

Case Report

Multiple stab injuries in an infant with silent bowel perforations: a case report

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ABSTRACT

Penetrating injuries of the abdomen occur rarely in infants and are mostly accidental. Non-accidental injuries are very rare. We report an infant boy who was stabbed by his father, at sixteen sites all over his abdomen and chest, with a pair of scissors. The child was clinically stable on presentation but omentum was seen protruding from one of the stab wounds. There was no evidence of peritonitis and imaging was normal. The stab wounds were explored, and laparotomy was performed. Intra-operatively, there was a sealed gastric perforation, a mesenteric tear and a long ileal laceration, which were all repaired primarily. In our case, though imaging was normal, a high clinical suspicion and early laparotomy reduced the morbidity and avoided mortality. This case report emphasizes the high index of suspicion for intra-abdominal injuries needed in penetrating abdominal injuries and the need for early exploration even if imaging and clinical status dictate otherwise.

Keywords: Abdominal trauma, Gastric perforation, Ileal perforation, Infant trauma, Multiple stab injuries, Pediatric penetrating trauma

INTRODUCTION

Penetrating abdominal injuries in infants are usually accidental. Accidental injuries are usually non-lethal. Intentional penetrating trauma to the abdomen is life threatening.¹ Such cases usually present with features of peritonitis or imaging features suggestive of bowel perforation such as free air under the diaphragm on standing abdominal X-ray and free fluid abdomen on imaging. Recently there has been a surge in nonoperative management of pediatric abdominal injuries.^{2,3} Surgical management is indicated only in cases with shock or obvious evidence of bowel injury. Minimally invasive surgery is another option however it may not be readily available. We report an infant male presenting with multiple penetrating abdominal injuries and bowel

perforations without any clinical or radiological signs. A high index of suspicion and early laparotomy despite normal imaging improved the surgical outcome.

CASE REPORT

A twelve-month-old male child was brought to the emergency department with history of being stabbed by his father using a pair of scissors. The child was awake and alert with stable vitals. Capillary refill was normal, and the child did not appear dehydrated. On examination of the abdomen, there were sixteen paired stab wounds in the anterior abdominal wall and chest (Figure 1). There was omental evisceration through one of the epigastric wounds. There was no guarding or rigidity of the abdomen. Liver dullness was not obliterated. Bowel sounds were audible.

There was no evidence of any intrathoracic injury. Serum urea, creatinine, electrolytes and cell counts were within normal limits. X ray of the abdomen and chest did not show any evidence of air under diaphragm or thoracic injury.



Figure 1: Clinical photograph of the child showing multiple stab injuries over the chest and abdomen, with evisceration of omentum.

Ultrasound abdomen showed no free fluid or air in the peritoneal cavity. In view of the stable vitals, the baby was managed conservatively. However, after 36 hours of conservative management, the baby developed hypotension and shock. Hence, informed consent was obtained from the mother and emergency laparotomy was performed through a transverse upper abdominal incision. There was only a minimal hemoperitoneum. Liver and spleen were normal.

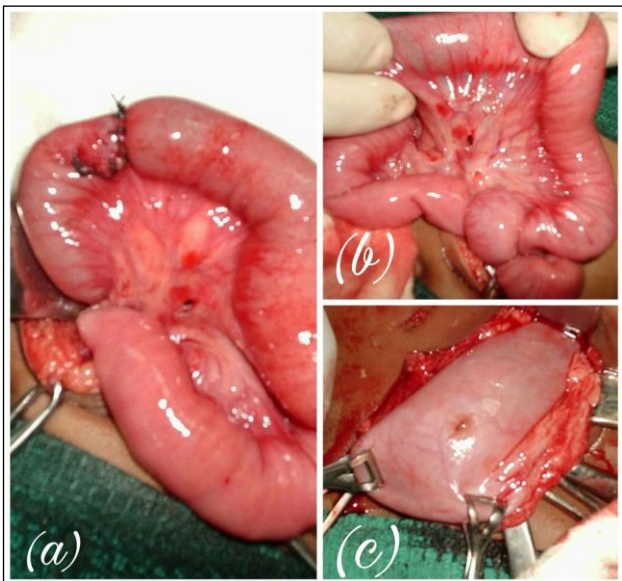


Figure 2: On table photographs of the (a) repaired ileal laceration; (b) mesenteric tear; (c) anterior gastric penetrating injury.

On inspection of bowel, there was a 3 cm sized penetrating injury in the anterior wall of the body of stomach, which was plugged by a large piece of food material. The posterior wall of stomach was normal. The food was removed, and the gastric tear was closed in two layers. There was a 3 cm long rent in small bowel mesentery that was also repaired. The ileum showed a 3 cm long laceration in the anti-mesenteric border of which was repaired in two layers (Figure 2). There was no external injury corresponding to the ileal injury site. The rest of the bowel was normal. The child had an uneventful postoperative period.

DISCUSSION

Trauma is one of the common causes of death in pediatric population. Blunt injuries account for almost 90% of life-threatening injuries in children. Penetrating injuries account for less than 5% of pediatric admissions to the emergency room. Majority of the penetrating trauma in children are due to stab or gunshot injuries. Accidental life-threatening penetrating injuries are rare.¹ The present case is peculiar in that the infant sustained sixteen stab injuries, inflicted by his father.

Small bowel is the most common organ injured in penetrating abdominal trauma.⁴ In a study by Arslan et al, the ileum was the most common organ involved in pediatric penetrating abdominal trauma. Almost 48 % of the cases with bowel perforation did not have air under the diaphragm on standing abdominal X-ray. Primary repair was done in 74% of the cases in the study. Nonspecific findings (free air or fluid in abdominal cavity) were detected in 76% and 78% of the cases in Ultrasonogram and Computerised Tomography (CT).^{5,6} This underlines the importance of repeated clinical examination and periodic assessment in stable children with penetrating abdominal trauma.

Gastric perforations following penetrating injuries commonly involve the anterior wall of the stomach. Such perforations invariably cause pneumoperitoneum.⁷ The present case had no pneumoperitoneum even with moderate sized gastric perforation. This could probably be due to the anterior gastric tear being occluded by solid food material preventing the escape of air into peritoneal cavity.

Non-selective laparotomies in penetrating abdominal injuries can result in higher rate of negative laparotomies. Cigdem et al, in a study of 90 children with penetrating abdominal trauma concluded that non-operative management can be used in clinically stable children. Since the present child was stable, initially he was managed conservatively.⁸

Ileal perforations can be treated by simple primary repair, resection and anastomosis or ostomy.⁵ The present case underwent a primary repair because the contamination was minimal, and the ileal tear was only in the antimesenteric border of ileum. Laparoscopy can be useful in emergency

management of children with evisceration of momentum and stable vitals. It is sensitive to intra-abdominal injuries, provides the advantages of minimally invasive surgery and can avoid negative laparotomy and its associated morbidity.^{9,10}

CONCLUSION

This case has been reported for its rarity and to stress on the fact that imaging studies in pediatric penetrating abdominal injuries can be normal and a high index of suspicion and early surgery is essential to provide a good surgical outcome. Since diagnostic delays can increase the morbidity and mortality, perforation of bowel must always be considered even in the absence of free intraperitoneal air on imaging.

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