ORIGINAL RESEARCH PAPER

Volume-7 | Issue-2 | February-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ISOLATED GALLBLADDER RUPTURE FOLLOWING STAB INJURY – A RARE CONDITION

Surgery

Shivayak Mishra Department of Surgery, B. J. Govt. Medical College & Sassoon General Hospital, Pune

shraiya tiwari Department of Surgery, B. J. Govt. Medical College & Sassoon General Hospital, Pune

Vandana S. Dube Department of Surgery, B. J. Govt. Medical College & Sassoon General Hospital, Pune

ABSTRACT

Isolated traumatic gallbladder rupture subsequent to stab abdominal injury is rare. Most literatures on the subjects consist of case reports. We reported a rare case of isolated gallbladder rupture and discussed the possible predisposing factors to gallbladder rupture.

KEYWORDS

Introduction

The gallbladder is a well-protected organ, being partially embedded in the liver and covered by the rib cage (1). Gallbladder injury resulting from abdominal trauma is rare, being found in only about 2% of patients who undergo laparotomy for abdominal trauma. Its small size and anatomic location—partially embedded in the liver tissue, surrounded by the omentum and intestines, and overlaid by the rib cage— provides good protection.

Diagnosis can be difficult, and delay may result in the development of weight loss, nausea, vomiting, abdominal distension, jaundice, ascites, and abdominal pains. Delayed imaging with computed tomography can aid in diagnosis, especially in differentiating benign processes from true gallbladder injuries.

Treatment for gallbladder injury is most commonly cholecystectomy. Mortality rates in patients with gallbladder injuries are related to associated injuries, including cardiac, thoracic or intra-abdominal hemorrhage, or multi-organ failure and/or brain damage. In isolated gallbladder injury, the prognosis is good.

Case Report

A 36-year-old male presented to the emergency department with history of stab injury 3 hours back. At arrival, the vital signs were heart rate 100 beats/min, respiratory rate 24 times/min, and blood pressure 102/60 mmHg. Physical examination showed a 3x2 cm stab injury mark on over the right hypochondrial region. Besides, diffused muscle guarding and rebound tenderness were also present. Initial lab results revealed an elevated AST of 59 U/L, mildly elevated WBC of 10.4 x10*9/L and an elevated lactate of 2.6 mmol/L. Normal ALP, and total bilirubin of 83 U/L and 3.6 µmol/L, respectively. The patient underwent ultrasonography which showed normal study. X-ray studies were also normal. Exploratory laparotomy was done. A perforation of size about 1x1 cm at body of the gallbladder was found, penetrating through the walls of gallbladder (Figure 1). Bile spillage was seen from the ruptured gallbladder. Cholecystectomy was performed, and no other visceral injury was noted. Postoperative course was uneventful. This patient was discharged on the 8th postoperative day. There was no abdominal discomfort noted at the out-patient department follow-up subsequently.

Fig. 1- A 1x1 cm rupture in gall bladder

Discussion

Gallbladder injury resulting from abdominal trauma is rare, as the gallbladder is a well-protected organ due to its relatively small size and anatomic location. It is partially embedded in the liver tissue, surrounded by the omentum and intestines, and overlaid by the rib cage (1). Because of this protection, gallbladder injuries are usually associated with injury of other abdominal organs, especially the liver (1, 2), making isolated gallbladder injury an even rarer occurrence (2, 3). Penetrating injury is a common cause of gallbladder injury followed by motor vehicle collisions (1). Predisposing factors to gallbladder injury include a thin-walled normal gallbladder, a distended gallbladder, and alcohol ingestion (3), while a fibrotic thickened, chronically inflamed gallbladder is less likely to be injured (4). Males are more commonly affected, with 73- 89% of patients being male (1, 2), with a median age of 27 years, though wide age ranges have been reported (2, 4). Gallbladder injuries are found in only about 2% of patients who undergo laparotomy for abdominal trauma(1).

Gallbladder injuries rarely occur in isolation; most occur in conjunction with liver injury, with incidences reported at 83% to 91%. Associated injury to the spleen and duodenum are also common, in up to 54% of patients (1, 3, 5).

Diagnosis of gallbladder injury can often be difficult. The diagnosis can be made by detection of blood in the gallbladder lumen. Echogenic fluid can be detected using ultrasound. With CT, high-density fluid within the lumen, thickening or indistinctiveness of the gallbladder wall, and active arterial extravasation into the lumen suggest gallbladder injury (3, 6). Delayed imaging can be useful in differentiating between relatively benign gallbladder processes and true gallbladder injuries. An increasing amount of dense fluid in the gallbladder on delayed images is consistent with true gallbladder trauma; with more benign processes, the dense fluid remains stable (6). CT is the imaging modality of choice for detecting gallbladder injury (3, 5, 6).

Diagnosis of gallbladder injury is often not made until abdominal exploration, often indicated for associated intraabdominal injuries. Pre-operative diagnosis can, at times, be made with various imaging techniques (4). Patients may present with hemodynamic instability and an acute abdomen, often related to concurrent intra-abdominal injuries (2). More commonly in patients with isolated gallbladder injuries, presentation is nonspecific and delayed. In the period shortly after trauma, the leakage of bile is not sufficiently toxic to the peritoneum (1, 4). Laboratory tests may often be normal (3, 4, 7). Peritoneal lavage may aid in diagnosis. Presence of bile in the peritoneal fluid is consistent with gallbladder trauma, but can also occur with injury to the duodenum; however, absence of bile does not rule out gallbladder injury (1, 4).

Gallbladder injury is potentially life-threatening, and early diagnosis is important. Without early detection, peritonitis may develop over the course of weeks, and a patient may present with weight loss, nausea, vomiting, abdominal distension, jaundice, ascites, low-grade fever, and abdominal pains (1, 7). Mortality in patients with gallbladder

injuries is related to associated injuries. One series reports a mortality rate of 24%, with these patients dying as a result of unresuscitatible cardiac, thoracic, or intraabdominal vascular hemorrhage, multi-organ failure, and/or brain damage, consistent with other series (1, 2). Fortunately, the mortality rate from isolated gallbladder injury is very low. The prognosis for gallbladder injury, with early detection and lack of other severe associated injuries, remains quite good (1, 4, 7). The preferred treatment of gallbladder injury is most often cholecystectomy, with favourable results (1, 2, 3, 4, 6).

References

1. Soderstrom CA, Maekawa K, DuPriest RW Jr, Cowley RA. Gallbladder injuries resulting from blunt abdominal trauma: an experience and review. Ann Surg. 1981;193:60-6. [PubMed]
2. Ball CG, Dixon E, Kirkpatrick AW, Sutherland FR, Laupland KB, Feliciano DV. A decade of experience with injuries to the gallbladder. J Trauma Manag Outcomes. 2010;4:3. [PubMed]
3. Pavlidis TE, Lalountas MA, Psarras K, et al. Isolated complete avulsion of the gallbladder (near traumatic cholecystectomy): a case report and review of the literature. J Med Case Rep. 2011;5:392. [PubMed]
4. Sharma O. Blunt gallbladder injuries: presentation of twenty-two cases with review of the literature. J Trauma. 1995;39:576-80. [PubMed]
5. Jaggard MK, Johal N, Choudhry M. Blunt abdominal trauma resulting in gallbladder injury: a review with emphasis on pediatrics. J Trauma. 2011;70:1005.

[PubMed]

6. Wittenberg A, Minotti AJ. CT diagnosis of traumatic gallbladder injury. AJR. 2005;185:1573-4. [PubMed]
7. Laffey DA, Hay DJ. Isolated perforation of the gallbladder following abdominal trauma. Postgrad Med J. 1979;55:212-4. [PubMed]