

Case Report

Management of penetrating abdominal trauma in a resource limited setting of a district medical college, during COVID-19 pandemic: a case report

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ABSTRACT

Penetrating trauma abdomen is a leading cause of injuries in the modern times. Most common causes are stabbing, gunshot wounds and industrial accidents. We present a case of penetrating trauma abdomen caused by a small metallic foreign body which entered through the anterior abdomen wall, caused jejunal perforation below umbilicus and was found in the lesser sac. It was a management challenge as we are a resource limited, newly established district medical college where the next referral centre is nearly 150 km away. The patient underwent a successful laparotomy where the perforation of the intestine was closed primarily and the foreign body was retrieved.

Keywords: Acute generalised peritonitis, Pneumoperitoneum, Penetrating trauma abdomen, Foreign body

INTRODUCTION

Abdominal trauma is one of the most common causes of morbidity and mortality in the world today. It is more often seen in the younger population. The American college of surgeons national trauma data bank (NTDB) states that 14.8% of all the patients sustained abdominal injuries with 23.8% being penetrating abdominal trauma as compared to blunt abdominal trauma, seen in 12.1% patients.¹ The mechanism of injury is mainly laceration of the solid and hollow viscera which causes bleeding and intra-abdominal contamination leading to shock and peritonitis and hence requiring the urgent surgical repair.

CASE REPORT

We present the case of a 26 years old male who presented to the emergency room (ER) with acute generalised peritonitis. The patient was a labourer who was hit on the anterior abdominal wall just above the pubic symphysis by a metallic chip fragmented from a hammer. The patient developed generalised pain abdomen over the

next 12 hours after which he sought the medical aid at a primary health center from where he was referred to the newly established district medical college Chamba. The patient was severely dehydrated. Pulse rate of the patient was 104 beats per minute and was feeble. Blood pressure of the patient was 98/70 mm of Hg. The SpO₂ of the patient was 90% at room air. About two finger breadth above the pubic symphysis there was a puncture wound of size 1.0×0.5 cm. There was no fresh bleeding at the local site. There was a board like rigidity all over the abdomen. Patient was subjected to erect chest X-ray which showed free gas under both domes of diaphragm. The erect abdominal X-Ray showed a metallic foreign body within the abdominal cavity (Figure 1). The patient was resuscitated with intravenous crystalloids and was started on injection ceftriaxone and metronidazole. The haematological and biochemical blood work was done and patient planned for emergency exploratory laparotomy. The patient had consumed a lunch an hour ago so the patient was operated under combined spinal-epidural anaesthesia. A midline laparotomy incision was made. On opening the abdominal cavity there was about

500 ml of blood mixed feculent fluid which was drained. There was a perforation of size 3×3 mm in the mid jejunum at the mesenteric border (Figure 2). The margins were freshened up and primary closure of the perforation was done. There was a hematoma of about 3×3 cm at the greater curvature of the body of stomach. The hematoma was evacuated and the lesser sac opened. There was mild bruising of the stomach over 1×1 cm size area over the posterior surface of the stomach. In the lesser sac a metallic foreign body of about 5×4 mm, with sharp edge was found and removed (Figure 3). Rest of the abdomen was normal. The patient was discharged home on 8th post operative day and is recovering well.



Figure 1: Free gas under both domes of diaphragm along with a metallic foreign body in the abdominal cavity.

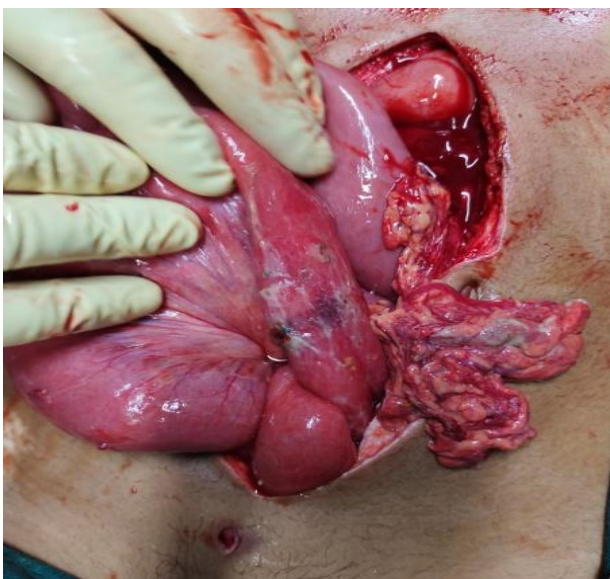


Figure 2: The penetrating wound at the lower edge of the incision, perforation of the jejunum and the hematoma over the greater curvature of the stomach.



Figure 3: The retrieved metallic foreign body.

DISCUSSION

Penetrating trauma of the abdomen is more commonly seen in the modern world. The foreign body or the missile usually enters through the skin and is retained inside the body, unless it is a perforating wound where it exits through the body. The common causes are stabbing incidences, gunshot wounds, industrial accidents and high velocity motor vehicle trauma.² 40% of the penetrating trauma are homicidal in nature while 16% are suicidal in nature. The most commonly injured intra-abdominal organ is small gut (50%) followed by large gut, liver and intra-abdominal vessels.³ The high energy wounds like those of bullets and missiles have an unpredictable trajectory. In our case the entry point was just above the pubic symphysis but the metallic foreign body was found behind the stomach in the lesser sac. These patients usually have life threatening situation due to the intra-abdominal bleeding and contamination. Liver bleeds profusely and autodigestion due to pancreatic injury can further complicate the situation.⁴ The patients having peritonitis, hemodynamic instability or evisceration require urgent laparotomy. Stab wounds are usually low energy wounds so they can be managed more conservatively looking for the breach of the peritoneum and having a wait and watch approach where the facilities for continuous monitoring are available. In stable patients the wounds can be explored to see if there is any peritoneal breach. If there is no peritoneal breach the patients can be considered for discharge.² If there is evidence of peritoneal breach then the patients who are stable can be managed with continuous clinical observation and laboratory studies. If the patient develops features of peritonitis, hemodynamic instability, fall in hemoglobin level or leukocytosis, then the patients should be considered for laparotomy. The stable patients can be evaluated with the help of ultrasonogram (USG) of the abdomen or the contrast enhanced computerized tomographic scan of the abdomen (CECT).⁵ Laparoscopy can be considered an option to see for peritoneal breach in case of stab wounds. Since we are a newly established

medical college in the hilly terrain, we are a resource limited health facility with no CECT abdomen facility. The patients usually present in shock with hemodynamic instability so they require crystalloids or blood for resuscitation.⁶ Our patient was having pneumoperitoneum so we took the patient for laparotomy. The unstable patients will also require an urgent laparotomy. The abdomen should be opened from xiphisternum to the pubic symphysis to attain a wide exposure of the abdominal cavity. The blood and fluid should be sucked out and all the quadrants of the abdomen packed with sponges to be removed systematically to look for the bleeding. The lesser sac should be explored to avoid missing the major retroperitoneal injuries.² The prognosis of the patients with penetrating trauma of the abdomen depends upon the extent of injury, number of organs injured and the time elapsed between injury and presentation to the emergency room. The mortality rate has been reported to be 0-100%.⁷ The lowest mortality is seen in patients having skin breach only. The injuries associated with peritoneal breach, hypotension, acidosis and hypothermia have a mortality rate of 50%. Majority of patients die within 24 hours of presentation. The mortality rate is especially high in patients having vascular injuries and head injury.⁸

CONCLUSION

The management of penetrating trauma abdomen is different as compared to blunt trauma abdomen. The patient presenting with peritonitis and shock should undergo laparotomy after resuscitation and the foreign bodies should be retrieved to prevent future complications.

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