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Traumatic Biliary Ascites Following Blunt Abdominal Injury: A Rare Case of Right Hepatic Duct Leak

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Abstract

Background: Isolated extrahepatic biliary tract injury following blunt abdominal trauma is rare and diagnostically challenging.

Case Presentation: We report the case of a 25-year-old male who developed progressive jaundice and abdominal distension following a road traffic accident. Initial imaging was inconclusive. Ascitic fluid was bilious, raising suspicion of a bile leak. MRCP revealed a lesion in segments V and VII of the liver with possible communication with the right hepatic duct. ERCP confirmed a leak from the right hepatic duct, and stenting led to complete resolution.

Conclusion: This case highlights the need to consider biliary injury in patients with persistent jaundice and ascites post-trauma. Timely MRCP and ERCP are critical in both diagnosis and management.

Keywords

Traumatic Biliary Ascites; Blunt Abdominal Injury; Hepatic Duct Leak.

Introduction

Bile duct injury following blunt abdominal trauma is a rare clinical entity, accounting for less than 0.5% of all abdominal injuries. Gallbladder injury is more commonly encountered than isolated bile duct trauma, which often presents with non-specific features such as jaundice and ascites, making early diagnosis

difficult. We present a rare case of isolated right hepatic duct injury with biliary ascites managed successfully with endoscopic intervention.

Case Presentation

A 25-year-old male E-rickshaw driver from Ghaziabad, U.P. presented with complaints of jaundice for two months and progressive abdominal distension for one and a half months. He had a history of blunt abdominal trauma following a road traffic accident two months prior but had no visible external injuries. He received symptomatic treatment at a government hospital and was discharged after a week.

Two weeks later, his family noticed persistent yellowish discoloration of the sclera, followed by gradually progressive abdominal fullness. He reported intermittent undocumented fever without associated chills or rigors. He had a history of occasional alcohol and cigarette use, multiple tattoos, and intravenous drug abuse (buprenorphine with pheniramine).

On examination, vital signs were stable. He was icteric. Abdominal examination revealed a grossly distended, non-tender abdomen with fluid thrill and no signs of peritonitis or organomegaly. Bowel sounds were present.

Initial blood investigations showed raised alkaline phosphatase and bilirubin. Ascitic tap yielded greenish, bilious fluid, prompting a diagnostic dilemma. Ultrasonography showed only gross ascites and altered liver echotexture. CECT of the abdomen revealed hepatomegaly, gross ascites (suggestive of peritonitis), and a space-occupying lesion in the right lobe of the liver, likely a complex cyst.

Since there were no signs of peritonitis, a pigtail catheter was inserted under ultrasound guidance for drainage. The patient continued to produce large volumes of bilious fluid, prompting further evaluation.

The patient subsequently brought a previous CT scan from his initial admission, which revealed similar findings, linking the pathology to the prior trauma. MRCP was then performed and showed an ill-defined, heterogeneously T1 hypointense/T2 hyperintense lesion measuring 6.3 × 4.5 × 8.2 cm in segments V and VII of the liver, abutting the right anterior sectoral duct, with possible communication. This suggested the diagnosis of a post-traumatic bilioma with bile leak.

The patient underwent ERCP on 6/2/25, which confirmed a leak from the right hepatic duct. A 7 Fr biliary stent was placed.

Post-procedure, drain output gradually decreased and stopped within two weeks. A follow-up ultrasound showed no residual collection, and the pigtail catheter was removed. The patient showed complete clinical recovery.

Discussion

Extrahepatic bile duct injuries due to blunt abdominal trauma are extremely rare, especially isolated right hepatic duct or sectoral duct injuries. The mechanism may involve compression of the liver against the spine, shearing forces, or ischemic necrosis of bile ducts. Most such injuries are overshadowed by

concurrent visceral injuries, making isolated biliary injuries harder to detect.

Clinical presentation may be delayed, as in our patient, with non-specific signs such as jaundice, pain, and ascites. A greenish ascitic fluid should raise suspicion of bile leakage rather than portal hypertension-related ascites.

Imaging plays a key role: ultrasound and CT may suggest fluid collections but often miss ductal injuries. MRCP is superior in delineating biliary anatomy and identifying leaks. ERCP serves both diagnostic and therapeutic purposes. In our case, timely MRCP followed by ERCP and stenting obviated the need for surgery.

Conclusion

This case emphasizes the importance of considering biliary injury in patients presenting with jaundice and ascites following blunt abdominal trauma, even if the initial trauma appears trivial. Early imaging with MRCP and therapeutic ERCP can lead to effective non-surgical management.

Figures



Figure 1: Coronal CT image showing gross ascites with compression of bowel loops.



Figure 2: Coronal CT image showing free fluid in the peritoneal cavity with preserved solid organ architecture.

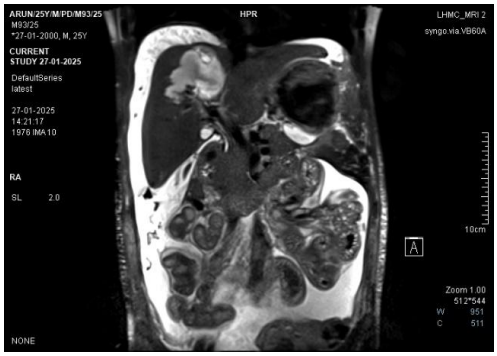


Figure 3: Coronal T2-weighted MRI image showing loculated ascites and biliary tract delineation.

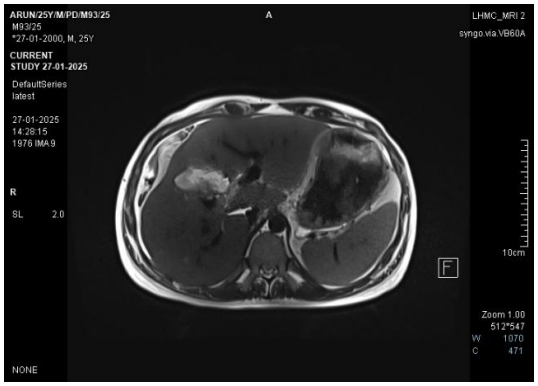


Figure 4: Axial T2-weighted MRI showing well-demarcated fluid collection near the porta hepatis.



Figure 5: ERCP image showing contrast extravasation from the right hepatic duct indicating bile leak.

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