**ORIGINAL RESEARCH** 

# Assessment of role of drain after laparoscopic cholecystectomy for acute calculous cholecystitis

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## ABSTRACT

**Background:** Laparoscopic cholecystectomy is a minimally invasive surgical procedure used to remove the gallbladder. The present study was conducted to assess role of drain after laparoscopic cholecystectomy for acute calculous cholecystitis. **Materials & Methods:** 48 cases of laparoscopic cholecystectomy of both genders after gallbladder removal with a containing bag, the patients, who had no serious intraoperative complications, such as significant biliary and/or vascular injury or bleeding (>100 mL), were randomly allocated to undergo the placement of a drain in the subhepatic space (group I) or a sham drain (group II). **Results:** Group I had 10 males and 14 females and group II had 12 males and 12 females. ASA grade I was seen in 8 in group I and 4 in group II, grade II in 12 in group I and 13 in group II, grade III was seen in 4 in group I and 7 in group II. The mean operative time was 94.2 minutes in group I and 92.6 minutes in group II. Postoperative hospital stay was 3.2 days and 4.7 days in group I and group II respectively. Abdominal pain scores after 24 hours was 4.3 and 3.5 and shoulder pain scores after 24 hours after operation was 1 and 0 in group I and group II respectively. Parenteral ketorolac consumed was 120.4 ml and 122.6 ml in group I and group II respectively. The difference was significant (P< 0.05). **Conclusion:** Using drain in patients undergoing laparoscopic cholecystectomy offered no additional benefit. **Key words:** Gallbladder, Laparoscopic cholecystectomy, Drain

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Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

### **INTRODUCTION**

Laparoscopic cholecystectomy is a minimally invasive surgical procedure used to remove the gallbladder.<sup>1,2</sup> The gallbladder is a small organ located in the upper right abdomen that stores bile produced by the liver.<sup>3</sup> Gallstones, which are hard deposits that form in the gallbladder, can cause inflammation and pain, and in severe cases, can lead to infection or blockage of the bile ducts. During a laparoscopic cholecystectomy, small incisions are made in the abdomen and laparoscope and other specialized surgical instruments are inserted and the gallbladder is removed.<sup>4</sup> Laparoscopic cholecystectomy is generally considered a safe and effective procedure, with a shorter recovery time and less pain compared to traditional open surgery. However, as with any surgical procedure, there are risks involved, such as bleeding, infection, and damage to nearby organs.<sup>5</sup>

In a national survey over the surgical management of acute cholecystitis, the use of abdominal drainage was reported by a vast majority of the surgeons. However, there is no evidence supporting the routine use of drains in LC for ACC, and further trials were claimed.<sup>6</sup> The present study was conducted to assess role of drain after laparoscopic cholecystectomy for acute calculous cholecystitis.

### **MATERIALS & METHODS**

The present study consisted of 48 cases of laparoscopic cholecystectomy of both genders. All gave their written consent to participate in the study. Data such as name, age, gender etc. was recorded. All underwent laparoscopic cholecystectomy. After gallbladder removal with a containing bag, the patients, who had no serious intraoperative complications, such as significant biliary and/or vascular injury or bleeding (>100 mL), were randomly allocated to undergo the placement of a drain in the subhepatic space (group I) or a sham drain (group II). The polyethylene, 5.7-mm, multiparous tube drain was threaded through the most lateral 5-mm trocar. In group II, after the surgeon inserted the drain, a nurse

of the operating room pulled out the drain outside the port, shortened the tube, and fixed the end to the skin with a tape after blocking the tip with a bead. All drains in both groups were connected to a 500-mL

reservoir. Parameters such as operative time and postoperative hospital stay etc. were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## RESULTS

## **Table I Distribution of patients**

Groups	Group I	Group II
Male	10	12
Female	14	12

Table I shows that group I had 10 males and 14 females and group II had 12 males and 12 females.

#### **Table II Comparison of parameters**

Parameters	Variables	Group I	Group II	P value
ASA	Ι	8	4	0.05
	II	12	13	
	III	4	7	
Operative time (mins)		94.2	92.6	0.97
Postoperative hospital stay (days)		3.2	4.7	0.04
Abdominal pain scores	After 24 hours	4.3	3.5	0.02
Shoulder pain scores	24 hours after operation	1	0	0.05
parenteral ketorolac consumed (ml)		120.4	122.6	0.91

Table II, graph I shows that ASA grade I was seen in 8 in group I and 4 in group II, grade II in 12 in group I and 13 in group II, grade III was seen in 4 in group I and 7 in group II. The mean operative time was 94.2 minutes in group I and 92.6 minutes in group II. Postoperative hospital stay was 3.2 days and 4.7 days in group I and group II respectively. Abdominal pain scores after 24 hours was 4.3 and 3.5 and shoulder pain scores after 24 hours after operation was 1 and 0 in group I and group II respectively. Parenteral ketorolac consumed was 120.4 ml and 122.6 ml in group I and group II respectively. The difference was significant (P < 0.05).



### DISCUSSION

The advantages of laparoscopic cholecystectomy over traditional open surgery include smaller incisions, less pain and scarring, shorter hospital stays, and quicker recovery times.<sup>7</sup> However, it may not be suitable for all patients, particularly those with complex medical histories or severe gallbladder disease.<sup>8</sup> As with any surgical procedure, there are potential risks and complications associated with laparoscopic

cholecystectomy, including bleeding, infection, bile duct injury, and complications related to anesthesia.<sup>9</sup> It is important to discuss the risks and benefits of this procedure with a qualified healthcare provider before undergoing surgery.<sup>10</sup> The present study was conducted to assess role of drain after laparoscopic cholecystectomy for acute calculous cholecystitis.

We found that group I had 10 males and 14 females and group II had 12 males and 12 females. Lucarelli et

al<sup>11</sup> in their study after laparoscopic gallbladder removal, 15 patients were randomized to have a drain positioned in the subhepatic space (group A) and 15 patients to have a sham drain (group B). The primary outcome measure was the presence of subhepatic fluid collection at abdominal ultrasonography, performed 24 h after surgery. Secondary outcome measures included postoperative abdominal and shoulder tip pain, use of analgesics, and morbidity. Abdominal ultrasonography did not show any subhepatic fluid collection in eight patients (53.3 %) in group A and in five patients (33.3 %) in group B. If present, median (range) subhepatic collection was 50 mL (20-100 mL) in group A and 80 mL (30-120 mL) in group B. No significant differences in the severity of abdominal and shoulder pain and use of parenteral ketorolac were found in either group. Two biliary leaks and one subhepatic fluid collection occurred postoperatively

We found that ASA grade I was seen in 8 in group I and 4 in group II, grade II in 12 in group I and 13 in group II, grade III was seen in 4 in group I and 7 in group II. The mean operative time was 94.2 minutes in group I and 92.6 minutes in group II. Postoperative hospital stay was 3.2 days and 4.7 days in group I and group II respectively. Abdominal pain scores after 24 hours was 4.3 and 3.5 and shoulder pain scores after 24 hours after operation was 1 and 0 in group I and group II respectively. Parenteral ketorolac consumed was 120.4 ml and 122.6 ml in group I and group II respectively. Picchio et al<sup>12</sup> assessed the role of drains in laparoscopic cholecystectomy performed for nonacutely inflamed gallbladder. After laparoscopic gallbladder removal, 53 patients were randomized to have a suction drain positioned in the subhepatic space and 53 patients to have a sham drain. The primary outcome measure was the presence of subhepatic fluid collection at abdominal ultrasonography, performed 24 h after surgery. Secondary outcome measures were postoperative abdominal and shoulder tip pain, use of analgesics, nausea, vomiting, and morbidity. Subhepatic fluid collection was not found in 45 patients (84.9 %) in group A and in 46 patients (86.8 %) in group B (difference 1.9 (95 % confidence interval -11.37 to 15.17; P = 0.998). No significant difference in visual analogue scale scores with respect to abdominal and shoulder pain, use of parenteral ketorolac, nausea, and vomiting were found in either group. Two (1.9 %) significant hemorrhagic events occurred postoperatively. Wound infection was observed in three patients (5.7 %) in group A and two patients (3.8 %) in group B.

The limitation the study is small sample size.

## CONCLUSION

Authors found that using drain in patients undergoing laparoscopic cholecystectomy offered no additional benefit.

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