

Case Report

Subcapsular hepatic hematoma post-endoscopic retrograde cholangiopancreatography: a case report and literature review

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ABSTRACT

A 23-year-old female with a history of long-standing obesity, recently was diagnosed with cholelithiasis, along with a 15 day development of jaundice. An ERCP (endoscopic retrograde cholangiopancreatography) was performed, during which resulted an unsuccessful sphincterotomy, this was followed by placing a 7-centimeter, 10 French Amsterdam-type stent, subsequently she experienced sudden abdominal pain, and a CT scan revealed a subcapsular hepatic hematoma, which required surgical management. The objective was to describe a clinical case of subcapsular hepatic hematoma, clinical presentation, and therapeutic conduct. The treatment of subcapsular hepatic hematoma will depend on the patient's hemodynamic stability. However, survival is uncertain due to its rarity, making it crucial to recognize its early signs and symptoms and act promptly.

Keywords: Choledocholithiasis, Post-ERCP, Subcapsular hepatic hematoma, Jaundice

INTRODUCTION

Cholelithiasis affects approximately 15% of the US population.¹ Generally, this situation does not cause symptoms, but 10-25% of affected people may have specific symptoms, such as biliary pain and acute cholecystitis, and 1-2% of these may have major complications, primary choledocholithiasis refers to stones formed directly within the biliary tree, in people who have cholecystectomy for gallbladder stones approximately 10% and 18% also have common bile duct stones.^{2,3}

Endoscopic retrograde cholangiopancreatography (ERCP) is nowadays one of the minimally invasive procedures for treating pancreatic and biliary diseases. Although it is a safe method, it has the highest rate of complications among endoscopic procedures of the upper gastrointestinal tract.⁴

It has a complication rate of 6.85%, with morbidity ranging from 6.27% to 7.51% and a mortality rate of up to 21.4%. Subcapsular hepatic hematoma is an unusual but feared complication of endoscopic retrograde cholangiopancreatography.

69 cases have been reported so far, but the mechanism still remains unknown, so the identification of risk factors, case presentation, and treatment approach can contribute to the safety and effectiveness of treatment.⁵

Techniques such as long balloon dilation and peroral cholangioscopy with laser or electrohydraulic lithotripsy difficult bile duct stone have success rates of 91.2% and 76.9% with a single session, respectively.⁶

CASE REPORT

A 23-year-old female referred from a rural health center due to asymptomatic jaundice lasting for 15 days without additional symptoms. She had chronic degenerative

conditions such as long-standing untreated obesity, denying any surgical, allergic, or other relevant history. Hospital admission was decided with a diagnosis of choledocholithiasis. Upon admission, the patient is reported to be asymptomatic with marked generalized jaundice +++, afebrile, without signs of peritoneal irritation, and vital signs within normal limits. Laboratory tests at admission reveal an obstructive pattern with a total bilirubin of 13.8 mg/dl as shown in Table I. ERCP was performed on the third day with findings of intrahepatic and extrahepatic bile duct dilation, common bile duct dilation, and a negative 18 mm filling defect. Sphincterotomy and balloon sweep were performed without a successful stone extraction, leading to the placement of a 7-centimeter, 10 French Amsterdam-type plastic biliary stent.



Figure 1: CT scan with subcapsular hepatic hematoma post-ERCP (black arrow).

Table 1: Laboratory tests upon admission.

Laboratory tests	Values
Hemoglobin	12.5 g/dl
Leukocytes	7.7×10 ³ /ul
Total bilirubin	13.8 mg/dl
Direct bilirubin	9.6 mg/dl
Indirect bvilirubin	4.1 mg/dl
AST	88 U/l
ALT	73 U/l
Alkaline phosphatase	245 U/l
Amylase	34 U/l
Lipase	16 U/l

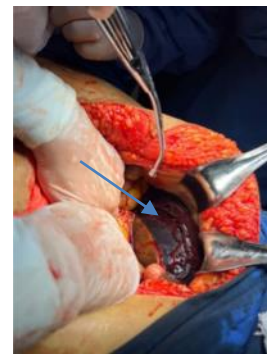


Figure 2: Intraoperative with ruptured subcapsular hepatic hematoma (blue arrow).

Table 2: Laboratory tests post ERCP 24 hours.

Laboratory tests	Values
Hemoglobin	7.9 mg/dl
Leukocytes	20.9×10 ³ /ul
Total bilirubin	19.1 mg/dl
Direct bilirubin	13.2 mg/dl
Indirect bvilirubin	5.9 mg/dl
AST	1659 U/l
ALT	686 U/l
Alkaline phosphatase	242 U/l
Amylase	59 U/l
Lipase	357 U/l
TP	68.1 seg
TTP	62.1 seg
INR	5.1
K	5.4 mEq/l
Creatinine	4.1 mg/dl



Figure 3: Intraoperative with ruptured subcapsular hepatic hematoma (blue arrow).

Table 3: Laboratory tests.

Laboratory tests were conducted 6 hours after ERCP, showing an increase in total bilirubin by 3.8 mg/dl compared to the admission value, with no other abnormalities in the rest of the laboratory results and the patient remaining asymptomatic.

At 24 hours post-ERCP, she developed sudden moderate to severe abdominal pain localized to the epigastrium radiating to the right hypochondrium, without systemic signs of inflammation. Abdominal CT scan and laboratory tests were performed, revealing systemic inflammatory response syndrome (SIRS) and a subcapsular hepatic hematoma involving both hepatic lobes by approximately 40-50% (Table 2 and Figure 1). Exploratory laparotomy was performed, revealing 1000 milliliters of hemoperitoneum and a ruptured subcapsular hepatic hematoma with active bleeding (Figure 2 and 3). Damage control surgery was performed, followed by

admission to the intensive care unit due to evolving multiple organ failure, requiring of vasopressors upon admission.

At 48 hours, the patient underwent a second-look surgical procedure, during which cholecystectomy and T-tube placement were performed. This resulted in an improvement in multiple organ failure and a decrease in bilirubin levels compared to admission, down to 4.1 mg/dl, but maintaining an elevation of nitrogen products and renal failure requiring hemodialysis (Table 3). Despite attempts at a second hemodialysis session, there was no improvement in hyperazotemia. Ultimately, complications during the second hemodialysis session led to cardiac arrest, and the patient passed away on the twentieth day of admission.

DISCUSSION

Cholelithiasis can lead to complications such as choledocholithiasis, which in specific situations may require endoscopic treatment with ERCP. Bile duct stones most frequently result from the migration of gallstones from the gallbladder.⁷ While ERCP is associated with complications ranging from 5% to 10%, with pancreatitis being the most common, complications such as perforation and bleeding following sphincterotomy may also occur.⁸ Subcapsular hepatic hematoma is a rare complication but should always be considered as a differential diagnosis in these patients. Over 30% of all endoscopic retrograde cholangiography procedures in the US are associated with biliary stone extraction, and the resolution rate of choledocholithiasis with conventional techniques is estimated to be 85-90%; however, 10-15% of the bile duct stone are considered difficult and may require the use of new treatment modalities.^{9,10}

CONCLUSION

Understanding the factors associated with failed ERCP, such as difficult bile duct stones (greater than 15 millimeters), as observed in the patient, can help reduce complications and achieve a higher success rate. The treatment of subcapsular hepatic hematoma will depend on the patient's hemodynamic stability. However, survival is uncertain due to its rarity, making it crucial to recognize its early signs and symptoms and act promptly. Therefore, it is essential to be aware of new therapeutic options to reduce complications such as those experienced by the described patient.

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