Patient Safety in Surgery

CASE REPORT Open Access

Gallbladder perforation as a rare complication of minor blunt abdominal trauma: a case report

Haddis Birhanu W/kiros[1], Ashenafi Amsalu Feleke[2], Kidanemariam Mulualem Alamir[2], Temesgen Agegnehu Abebe[3], Wudie mekonen Alemu[4], Shimelis Seid Tegegne[5] and Habtu Adane Aytolign[4*]

Abstract

Background Blunt abdominal trauma leading to gallbladder injury is rare and presents a diagnostic challenge. Here, we present scenario of gallbladder perforation due a blow from a fist to the abdomen.

Case presentation A 30-years old male patient was admitted to University of Gondar comprehensive specialized hospital emergency department in Ethiopia due to blow from a fist on the right upper abdomen with a presumptive diagnosis of generalized peritonitis and underwent emergency laparotomy. The operative finding showed that, gallbladder was perforated at the fundus and a cholecystectomy was done. Postoperative time was uneventful and discharged on the 5th postoperative day.

Conclusion Isolated gallbladder injury from a fist fight is rare, however, should be considered in the differential diagnosis of patients presenting with abdominal pain following minor blunt abdominal trauma.

Keywords Gallbladder, Blunt abdominal trauma, Gallbladder perforation, Cholecystectomy

Introduction

The gallbladder is a relatively well protected organ from external trauma, being embedded in the liver mass, cushioned by the nearby omentum and bowel, and protected under the rib cage [1–3]. Therefore, gallbladder injury is rare and is accompanied by other visceral injuries. Furthermore, isolated gallbladder trauma is by far rare accounting around 2% [3, 4]. The most common causes are road traffic accident followed by fall down [4]. The current case report might be the second which is caused by blow fist injury according to the existing literatures [4]. Due to its rarity, isolated traumatic gallbladder injury is diagnostic challenge with fatal consequence if not managed timely [5]. The nonspecific presenting symptoms are nausea, fever and right upper quadrant (RUQ) pain, especially in a patient with blunt abdominal trauma [6]. Many patients are diagnosed using ultrasound (US), computed

*Correspondence:
Habtu Adane Aytolign
habituadane@gmail.com
[1]Department of Surgery College of Medicine and Health Science, Bahir Dar University, Bahir Dar, Ethiopia
[2]Department of Surgery College of Medicine and Health Science, University of Gondar, Gondar, Ethiopia
[3]Department of Surgery College of Medicine and Health Science, Debre Markos University, Debre Markos, Ethiopia
[4]Department of Anesthesia College of Medicine and Health Science, University of Gondar, Gondar, Ethiopia
[5]Department of Anesthesia College of Health Science, Debre Tabor University, Debra Tabor, Ethiopia

tomography (CT), magnetic resonance imaging (MRI), peritoneal aspiration, endoscopic retrograde cholangiopancreatography (ERCP) scintigraphy and explorative laparoscopy [2–5, 7]. From those diagnostic modality, contrast-enhanced CT as the most sensitive and effective diagnostic tool for early detection of gallbladder injuries [7]. Management of isolated gallbladder injury can be laparoscopic or open cholecystectomy [1–5, 7–11].

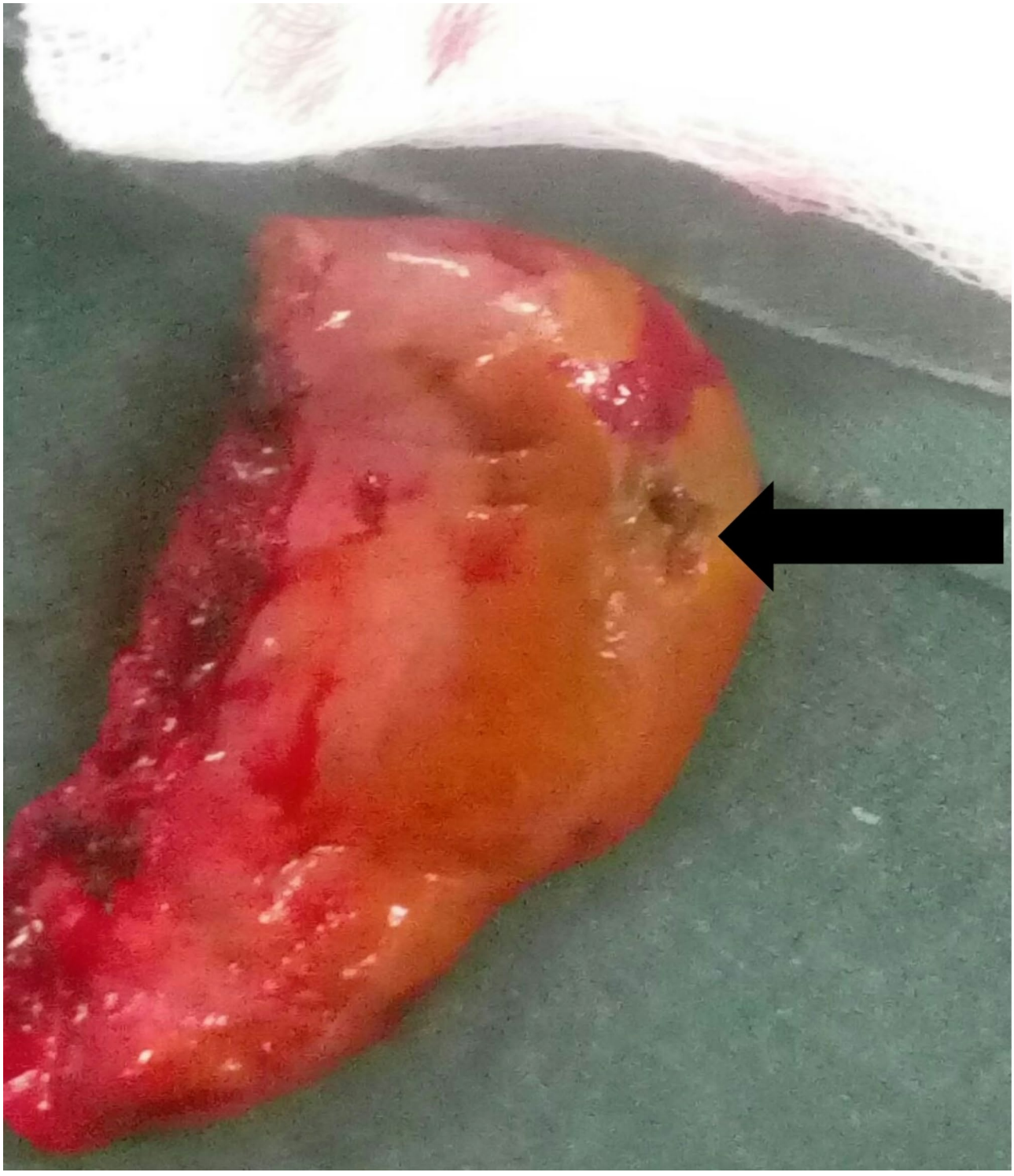

Fig. 1 Intraoperative images of the perforated gall bladder. An Arrow shows the site of perforation

This case report describes the rare occurrence of isolated gallbladder rupture caused by minor blunt abdominal trauma from blow of a fist.

Case presentation

A 30-years old male patient was admitted to University of Gondar comprehensive specialized hospital emergency department in Ethiopia due to blow from a fist on the right upper abdomen with a presumptive diagnosis of generalized peritonitis and underwent emergency laparotomy. He was presented with nausea and vomiting of two days after he sustained a blow from a fist fight on the right anterior abdomen and lower lateral chest of five days duration. He had only mild pain complaints just after the trauma, and that was resolved spontaneously. On physical examination, he was acutely sick looking with vital signs (pulse rate of 120 beats per minute (bpm), respiratory rate of 22 breaths per minute (bpm) and temperature of 36.7 °C (°C). Deeply icteric sclera and on abdominal examination: full abdomen and mild tenderness all over the abdomen. Laboratory tests show normal blood cell count, organ function tests (SGOT = 66, SGPT = 41, bilirubin direct = 2.4, bilirubin total = 4.6, albumin = 2.4 g/dl), abdominal ultrasound showed septated complex intraperitoneal fluid collection only. Because of resource limitations, we were not able to do advanced imaging. So, exploration laparotomy was decided based on clinical grounds. Intraoperatively, the gall bladder was ruptured at the center of the body with free bile in the peritoneal cavity and there were early fibrinous adhesions (Fig. 1). No associated injuries were found. For this, cholecystectomy was done. He took intravenous antibiotics for five days analgesic as well depending on the level of pain. Postoperative time day 1st day 2nd, day 3rd and day 4th were uneventful and he was discharged on the 5th post-operative day. During his regular follow up after surgery he was stable and free of symptoms until his final one-year appointment.

Discussion

Because of its anatomic position and relatively small size, blunt abdominal injury to the gall bladder is rare and the true incidence is not exactly known. Preoperative diagnosis is difficult and the diagnosis is almost always intraoperative especially in resource limiting areas [12]. Isolated traumatic gall bladder injury is more likely in male adults' individuals probably due to their increased involvement in violence activities and the next groups are children in road traffic accident [13]. The road traffic accident, fall down, knocked down by a horse, direct blow with butt of gun, direct blow to the abdomen and blow from fist are the causes to isolated gallbladder injury [4]. The current case report might be the second which is caused by blow fist injury according to the existing literatures [14].

The fundus is the common site of perforation and there are presumed risk factors generally for blunt trauma perforations like: distended gall bladder following meals or alcohol, obstructive biliary diseases, and non-scared gall bladder [14]. Most Patients' presentation are vague and it creates a diagnostic challenge for clinicians, and most patients miss and come in a delayed time [15, 16]. Usually, patients report mild symptoms with minimal constitutional upset that resolve transiently and don't visit or are discharged from the health care center until later and they come back days to weeks later with abdominal distension and ascites the so called "period of illusion" [12]. Here, in the current case also, presentation is after a kind of period of illusion, which is really difficult for diagnosis. This is further compounded with limited resources for further workup with advanced imaging modalities [17, 18]. After intraoperative diagnosis, management depends majorly on the local findings. In our case, we resuscitated him well preoperatively, the local tissue was not as friable as in other cases, and we did a formal cholecystectomy, which is a standard recommendation. But, when local tissue is too friable, partial cholecystectomy is the next option [6, 19, 20].

Some proposes laparoscopic cholecystectomy as the safest and most effective way out of isolated gallbladder injuries for diagnosis and management [16]. Endoscopic sphincterotomy and temporary biliary stenting are also well suited to encourage preferential bile drainage to the duodenum and prevent bile leakage into the peritoneal cavity after complicated laparoscopic cholecystectomy [21]. Postoperatively, patients' need to be monitored for adequate hydration status, signs of biliary leakage and possible infections.

Conclusion

Isolated gallbladder injury from a fist fight is rare, however, should be considered in the differential diagnosis of patients presenting with abdominal pain following minor blunt abdominal trauma.

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Author contributions

All the authors contributed to this paper, revising article and gave final approval to be published, and agree to be responsible for this work.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent for publication

This case report was conducted in accordance with the Declaration of Helsinki. Ethical clearance was obtained from University of Gondar

comprehensive and specialized hospital ethical review committee. Written informed consent was obtained from the patient for publication of this case report and is available to the editor-in-chief upon request. The research is registered with research registry with unique identifying number researchregistry10800.

Competing interests
The authors declare no competing interests.

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