

# Comparison of Postoperative Complications between Drain versus Without Drain Placement in Patients Undergoing Surgical Intervention for Gall-Stones Disease

AZAD ALI LASHARI<sup>1</sup>, ABDUL MALIK SANGRI<sup>2</sup>, FOZIA UNAR<sup>3</sup>, ALI GOHAR BOZDAR<sup>4</sup>, BUSHRA NOOR KHUHRO<sup>5</sup>, KULSOOM AZAD LASHARI<sup>6</sup>

<sup>1,2,4</sup>Professors Department of Surgery Khairpur Medical College Khairpur Mirs

<sup>3,5</sup>Assitant Professors Department of Obstetrics & Gynaecology Khairpur Medical College Khairpur Mirs

<sup>6</sup>Professor Department of Obstetrics & Gynaecology Khairpur Medical College Khairpur Mirs

Correspondence to Prof. Azad Ali Lashari E-mail: azadlashari.09@gmail.com Cell 0300-3214895

## ABSTRACT

**Aim:** To examine the frequency of complications in patients those were undergoing surgical treatment for the gall stone disease and comparison between two different procedures i.e. with and without drain placement.

**Study design:** Comparative/observational study

**Place & duration of study:** Department of Surgery, Khairpur Medical College KhairpurMirsfrom1<sup>st</sup> January 2019 to 30<sup>th</sup> June 2020.

**Methodology:** Two hundred and fifty patients of both genders underwent surgical treatment for gall stone disease was included. Patients were ages between 20-70 years. Patients were divided into 2-groups. Group I (with drain placement) and Group II (without drain placement) and comprised 125 patients equally. Symptoms and signs have been reported. In both classes, postoperative complications have been investigated. Sequencing was carried out at 3 months after surgery.

**Results:** There were 80(64%) patients were females and 45(36%) were males in group I while in group II 88(70.4%) females and 37(29.6%) males. All the patients received laparoscopic cholecystectomy. According to the complications Group II (without drain placement) had most complications than Group I (with drain placement).

**Conclusion:** The risk of complications in patients who received cholecystectomy without drainage was higher.

**Keywords:** Without drain, Drain placement, Complication, Mortality, Gall stone disease

---

## INTRODUCTION

In the bile bladder lumen and bile tree, the Gallstone disorder is the pathological condition of stones or calculus. This is a widespread globally occurring digestive disorder with 6-20 percent occurrence.<sup>1</sup> Symptomatic gallstones are definitively treated operatively. The traditional and laparoscopic techniques are both surgical. Carl Langenbuch first successfully extracted the gallbladder for stone disease in 1882.<sup>2</sup>

As treatment of choice for symptomatic gallstone disease, open cholecystectomy has increasingly been replaced by laparoscopic cholecystectomy. Better cosmetic outcomes, shorter hospitalization, a quick recovery and a return to physical activity and work all have led to this technique's success, making it the gold standard for treating cholelithiasis.<sup>3-5</sup>

The key cause of the subhepatic drainage after cholecystectomy is the fear of gallbladder fossa bile leakage that could lead to bile peritonitis. There is now a controversy over the conviction that surgical drainages include an initial warning against bile leakage, imminent bile peritonitis or intra-abdominal bleeding.

The need for drainage was often controversial in service mainly because of the risk of growing infection, pain, and stays in the hospital. Therapeutic drains are required, but there is a question of prophylactic drains. Increased wound infection in the drain community has been identified. There is also a prolonged stay in the hospital as

neither person can be released on the same day. This research is thus designed to determine the benefits and demerits of drainage in electrocystectomy patients against non-drainage and to find out which clinicopathology is justified in dry placement.

## MATERIALS AND METHODS

This observational study was conducted at Department of Surgery, Khairpur Medical College, Khairpur Mirs 1<sup>st</sup> January 2019 to 30<sup>th</sup> June 2020. A total of 250 patients of both sexes with aged from 20 to 70 years presented with gallstone disease were included. The patient's detailed medical history, including age and gender, was checked with the written consent of all patients. Patients with other abdominal disorders, previous history of gallstone disease and those not involved in participating were excluded from the study.

All the patients had received laparoscopic cholecystectomy. Patients were divided into two groups Group I consist of 125 patients and received cholecystectomy with drain and Group II consist of 125patients and received cholecystectomy without drain placement. Symptoms and signs have been reported. In both classes, postoperative complications have been investigated. Sequencing was carried out at 3 months after surgery. There has also been review of the mortality rate. All the statistical data was analyzed by SPSS 22.

---

Received on 27-10-2020

Accepted on 03-02-2021

**RESULTS**

There were 80 (64%) patients were females and 45 (36%) were males in group I while in group II, 88 (70.4%) females and 37 (29.6%) males. In Group I, 50 (40%) patients were ages between 20 to 35 years, 52 (41.6%) patients were ages 36 to 50 years and 23 (18.4%) patients had ages above 50 years. In Group II there were 48 (38.4%) patients were ages 20 to 35 years, 54 (43.2%) patients were ages 36 to 50 years and 23 (18.4%) patients were ages above 50 years. According to the residency status in Group I, 85 (68%) patients had rural residency while 40 (32%) patients had urban residency and in Group II, 75 (60%) patients with rural residence and 50 (40%) patients had urban residency. Cholecystectomy with CBD exploration done in 12 (5 Group I, 7 Group II), hypertension found in 35 patients (20 Group I, 15 Group II). Jaundice in 13 (5 in Group I and 8 Group II), Diabetes mellitus found in 40 (18 Group I, 22 Group II) [Table 1].

Symptoms were recorded in Group I and II such as porcelain gall bladder 4 and 6, hemolytic disorder 7 and 3, polyp 6 and 20, symptomatic gall stone disorder 22 and 34, with microvascular disorder 24 and 30, empyema gall bladder 24 and 30, post ERCP stone extraction 26 and 8, pancreatitis history 8 and 11, perforation 8 and 4 and traumatic gall bladder in, 12 and 4 patients respectively (Table 2).

Table 1: Demographic information of the patients

Variable	Group I (n=125)	Group II (n=125)
Gender		
Female	80 (64%)	88 (70.4%)
Male	45 (36%)	37 (29.6%)
Age (years)		
20 – 35	50 (40%)	48 (38.4%)
36 – 50	52 (41.6%)	54 (43.2%)
>50	23 (18.4%)	23 (18.4%)
Residency		
Rural	85 (68%)	75 (60%)
Urban	40 (32%)	50 (40%)
Co-morbidities		
CBD exploration	5 (4%)	5.6
Hypertension	20 (16%)	15 (12%)
Jaundice	5 (4%)	8 (6.4%)
Diabetes mellitus	18 (14.4%)	22 (17.6%)

Table 2: Symptoms associated to gall stone disease

Symptom	Group I (n=113)	Group II (n=113)
Porcelain gall bladder	4 (3.2%)	6 (4.8%)
Hemolytic disorder	7 (5.6%)	3 (2.4%)
Polyp	6 (4.8%)	20 (16%)
Symptomatic gall stone disorder	22 (17.6%)	34 (27.2%)
Microvascular disorder	24 (19.2%)	30 (24%)
Empyema gall bladder	26 (20.8%)	86.4%
Post ERCP stone extraction	8(6.4%)	11 (8.8%)
Pancreatitis history	8(6.4%)	5 (4%)
Perforation	8(6.4%)	4(3.2%)
Traumatic gall bladder	12 (9.6%)	4(3.2%)

Complications such as gastro hepatic fluid found in 19 patients (Group I 3, Group II 16), septicemia in 12 patients (3 Group I, 9 Group II), surgical site infection found in 14 (11.2%) patients in Group II and 2 (1.6%) patients in Group

I, gastro hepatic fluid found in 19 patients (Group I 3, Group II 16), bile duct injury found in 7 patients (Group I 2, Group II 5), injury to gut found in 5 patients (Group I 2, Group II 3) post-operative jaundice found in 8 patients (3 in Group I, 5 in Group II), biliary stricture found in 4 patients (Group I 1 and 3 Group B II), hematoma in 9 patients (3 Group I, 6 Group II). There was 2 deaths recorded in this study patient belongs to without drain placement group (Tables 3-4).

Table 3: Post-operative complications found in all the patients

Complications	Group I (n=125)	Group II (n=125)
SSI	2 (1.6)	14 (11.2%)
Septicemia	3 (2.4%)	9 (7.2%)
Gastro hepatic fluid	3 (2.4%)	16 (12.8%)
Hematoma	3 (2.4%)	6 (4.8%)
Injury to gut	2 (1.6%)	3 (2.4%)
Bile duct injury	2 (1.6%)	5 (4%)
Post-operative jaundice	3 (2.4%)	5 (4%)
Biliary stricture	1 (0.8%)	3 (2.4%)

p-value 0.035

Table 4: Post-operative mortality found all over the patients

Mortality	Group I (n=125)	Group II (n=125)
Yes	-	2 (1.6%)
No	125(100%)	123 (98.4%)

**DISCUSSION**

The most common condition identified world-wide is Gall stone disease and the most prevalent operation in surgical departments is surgical treatment for this malignancy.<sup>6</sup> Our analysis showed a population of 67.2% among female patients, compared to 32.8% among male patients. These findings are similar to some previous cholecystectomy study in which a significant number of female patients compared to male patients were 60 to 75%.<sup>7,8</sup>

We also found in the current study that 39.2% of people were aged 20 to 35, while 42.4% were aged 36 to 50 years. The average age in patients was 37.34 years from the age of 15 to 68 years, according to Rehman et al.<sup>9</sup> Eighty five (68%) patients were ranked according to resident status, while 40 (32%) were urban and 75 (60%) were urban residents and 50 (40%) were urban. 12 (5 Group I, 7 Group II) CBD screening cholecystectomy, 35 patients found hypertension (20 Group I, 15 Group II). Diabetes mellitus was recorded in 13 (5 in Group I and 8 Group II) (18 Group I, 22 Group II). A research by Picchio et al<sup>10</sup> indicates that our study of comorbidities is a little different.

Symptoms were recorded in Group I and II such as porcelain gall bladder 4 and 6, hemolytic disorder 7 and 3, polyp 6 and 20, symptomatic gall stone disorder 22 and 34, with microvascular disorder 24 and 30, empyema gall bladder 24 and 30, post ERCP stone extraction 26 and 8, pancreatitis history 8 and 11, perforation 8 and 4 and traumatic gall bladder in, 12 and 4 patients respectively.<sup>11</sup>

Complications such as gastro-hepatic fluid found in 19 patients (Group I 3, Group II 16), septicemia in 12 patients (3 Group I, 9 Group II), surgical site infection found in 14 (11.2%) patients in Group II and 2 (1.6%) patients in Group I, gastro hepatic fluid found in 19 patients (Group I 3, Group II 16), bile duct injury found in 7 patients (Group I 2, Group II 5), injury to gut found in 5 patients (Group I 2, Group II 3)

post-operative jaundice found in 8 patients (3 in Group I, 5 in Group II), biliary stricture found in 4 patients (Group I 1 and 3 Group B II), hematoma in 9 patients (3 Group I, 6 Group II). There was 2 deaths recorded in this study patient belongs to without drain placement group. These findings showed that in Group II the rate of complications without drainage was high relative to the drain group. Results of our studies indicate parallels to some other studies in which the complications of those patients who undergo drain cholecystectomy were poor than those who received drain-free surgical care.<sup>12-14</sup> Halim<sup>15</sup> has also reported similar findings that it is advisable not to dry out of laparoscopic cholecystectomy due to further chances of infection. In addition, Gurusamy et al<sup>16</sup> stated that the wound infection is usually more serious in drain-treated patients.

The overall mortality rate in our study was 1.6%, which were without the drain category. These findings were comparable to another study with a mortality rate of 0.75%, three of them without drainage.<sup>15</sup>

## CONCLUSION

Morbidity is higher in patients who do not have drains after cholecystectomy compared with those who have drains. The complication rate is low with placement of drains as complications are detected and treated as and when it happens while these are either missed or detected late and leads to severe morbidity, re-exploration and in one case mortality in patients when the drains are not placed. In addition, early detection and rapid and enhanced care can help reduce mortality and morbidity rates.

## REFERENCES

1. Yoo EH, Lee SY. The prevalence and risk factors for gallstone disease. *ClinChem Lab Med* 2009;47(7):795-807.
2. Traverso LW. Carl Langenbuch and the first cholecystectomy. *Am J Surg* 1976;132(1):81-2.
3. Blum CA, Adams DB. Who did the first laparoscopic cholecystectomy?. *J Minimal Access Surg* 2011;7(3):165.
4. Cuschieri A, Dubois F, Mouiel J, Mouret P, Becker H, Buess G, Trede M, Troidl H. The European experience with laparoscopic cholecystectomy. *Am J Surg* 1991;161(3):385-7.
5. Club SS. A prospective analysis of 1,518 laparoscopic cholecystectomies. *N Engl J Med* 1991;324:1073-8.
6. Abusedera MA, El-Badry AM. Percutaneous treatment of large pyogenic liver abscess. *Egypt J RadiolNucl Med* 2014;45(1):109-15.
7. Date RS, Thrumurthy SG, Whiteside S, Umer MA, Pursnani KG, Ward JB, Mughal MM. Gallbladder perforation: Case series and systematic review. *Int J Surg* 2012; 10: 63-8.
8. Karimian F, Aminian A, Mirsharifi R, Mehrkhani F. Surgical options in the management of cystic duct avulsion during laparoscopic cholecystectomy. *Patient Safety Surg* 2008, 2:17.
9. Rehman A, Sarwar AR, Sajjad A, et al. Morbidity in surgery for gall stone disease: comparison between drain placement and non-placement. *PJMHS* 2018; 12(1):
10. Picchio M, Angelis FD, Zazza S, Filippo AD, Mancini R, Pattaro G, Stipa F, Adisa AO, Marino G, Spaziani E. Drain after elective laparoscopic cholecystectomy: a randomized multicentre controlled trial. *SurgEndosc* 2012; 26:2817-22.
11. Lucarelli P, Picchio M, Martellucci J, Angelis FD, Filippo AD, Stipa F, Spaziani E. Drain after laparoscopic cholecystectomy for acute calculous cholecystitis: a pilot randomized study. *Indian J Surg* 2015.
12. Nagpal A, Goyal S, Abbey L, Singh A. Drainage in cholecystectomy : required or not? a comparative randomized study in Northern Indian subjects. *World J LaparoscopSurg* 2012;5:63-6.
13. Ishikawa K, Matsumata T, Kishihara F, Fukuyama Y, Masuda H, Kitano S. Laparoscopic cholecystectomy with and without abdominal prophylactic drainage. *Digestive Endoscopy* 2011;23:153-6.
14. Rathi PK, Shaikh AR, Kella N, Behan RB. Laparoscopic cholecystectomy without the use of drain in selected cases *JLUMHS* 2016;15:35-41.
15. Halim A, Ahmad I, Iqbal J, Khan Z. Role of drain in laparoscopic cholecystectomy. *J Med Sci (Peshawar)* 2011;19: 49-53.
16. Gurusamy KS, Samraj K, Mullerat P, Davidson BR. Routine abdominal drainage for uncomplicated laparoscopic cholecystectomy. *Cochrane Database of Systematic Reviews* 2007; 4: CD006004.