CASE REPORT

Isolated gallbladder perforation following blunt abdominal trauma: A missed diagnosis

CN Ekwunife, JI Ofoegbu

Department of Surgery, Federal Medical Centre Owerri, Owerri, Nigeria

Abstract

This is a case of a 21-year-old man who presented with history of abdominal pain following blunt abdominal trauma. Although the initial ultrasound scan showed mild free peritoneal fluid, the patient was managed conservatively as a probable case of splenic injury and was discharged in satisfactory condition after 6 days of admission. He presented again 7 days later with recurring epigastric pain and had exploratory laparotomy on the presumptive diagnosis of peritonitis, probably due to peptic ulcer perforation. Intraoperatively, he was then discovered to have an isolated gallbladder perforation. This is a rare condition in which the diagnosis is often delayed or missed as was the case in our patient. To the best of our knowledge, this is the first reported case of isolated gallbladder perforation in Nigeria, and it behooves the clinician to be aware of the likelihood of this condition in patients with blunt abdominal injury.

Key words: Abdominal trauma, blunt, gallbladder, perforation

Date of Acceptance: 12-May-2012

Introduction

The gallbladder is rarely injured in blunt abdominal trauma due to its sheltered position under the liver and the rib cage.[1-3] The usually accompanying visceral injuries are the common focus of the surgeon and the radiologist. Isolated gallbladder perforation from blunt abdominal trauma has an even rarer occurrence. Its diagnosis is often delayed, and is uncommonly made before operation.[4] In order to reduce the morbidity associated with this condition, a consideration of the possibility of such injury should be entertained in patients with blunt abdominal injury. This should boost the diagnostic yield of imaging modalities such as CT and ultrasound scan.

Case Report

A 21-year old male student was referred to our institution with a history of persisting abdominal pain following a blunt abdominal injury he sustained 5 hours earlier. He was riding a motorbike that collided with a car. There was a momentary loss of consciousness at the time of the accident. He also took a heavy meal less than 2 hours prior to the incident (as we discovered much later after the operation). Examination on presentation revealed a fully conscious patient with a blood pressure of 120/80 mmHg, pulse rate of 80 beats/min, and respiratory rate of 18 cycles/min. He had a 12-cm sutured laceration on the scalp as well as bruises on the left upper and lower limbs. There were no external injuries on the abdomen but he had generalized tenderness. Investigations showed hemoglobin concentration of 12 g/dL and white blood cell count of 4.8 × 10^9/L. An initial working diagnosis of ruptured spleen was made. Abdominal ultrasound scan showed enlarged intact spleen with a span of 14 cm and moderate volume of clear peritoneal fluid. Gallbladder, kidneys, and liver were seen to be normal. He was managed conservatively and abdominal signs improved remarkably for him to be started on oral feeding on the 2nd day post trauma; and was later discharged 6 days after admission in a stable state.

Address for correspondence:
Dr. C.N. Ekwunife,
Department of Surgery, Federal Medical Centre Owerri,
P. M B 1010, Owerri, Nigeria.
E-mail: chrisekwunife@yahoo.co.uk

Access this article online

Quick Response Code:

Website: www.njcponline.com

DOI: 10.4103/1119-3077.113472

PMID: *******

He re-presented 7 days later at the emergency room with 1-day history of fever and abdominal pain, which started at the epigastrium but later became generalized. Examination showed a young man who was febrile and dehydrated. Vital signs were as follows: Blood pressure 110/70 mmHg, pulse rate 108 beats/min, and respiratory rate 42 cycles/min. The abdomen was mildly distended and tender at the epigastrium. Bowel sounds were normo-active. A diagnosis of peritonitis probably due to gastric perforation was made. He was readmitted, resuscitated, and prepared for emergency laparotomy on account of his deteriorating condition. The operative findings were 2.1 L of bilious intraperitoneal fluid and 2-cm perforation of the gallbladder fundus [Figures 1 and 2] with surrounding adhesions of the omentum to the gallbladder. Adhesiolysis was done and cholecystectomy carried out. The patient had an uneventful postoperative recovery and was discharged on the 9th day. He has remained healthy on follow-up.

Discussion

The incidence of gallbladder injuries in blunt abdominal trauma has not been satisfactorily estimated. Reports suggest that gallbladder injuries account for 1.9%-2.1% of blunt and penetrating injuries.[5,6]

A simple classification of gallbladder injuries is into 3 entities: Contusion, avulsion, and perforation/laceration/rupture. On account of its location under the surface of the liver, there is usually an associated liver laceration in 83% to 91% of cases of gallbladder perforation in blunt trauma to the abdomen.[5,7] Isolated gallbladder perforation is thus very rare indeed.

The principal cause of the blunt trauma in this condition remains road traffic accidents. Less common causes are falls and kicks to the abdomen. Males are predominantly affected.

Majority of isolated gallbladder perforations occur in non-diseased thin-walled gallbladder. It is thought that gallbladder distension following a meal or alcohol ingestion is a prerequisite for its perforation.[1] The fundus is the usual site of perforation.

There is no characteristic mode of presentation sequel to gallbladder perforation. The patient may have initial symptoms of peritonitis from the initial trauma.[7] This is commonly chemical peritonitis, from the sterile bile, which may remit for a variable duration of time. The patient may thus be discharged, only to return later to the hospital with suddenly worsening symptoms of biliary peritonitis, as was the case in our index case.[5,7] It will be debatable whether some of these cases with late presentation are due to delayed perforation of the gallbladder. The presence of jaundice will be helpful in pointing towards a possibility of gallbladder rupture, but it has to be borne in mind that cases have been documented in which the liver function tests remained normal.[7,8]

The investigations for gallbladder perforation are non-specific and diagnosis preoperatively is challenging. As a result of the rarity of the condition and the non-specific findings, the radiologist may not be equipped with adequate pattern recognition to make an accurate diagnosis.[7] Thus, it is necessary to monitor patient with serial physical examination and imaging assessments.

Abdominal ultrasound scan can assist in the diagnosis of perforation with a finding of mobile filling defect in the gallbladder wall or focal loss of reflectivity of the gallbladder.[9] Complex pericholecystic and perihepatic fluid may also be a finding. Contrast-enhanced CT is more sensitive and can demonstrate bile leakage around the perihepatic space and porta hepatis tracking down to the pelvis. This we could not carry out on our patient due to difficulty in accessing this service in our center. Tc-HIDA scintigraphy localizes biliary leakages further down to the gallbladder. Laparoscopy is worth considering in cases of diagnostic dilemma and this could also subserve therapeutic function.[10]

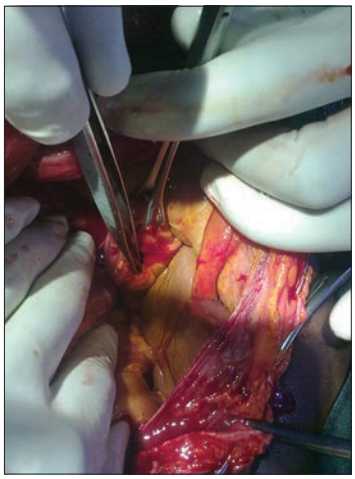

Figure 1: Intraoperative view of gallbladder with dissecting forceps in the perforation

Figure 2: Postoperative gallbladder specimen

The standard treatment for gallbladder perforation is cholecystectomy, although some have suggested cholecystorrhaphy in early cases with small lacerations. Prognosis is usually good; postoperative mortality has been minimal.

In conclusion, this case report should serve to stimulate clinicians and highlight the possibility of this kind of injury in patients who sustain blunt abdominal trauma in our environment. This will ultimately reduce the morbidity associated with it.

References

1. Schachter P, Czerniak A, Shemesh E, Avigad I, Lotan G, Wolfstein I. Isolated gallbladder rupture due to blunt abdominal trauma. HPB Surg 1989;1:359-62.
2. Bainbridge J, Shaaban H, Kenefick N, Armstrong CP. Delayed presentation of an isolated gallbladder rupture following blunt abdominal trauma: A case report. J Med Case Rep 2007;1:52.
3. Iwacewicz P, Wojskowicz P, Safiejko K, Barczyk J, Dadan J. Traumatic rupture of the gallbladder after blunt abdominal trauma. Adv Med Sci 2007;52:294-5.
4. Laffey DA, Hay DJ. Isolated perforation of the gallbladder following blunt abdominal trauma Postgrad Med J 1979;55:212-4.
5. Soderstrom CA, Maekawa K, DuPriest RW, Cowley RA. Gallbladder injuries resulting from blunt abdominal trauma: An experience and review. Ann Surg 1981;193:60-6.
6. Penn I. Injuries of the gallbladder. Br J Surg 1962;49:636-41.
7. Jaggard MKJ, Johal NS, Choudhry M. Blunt abdominal trauma resulting in gallbladder injury: A review with emphasis on paediatrics. J Trauma 2011;70:1005-10.
8. Fielding JW, Strachan CJ. Jaundice as a sign of delayed gallbladder perforation following blunt abdominal trauma. Injury 1975;7:66-7.
9. Kao EY, Desser TS, Jeffrey RB. Sonographic diagnosis of traumatic gallbladder rupture. J Ultrasound Med 2002;21:1295-7.
10. Kohler R, Millin P, Bonner B, Louw A. Laparoscopic treatment of an isolated gallbladder rupture following blunt abdominal trauma in a school boy rugby player. B J Sports Med 2002;36:378-9.

How to cite this article: Ekwunife CN, Ofoegbu JI. Isolated gallbladder perforation following blunt abdominal trauma: A missed diagnosis. Niger J Clin Pract 2013;16:392-4.

Source of Support: Nil, **Conflict of Interest:** None declared.