

A rare complication of subcapsular hepatic hematoma following Endoscopic Retrograde Cholangiopancreatogram

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Introduction

Endoscopic retrograde cholangiopancreatography (ERCP) remains the standard therapeutic approach for the treatment of common bile duct (CBD) stones, with a success rate of 85% to 95% [1]. Despite its therapeutic value, ERCP carries a risk of pancreatitis (10% to 30%), cholangitis, duodenal perforation, bleeding, and, rarely, retroperitoneal or intra-abdominal haematoma formation [2]. Subcapsular hepatic hematoma is an uncommon complication with potential mortality caused by rupture, signifying the importance of its early recognition [2]. Herein, we present a case of subcapsular hepatic hematoma after ERCP, which was managed conservatively prior to laparoscopic cholecystectomy for symptomatic gallstone disease.

Case presentation

A 22-year-old male presented with painful obstructive jaundice for one week, with a three-month history of intermittent epigastric pain. Laboratory investigations revealed deranged liver function tests, showing total bilirubin of 390mmol/L with predominant direct component 286mmol/L, Alanine Aminotransferase (ALT) 821U/L, Alkaline phosphatase (ALP) 214 IU/L, Aspartate Aminotransferase (AST) 48U/L, and Gamma-glutamyl transferase (GGT) 355IU/L. Abdominal ultrasound scan (USS) confirmed multiple stones in the CBD. ERCP was performed, and complete stone clearance was confirmed using occlusion cholangiography. On the day following ERCP, the patient developed acute abdominal pain with no signs of peritonitis, which responded to non-steroidal anti-inflammatory medication. Laboratory tests showed elevation of liver enzymes with total bilirubin 493mmol/L, direct component 217mmol/L, ALT 533IU/L, AST 207U/L, ALP 192IU/L and normal amylase level following ERCP.

Contrast-enhanced computed tomography (CECT) of the abdomen and hepatic angiogram demonstrated a large subcapsular hepatic hematoma of 13 x 6 x 18cm involving the right liver lobe, without active contrast extravasation. The haematoma caused a mass effect on the adjacent liver parenchyma (**Figure 1**). The rest of the liver parenchyma was normal. Residual intrahepatic duct dilatation was noted without common bile duct dilatation. Mild free fluid in the abdomen was evident. The patient was hemodynamically stable; therefore, a conservative management approach was adopted, including close monitoring, analgesia, intravenous fluids, and serial haemoglobin monitoring and repeated USS imaging. On the post-procedure day seven, the patient was discharged, with a 10cm x 8cm organised hematoma and mildly elevated liver function tests. The patient underwent an elective laparoscopic cholecystectomy after 6 weeks of close follow-up. At 6 weeks, the USS revealed a haematoma of 8cm x 7cm in size. The intraoperative findings further confirmed an organised hematoma with no active bleeding (**Figure 2**). The postoperative period was uneventful.

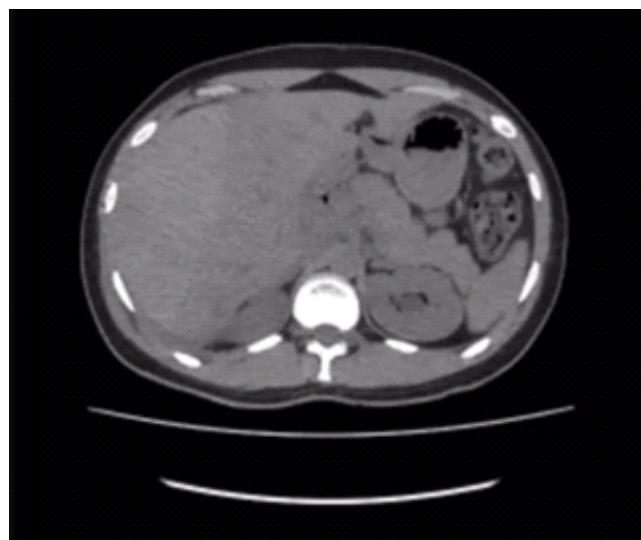


Figure 1: Contrast-enhanced computed tomography scan demonstrating a subcapsular haematoma of the right lobe of the liver with no contrast extravasation.

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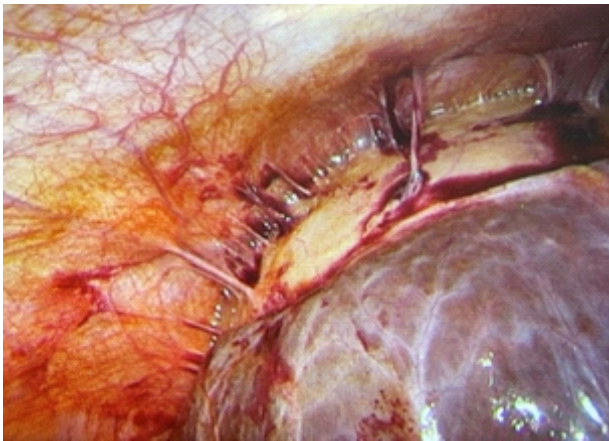


Figure 2: Intraoperative finding of organized subcapsular haematoma with adhesions to the anterior abdominal wall.

Discussion

Subcapsular hematoma is a rare complication of ERCP, with fewer than a hundred cases mentioned in the literature [2]. The majority affects the right lobe (87.3%), followed by bilobar involvement (5.5%) [3]. Though etiology remains enigmatic, it is hypothesised to occur following guidewire cannulation of the CBD with perforation, or balloon-induced trauma during biliary stone extraction, causing damage to biliary vessels and subsequent bleeding [4]. Clinical presentation varies from asymptomatic cases detected incidentally to severe abdominal pain (83.3%), anaemia (56.7%), localised infection (18.3%), hemodynamic instability and peritonitis (28.3%), which may present up to ten days post procedure [3,4].

Management depends on the clinical stability of the patient, and the outcome is better with early diagnosis [2,4]. After exclusion of duodenal perforation and acute pancreatitis, a high degree of clinical suspicion of having this condition should be considered in patients presenting with acute abdominal pain within 48 hours of ERCP. Early complications associated with subcapsular hepatic hematomas, such as rupture causing hypovolaemic shock, liver ischaemia, liver failure, and infection with signs of peritonitis, need to be addressed with either surgical drainage or radiological interventions such as angioembolisation or percutaneous drainage [3]. The reported incidence of rupture is 23% with symptoms evident within 24 to 48 hours [3]. Diagnosis is made with CECT (sensitivity of 91.4%) compared to USS (sensitivity of 22.4%) [3]. USS can be used to monitor the progression of the haematoma in a resource-limited setup. Stable patients with subcapsular haematomas, like in this case, can be managed conservatively with close monitoring and supportive care [2]. If an expanding

haematoma is noted, angiography with angioembolisation of the bleeding source can be attempted with a successful outcome [2]. Antibiotic therapy is recommended based on the high incidence of infections [3]. Surgical approach can be carried out if the minimally invasive methods have failed [3,4]. Once recovered, a definitive treatment for gallstone disease was carried out in this patient to prevent recurrence of CBD stones.

Conclusion

Subcapsular hepatic hematoma is a rare yet important complication following ERCP. Awareness of this entity allows early diagnosis and appropriate management. Conservative treatment may be sufficient in stable patients with close follow-up using clinical, serial biochemical and imaging with USS. If unstable, minimally invasive therapeutic strategies such as angioembolisation and percutaneous drainage can be attempted, failing which surgical management can be carried out.

Ethics approval

Not applicable.

Conflicts of interests

The authors have no competing interests.

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Data availability

The original contributions are included in the article, further inquiries can be directed to the corresponding author.

Authors' contributions

GD, JS, YD and MN collected and analysed the data and drafted and referenced the article. All authors have approved the final draft.

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Learning Points:

- Subcapsular hematoma of the liver is a rare, nevertheless a causative factor for life-threatening bleeding following ERCP.
- Contrast enhanced computed tomography scan is the investigation of choice.
- Management should be guided by haemodynamic stability.
- Subsequent management of the underlying biliary pathology should be addressed once the patient is stabilized.