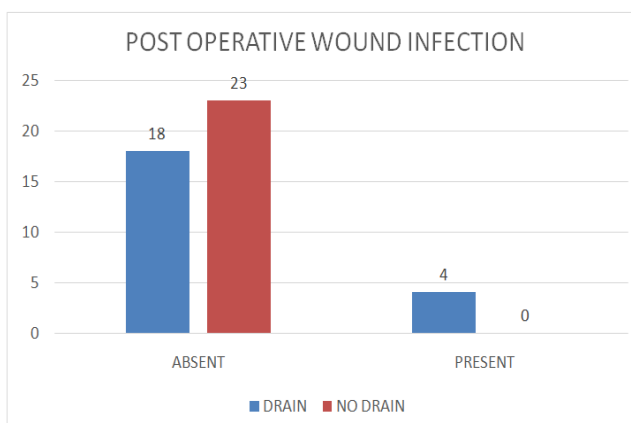
**Visual Analogue Scale-Post Operative Pain**



**Postoperative Wound Infection**

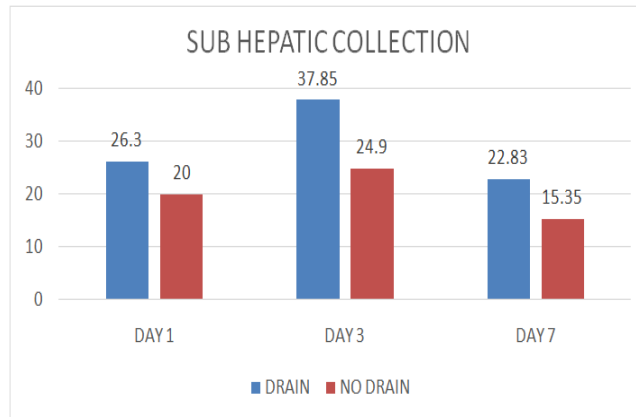
In the present study, wound infection is noted in 4(18.18%) with drain and 0(0%) in the group without drain, P value equal to 0.0491. As a result, a

statistically significant difference was found between the two study groups.



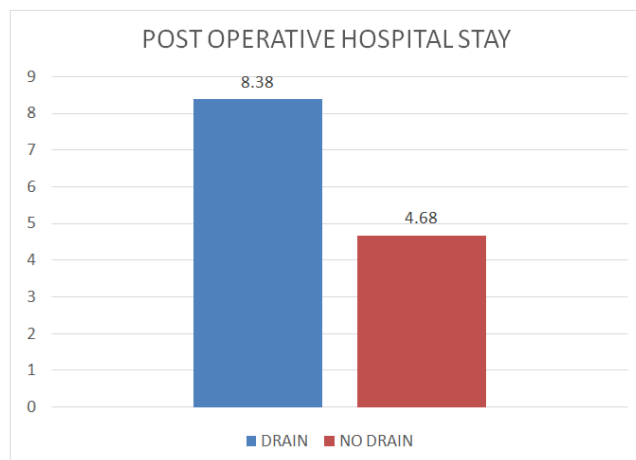
**Sub Hepatic Collection**

- In the current study, the average subhepatic collection in patients with drains on the first day was 26.3+/-12.7ml, 37.85+/-12.65ml on the third day, and 22.83+/-9.88ml on the seventh day.
- The average subhepatic collection in patients without drain was 20+/-7.84 ml on the first day, 24+/-9.34 ml on the third day, and 15.35+/-7.48 ml on the seventh day
- P-value 0.001, a statistically significant difference between the two study groups was observed.



### Post Operative Hospital Stay

- The mean hospital stay in the current study was 8.38 +/- 1.86 days for patients with drains and 4.68 +/- 1.25 days for individuals without drains.
- There was a statistically significant difference between the two study groups (P0.001).



### Discussion

Cholecystectomy is the preferred treatment for symptomatic cholelithiasis. In the current prospective

study, 45 patients with symptomatic and asymptomatic cholelithiasis underwent laparoscopic Cholecystectomy. These cases were separated into the drain and non-drain groups at random. Statistics from this study, which was done in the department of General Surgery at Great Eastern Medical School & Hospital, were compared to those from previous studies.

In the Bawahab research, 1(2.6%) of the patients with drains and 1(1.54%) of the patients without drains had wound infections. In the Lewis trial, 6 (2.4%) of patients without drains and 8 (3.2%) of patients with drains had wound infections. Similar findings were found in the Druart and Huguier research subgroups. In Lucarelli's study, the average subhepatic collection on the seventh day was 55+/-23.2ml in the drain group and 77+/-26.02ml in the non-drain group. Picchio[6] found that the average subhepatic collection was 30+/-5ml in the drain and without drain groups. Shamim's study revealed a mean subhepatic collection of 3.13+/-3.6 ml in the drain group and 2.85+/-3.6 ml in the non-drain group. The drain was removed in this study when there was only a small amount of subhepatic collection (25 ml) as determined by ultrasonography abdomen plus collection in a drainage bag. In the Bawahab study, patients with drains had a hospital stay of 4.48+/-2.18 days, while patients without drains had a hospital stay of 2.5+/-2.2 days. In the Lewis study, the postoperative hospital stay was 5.9+/-2 days in the drain group and 5.5+/-2 days in the non-drain group. Similar investigations conducted by the Adloff and Saad subgroups revealed that the postoperative hospital stay was lengthier in the drain group compared to the non-drain group. In

Gurer's study[7], hospital stay was 4+/-2.9 days in the drain group and 2.9+/-1.9 days in the non-drain group.

### Conclusion

Patients who underwent laparoscopic Cholecystectomy in the "without drain" group reported less postoperative pain, less subhepatic collection, and a shorter hospital stay than those in the "with drain" group.

In patients undergoing laparoscopic Cholecystectomy, inserting a drain can be omitted as it offers no further benefit because there is no discernible difference between the two procedures in terms of postoperative wound infection.

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