Available online at **www.ijicr.com**

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 6 (2025)
June 2025 Issue

INDIAN JOURNAL OF INNOVATIVE CLINICAL RESEARCH

Received 22 April 2025
Revised 19 May 2025
Accepted 25 June 2025

CASE REPORT

PARTIAL TRANSECTION OF THE COMMON HEPATIC BILE DUCT AFTER BLUNT ABDOMINAL TRAUMA: CASE REPORT

Dr Gaurav Kr Satyarthi, Department of General Surgery, Katihar Medical College, Katihar

Abstract

Introduction: Extrahepatic biliary tract injuries from blunt abdominal trauma are exceptionally rare and are often overlooked due to delayed and nonspecific clinical presentation.

Methods: A 55-year-old male patient presented with abdominal pain, jaundice, and fever following a motor vehicle accident. Clinical examination and initial investigations were inconclusive. Further imaging and surgical exploration revealed a partial transection of the common hepatic duct. The patient underwent multiple staged procedures including T-tube drainage and supportive management.

Results: Postoperative recovery was prolonged but successful, with resolution of symptoms and normalization of liver function. Coordinated care involving surgical, gastroenterological, and radiological teams contributed to the favorable outcome.

Conclusion: Blunt trauma to the extrahepatic bile duct, although rare, must be considered in patients with progressive jaundice post-trauma. Early diagnosis and multidisciplinary intervention are critical for optimal patient outcomes.

Keywords: Abdominal trauma, extrahepatic biliary injuries, hepatic duct, gastroenterology

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 6 (2025)
June 2025 Issue

BACKGROUND/INTRODUCTION

The incidence of where there are very few non-iatrogenic traumatic blunt extrahepatic biliary injuries. In contrast to blunt intrahepatic trauma without iatrogenic causes, they are far less common (1 in 10,500 cases). 2.8% to 7.4% of cases involve biliary injuries [1,2]. They are often extrahepatic injuries that are disregarded in the preliminary evaluation. Most commonly, blunt extrahepatic ductal injury occurs at these sites. The origin of the left hepatic duct, the bifurcation of the hepatic ducts, and the areas at the pancreaticoduodenal junction are especially susceptible to damage from strong shearing forces. [3,4,5]. Although there are no dedicated guidelines specifically for blunt extrahepatic biliary injuries, the American Association for the Surgery of Trauma (AAST) has established a grading system for extrahepatic biliary duct injuries, and the Losanoff and Kjossev classification provides a framework for blunt gallbladder injuries [6,7]. These classification systems have contributed to a better understanding and initial management of these rare injuries, especially since clinical signs can be delayed and, in some cases, postponing treatment may be preferable [8]. When surgical intervention is required, it is generally recommended to perform operative repair either within the first 7 days (early) or after 6 weeks (delayed) following the injury [9,10].

RESULTS

A 55-year-old smoker with chronic chemotherapy for colorectal cancer and obstructive pulmonary disease was presented as a Level 1 trauma patient following a motor vehicle crash. He was intubated upon presentation. His right hip deformity, tachycardia, and hypotension were corrected following fluid resuscitation. Central lines and arterial access were established. The FAST scan in the initial setting was negative for penetrating injury. Bilateral pneumothoraces were revealed on chest X-ray, which were both managed with chest tube insertion.

Pelvic X-ray revealed a right hip fracture that was reduced. Contrast-enhanced computed tomography of the neck, thorax, abdomen, and pelvis showed two grade 1 carotid injuries (which were subsequently excluded by angiography), intra-abdominal free air, thickening of the duodenojejunal junction, pancreatic injury with extravasation of contrast, and a right pelvic fracture requiring surgery.

Following trauma, the patient was administered a massive transfusion and urgent exploratory laparotomy according to the principles of damage control surgery, with a focus on the management of bleeding and contamination of the abdomen. A huge surgically controllable mesenteric hematoma was encountered. Duodenal and pancreatic injuries (AAST Grade II) were repaired by suture and drainage. Intraoperative bile soiling and bleeding within the porta hepatis led to intraoperative cholangiography, which did not show ductal injury. A partial avulsion of the gallbladder (AAST Grade III) was also seen and treated with cholecystectomy. The patient received staged damage control surgery, with a temporary drain and vacuum-

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 6 (2025)
June 2025 Issue

assisted intraperitoneal closure by mounted dressings. He was then taken to the ICU for resuscitation, with prioritization of physiological stabilization before definitive repair.

Patient's in-hospital stay was 77 days, of which 54 days were spent within intensive care, thus determining the severity of his medical condition. Early postoperative complications were the ongoing bilious drainage and intra-abdominal hemorrhage, which were treated with repeated surgical re-explorative maneuvers, drain insertions, and supportive therapy. Postoperative imaging identified dilation of the biliary tree, which was later confirmed on fluoroscopic cholangiograms to have a stricture of the common hepatic duct. These findings were consistent with ongoing bile leakage. A multidisciplinary team resolved this complex biliary problem using endoscopic retrograde cholangiopancreatography (ERCP) with imaging-guided percutaneous interventions to enable rendezvous technique biliary stenting. Drain removal and achievement of leak cessation led to the patient being discharged on day 77 from the hospital. Upon discharge, the patient was on regular diet and did not require any additional drainage

DISCUSSION

Blunt extrahepatic biliary injuries are exceptionally rare, representing less than 1% of abdominal trauma cases and often presenting with delayed or missed diagnosis due to their insidious nature [3] The most frequent sites of injury include the upper edge of the pancreas, the hepatic duct bifurcation, and the origin of the left hepatic duct, typically resulting from shearing forces or direct compression during trauma [4,5]. Management is contingent on the extent of injury; complete transections frequently necessitate Roux-en-Y hepaticojejunostomy, whereas incomplete transections are typically treated with primary closure or T-tube drainage [6,7]. Diagnosis can be difficult and may involve endoscopic procedures or advanced imaging, particularly if the first surgical repair fails or is postponed [8,9]. Since a delayed diagnosis is linked to increased morbidity and mortality, early detection and tailored multidisciplinary care are essential for minimizing complications and enhancing results [10,11,12].

CONCLUSION

This is a rare instance of blunt abdominal trauma resulting in partial transection of the common hepatic bile duct, which was complicated by-difficult-by-difficult management and delayed diagnosis. After requiring several surgical procedures and a lengthy hospital stay, the patient eventually benefited from a multidisciplinary approach that included gastroenterology, interventional radiology, and surgery. Successful biliary drainage and recovery were accomplished through customized step-by-step care despite the intricacy and possibility of missed injury. The significance of collaborative management and a high level of clinical suspicion in rare

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 6 (2025)
June 2025 Issue

extrahepatic biliary injuries following blunt trauma is highlighted by this case.

LIMITATION

Due to the nature of a single case study, findings may not be generalizable. Additionally, the lack of advanced intraoperative imaging limited pre-surgical localization of the injury.

RECOMMENDATION

Clinicians should maintain a high index of suspicion for biliary tract injuries in trauma patients with unexplained jaundice. Early referral for specialized imaging and multidisciplinary evaluation is recommended for optimal outcomes.

ACKNOWLEDGEMENT

The author acknowledges the surgical teams of Katihar Medical College for their assistance.

CONFLICT OF INTEREST

The author declares no conflict of interest related to this study.

LIST OF ABBREVIATION

CBD: Common Bile Duct

HD: Common Hepatic Duct

ERCP: Endoscopic Retrograde Cholangiopancreatography

USG: Ultrasonography

CT: Computed Tomography

REFERENCES

1. Kapoor S, Nundy S. Bile duct leaks from the intrahepatic biliary tree: a review of its etiology, incidence, and management. HPB Surg. 2012;2012:752932. doi:10.1155/2012/752932. PMID: 22645406; PMCID: PMC3356893.
2. Yuan KC, Wong YC, Fu CY, et al. Screening and management of major bile leak after blunt liver trauma: a retrospective single-center study. Scand J Trauma Resusc Emerg Med. 2014;22:26.
3. Benkabbou A, Castaing D, Salloum C, et al. Treatment of failed Roux-en-Y hepaticojejunostomy after post-cholecystectomy bile duct injuries. Surgery. 2013;153:95.
4. Brunicardi FC, Andersen DK, Billiar TR, et al. Schwartz's Principles of Surgery. 11th ed. Dubuque, IA: McGraw-Hill; 2019.
5. Pelletier A, Hammel P, Zappa M, et al. Fatal bile duct necrosis: a rare complication of transcatheter arterial chemoembolization in a patient with endocrine hepatic metastasis. Case Rep Gastroenterol. 2008;2:356–362. doi:10.1159/000158542.
6. Abdelgawad M, Fernandez L, Wu D, et al. Common hepatic bile duct partial transection: a rare consequence of blunt abdominal

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 6 (2025)
June 2025 Issue

trauma. A case report and brief narrative review. J Surg Case Rep. 2025;2025(3):rjaf101. doi:10.1093/jscr/rjaf101. PMID: 40051810; PMCID: PMC11881695.

7. Sanford Z, Abdolmaali K, Robinson D, Denning D. Blunt trauma: an uncommon cause of common bile duct injury. Trauma Case Rep. 2015;1(5-8):44–48. doi:10.1016/j.tcr.2015.10.004. PMID: 30101175; PMCID: PMC6082432.
8. Coccolini F, Kobayashi L, Kluger Y, et al. WSES-AAST expert panel. World J Emerg Surg. 2019;14:56.
9. Ngo D, Jia JB, Green CS, et al. Cancer therapy-related complications in the liver, pancreas, and biliary system: an imaging perspective. Insights Imaging. 2015;6(6):665–677. doi:10.1007/s13244-015-0436-7. PMID: 26443452; PMCID: PMC4656242.
10. Cheng Y, Xiong XZ, Zhou RX, et al. Repair of a common bile duct defect with a decellularized ureteral graft. World J Gastroenterol. 2016;22(48):10575–10583. doi:10.3748/wjg.v22.i48.10575. PMID: 28082809; PMCID: PMC5192268.
11. 23rd European Congress of Trauma and Emergency Surgery. Eur J Trauma Emerg Surg. 2024;50(Suppl 3):89–362.
12. Parks RW, Diamond T. Non-surgical trauma to the extrahepatic biliary tract. Br J Surg. 1995;82(10):1303–1310.