Appearances Can Be Deceiving: Blunt Hepatic Injury With Completely Intrahepatic Severe Ductal Injury

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Introduction

Blunt hepatic trauma is not only life-threatening but also poses risk for a wide variety of biliary complications. The incidence of biliary ductal injuries after live trauma are low but is associated with high risk. The management of traumatic liver injuries has changed throughout the years, with non-operative management of liver trauma has become standard of care in hemodynamically stable patients.

Case

- 38-year-old healthy female who presented as a Priority Trauma Alert following a high-speed motor vehicle collision. On exam, patient presented with altered mental status, hypotension and mild tachycardia. FAST positive in right upper quadrant. MTP started and patient taken immediately for exploratory laparotomy.
- In the operating room, patient found to have hemoperitoneum and Grade IV liver laceration. No frank bile was found at this time. Due to severe acidosis and hypothermia, the patient was packed and left open to return for a second look laparotomy.
- Post-operatively, completion CT scans and additional imaging revealed revealed multiple rib fractures (R 1-3, 11 and L 1-12), spinal process fractures (C6-7), transverse process fractures (T1-2, L1-4), compression fracture (T12), right humerus, left radial/ulnar fractures, and right navicular bone fractures.
- On hospital day one, the total bilirubin was markedly elevated at (18.6 mg/dL) and there was a significant transaminitis. Due to this significant rise, there was concerns for biliary injury. The patient returned to the operating room and Hepatobiliary Surgery was consulted intraoperatively. The liver was mobilized and meticulously inspected. The duodenum was Kocherized and we dissected out the hepatoduodenal ligament. No evidence of biliary injury was found. A slightly de-vascularized caudate lobe with no obvious ductal injury and the previous lacerations were the only findings. Drains were left and the abdomen was closed. Post operative MRCP revealed a fluid collection of segment VIII measuring 7.0 x 2.9 cm.

Case

- On hospital day two, GI was consulted and the patient underwent ERCP that revealed blunt obliteration of the natural biliary tree at the level of the right hepatic duct just distal to the bifurcation of the right and left ducts. Sphincterotomy with biliary and pancreatic duct stents were placed. Post-ERCP, her hyperbilirubinemia resolved with plans for hepatic stent removal/exchange in 6-8 weeks. Orthopedic injuries were fixed, and spinal fractures were managed non-operatively with bracing. On hospital day five, patient was extubated and had uneventful hospital course. She was discharged home on hospital day 23 with complete recovery.

Imaging

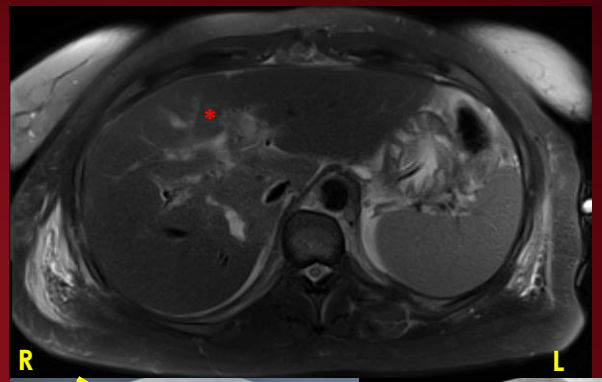

Figure 1. Axial view of MRI Abdomen. Severe laceration of right lobe of liver with fluid collection.

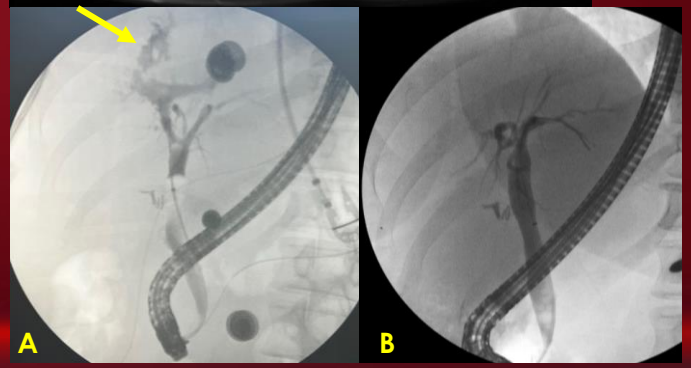

Figure 2A. ERCP of right hepatic injury with pooling of contrast near proximal to hepatic hilum. 2B. ERCP Post-Stent placement.

Discussion

- This patient underwent ERCP with biliary stenting resulting in eventual resolution of hyperbilirubinemia and bile leak. A combination of both sphincterotomy and biliary/pancreatic stenting was performed in this patient, which reduces the pressure gradient between the bile duct and duodenum and allows bile to flow preferentially down the path of least resistance and allow the leak to heal. This may be accomplished by stenting of the bile duct, sphincterotomy or a combination of the two. There is currently no consensus on the treatment of traumatic bile leaks and decision are often based on the extent and mechanisms of injury, associated organ injuries and local expertise and resources.

Conclusion

- Biliary leak after severe liver trauma is complex injury requiring multidisciplinary care. In select patients, ERCP can be useful as both a diagnostic and therapeutic tool for safe treatment of biliary ductal injuries. One must maintain a high index of suspicion for biliary leak even with a negative exploratory laparotomy.

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