

Assessment of Proportion of Spillage of Gall Stones in Laparoscopic Cholecystectomy: A Clinical Study

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ABSTRACT

Introduction: Laparoscopic cholecystectomy (LC) has replaced open cholecystectomy in the treatment of cholelithiasis. The diagnosis is often delayed due to the unusual site of the abscess formation along with the lack of awareness of stone spillage during previous cholecystectomy. Hence, the present study was undertaken for assessing proportion of spillage of gall stones in laparoscopic cholecystectomy.

Materials & Methods: A total of 200 patients scheduled to undergo laparoscopic cholecystectomy were enrolled in the present study. The patients were interviewed as per Proforma. All the patients underwent laparoscopic cholecystectomy under the hands of skilled and experienced surgeons. Data was recorded as per proforma and events were summarized. This data included history, clinical features, history, findings of laboratory investigations and imaging and intraoperative factors that lead to spillage of gall stones.

Results: In 29.5 percent of the patients (59 patients), spillage was present, while in the remaining proportion of the patients, spillage was absent. In the present study, among the patients within the age group of 18 to 30 years and 31 to 40 years, spillage was found to be present in 9 and 11 patients, respectively. Among the patients of the age group of 41 to 50

years and 51 to 60 years, spillage was found to be present in 18 patients and 11 patients. Non-significant results were obtained while assessing the incidence of spillage among patients divided based on age group.

Conclusion: Interactive role of both patients related, and technical factors are responsible for occurrence of gallstone spillage.

Key words: Gallstones, Spillage.

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INTRODUCTION

Laparoscopic cholecystectomy (LC) has replaced open cholecystectomy in the treatment of cholelithiasis. It is now considered the first option and has become the "gold standard" in treating benign gall bladder disease. Most complications occur within the first few months, but presentations up to ten years after the procedure have also been documented.^{1,2}

The problem of spilled stones has been uniquely found in laparoscopic cholecystectomy. Due to the low incidence of complications, conversion to open surgery is seldom considered. Similarly, incidental discovery of spilled stones in the absence of complications is not an indication for laparotomy, because the majority of cases remain asymptomatic.^{3,4}

The diagnosis is often delayed due to the unusual site of the abscess formation along with the lack of awareness of stone

spillage during previous cholecystectomy. Only a high index of clinical suspicion may lead to correct identification. Ultrasound, computed tomography, and magnetic resonance imaging (MRI) are valuable diagnostic tools. Radiologists should consider spilled stones as a potential source of recurrent abscesses in any patient presenting months or years after laparoscopic cholecystectomy.⁵⁻⁸ Hence; the present study was undertaken for assessing proportion of spillage of gall stones in laparoscopic cholecystectomy.

MATERIALS & METHODS

Present study was conducted in the Department of Surgery, Rama Medical College Hospital and Research Centre, Hapur, UP (India) and it included assessment of proportion of spillage of gallstones in patients undergoing laparoscopic cholecystectomy. Ethical

approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. A total of 200 patients scheduled to undergo laparoscopic cholecystectomy were enrolled in the present study. The patients were interviewed as per Proforma. All the patients underwent laparoscopic cholecystectomy under the hands of skilled and experienced

surgeons. Data was recorded as per proforma and events were summarized. This data included history, clinical features, history, findings of laboratory investigations and imaging and intraoperative factors that lead to spillage of gall stones. All the results were analyzed by SPSS software. Chi- square test and Mann Whitney U test were used for assessment of level of significance.

Graph 1: Gender-wise distribution of patients

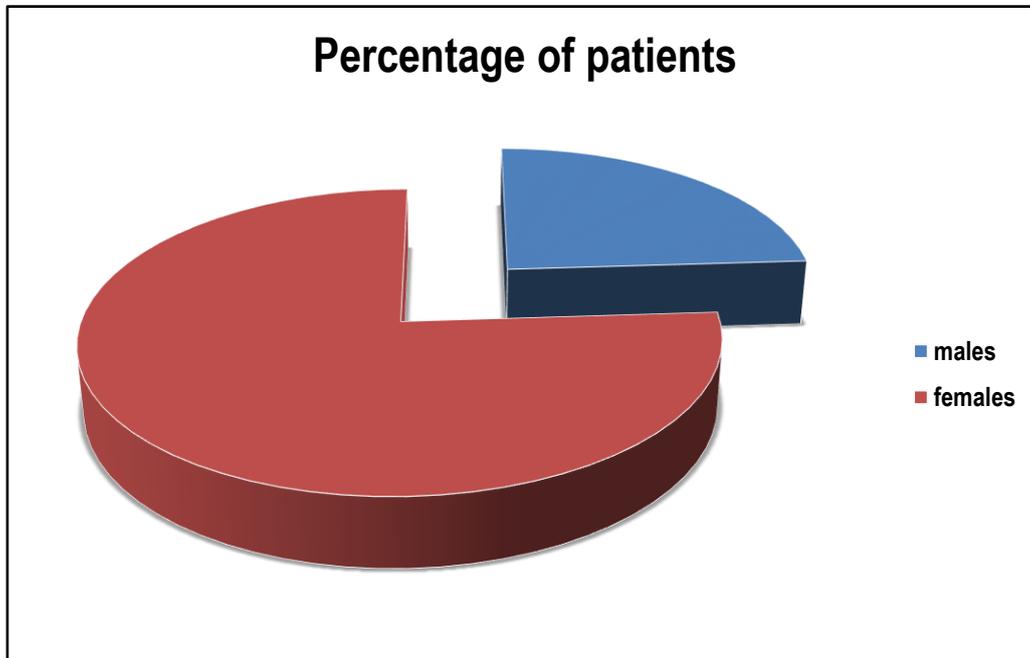


Table 1: Age-wise distribution of patients

| Age group (years) | Frequency | Percentage |
|-----------------------------|----------------|------------|
| 18- 30 | 27 | 13.5 |
| 31- 40 | 40 | 20 |
| 41- 50 | 56 | 28 |
| 51- 60 | 44 | 22 |
| 61- 70 | 33 | 16.5 |
| Total | 200 | 100 |
| Mean age (years)± SD | 48.4±12 | |

Table 2: Overall Proportion of gall stone spillage among patients

| Spillage | Frequency | Percentage of patients |
|----------------|-----------|------------------------|
| Present | 59 | 29.5 |
| Absent | 141 | 70.5 |

Table 3: Incidence of spillage among patients divided based on age group.

| Age group (years) | Spillage present | Spillage absent | p- value |
|-------------------|------------------|-----------------|----------|
| 18- 30 | 9 | 18 | 0.117 |
| 31- 40 | 11 | 29 | |
| 41- 50 | 18 | 38 | |
| 51- 60 | 11 | 33 | |
| 61- 70 | 10 | 23 | |

RESULTS

In the present study, a total of 200 patients who underwent laparoscopic cholecystectomy were enrolled and analysed. Mean age of the patients was found to be 48.4 years. 28 percent of the patients belonged to the age group of 41 to 50 years. 20 percent of the patients belonged to the age group of 31 to 40 years. 13.5 percent and 22 percent of the patients belonged to the age group of 18 to 30 years and 51 to 60 years. 76 percent of the patients were females while the remaining were males.

In the present study, in 29.5 percent of the patients (59 patients), spillage was present, while in the remaining proportion of the patients, spillage was absent. In the present study, among the patients within the age group of 18 to 30 years and 31 to 40 years, spillage was found to be present in 9 and 11 patients, respectively. Among the patients of the age group of 41 to 50 years and 51 to 60 years, spillage was found to be present in 18 patients and 11 patients. Non-significant results were obtained while assessing the incidence of spillage among patients divided based on age group.

DISCUSSION

Despite all precautions, gallbladder perforation and stone spillage still occur in some patients. In these cases, it is crucial to minimize the number of stones spilled, attempt to retrieve all stray stones and to irrigate the peritoneal cavity. This serves the purpose of diluting any infected bile and may allow the stones to be washed up into the suction system. Some surgeons advocate the use of clips or an endoloop to close the hole in the gallbladder, while others will introduce a retrieval bag and place it on the liver to receive all spilled stones. In some situations, it may be necessary to use an extra port adjusted to a 30- or 45-degree scope or use a fan liver retractor to improve visualisation.⁹⁻¹²

In the present study, a total of 200 patients who underwent laparoscopic cholecystectomy were enrolled and analysed. Mean age of the patients was found to be 48.4 years. 28 percent of the patients belonged to the age group of 41 to 50 years. 20 percent of the patients belonged to the age group of 31 to 40 years. 13.5 percent and 22 percent of the patients belonged to the age group of 18 to 30 years and 51 to 60 years. 76 percent of the patients were females while the remaining were males. Vaidya PA analysed operative complications associated with Laparoscopic Cholecystectomy. In the study, 82% patients had chronic calculus cholecystitis which was supported by histopathological report. It was followed by acute calculus cholecystitis (10%), acute Acalculus cholecystitis (5%), GB polyp (2%), and empyema (1%). 32 patients (32%) were male, and 68 patients (68%) were female. The average patient's age undergoing Laparoscopic Cholecystectomy was ranging between 8 to 75 years. 11 patients (11%) were above the age 60 years. The average duration of the surgery was 88.13 minutes (range 45 – 300mins). The most common complication encountered in this study was gall stone and bile spillage intraperitoneally. Common bile duct injury, bleeding from liver, hollow viscus injury are other intraoperative complications encountered. Proper preoperative work up, knowledge of possible complications and adequate training makes this operation a safe procedure with favorable result and lesser complications.¹³

Patel D evaluated a safe and inexpensive technique of retrieval of gallbladder specimen after Laparoscopic Cholecystectomy. Three

hundred patients with symptomatic uncomplicated cholelithiasis admitted in the department of surgery, Gayatri Surgical hospital, were included in the study. Dissected gall bladder in all three hundred cases (213 (71%) females and 87 (29%) males, were retrieved safely through the 10mm umbilical port in endobag. Perforation or leaking of the endobag, slipping of the gallbladder specimen or stones from the endobag was not observed in the study.¹⁴

In the present study, in 29.5 percent of the patients (59 patients), spillage was present, while in the remaining proportion of the patients, spillage was absent. In the present study, among the patients within the age group of 18 to 30 years and 31 to 40 years, spillage was found to be present in 9 and 11 patients, respectively. Among the patients of the age group of 41 to 50 years and 51 to 60 years, spillage was found to be present in 18 patients and 11 patients. Non-significant results were obtained while assessing the incidence of spillage among patients divided based on age group. Pankaj K et al examined 118 patients with clinical presentation of cholelithiasis. They included all the patients undergoing Laparoscopic Cholecystectomy for symptomatic gall stone disease within the age group of 30-55 years. Out of 59 patients of spillage group 57 (96.6%) has spillage of bile alone or with gallstones and 2 (3.4%) had no spillage of bile. Forty-two patients (71.2%) had spillage of stones either alone or with bile and 17 (28.8%) had no spillage of stones. Forty (67.8%) patients had spillage of both bile and gall stones. Authors observed that 17 (28.8%) patients have spillage of bile only, 2 (3.4%) had spillage of stones only while 40 (67.8%) patients had spillage of both bile and gall stones.¹⁵

CONCLUSION

Interactive role of both patients related, and technical factors are responsible for occurrence of gallstone spillage. However, further studies are recommended.

REFERENCES

1. Sansiya K, Dodia H, Patel D, Patel N. Evaluation of Gallbladder Content Spillage in Laparoscopic Cholecystectomy. IOSR J Dent Med Sci (IOSR-JDMS). 2015; 14(8): 105-22.
2. Helme S, Samdani T, Sinha P. Complications of spilled gallstones following laparoscopic cholecystectomy: a case report and literature overview. J Med Case Reports. 2009; 3: 8626.
3. Zehetner J, Shamiyeh A, Wayand W. Lost gallstones in laparoscopic cholecystectomy: all possible complications. Am J Surg. 2007; 193(1): 73-8.
4. Arishi AR, Rabie ME, Khan MSH, et al. Spilled Gallstones: The Source of an Enigma. JSLS. 2008; 12(3): 321-5.
5. Pappasavvas PK, Caushaj PF, Gagne DJ. Spilled gallstones after laparoscopic cholecystectomy. J Laparoendosc Adv Surg Tech A. 2002; 12(5): 383-6.
6. Schafer M, Suter C, Klaiber C, Wehri H, Frei E, Krahenbuhl L. Spilled gallstones after laparoscopic cholecystectomy. A relevant problem? A retrospective analysis of 10,174 laparoscopic cholecystectomies. Surg Endosc. 1998; 12: 291-3.
7. Memon MA, Deeik RK, Maffi TR, Fitzgibbons RJ Jr. The outcome of unretrieved gallstones in the peritoneal cavity during laparoscopic cholecystectomy. A prospective analysis. Surg Endosc. 1999; 13(9): 848-57.

8. Brueggemeyer MT, Saba AK, Thibodeaux LC. Abscess formation following spilled gallstones during laparoscopic cholecystectomy. *JLS*. 1997; 1(2): 145–52.
9. Zorluoglu A, Ozguc H, Yilmazlar T, Guney N. Is it necessary to retrieve dropped gallstones during laparoscopic cholecystectomy? *Surg Endosc*. 1997; 11: 64.
10. Cline RW, Poulos E, Clifford EJ. An assessment of potential complications caused by intraperitoneal gallstones. *Am Surg* 1994; 60: 303–5.
11. Hoecke MV, Lissens P, Vuylsteke M, Verdonk R. Lost gallstones: a relaparoscopic solution to laparoscopic pollution. *Acta Chirurgica Belgica*. 2014; 104(1): 104–6.
12. Albrecht RM, Eghtestad B, Gibel L, Locken J, Champlin A. Percutaneous removal of spilled gallstones in a subhepatic abscess. *Am Surg*. 2002; 68(2): 193–5.
13. Vaidya P, Vaidya KA, Hubli P. A study on operative complications associated with laproscopic cholecystectomy. *Int J Intg Med Sci*. 2015; 2(1): 49-54.
14. Patel D. A safe and inexpensive technique of retrieval of Gallbladder specimen after laparoscop. *American Journal of Advanced Medical & Surgical Research*, 2015; 1(1): 18-21.
15. Pankaj K, Dubey V, Choudhuri AD. Patients Having Spillage of Bile and/or Gall Stone During Laparoscopic Cholecystectomy - Short Term Outcome. *IJCMR* 2018; 5 (7): 1-8.

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