INTERNATIONAL JOURNAL OF HEALTH & MEDICAL RESEARCH

ISSN(print): 2833-213X, ISSN(online): 2833-2148

Volume 05 Issue 09 September 2026

DOI : 10.58806/ijhmr.2026.v5i9n14

Page No. 958-961

Delayed Spontaneous Closure of High Output Bile Leakage after Subtotal Laparoscopic Cholecystectomy: A Case Report and Review of Literatures

Nabil Isam Naiem[1*], Hiza Q. Hussein[2], Qalandar H. Abdulkarim kasnazani[3]

[1]General surgery consultant, Shorsh Teaching Hospitals /Sulaimaniya , kurdistan Region, Iraq.

[2]Digestive and Hepatobiliary surgery specialist, Sulaimani Teaching G.I. Hospital , Sulaimaniya, Kurdistan Region , Iraq.

[3]Senior consultant Digestive and hepatobiliary Surgeon, Sulaimani Teaching G.I. Hospital , Sulaimaniya, Kurdistan Region, Iraq.

ABSTRACT

Laparoscopic cholecystectomy is the standard and the most commonly used procedure for the treatment of benign gall bladder diseases, and the subtotal laparoscopic cholecystectomies is one of the rescue techniques to bailout from and finish safely the difficult cholecystectomies. However, this modality is reported to be associated with more incidence of post-operative bile leak which necessitates further management. Here we present a case of subtotal laparoscopic cholecystectomy which was followed by high output bile leakage for more than 10 days and fortunately sealed spontaneously.

KEYWORDS: Laparoscopic cholecystectomy, gall bladder diseases, cholecystectomies.

INTRODUCTION

The benign gall bladder diseases gold standard of treatment is the laparoscopic cholecystectomy (1). Procedures that can be successfully get the mission done in 90% of elective and 70% of emergency cholecystectomies (2). However, facing a "difficult cholecystectomy" [more than three hours duration of operation, loss of more than 300 ml of blood, or the necessity of getting a more experienced surgeon's aid] may change the paradigm above, mandating a rescue technique (3).

One of the reported rescue techniques is the subtotal laparoscopic cholecystectomy (4-6) a relatively safe way to finish the surgery but unfortunately not free of complications, especially post-operative bile leakage (7).Generally, post laparoscopic cholecystectomy bile leak can occur in 0.3% - 2.7% of cases which is mainly from the cystic duct stump and the sub vesical duct of Luschka. (8-10)

Not surprisingly, the rate is much higher following subtotal laparoscopic cholecystectomy as it was reported to reach up to 12.2% (7).Biliary fistula, sub phrenic collections, and peritonitis could occur following bile leak and without early and adequate treatment can result in significant rate of morbidity and even mortality (11).

In this paper we would like to present to you a case of high output biliary leak following a subtotal laparoscopic cholecystectomy with its dramatic spontaneous closure.

CASE PRESENTATION

A fifty-two years old lady presented to our out-patient clinic with history of gall stones for many years. She was advised to do cholecystectomy as the last ultra sound scan reported that her gall stone is about 48 mm in diameter. The patient was markedly well, has no any abdominal pain or discomfort, on examination she had soft abdomen, with her complete blood count and liver function tests completely normal.

The patient was scheduled for laparoscopic cholecystectomy. Surgery was done at 11-3-2024, during laparoscopy severe adhesions were noticed between the gall bladder, the omentum, the transverse colon, and the duodenum.

Careful adhesiolysis was done, even though it gave no guarantee that the surgery can be finished laparoscopically safely. And taking in consideration that in spite of the inflammatory process, our patient had no signs and symptoms of cholecystitis we counted for the possibility of the presence of concomitant fistula or Mirizzi's syndrome, so we decided to do subtotal laparoscopic cholecystectomy type -A- [leaving part of the posterior wall attached to the liver and the stump remains open].

Two stones were extracted (48mm and 29mm) and were removed by endobag with the excised part of the gall bladder (Figure 2) which was sent for histopathology. Good hemostasis was secured and a tube drain 18fr was placed at the morrison's pouch near to the stump.

The first post-operative day was uneventful with the patient lying comfortable in bed and the drain contains only few CCs of blood.

From the second day we noticed that the port sites dresses were bile stained and then bile started to appear in the drain which was increasing to about 600 ml / 24 hours.

The same amount of bile continued to drain through the seven following days but the patient was vitally stable, no abdominal discomfort, with normal blood picture and liver functions tests.

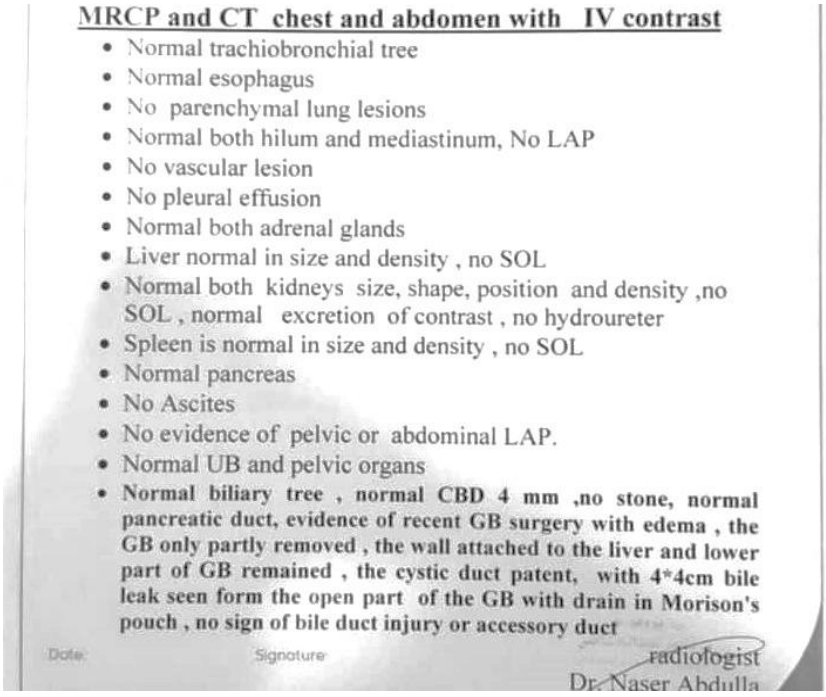
Reaching day ten post operatively with 500 ml. bile leak per 24 hours we decided to do magnetic resonance cholangio-pancreatography (MRCP) with CT scan of chest and abdomen with double contrast (Figure 2).

The report revealed that the biliary tree was intact with the bile leaking through the bile duct stump, and the only collection was 4*4 cm of bile near the stump with no intra-abdominal or intra-thoracic collections. The patient was scheduled for the ERC and biliary stenting to be done in the next 2-3 days, but surprisingly in the next day we noticed a marked decrease in the bile output which was about 200 ml/24 hours.

The following day it was about 100 ml/24 hours, and on the 13th post-operative day it ceased completely, and the ultrasound report revealed no collections at all.

We waited for another three days the drainage was nil, the ultrasound scan was normal, with completely normal investigations, so we removed the drain and the patient was discharged home and kept on regular follow up.

Figure 1: Subtotal Laparoscopic Cholecystectomy.



MRCP and CT chest and abdomen with IV contrast

- Normal trachiobronchial tree
- Normal esophagus
- No parenchymal lung lesions
- Normal both hilum and mediastinum, No LAP
- No vascular lesion
- No pleural effusion
- Normal both adrenal glands
- Liver normal in size and density , no SOL
- Normal both kidneys size, shape, position and density ,no SOL , normal excretion of contrast , no hydroureter
- Spleen is normal in size and density , no SOL
- Normal pancreas
- No Ascites
- No evidence of pelvic or abdominal LAP.
- Normal UB and pelvic organs
- **Normal biliary tree , normal CBD 4 mm ,no stone, normal pancreatic duct, evidence of recent GB surgery with edema , the GB only partly removed , the wall attached to the liver and lower part of GB remained , the cystic duct patent, with 4*4cm bile leak seen form the open part of the GB with drain in Morison's pouch , no sign of bile duct injury or accessory duct**

Date Signature radiologist

Dr. Naser Abdulla

Figure 2: Post-operative MRCP with CT scan report.

DISCUSSION

Subtotal laparoscopic cholecystectomy can be done in four different ways: Type -A- part of the posterior wall will be left attached to the liver without closure of the remaining gall bladder stump. Type -B- same as -A- with closure of the stump. Type-C- both anterior and posterior gall bladder walls are resected with closure of the pouch, Type -D- similar to -C- with the pouch left open (12).

In addition to the fact that subtotal laparoscopic cholecystectomy is associated with higher incidence of post-operative bile leak than the total laparoscopic cholecystectomy, the leak was found to be more associated with Type -A- method (69.9%) than Type-C- (15.6%) & Type -B- (14.5%) (7). In our case we chose the Type -A- method to avoid extra dissection and intraoperative bleeding due to the present severe adhesions and fibrosis.

With the establishment of adequate external drainage, it is known that the bile leak of less than 200 ml per day for few days that decreases with time will stop spontaneously, but if the leak was more than 200 ml daily for few days ERC is performed to detect the site of the leak and determine the treatment modality (13).

Multiple methods of treatment for the persistent bile leak are prescribed whether the already known techniques like sphincterotomy alone, nasobiliary stents, or biliary plastic stents which is the preferred method by most authors (14-16).

Or the upcoming new modalities like Biodegradable biliary stents (17), Botulinum toxin injection of sphincter of Oddi (18), the application of Cyanoaccrylate glue at ERCP to close the bile leak site (19), or percutaneous cystic duct coiling (20).

All of these methods are not free from morbidity and sometimes mortality. In this case in spite of the persistent high output bile leak for ten days, we chose careful watching with adequate drainage and full antibiotic coverage; also we chose a non-invasive diagnostic modality to detect the leak site. Fortunately, the leak stopped by itself at day thirteen post-operatively without the need for further intervention.

CONCLUSION

It may be advisable to give more watchful waiting time observing high output bile leaks after subtotal laparoscopic cholecystectomy with the maintenance of adequate external drainage and good antibiotic cover, provided that the patient having normal gastrointestinal function with no evidence of generalized peritonitis or toxicity.

REFERENCES

1) Purzner RH, Ho KB, Al-Sukhni E, Jayaraman S. Safe laparoscopic subtotal cholecystectomy in the face of severe infammation in the cystohepatic triangle: a retrospective review and proposed management strategy for the difcult gallbladder. Can J Surg. 2019;62:402–11.
2) Taki-Eldin A, Badawy AE. Outcome of laparoscopic cholecystectomy in patients with gallstone disease at a secondary level care hospital. Arq Bras Cir Dig. 2018;31:e1347.
3) Maehira H, Kawasaki M, Itoh A, Ogawa M, Mizumura N, Toyoda S, et al. Prediction of difcult laparoscopic cholecystectomy for acute cholecystitis. J Surg Res. 2017;216:143–8.
4) Jeong IO, Kim JY, Choe YM, Choi SK, Heo YS, Lee KY, et al. Efcacy and feasibility of laparoscopic subtotal cholecystectomy for acute cholecystitis. Korean J Hepatobiliary Pancreat Surg. 2011;15:225–30.
5) Kulen F, Tihan D, Duman U, Bayam E, Zaim G. Laparoscopic partial cholecystectomy: a safe and efective alternative surgical technique in "Difcult Cholecystectomies." Ulus Cerrahi Derg. 2016;32:185–90.
6) Beldi G. Glättli A Laparoscopic subtotal cholecystectomy for severe cholecystitis. Surg Endosc. 2003;17:1437–79.
7) Toro A, Teodoro M, Khan M,et al. Subtotal cholecystectomy for difficult acute cholecystitis: how to finalize safely by laparoscopy—a systematic review. World J Emerg Surg (2021) 16:45 https://doi.org/10.1186/s13017-021-00392-x.
8) Vecchio R, MacFadyen BV, Latteri S. Laparoscopic cholecystectomy: an analysis of 114,005 cases of United States series. *Int Surg* 1998; **83**: 215–9.
9) Merrie AE, Booth MW, Shah A, Pettigrew RA, McCall JL. Bile duct imaging and injury. A regional audit of laparoscopic cholecystectomy. Aust NZ J Surg 1997;67: 706–11.
10) McMahon AJ, Fullarton G, Baxter JN, O'Dwyer PJ. Bile duct injury and bile leakage in laparoscopic cholecystectomy. Br J Surg 1995; 82: 307–13.
11) Buanes T, Waage A, Mjaland O, Solheim K. Bile leak after cholecystectomy significance and treatment. Results from the National Norwegian Cholecystectomy Registry. Int Surg 1996; 81: 276–9.
12) Abdelrahim WE, Elsiddig KE, Wahab AA, Saad M, Saeed H, Khalil EAG. Subtotal Laparoscopic cholecystectomy infuences the rate of conversion in patients with difcult laparoscopic cholecystectomy: case series. Ann Med Surg (Lond). 2017;19:19–22.
13) F Ahmad, RN Saunders, GM Lloyd, DM Lloyd, GSM Robertson. An algorithm for the management of bile leak following laparoscopic cholecystectomy. Ann R Coll Surg Engl 2007; 89: 51–56 : doi 10.1308/003588407X160864.

14) Pfau P, Kochman ML, Lewis JD, et al. Endoscopic management of postoperative biliary complications in orthotopic liver transplantation. Gastrointest Endosc 2000;52:55-63.
15) Bjorkman DJ, Carr-Locke DL, Lichtenstein DR, et al. Postsurgical bile leaks: endoscopic obliteration of the transpapillary pressure gradient is enough. Am J Gastroenterol 1995;90:2128-33.
16) Morelli J, Mulcahy HE, Willner IR, et al. Endoscopic treatment of post liver transplantation biliary leaks with stent placement across the leak site. Gastrointest Endosc 2001;54:471-5.
17) Laukkarinen J, Nordback I, Mikkonen J, et al. A novel biodegradable biliary stent in the endoscopic treatment of cystic-duct leakage after cholecystectomy. Gastrointest Endosc 2007;65:1063-8.
18) Brodsky JA, Marks JM, Malm JA, et al. Sphincter of Oddi injection with botulinum toxin is as effective as endobiliary stent in resolving cystic duct leaks in a canine model. Gastrointest Endosc 2002;56:849-51.
19) Seewald S, Groth S, Sriram PVJ, et al. Endoscopic treatment of biliary leakage with n-butyl-2-cyanoacrylate. Gastrointest Endosc 2002;56: 916-9.
20) Rai V, Beckley A, Fabre A, Bellows C.F. Successful Treatment of Persistent Postcholecystectomy Bile Leak Using Percutaneous Cystic Duct Coiling. Hindawi Publishing Corporation Case Reports in Surgery Volume 2015, Article ID 273198, 3 pages http://dx.doi.org/10.1155/2015/273198.