



# Biliary Collection After Subtotal Cholecystectomy: Unveiling a Hidden Complication Through Diagnostic Laparoscopy

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## KEYWORDS

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## ABSTRACT

Cholecystectomies have risen to become one of the more commonly practiced procedures, Laparoscopic cholecystectomy is considered the gold standard for treatment of benign gallbladder diseases, Acute cholecystitis can complicate this laparoscopic cholecystectomy, necessitating a switch in technique or conversion to open surgery. In such challenging scenarios, subtotal cholecystectomy (STC) serves as a "rescue" procedure. Recognized as a last resort technique by many surgeons, the decision to employ STC is crucial to prevent severe complications. This report discusses a case where biliary collection was diagnosed intraoperatively during a diagnostic laparoscopy prompted by abdominal discomfort on postoperative day 10. Such cases underscore the importance of vigilant monitoring and flexible surgical strategies in managing complications arising from laparoscopic cholecystectomy.

## CONCLUSION

This case presented, addresses one such difficulty during the intraoperative and postoperative periods wherein an unusual complication of bile leak that could not be identified. Even after so much research on gall bladder surgery, each case proves to be a challenging one with scope to learn other newer techniques. Subtotal cholecystectomy is an important tool for use in challenging gallbladders and accomplishes morbidity rates equivalent to those reported for total cholecystectomy in simple cases.

## 1. INTRODUCTION:

Laparoscopic cholecystectomy is widely recognized as the preferred method for treating nonmalignant gallbladder diseases. (1) This technique can be successfully applied in planned cholecystectomies and emergency cases. (2) However, the presence of acute cholecystitis, particularly when it's challenging, can alter this approach, leading to a switch in technique or an open conversion. Factors that indicate a difficult cholecystectomy include the need to switch from laparoscopic to open surgery, a procedure time exceeding 180 minutes, blood loss over 300 ml, and the immediate requirement for a more experienced surgeon. (3)

Subtotal cholecystectomy (STC) is considered a crucial "rescue" procedure for both surgeons and patients, allowing safe completion of surgery. Both open and laparoscopic approaches to STC have been documented. Many surgeons regard this technique as a last resort and emphasize the critical decision-making involved in its application to prevent severe complications. There is

growing demand for laparoscopic STC during challenging laparoscopic cholecystectomies, as difficult cases pose a higher risk of Bile Duct Injury, which is three to five times more likely in laparoscopic procedures compared to open surgery.

In this report we discuss about a case where biliary collection was diagnosed intra operatively when a diagnostic laparoscopy was performed since patient complained of abdominal discomfort on post operative day 10.

## 2. CASE REPORT

A 25 yr old female presented with history of right upper quadrant pain for 3 days which is non radiating, and history of nausea and vomiting for 3 days with no other complaints of fever, chills or rigor. On examination patient was found to have pallor and mild dehydration. On examining the abdomen, it was soft, tenderness was noted over the right hypochondrium, Murphy's sign was negative. X ray abdomen erect showed 2 calculi in the gall bladder region. USG abdomen showed 2 calculi



measuring 5.2 x 3.4 mm and 6.1 x 5.5 mm in the lumen of the gallbladder with no IHBR dilation. MRCP showed no

evidence of CBD calculi. Hence the patient was taken up for laparoscopic cholecystectomy.



**Figure 1: Frozen Calot's triangle found intraoperatively**

Laparoscopic subtotal cholecystectomy was performed. Patient was stable after the procedure for 5 days. After which she developed mild abdomen discomfort and mild abdominal distension. USG showed moderate to large ascites, (?) partial cholecystectomy with CBD not dilated and not well visualized. These findings were also

confirmed with MRCP. Patient gained weight in the subsequent days while the vitals were stable and DT of bilious fluid of volume less than 30 cc on POD 10. On POD 11, the patient was taken up for diagnostic laparoscopy since abdomen pain and distention persisted in spite of medical management.



**Figure 2: Intra operative findings: localised collection of bile of approx. volume 10 litres was obtained without leak bring identified. Collection was drained and a drain tube was placed.**

Patient improved symptomatically post drainage. Patient was discharged on POD 5 following drainage after removing the drain tube.

### 3.DISCUSSION

In recent years there has been a significant increase in the rate of laparoscopic cholecystectomy (LC). This shift

towards laparoscopic procedures reflects advancements in surgical techniques and technology, making it the preferred method for gallbladder removal in many cases. Alongside this trend, there has also been a corresponding increase in the rates of laparoscopic subtotal cholecystectomy (LSTC), which saw an increase from 0.12% to 0.28%. (4) This rise indicates a growing



acceptance and utilization of subtotal cholecystectomy in situations where a complete laparoscopic procedure may not be feasible due to factors such as advanced fibrosis and inflammation.

The literature reports varying incidences of difficult cholecystitis, ranging from 10–15% of all cases of acute calculous cholecystitis. (6) The classification of surgical difficulty depends on several factors, including the severity of the disease, the presence of adhesions altering anatomical landmarks, the surgeon's experience with laparoscopic techniques, and the availability of appropriate surgical instruments. Severe inflammation within Calot's triangle can lead to fibrosis, complicating the surgical procedure and increasing the risk of iatrogenic injury to vital structures such as the common hepatic duct, common bile duct, and cystic duct.

CVS, as described by Strasberg, involves careful dissection within Calot's triangle to achieve a clear view of the cystic structures while avoiding injury to surrounding vital structures. Rouvière's sulcus, an anatomical landmark located anterior to segment 1 of the liver, provides important reference points for identifying key structures during the procedure.

Intraoperative cholangiography, whether performed conventionally or with fluorescent dyes, aids in visualizing the biliary anatomy and detecting any stones or abnormalities that may complicate the procedure. Recent studies suggest that the use of indocyanine green fluorescent cholangiography can significantly reduce bile duct injuries and the need for conversion to open surgery compared to traditional white light cholecystectomy. (5)

Despite these advancements, there remains a subset of cases where subtotal cholecystectomy is deemed necessary. Initially described in 1950, partial cholecystectomy involved the removal of three-quarters of the gallbladder, leaving a portion of the posterior wall attached to the liver without electrocoagulation of the mucosa. However, this technique was later refined into subtotal cholecystectomy, which involves the removal of both the anterior and posterior walls of the gallbladder with suturing of the infundibulum. This method is preferred over partial cholecystectomy due to its lower risk of complications.

However, subtotal cholecystectomy is not without its own risks, including bile leaks and retained stones, which may require additional interventions such as Endoscopic

Retrograde Cholangio Pancreatography (ERCP) for resolution. Additionally, incomplete cholecystectomy can lead to subhepatic collections, necessitating postoperative drainage to prevent complications

In some cases, premature withdrawal of drainage tube may have led to few of the patients developing a subhepatic accumulation [6]. When such a collection forms, radiological intervention is typically necessary. In more challenging situations, reoperation may also be required to address the issue effectively.

The risk of intra-abdominal infection during complicated cholecystectomies varies depending on the preoperative and intraoperative conditions. (7) In order to minimize any collections and the ensuing infection, it is crucial to wash, disinfect, and place the drainage system appropriately at the conclusion of the treatment. The quality of life can also be altered in individuals with subhepatic collections or intra-abdominal infections.

Overall, while laparoscopic cholecystectomy has revolutionized the treatment of gallbladder disease, challenges still exist, particularly in cases of difficult cholecystitis. Continued research and advancements in surgical techniques and technology are essential for improving outcomes and reducing complications in these cases.

## 4. CONCLUSION

This case presented, addresses one such difficulty during the intraoperative and postoperative periods wherein an unusual complication of bile leak that could not be identified. Even after so much research on gall bladder surgery, each case proves to be a challenging one with scope to learn other newer techniques. Subtotal cholecystectomy is an important tool for use in challenging gallbladders and accomplishes morbidity rates equivalent to those reported for total cholecystectomy in simple cases.

## 5. CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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