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**ORIGINAL ARTICLE**

# Comparison Between Outcome of Patients Following Saline Irrigation Versus Dry Mopping after Laparoscopic Cholecyetectomy

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## ABSTRACT

**Background: L**aparoscopic cholecystectomy is minimal invasive procedure of choice for diseases due to gall bladder diseases due to reduced morbidity, comfort and patient's early hospital discharge. Studies showed stone spillage with its retrieval from the fossa of gall bladder can be done by irrigation or be mopping with surgical gauze.

**Aims**: To Compare between outcome of patients following saline irrigation versus dry mopping after laparoscopic cholecystectomy.

**Methodology:** This was a cross-sectional study conducted at Hanif hospital from July 2019- May 2022 after taking ethical committee review. The study was conducted on 214 patients. The inclusion criteria involved age>18yrs till 60years either gender, with symptomatic gallstones. The patients with choledocholithiasis, immunocompromised, bleeding disorders were excluded.

**Results:** Out of 214 patients enrolled in study mean age of patients was 42.63 ±5.7yrs . There was n=140:74 (65.4%: 34.6%) females: males. In 86% patients with laparoscopic cholecystectomy there was no complication of biliary spillage, while 14% patients experienced spillage of stones intraoperatively. All patients with dry mopping showed less postoperative pain and were discharged early from the hospital. However, the patients with wet irrigation had postoperative moderate pain. Surgical site infection was reported in 5 patients out of 15 patients with wet irrigation compared to dry mopping n=1 with prolonged hospital stay in patients with wet irrigation die to pain and surgical site infection. There was a statistical significant correlation when compared two groups with respect to hospital stay, postoperative pain, surgical site infection. P value-0.000.

**Conclusion**: Our study has shown dry mopping to be better than wet irrigation in terms of increased postoperative pain, prolonged hospital stay & statistical significant correlation in patients with spillage of stones intraoperatively.

**Keywords:** Stones spillage, dry mopping, wet irrigation

## INTRODUCTION

Globally, laparoscopic cholecystectomy is minimal invasive procedure of choice for diseases due to gall bladder diseases due to reduced morbidity, comfort and patient's early hospital discharge. Gallstones occur in around 10-15% asymptomatic patients and 20% symptomatic patients with only 1-5% of symptomatic have complications [1-4]. In Pakistan 0.12% patients report postoperative complications secondary to laparoscopic cholecystectomy [5].

Two most common complications after laparoscopic cholecystectomy contributing to 5-40% [5] cases are the bile leakage and stone spilling intraoperatively with lost stones frequency is not known much. Bile leakage due to rupture of gall bladder contributes to 7% - 21.77% [4,5, 7] according to most studies with conversion of laparoscopic into open cholecystectomy. Studies showed stone spillage with its retrieval from the fossa of gall bladder can be done by irrigation or be mopping with surgical gauze [7, 8]. Study by Rao et al has found 9.34% spilled gall stones intraoperatively due to gall bladder perforation [8] and is avoidable by mopping or irrigation techniques. Also patients can be monitored postoperatively with signs of persistent pain reported to be 18.64% compared to control group 5.08% in study by Pankaj et al. different studies have been done and has found that retrieval of stones is possible in 63% of cases only [9, 10]. Increased surgical site infections 7.1%-11.86% have been seen in patients with spilled stones patients [5, 8].

In our study we aimed to see the outcome of patients with spillage of stones compared to non-spilling group in all patients undergoing laparoscopic cholecystectomy in our setup.

## MATERIALS AND METHODS

This is the cross-sectional study conducted at Hanif hospital from 1st July 2019- 30th May 2022 after taking ethical committee review. The study was conducted on 214 patients. The inclusion criteria involved age>18yrs till 60years either gender, with symptomatic gallstones. The patients with choledocholithiasis, immunocompromised, bleeding disorders were excluded. Patients have been given written informed consent before surgery. Surgeons with experience of more than ten years performed surgery.

Laparoscopic surgery was done by four trocar approach, and in patients with biliary spillage secondary to gall bladder perforation or any other cause, irrigation was done with saline and retrieval of stone was done by suction and drain is placed. Patients have been monitored and kept for 24-48hours and checked clinically for any pain fever and jaundice and discharged if no complications. Follow-up was done after a week, after a month and 3rd month. Cushieri scale was used to classify patients with grade 1 cholecystectomy with no problems and easily done, while grade 2 with adherences or perichole-cystitis or mucoceole. While grade 3 refers to severe peri-cholecystitis progressing to abscess formation, or fibrotoic gall bladder. Grade 4 were not included when there is conversion of laparoscopic chole into open form.

The statistical analysis was done on SPSS version 24. The patients age, gender, patients with spillage of stones frequencies and percentages were computed. Also the difficult degree was calculated by Cushieri scale was analyzed with age, gender and duration of symptomatic gallstones. The p value was calculated keeping p value <0.0005. patients were also monitored for postoperative complications like pain measured by visual analogue scale, fever, paralytic ileus, hospital stay, surgical site infection.

## RESULTS

Out of 214 patients enrolled in study mean age of patients was 42.63 ±5.7yrs (table 1). There was n=140:74 (65.4%: 34.6%) females: males. The age range of the patients with spilled stones was 31-42yrs n=11, 43-60yrs n=19. Most of the patients intraoperatively were Cushieri grade2 and grade3 but conversion to open was not required in any of the patient.

In 86% patients with laparoscopic cholecystectomy there was no complication of biliary spillage, while 14% patients

experienced spillage of stones intraoperatively (table 1). Patients with biliary spillage have been divided into two groups randomly group 1: n=15 dry mopping was done and remaining 15 in which wet irrigation was done with drain placement postoperatively depending on patient's condition.

Patients were monitored postoperatively for wound site pain, fever, jaundice, prolonged hospital stay and surgical site infections. All patients with dry mopping showed less postoperative pain and had no signs of fever and jaundice and were discharged early from the hospital. However, the patients with wet irrigation had postoperative moderate pain mostly VAS scores 5-7 and an uneasiness of drain placed. Surgical site infection was reported in 5 patients out of 15 patients with wet irrigation compared to dry mopping n=1. There was prolonged hospital stay in patients with wet irrigation die to pain and surgical site infection while the remaining were discharged early.

There was a statistical significant correlation when compared two groups with respect to hospital stay, postoperative pain, surgical site infection. P value-0.000. (table 2)

Table 1: Demographics

| Demographic | Frequency (percentages) n=214 |
|---|---|
| Age in yrs Mean± SD | 42.63 ±5.7yrs |
| Gender F: M | 140:74 (65.4%: 34.6%) |
| Stones spillage | 14% |
| Surgical site infection | 6(2.8%) |
| Prolonged hospital stay | 13(6.1%) |

Table 2:

| Stones spilled | Dry mopping n=15 | Wet irrigation n=15 | P value |
|---|---|---|---|
| Age in yrs<br>31-42yrs<br>43-60yrs | <br>5<br>10 | <br>6<br>9 | <br>0.346 |
| Gender<br>Male<br>Female | <br>5<br>10 | <br>5<br>10 | <br>0.988 |
| Postoperative pain (VAS)<br>Mild<br>Moderate<br>No pain | <br>9<br>-<br>6 | <br>3<br>12<br>- | <br><br>0.000 |
| Surgical site infection<br>Yes<br>no | <br>1<br>14 | <br>5<br>10 | <br><br>0.000 |
| Hospital stay<br>Prolonged<br>Early discharge | <br>1<br>14 | <br>11<br>4 | <br><br>0.000 |

## DISCUSSION

Around 10-15% of patients presents with gall stones globally and laparoscopic cholecystectomy being one of thus the commonest surgery performed by general surgeons especially in eastern countries involving Pakistan [10-15]. Complications during and after procedure are sequelae which may occur like the bile leakage secondary to bile duct injury and stones spillage intraoperatively [16-18]. Our study showed 14% incidence of stones intraoperatively with retrieval of stones was done in almost all the cases. This increased incidence was due to peri-cholecystitis or abscess formation or fibrotic gall bladder. Patients however have been managed intraoperatively with either the dry mopping or wet irrigation with drain placement respectively. Study by Pankaj et al has shown that there is spillage of stones and bile in 67.8% of cases.

Our study has shown increased incidence of gall stones in females similar to most of the studies but spillage of stones among females and males appeared same (n=15:15). Studies have shown increased incidence among females 64.41% vs 35.59% males too[5]. However, the study by Akhter et al has shown slightly increased to equal incidence among males and females [11]. The patients age and gender when correlated with spillage of stones did not show any statistical significance. Another descriptive study has shown increased incidence among age 39.2yrs [12].

The two standard methods of management of spillage of stones dry mopping and wet irrigation were done [16- 20]. Patients have been followed and our study too showed more postoperative pain in patients with wet irrigation and drain placed compared to patients with dry mopping done. None of the patients secondary to Cushieri scale was converted to open cholecystectomy. Saleem et al has found 43.3% patients having more pain due to drain placement compared to 16.6% patients without drain placed [13]. Also increased hospital stay and a statistical significant correlation in patients with who have drain placed compared to patients in which drain wasn't placed. Our study has also shown statistical correlation among patients among the patients with increased pain scores and wet irrigation a drain was placed compared to patients with dry mopping. There was no mortality in our study and no need of conversion of laparoscopic cholecystectomy to open cholecystectomy.

## CONCLUSION

Our study has shown dry mopping to be better than wet irrigation in terms of increased postoperative pain, prolonged hospital stay & statistical significant correlation in patients with spillage of stones intraoperatively.

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