

Patients Having Spillage of Bile and/or Gall Stone During Laparoscopic Cholecystectomy - Short Term Outcome

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ABSTRACT

Introduction: Biliary tract disorders are one of the commonest abdominal conditions that the surgeons, gastroenterologists and radiologists come across. Among these, chronic cholecystitis associated with cholelithiasis is a frequently encountered pathology. Laparoscopic surgery is now the gold standard in the management of gallbladder diseases as for many other surgical conditions. Two operative complications, namely bile duct injury and complications due to spillage of stone/bile within the peritoneal cavity are reported to occur with greater frequency during laparoscopic cholecystectomy. Study aimed to evaluate and compare the demographic profile, preoperative and postoperative clinical, hematological, biochemical and radiological parameters in patients with spillage of bile and/or gallstone with those not having any spillage.

Material and Methods: The present study was performed on 118 patients with clinical presentation of cholelithiasis who were seen in general surgery OPD and ward of B.R.Singh Hospital and Centre For Medical Education and Research, Eastern Railway, Sealdah, Kolkata. We included all the patients undergoing laparoscopic cholecystectomy for symptomatic gall stone disease within the age group of 30-55 years. We excluded immunocompromised patients, patients on immunosuppressive therapy, those having preoperative fever and associated choledocholithiasis.

Results: Out of 59 patients of spillage group 57(96.6%) had 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. We also observed that 17 patients (28.8%) had spillage of bile only, 2(3.4%) had spillage of stones only while 40 (67.8%) had spillage of both bile and gall stones.

Conclusion Gallbladder content spillage is a common occurrence and whenever it occurs, the goal of the surgeon should be to manage the complications with minimal harm to the patients and to reduce the unwanted consequences. Surgeon should be very careful and must attempt to remove all visible stones and irrigate abdominal cavity.

Keywords: Spillage of Bile, Gall Stone, Laparoscopic Cholecystectomy

INTRODUCTION

Biliary tract disorders are one of the commonest abdominal conditions that the surgeons, gastroenterologists and radiologists come across. Among these, chronic cholecystitis associated with cholelithiasis is a frequently encountered pathology. Gallstones are present in about 3-6% of adult Indian population.¹ Cholecystectomy is a common surgery

performed by general surgeons. The term chronic cholecystitis refers to an ongoing or recurrent inflammatory process involving the gall bladder. In majority of patients (>90%), gall stones are the causative factor and lead to recurrent episodes of cystic duct obstruction manifesting as biliary pain or colic.² Laparoscopic surgery is now the gold standard in the management of gallbladder diseases as for many other surgical conditions.³ The advantages of laparoscopic over open cholecystectomy are many as reported throughout the world and includes less post operative pain, earlier return of bowel function, shorter length of hospital stay, earlier return to full activity, improved cosmesis and decreased overall cost.³⁻⁷ Laparoscopic cholecystectomy is however not without drawbacks.

Two operative complications, namely bile duct injury and complications due to spillage of stone/bile within the peritoneal cavity are reported to occur with greater frequency during laparoscopic cholecystectomy.⁸⁻¹⁰ Several studies have shown show that the incidence of spilled gallstones during laparoscopic cholecystectomy is about 5-40% of the surgeries performed, while incidence of stone loss is unknown.¹¹

In our study we have compared the demographic profile, preoperative and postoperative clinical, hematological, biochemical and radiological parameters in patients with spillage of bile and/or gallstone with those not having any spillage.

MATERIAL AND METHODS

The present study was performed on 118 patients with clinical presentation of cholelithiasis who were seen in general surgery OPD and general surgery ward of B.R.Singh Hospital and Centre For Medical Education and Research,

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Eastern Railway, Sealdah, Kolkata. Informed written consent and ethics committee approval was obtained prior to the surgery. These patients of cholelithiasis were primarily examined in the outpatient department and prepared for pre anaesthetic check-up (PAC). A detailed history and relevant information were collected from the patient and relatives like onset of pain, duration, progression, associated fever, vomiting and jaundice. After getting PAC fitness for surgery, admitted in the ward for further evaluation if needed and surgery is carried out. Besides, information like place of residence, family history, personal history, drug intake, previous surgical history etc. were obtained. We included all the patients undergoing laparoscopic cholecystectomy for symptomatic gall stone disease within the age group of 30-55 years. We excluded immunocompromised patients, patients on immunosuppressive therapy, those having preoperative fever and associated choledocholithiasis. After undergoing laparoscopic cholecystectomy all the patients were thoroughly examined and relevant complaints were noted in postoperative period. On the 2nd postoperative day, we sent blood for serum electrolytes and a complete haemogram in all the patients undergoing laparoscopic cholecystectomy. Patients were discharged at postoperative day 2 if no complications occurred. Patients were reviewed on the 7th postoperative day at OPD and a liver function test was done in all the patients having spillage of bile and/or gall stone and in some patients in the no spillage group who complained of fever, vomiting and abdominal distention. Wound was evaluated and sutures were removed if wound was healthy. Any purulent collection if found, was drained and was sent for culture and sensitivity. Patients were again reviewed after 1 month with biopsy report. Ultrasonography of whole abdomen was done in all patients in spillage group and patients with complaints of abdominal pain, vomiting and dyspepsia at 1 month, when patients came for biopsy report review. Final assessment was done after 3 months from surgery to assess any complications.

STATISTICAL ANALYSIS

Statistical Package for Social Sciences (SPSS, Inc., Chicago, Illinois) version 18.0 was applied to confirm statistical significance of the data obtained. Descriptive statistics like mean and percentages were obtained for interpretation of data.

RESULTS

In the present study, 118 patients were studied with the age from 30 to 55 years. The mean age of patients in our study was 45.08 years. The non-spillage group had 41 (69.49%) females and 18(30.51%) male patients. While the spillage group had 38 (64.41%) females and 21 (35.59%) male patients. Out of 59 patients of spillage group 57(96.6%) patients had 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. We also observed that 17 patients (28.8%) had

spillage of bile only, 2(3.4%) had spillage of stones only while 40 (67.8%) had spillage of both bile and gall stones. In this study, 56(94.92%) patients in non-spillage group had no persistent abdominal pain while 3 (5.08%) had persistent pain. In spillage group, 11(18.64%) had persistent pain while 48(81.36%) had no postoperative pain. The p value was 0.023 which was statically significant suggesting spillage of gall bladder content is associated with more post operative abdominal pain. In this study, 58(98.31%) patients in non-spillage group had no fever while 1 patient (1.69%) had fever. In spillage group, 10 patients (16.95%) had fever while 49(83.05%) had no fever. The p value was 0.004, statically significant suggesting spillage of gall bladder content is associated with postoperative fever. Fifty nine (100%) patients in non-spillage group had no postoperative ileus. In spillage group, 6 patients (10.17%) had postoperative ileus while 53(89.83%) had no postoperative ileus. The p value was 0.012, significant suggesting spillage of gall bladder content is associated with postoperative ileus. Fifty eight (98.31%) patients in non-spillage group had no leukocytosis while 1 (1.69%) had leucocytosis. In spillage group, 6 patients (10.17%) had leucocytosis while 53(89.83%) had no leucocytosis. The p value was 0.051 which was not significant suggesting leukocytosis is not clinically significant with spillage of gall bladder content. Fifty nine (100%) patients in non-spillage group had no postoperative wound (port site) infection. In spillage group, 7(11.86%) had postoperative wound (port site) infection while 52(88.14%) had no port site infection. The p value was 0.006 which was significant suggesting spillage of gall bladder content is associated with postoperative wound (port site) infection.

In this study, the mean postoperative day of drain removal was 1.20 day in non-spillage group While it was 1.36 in spillage group. However statistically, postoperative day of drain removal was not found to be related to spillage of gall bladder content.

The mean postoperative day of discharge was 2.29 in non-spillage group while it was 2.59 with p value 0.097 which is statically non-significant. Hence, postoperative day of discharge is not related to spillage of gall bladder content.

DISCUSSION

Biliary tract disorders are one of the commonest abdominal conditions that the surgeons, gastroenterologists and radiologists come across. Gallstones are present in about 10-15% of the adult population worldwide and 3-6% of adult Indian population. Cholecystectomy is a common surgery performed by general surgeons. Laparoscopic cholecystectomy is the treatment of choice for cholelithiasis. Certain situations are related to higher risk of gallbladder perforation during laparoscopic cholecystectomy.

This includes acutely inflamed gallbladders which have friable tissue which is susceptible to tear.

Dense adhesions around the gallbladder make dissection potentially more difficult, and a tense, distended gallbladder that has not been decompressed is at risk of perforation.

This may occur when the gallbladder is manipulated by

laparoscopic instruments or during dissection from the liver bed. Spilled stones may also be caused by the slipping of the cystic duct clip or the tearing of the gallbladder when it is being retrieved from the port site.

In our study of 118 patients, we tried to find what would happen if contents of bile gets spilled during laparoscopic cholecystectomy and what course of action should be taken during these circumstances.

In this study, patients had a mean age of 45.08 years ranging from 30 to 55 years. Out of 118 patients, there were 79(66.95%) females and 39(33.05%) males suggesting cholelithiasis is more common in females.

In the study conducted by Jasim et al¹² mean age was 38.6 years and female patients were 84% while male patients comprised 16%. The difference in mean age can be explained on the basis of difference in inclusion and exclusion criterion. In our study, out of 59 patients of bile spilling group, 57(96.6%) had spillage of either bile alone or with gallstones and 2 patients (3.4%) had no spillage of bile. Fourty two(71.2%) patients in spillage group had spillage of stones either alone or with bile and 17 (28.8%) had no spillage of stones. In a study by Jasim et al¹³, bile spillage was present in 97% of patients, gallstone spillage was 47% and 3% had pus spillage.

So in our present study occurrence of stone spillage is more than the mentioned studies. However, there is no significant difference in terms of complications between two studies. It is the retained stones in peritoneal cavity which might be left after saline irrigation are more important for developing complications rather than occurrence of stone spillage.

In our study, if patients had been given tablet paracetamol qid for 3 or more days, abdominal pain has been considered significant and recorded. In this study, in spillage group, 11(18.64%) had persistent abdominal pain while 48(81.36%) had no postoperative pain. The p value was 0.023 which was statically significant suggesting spillage of gall bladder content is associated with more post operative abdominal pain. In study conducted by Jasim et al¹³, only 1(2.94%) patient had persistent abdominal pain. In this present study, temperature >100°F after 48 hours from surgery has been taken into consideration.

In spillage group of this study, 10(16.95%) had fever while 49(83.05%) had no fever. The p value was 0.004 which was statically significant suggesting spillage of gall bladder content is associated with postoperative fever.

In the study conducted by Rice et al¹⁴, 18% of patients in spillage group had fever with p value <0.001.

Ileus for more than 24 hours was considered significant. In spillage group, 6(10.17%) had postoperative ileus while 53(89.83%) had no post operative ileus. The p value was 0.012, and was statically significant. So spillage of gall bladder content is associated with post operative ileus.

In the study conducted by Rice et al¹⁴, 9(1.3%) had ileus in non-spillage group while 4(1.4%) had ileus in spillage group. However, the result of that study was statically insignificant. Total Leucocyte Count (TLC) >10,000 has been considered significant in this study. Fifty Eight (98.31%)

patients in non- spillage group had no leukocytosis while one patient (1.69%) had leukocytosis. In spillage group, 6 patients had (10.17%) leukocytosis while 53(89.83%) had no leukocytosis. The p value was 0.051 which was statically not significant suggesting spillage of gallbladder content is not associated with leukocytosis, similar to the study conducted by Rice et al¹⁴.

In spillage group of this study, seven patients (11.86%) had wound (port site) infection while 52(88.14%) had no port site infection. The p value was 0.006 which was statically significant suggesting spillage of gall bladder content is associated with post operative wound (port site) infection. In the study conducted by Jasim et al¹³, 3(8.8%) patients developed port site infection.

Mean postoperative drain removal day was 1.36 days with p value 0.486 which is statically non significant. In a study by Memon MA et al¹² mean postoperative drain removal day was 2.5.

Mean postoperative stay was 2.59 days ranging from 2 to 8 days with p value 0.097, statically insignificant.

In a study by Jasim et al¹⁵ mean postoperative hospital stay was 2 days. So, in this study mean postoperative hospital longer than other studies probably due to different protocols for discharging the patient.

No patients in our study developed any jaundice, dyselectrolytemia or intra- abdominal abscess. All this findings can be attributed to meticulous removal of all stones, thorough irrigation of peritoneal cavity with saline, good antibiotic coverage and judicious use of USG- whole abdomen to rule out any collection.

In the study by Jasim et al¹⁵, 8.8% had developed intra-abdominal abscess. Complications are more common after spillage of both bile and stones rather than bile only. Gallbladder spillage during laparoscopic surgery can be a cause of morbidity. So every attempt should be made to prevent it.

If spillage occurs, first and foremost thing to do is to do normal saline irrigation of peritoneal cavity and aspiration. All attempts should be made to retrieve all gall stones laparoscopically. It should not be considered as an indication to convert the procedure to open one. Following steps are recommended during laparoscopic cholecystectomy in case of spillage:

Informed consent from patient and family should be obtained. They should be told that dropped stones are common depending on the size of stones and condition of the gallbladder wall and liver bed.

All effort should be made by the surgeon to retrieve the gallstones and the peritoneum should be irrigated with copious saline. In case of spillage, there is no need to convert the laparoscopic procedure to a laparotomy for spilled stones, but it is essential to document spilled stones in the operation notes.

All possible complications and there symptoms should be told to the patient. The surgeon should keep a long term follow up of such patients unlike other routine cholecystectomy, as there is possibility of delayed complications.

In view of confusing delayed clinical presentation during post-op period, surgeon should be alert to rule out possible complications due to spillage and manage them accordingly.

CONCLUSION

The gold standard treatment for cholelithiasis is Laparoscopic cholecystectomy. Gallbladder perforation generally occurs as a result of intraoperative retraction, dissection and extraction of gallbladder especially when gallbladder is acutely inflamed and fragile and there is peri-gallbladder omental adhesions. Gallbladder content spillage is a common to occur and if it occurs, the aim of the surgeon should be to manage these complications with least harm to the patients and to reduce unwanted consequences. Surgeon should be very careful to remove all visible stones and should irrigate abdominal. If spillage occurs it should be documented, thorough irrigation of peritoneal cavity should be done and patients should be kept under close observation. There is no indication for regular conversion to open surgery just for removal of spilled gallstones. Complications can also present late with septic features in some patients. They are more common after spillage of both bile and stones. Most of the complications of spillage can be managed by minimal invasive techniques like percutaneous drainage of abscess. However, laparotomy may be needed to address large abscess formation with mass within it.

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