

A rare case of spontaneous liver laceration with a large subcapsular liver haematoma following laparoscopic cholecystectomy

Weeraratne PGSP

Faculty of Medicine, University of Kelaniya.

Correspondence to- Weeraratne PGSP, Faculty of Medicine, University of Kelaniya,

E-mail: shakyaweeraratne@gmail.com

Summary

A 31-year-old woman presented with right hypochondrial pain and left shoulder tip pain on post-operative day 1 following Laparoscopic Cholecystectomy (LC). Haemodynamic instability, fever, and severe anemia was observed. Ultrasound scan (USS) revealed a spontaneous liver laceration with a large subcapsular liver haematoma. Emergency exploratory laparotomy and clot evacuation with surgical packing was done. Recovery was complicated with acute liver failure, acute renal failure, septic shock and takotsubo cardiomyopathy with and ejection fraction of 30%-40%. This article highlights the management of this condition.

Keywords – spontaneous liver laceration, subcapsular liver haematoma

Introduction

Laparoscopic cholecystectomy is the gold standard procedure for gallstone disease¹. The procedure causes less postoperative pain, better cosmetic appearance, less disability, and shorter hospital stays than open cholecystectomies². The most common complications following LC are bile duct injury, bile leaks, bleeding, and bowel injury.^{3,5}

Subcapsular liver haematoma leading to spontaneous liver laceration following LC is an extremely rare, life threatening complication. Only a few cases have been reported worldwide. Here we report a rare spontaneous liver laceration following LC and outline the management in comparison to similar cases^{6,7}.

Case Report

A 31-year-old woman presented with severe colicky pain in the lower back region with recurrent vomiting and fever. Further investigations were performed, and a diagnosis of recurrent severe biliary colic with multiple gallstones in gallbladder was made. A LC was performed.

On post-operative day 1, she complained of mechanical type right hypochondrial pain radiating to the left shoulder tip. She had pallor with a haemoglobin level of 6.9 g/dl. She did not complain of respiratory or urinary symptoms. Abdomen was soft and ultrasound abdomen revealed a left subphrenic collection measuring 4.0 x 5.3 cm and fluid in the right subdiaphragmatic space of maximum thickness measuring 2.53 cm.

Emergency exploratory laparotomy was done and a large blood clot of 450ml, in the right subphrenic space was evacuated. Perioperatively, left liver lobe inferior edge had spontaneously split with active bleeding. Perioperative resuscitation was done with red blood cells and fresh frozen plasma. The liver was partly mobilized by dividing the falciform ligament. Perioperative USS liver was done, and normal inflow and outflow of liver was noted. Liver was packed with gauze packs and haemostasis was achieved.

After 48 hours, relaparotomy and pack removal was performed as the bladder pressure was rising and urine output was reducing. Two liters of altered blood and serosanguinous fluid was removed. No active bleeding was seen from the liver and the gauze pack was subsequently removed. A large subcapsular hematoma was noted and left in situ (figure 1).

On day 6 post LC, elective hepatic haematoma evacuation was performed as the patient was developing signs of sepsis. Exploration was done via the previous surgical scar. Haematoma was evacuated with blunt dissection, using a sucker. The rest of the liver appeared normal. Haemostasis was achieved. Subhepatic and subdiaphragmatic drains were inserted.

Her post-operative recovery was complicated with acute liver failure, acute renal failure, septic shock, extubation failure and takotsubo cardiomyopathy with and ejection fraction of 30%-40%. Bronchoalveolar lavage culture became positive for Acinetobacter. Tracheostomy was performed on day 11 following LC, due to difficulty in extubation. The patient eventually recovered after a stormy post-operative course.

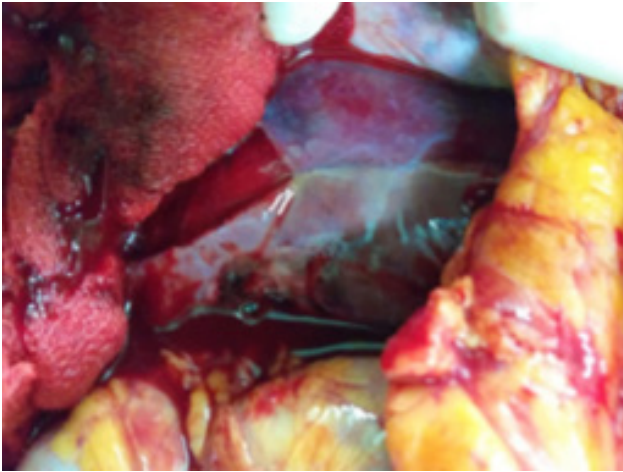


Figure 1 - Subcapsular haematoma with rupture of the capsule

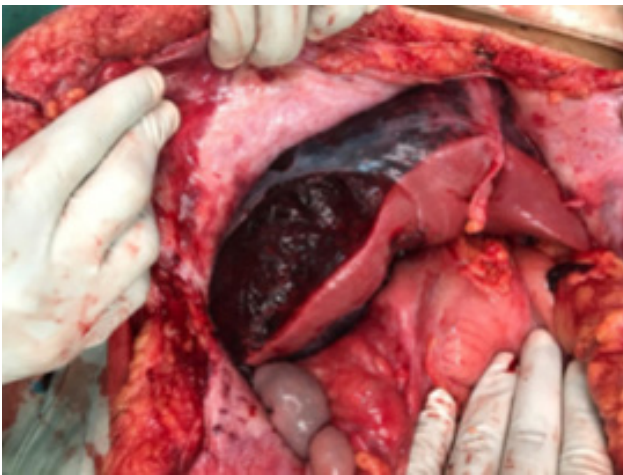


Figure 2 – Contained haematoma 48h after laparotomy

Discussion

LC is the gold standard procedure for surgical treatment of gallstone disease. The common complications of this procedure are, bile duct injury, bile leaks, bleeding and bowel injury. The most common causes of postoperative bleeding occurred due to injury to the vessels surrounding the gallbladder. Vessels in the hepatoduodenal ligament were damaged during gallbladder dissection. Puncture injury with the Veress needle or trocar which is unique to the laparoscopic approach caused damage to Major retroperitoneal vessels and other intra-abdominal sites including mesenteric, omental, falciform, gastroepiploic, and splenic vessels⁸. Intrahepatic haematoma leading to spontaneous liver laceration is an extremely rare but life-threatening complication. The cause for subcapsular haematoma is not properly understood. However, coagulation dysfunction, haemangiomas, and iatrogenic lesions have all been implicated⁹.

A clinical picture of haemodynamic instability is noted in nearly half the patients following subcapsular haematoma with the time of diagnosis ranging from six hours to six weeks¹⁰. The management of the patient depends on the clinical picture. In small and asymptomatic Intrahepatic Subcapsular Haematoma (ISH) conservative management is recommended. More aggressive

modes of treatment including percutaneous ultrasound-guided drainage, laparoscopic exploration, laparotomy, evacuation and drainage of haematoma must be considered if the patient is haemodynamically unstable or if the ISH is too large⁶.

The management of this patient was dependent upon the clinical picture of the primary condition and associated complications.

References

1. Soper NJ, Stockmann PT, Dunnegan DL, Ashley SW. Laparoscopic Cholecystectomy, The New “Gold Standard. Archives of Surgery. 1992;127(8):917–923.
2. Schirmer BD, Edge SB, Dix J, Hyser MJ, Hanks JB, Jones RS. Laparoscopic cholecystectomy: Treatment of choice for symptomatic cholelithiasis. Annals of Surgery. 1991;213(6):665–677.
3. Steven JB, Michael AG, Inadvertent enterotomy in minimally invasive abdominal surgery. Journal of the society of Laparoscopic and Robotic surgeons. 2006;10(3):336-340.
4. Roberts DJ, Chun HM. Dropped gallstone as a nidus of intra-abdominal abscess complicated by empyema. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America. 2005;41(6):64-66.
5. Ball CG, MacLean AR, Kirkpatrick AW, Bathe OF, Sutherland F, Debru E, et al. Hepatic Vein Injury During Laparoscopic Cholecystectomy: The Unappreciated Proximity of the Middle Hepatic Vein to the Gallbladder Bed. Journal of Gastrointestinal Surgery. 2006;10(8):1151–1155.
6. Liu QF, Bian LL, Sun MQ, Zhang RH, Wang W bin, Li YN, et al. A rare intrahepatic subcapsular hematoma (ISH) after laparoscopic cholecystectomy: A case report and literature review 11 Medical and Health Sciences 1103 Clinical Sciences. BMC Surgery. 2019;19(3).
7. Kentaro S, Yutaka M, Hiroyuki M, Masato W, Tatsuo Y, Yasuyuki S. Ruptured hepatic subcapsular hematoma following laparoscopic cholecystectomy: report of a case. Bioscience trends.2010;4(6):355-358.
8. Deziel DJ, Millikan KW, Economou SG, Doolas A, Ko ST, Airan MC. Complications of laparoscopic cholecystectomy: A national survey of 4,292 hospitals and an analysis of 77,604 cases. The American Journal of Surgery. 1993;165(1):9–14.
9. Antsaklis GI, Karanikas D, Sakellaris TE, Alexiou CP, Konstantinidou E, Economou N. Subcapsular hematoma of the liver: a rare complication of the laparoscopic cholecystectomy. Minerva Chir. 2009;64(3):322-322.
10. Minaya BAM, González E, Ortiz AM, Larrañaga BE. Two Rare Cases of Intrahepatic Subcapsular Hematoma After Laparoscopic Cholecystectomy. Indian Journal of Surgery 2010;72(6):481–484.