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Case Report

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TRAUMATIC SMALL BOWEL PERFORATION WITH PERITONITIS IN A CASE OF INGUINO-SCROTAL HERNIA: A CASE REPORT

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ABSTRACT

Abdominal hernias can be complicated by blunt trauma. Inguino-scrotal hernias being the most common type of abdominal hernias are most prone to blunt trauma. Hollow viscus perforation with resulting peritonitis is an uncommon but important complication of traumatic inguino-scrotal hernias. Imaging plays an important role in diagnosing such patients and prevent development of further complications by timely management.

KEYWORDS: Inguino-scrotal, hernia, blunt trauma, perforation, peritonitis.

INTRODUCTION

Inguinal hernias are the most common type of abdominal wall hernia. They are the commonest type of abdominal wall herniation (up to 80%) and are most often acquired. There is a recognised male predilection with an M: F ratio of up to 7:1.[1] They may occur in children (most commonly indirect type hernias) or adults (both direct and indirect types), manifesting medial or lateral to the inferior epigastric vessels. In boys, most inguinal hernias develop because the peritoneal extension accompanying the testis fails to obliterate.[2] The most common complications of abdominal hernias are bowel obstruction secondary to the hernia, incarceration, and strangulation. Hernias may be complicated by trauma. Bowel perforation resulting from blunt trauma abdomen is a rare complication and only few reports are present in the literature. We present a case of an adult male with blunt trauma at hernial site resulting in small bowel perforation and peritonitis.

CASE REPORT

A 32 year old adult male with medical history of known right inguino-scrotal hernia presented in the emergency department with pain in right inguino-scrotal region after a person kicked him by leg in a fight. On physical examination, there was tenderness in right groin and scrotal region with partially reducible hernia. Bowel sounds were present and abdomen was soft. Ultrasonography was performed and it showed herniation of gut loops and mesenteric fat through a defect of size 1.5 cm in right inguinal region (Fig. 1) The contents were reaching upto the upper margin of scrotal sac. Echogenic fluid in right scrotal sac with associated scrotal edema was noted. Bilateral testis were normal. The patient was kept under observation. After 4 hours, he developed intense abdominal pain. On examination, heart rate was 90/min, respiratory rate 16/min and blood pressure 104/60mm Hg. There was generalized abdominal guarding and rebound tenderness on palpation. Hernia was found to be spontaneously reduced. Repeat ultrasonography revealed echogenic free fluid in pelvis. X-Ray abdomen of patient showed no evidence of free air under bilateral domes of diaphragm (Fig.2) Computed tomography (CT) scan abdomen and pelvis was further performed. It showed pneumoperitoneum with free fluid in abdomen and pelvis and enhancing peritoneal thickening in pelvis (Fig. 3a and Fig. 3b) No active contrast extravastion from bowel lumen was noted. A defect was seen in right inguinal region extending into scrotum with mesenteric fat herniation. Inflammation and stranding were seen in the hernial sac extending into ipsilateral spermatic cord with additional fluid collection in scrotum (Fig. 4) No bowel loops were seen within hernial sac. No evidence of solid visceral injury was noted. Based on CT scan findings, a diagnosis of hollow viscus perforation with features of peritonitis secondary to trauma was made. The patient was taken for exploratory laparatomy and it revealed distal ileal perforation which was later repaired by end to end ileal anastomatosis (Fig. 5).

DISCUSSION

It is believed that 25% of men and 2% of women develop inguinal hernias in their lifetime.[3] The most common

complications of hernias are bowel obstruction secondary to the hernia, incarceration, and strangulation. These complications can often be detected at clinical evaluation. Trauma, though rare, can complicate hernias. Hernias may be complicated by trauma in two ways: A hernia may be caused by trauma (traumatic hernia), or there may be trauma to a preexisting hernia. Patients with hernias can present with intestinal perforation resulting from blunt trauma to the abdomen and more rarely from blunt trauma directly to the inguinal hernia.[4,5] In patients with hernias, intestinal perforation from blunt abdominal trauma has been reported to occur more commonly in men and particularly in men older than 45 years. Intestinal perforation has occurred more frequently in patients with right inguinal hernias and has also been reported in patients with femoral, perineal, and incisional hernias.[6]

Payson and Mage suggested 3 possible ways that lead to intestinal injury: pressure at the internal inguinal ring when sac is empty, pressure within the sac and rupture due to shearing of an irreducible hernia.[7] Deceleration injuries are a result of stretching and linear tearing between fixed and movable objects. Intestinal loops near points of fixation such as Treitz's ligament, the ileocecal valve, and the phrenicocolic ligament are susceptible to such injuries. It is believed that compression forces increase the intraluminal pressure of the bowel causing rupture. In cases of blunt abdominal trauma, rise in intra-abdominal pressure can increase intraluminal pressure, and intestinal loops overlying the hernia aperture can blow out.[6] Intestinal loops trapped inside a hernia are also susceptible to perforation. In case of blunt trauma abdomen, the presence of inguinal hernia is a major factor contributing to the intestinal perforation, regardless of whether the force be direct or indirect by muscular contraction, and whether it be applied to the inguinal area or at a distance from it.[8]

Intestinal perforation from blunt trauma requires a systemic approach. X-Ray chest or left lateral decubitus radiographs can reveal as little as 1–2 ml of free intraperitoneal air. Standing and supine abdominal radiographs may show air outlining the serosa of the intestinal loops demonstating double wall or Rigler sign and air outlining the falciform ligament. CT of blunt abdominal trauma includes the administration of water-soluble oral and IV contrast material. On CT, bowel perforation reveals free intraperitoneal air. More specific CT findings of intestinal injury include extravasated oral contrast material, bowel wall thickening, bowel wall enhancement, bowel wall discontinuity, and mesenteric hematoma.[9] Sometimes in case to rule out colonic or rectal injury, per rectal contrast is given to patient.

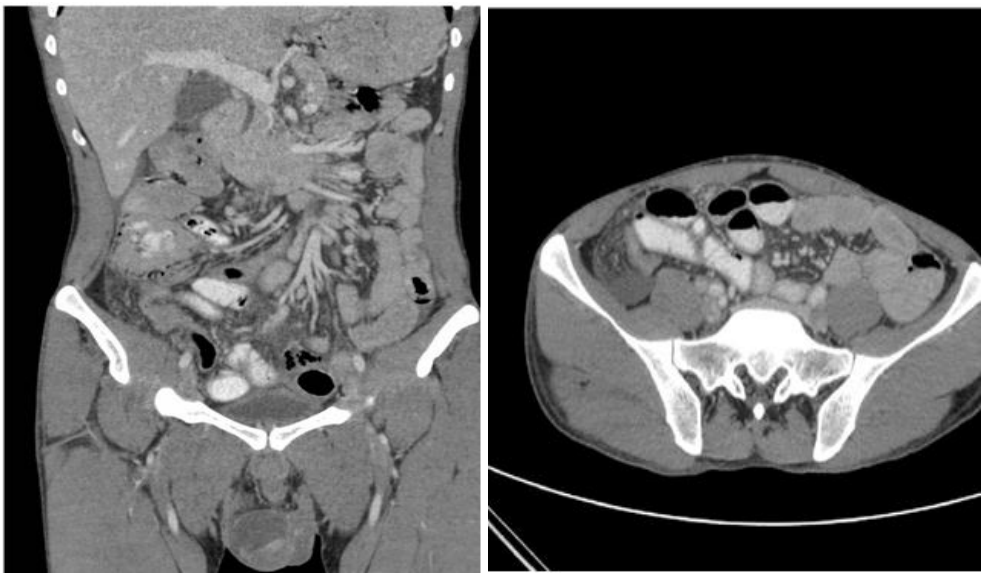
It is seen external forces that may seem too trivial to cause intraperitoneal visceral organ injury in the setting of blunt trauma can cause significant injury when applied to a patient with a hernia. Whether the intestinal loops lie across the hernia defect or are trapped within the hernia sac, careful evaluation for intestinal injury is required in patients sustaining blunt trauma.[10] Bowel perforation can secondarily result in peritonitis. Based on the clinical profile of the patient and imaging modalities, it can be diagnosed timely. In such a circumstance it is the physician's responsibility to examine the patient carefully, and not to leave out an inguinal hernia.[11]

Ultrasonographic image of right inguinal region reveals herniated bowel loops and mesentry within the herniated sac extending from inguinal canal to scrotum.

FIGURES

Fig. 1: Ultrasonographic image of right inguinal region reveals herniated bowel loops and mesentry within the herniated sac extending from inguinal canal to scrotum.

Fig. 2: X Ray Abdomen Standing. No evidence of free air under bilateral domes of diaphragm. Visulaized bowel loops are normal in caliber.



3(a) 3(B)

Fig. 3(a) 3(B): Coronal and axial contrast CT Images of patient reveal evidence of extraluminal free air in pelvis with thickening and enhancement of peritoneum in right lower abdomen consistent with peritonitis.

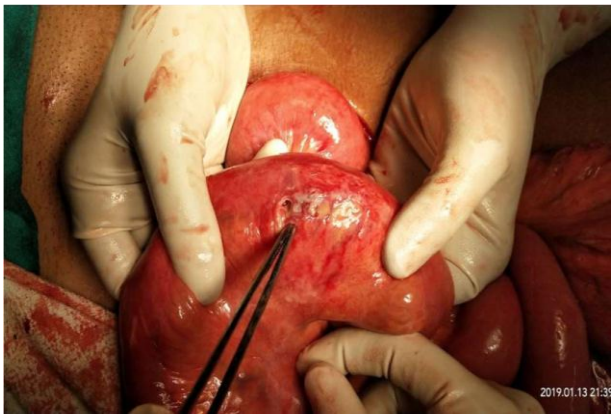


Fig. 4: Operative image reveals distal ileal perforation later repaired by ileo- ileal anastomosis.

Fig. 5: Coronal CT image showing right inguinoscrotal hernia with intra-hernial mesenteric fat stranding also involving region of right spermatic cord along with intra scrotal fluid collection.

CONCLUSION

Traumatic bowel perforation is an important complication of inguino-scrotal hernias. In case of trauma to the abdomen and suspicious signs and symptoms of the patient, it should always be kept in mind. Imaging especially CT scan can help in diagnosing such cases timely and can prevent morbidity and mortality in such patients and can prevent development of further complications.

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