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Case Report

Intrahepatic Subcapsular Hematoma Following Laparoscopic Cholecystectomy: A Case Report and Literature Review

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A B S T R A C T

Background: Laparoscopic cholecystectomy (LC) is the gold standard treatment for symptomatic gallstones, with an overall morbidity rate of less than 7%. However, rare but potentially lifethreatening complications can occur, such as intrahepatic subcapsular hematoma (ISH), which is reported in less than 1% of cases.

Case Report: We report the case of A 30-year-old woman with no prior medical history, who underwent LC two months after an episode of gallstone-induced acute pancreatitis. She was discharged the day after surgery but returned on postoperative day two for a subcapsular hematoma. CT scan showed an ISH with no evidence of any intra-abdominal haemorrhage. Since the patient was stable, we opted for serial monitoring in the ICU and conservative treatment. the patient was discharged the third day with no further complications.

Conclusion: ISH is a very rare but potentially life-threatening complication following laparoscopic cholecystectomy. This case highlights the importance of considering this uncommon condition in patients experiencing abdominal pain after LC, emphasizing that prompt and accurate diagnosis and treatment are essential for patient survival.

Keywords: Subcapsular liver hematoma; Laparoscopic cholecystectomy; Complication

Introduction

Since the first surgical removal of the gallbladder performed in the second half of the 19th century, laparoscopic cholecystectomy (LC) remains the gold standard treatment for symptomatic cholecystolithiasis patients with an overall morbidity of less than 7%[1-3].

Complications of LC include iatrogenic bile duct injury, postoperative bleeding, bowel injuries and infections. Intrahepatic subcapsular hematoma (ISH) is a rare complication following LC occurring in less than 1%, however it can prove to be life-threatening[2-4].

Case Report

We present the case of a 30-year-old female, with no medical history, such as systemic disease or any recent prescription, who underwent a vaginal delivery 6 months ago and presented a gallstone acute pancreatitis **(Figure 1)** 2 months prior to a laparoscopic cholecystectomy (LC) **(Figure 2)**.

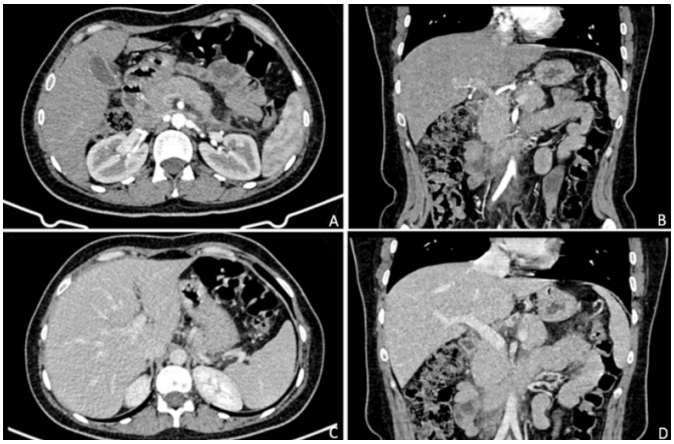

Figure 1: Pre-operative CT scan showing an acute pancreatis. No angioma, tumor or vascular malformation were apparent
(A) Arterial phase axial maximum intensity projection; (B) Arterial phase coronal maximum intensity projection; (C) Portal venous phase axial maximum intensity projection ; (D) Portal venous phase coronal maximum intensity projection

The patient was discharged at post-operative day one, however on the second day after surgery, she presented to our department with severe abdominal pain. Physical examination revealed a tenderness in the right hypochondrium, hypotension and tachycardia at 130 beats per minute.

We performed biological tests, that showed a severe anemia with hemoglobin levels at 5g/Dl. Platelet count and coagulation profile were within the normal range.

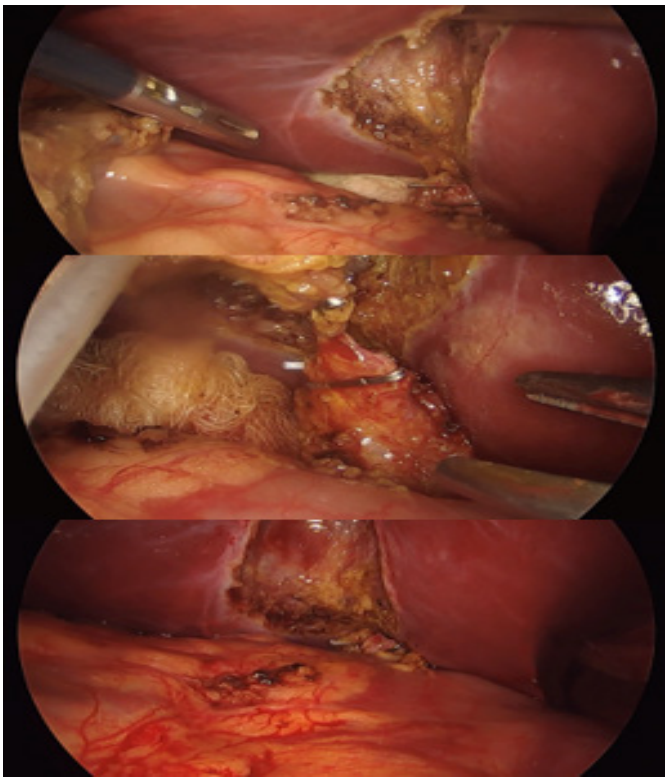

Figure 2: Per-operative view of laparoscopic cholecystectomy. No complications or adverse event were observed intra-operatively

The patient underwent an abdominopelvic CT scan which revealed a large subcapsular hematoma surrounding the lateral surface of the right lobe, the hepatic artery, portal vein and hepatic veins opacified normally and no contrast extravasation was visualized.

The patient was monitored in the UCI and after being transfused, she stabilized, which prompted monitoring and surgical abstention.

The patient was discharged on the third day upon stabilization with no further complications **(Figure 3)**.

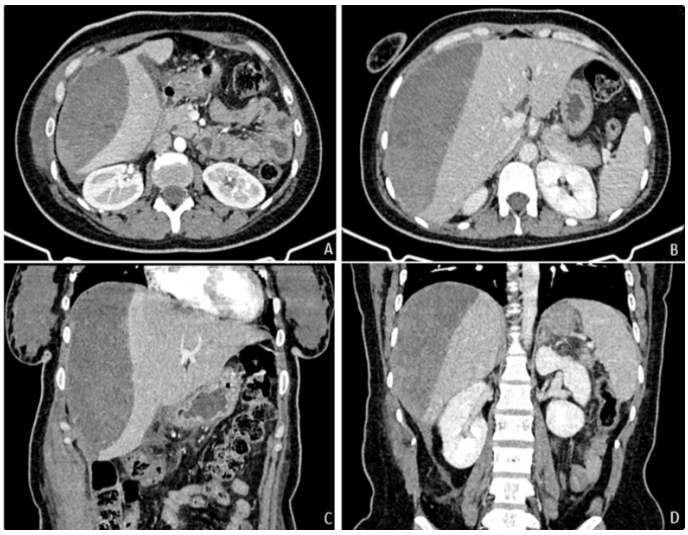

Figure 3: post-operative CT scan showing a subcapsular hematoma surrounding the lateral surface of the right hemi liver, with no active bleeding or ruptured capsule
(A) Arterial phase axial maximum intensity projection; (B) Portal venous phase axial maximum intensity projection ; (C+D) Portal venous phase coronal maximum intensity projection

Discussion

LC is considered a safe procedure with an overall morbidity of less than 7% in large cohort studies. Complications after laparoscopic cholecystectomy occur in 2–6% of patients and bleeding is observed in less than 1% of cases. The most frequent sites of bleeding after laparoscopic cholecystectomy (LC) include the gallbladder bed, cystic artery, trocar insertion points, falciform ligament and liver capsule tears. Although intrahepatic subcapsular hematoma (ISH) is a rare complication following LC, it poses a serious risk due to the potential for rupture and resulting hemodynamic instability. When rupture occurs into the peritoneal cavity, the associated mortality rate can reach 75%. These hematomas are typically found on the right side of the liver. (in 75% of cases)[1,2,5,6].

ISH may occur early, up to 24 hours after surgery, as well as late, several weeks after the procedure[1,7].

Some contributing factors have been described, including iatrogenic injuries of the liver parenchyma and capsular tears, during gallbladder traction or due to trocar placement. The presence of a pre-operative pseudoaneurysm or a hepatic haemangioma that could be injured during the procedure. Perioperative administration of nonsteroidal anti-inflammatory drugs (NSAID) was reported in a number of cases of ISH following LC with special emphasis on ketorolac use as it was associated with the highest risk estimate of bleeding. The consumption of NSAIDs in the postoperative period has also been proposed as an associated cause, since in several cases the patient used ketorolac (up to 58.8%) or parecoxib in the postoperative period. It has also been associated with anticoagulant therapy[2,8,9].

Our patient, had no specific underlying cause, as she had no coagulation disorders nor she was taking anticoagulants or

antiplatelet therapy. Furthermore, there was no bleeding source identified nor a liver parenchymal injury identified throughout the surgery. there was also no evidence of any hepatic haemangiomas, adenoma or tumour in the preoperative CT scan performed 2 months prior to the LC. As a matter of fact, there are some cases where the cause of post cholecystectomy ISH remains unexplained[2,3].

16 cases of ISH after LC were reported from 1994 to 2015. Nearly half of the patients presented a hemodynamic instability. All reported cases involved female patients, with ages ranging from 25 to 78 years. The majority of hematomas were located in the right hepatic lobe, with some extending into the left lobe. At the time of diagnosis, only one case had ruptured. Hepatic capsule laceration was found in two cases, one of whom also took NSAIDS for pain management, Notably, 35.3% of the patients had no identifiable risk factors[3].

Patients with ISH can present in the postoperative course with right upper quadrant abdominal pain, nausea, fever, hypotension and tachycardia that does not improve with the administration of intravenous fluids. Patients may also present with hemodynamic instability if a rupture of the ISH has occurred with intraabdominal bleeding. Furthermore, an infected hematoma may occur whereby the patient may present with fever, abdominal pain or some features of sepsis. The time of occurrence in the previously reported cases varies between 7 hours and 6 weeks of the postoperative course. On ultrasound or CT scan, it appears as a collection of fluid between the fibrous and serous layer of the liver[2,8,9].

Depending on the patient's symptoms and condition, different therapy can be introduced from expectant management to emergency surgical treatment[1].

When the ISH is small, it is usually asymptomatic, however, if it keeps growing, some complications may occur[3].

The management of large ISH remains unclear, however several strategies have been proposed, such as conservative management with strict clinical observation, surgical management (laparotomy or laparoscopy), percutaneous drainage or endovascular embolization. The choice is conditioned by the patient's clinical status, the size and cause of the hematoma[2,8].

As there is no clear management pattern because of the few clinical cases reported, some authors proposed a conservative treatment for two patients who developed a delayed ISH with fever. One patient underwent computed-tomography-guided drainage and the other was managed conservatively without any surgical or radiological procedure[10,12-14].

Another author proposed a relaparoscopy for a hemodynamically unstable patient who had a ruptured ISH with active bleeding which was evacuated and controlled laparoscopically. One patient underwent emergency laparotomy, evacuation and drainage of the ISH, which was probably caused by an instrumental stab wound during LC[10,14,15].

When an intrahepatic subcapsular hematoma (ISH) is small, confined beneath the hepatic capsule and not associated with intra-abdominal bleeding, conservative management is typically the preferred approach. This involves careful monitoring of the hematoma over time. If the hematoma becomes infected, percutaneous drainage under CT or ultrasound guidance, along with appropriate antibiotic therapy, is the treatment of choice. In cases involving a ruptured aneurysm, hepatic adenoma or angioma, selective embolization of the bleeding vessel may be considered. More invasive interventions, such as relaparotomy or relaparoscopy, may be necessary in the presence of hemodynamic instability or rupture of the hematoma, particularly when associated with an underlying hepatic tumor[2,3,5,9].

Summary/Conclusion

ISH is an extremely rare but life-threatening complication following LC. This case demonstrates the necessity of monitoring patients who undergo LC and considering the possibility of ISH, although being rare, in those who experience refractory postoperative hypotension. There is still no universally accepted theory regarding the cause, treatment and outcomes of this rare entity.

Consent

Written Informed consent was obtained from the patient for the publication of her case as a report and was documented in the patient's medical notes. A copy of the written informed consent would be available for review by the editor-in-chief of the journal on request.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this case report.

References

1. Głuszek S, Kot M, Nawacki L, Krawczyk M. Subcapsular liver haematoma as a complication of laparoscopic cholecystectomy. Videosurgery and Other Miniinvasive Techniques 2015.
2. Eltaib Saad LO. Giant Intrahepatic Subcapsular Haematoma: A Rare Complication following Laparoscopic Cholecystectomy-A Case Report and Literature Review. Case Reports in Surgery 2020.
3. Liu QF, Bian LL, Sun MQ, et al. A rare intrahepatic subcapsular hematoma (ISH) after laparoscopic cholecystectomy: a case report and literature review. BMC surgery 2019.
4. Duca S, Bălă O, Al-Hajjar N, et al. Laparoscopic cholecystectomy: incidents and complications. A retrospective analysis of 9542 consecutive laparoscopic operations. HPB 2003.
5. Tudorache A, Bica M, Săndulescu L, Lazăr M. Subcapsular liver hematoma – A complication after laparoscopic cholecistectomy. Romanian J Emergency Surg 2020;2(1).
6. Shea JA, Healey MJ, Berlin JA, et al. Mortality and complications associated with laparoscopic cholecystectomy. A meta-analysis. Ann Surg 1996.
7. Badea R. Spontaneous retroperitoneal and subcapsular liver hematoma. The diagnostic contribution of CT, US and CEUS. Case report. Med Ultrason 2013.
8. Barrios MC, Sotomayor J, Lozano JM, Pulido-Segura J. Hepatic Subcapsular Hematoma Following Laparoscopic Cholecystectomy : A Case Report. Annals of Mediterranean Surgery 2023.
9. Moloney BM, Hennessy N, O Malley E, et al. Subcapsular haematoma following laparoscopic cholecystectomy. BJR Case 2017.
10. Steve de Castro MM, Reekers JA, Dwars BJ. Delayed intrahepatic subcapsular hematoma after laparoscopic cholecystectomy. Clin Imaging 2011;36:629-631.

11. Shetty GS, Falconer JS, Benyounes H. Subcapsular hematoma of the liver after laparoscopic cholecystectomy. J Laparoendosc Adv Surg Tech A 2005;15(1):48-50.

12. Obara K, Imai S, Uchiyama S, Uchiyama K, Moriyama Y. A case with subcapsular hematoma of the liver following laparoscopic cholecystectomy. Nippon Ika Daigaku Zasshi 1998;65(6):478-80.

13. Bhandarkar DS, Kantara AN, Shah RS. Intrahepatic subcapsular hematoma complicating laparoscopic cholecystectomy. Surg Endosc 2004;18(5):868-870.

14. Laporte JR, Ibáñez L, Vidal X. Upper gastrointestinal bleeding associated with the use of NSAIDs: newer versus older agents. Drug Saf 2004;27(6):411-420.

15. Nathanson LK, Shimi S, Cuschieri A. Laparoscopic cholecystectomy: the Dundee technique. Br J Surg 1991;78(2):155-159.