Traumatic abdominal wall hernia causing proximal jejunal necrosis

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ABSTRACT

Traumatic abdominal wall hernia (TAWH) is produced by a sudden application of blunt force that is insufficient to penetrate skin but strong enough to disrupt the abdominal muscle and fascia[1]. Traumatic abdominal wall hernia is a very rare complication of blunt abdominal trauma. The first case was reported in 1906 and ever since 46 have been reported[2]. Handle bar hernia is even rarer variety of TAWH with only 33 reported cases[2]. Mesenteric avulsion is very rare and occurs in less than 5% of cases[2]. We present a rare case of a large TAWH with bowel herniation through a defect in abdominal wall after a high energy motor vehicle accident. CECT was useful in arriving at diagnosis. Laparotomy was done immediately.

Key words: Traumatic abdominal wall hernia, Handle bar hernia, Mesenteric avulsion

INTRODUCTION

Traumatic abdominal wall hernias (TAWHs) are extremely uncommon type of abdominal wall hernia as far as the etiology is concerned. Blunt traumatic abdominal hernia is defined as a herniation through disrupted musculature and fascia, without skin penetration with no evidence of a prior hernia defect at the site of injury. Handlebar hernia is an example of traumatic abdominal hernia of anterior abdominal wall which was described by Dimyan et al. in 1980. In worldwide literature, less than 50 cases of handlebar hernia have been reported. Contrast – enhanced computer tomogram (CECT) and Ultrasonography (USG) can be used to evaluate the associated intraabdominal injuries. Early surgical repair is necessary for definitive treatment. TAWH as a rare entity has a confusing clinical picture and requires a high index of suspicion for prompt diagnosis and the management. Such hernias, if missed, can result in high morbidity and may prove fatal.

CASE REPORT

A 44year male presented to emergency with history of road traffic accident 2 days back with severe abdominal pain and progressive distension in left lower abdomen. On examination patient was severely dehydrated. Patient Glassgow Coma Sclae (GCS) was 15/15. Patient's pulse rate was 130/min and was tachypnoeic (30/min). Patient was in compensatory shock. There was a large ecchymosis of size 15x15cm over left flank with localised distension without any localised laceration. Rigidity and gaurding present. Patient was immediately resuscitated ,blood investigations, X-ray abdomen erect and CECT abdomen were ordered. Blood investigations were with in normal limits except for leucocytosis (13,000). X-ray abdomen erect showed multiple air fluid levels suggestive of small bowel obstruction.

CECT abdomen with 3D- reconstruction image showed herniation of necrosed bowel loops and mesenteric vasculature with 8.7cm hernia defect in left postero lateral abdominal wall into the subcutaneous space just above left iliac fossa. There was no obvious solid viscera organ injury was noted. Laparotomy was planned and exploration revealed a rent in postero lateral abdominal wall with strangulation of jejunal loops with gangrenous changes. No other viscera injury identified on exploration. 30 cm of jejunum resected and end to end anastomosis was done. Hernia defect was closed with 1-0 prolene. Mesh repair was avoided because of extensive sepsis[3]. Postoperative period was uneventful.

Figure 1: CECT abdomen with 3D reconstruction showing herniation of jejunal loops and mesenteric vasculature into postero-lateral abdominal wall.

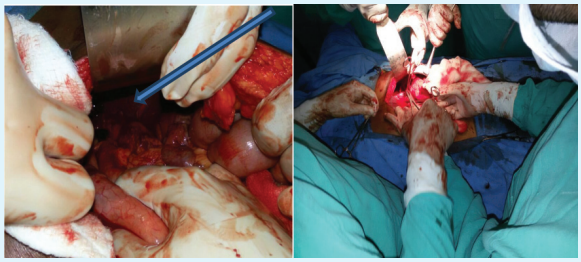

Figure 2:.Intraoperative photographs showing hernia defect and jejunal necrosis.

DISCUSSION

Although abdominal trauma is frequently encountered, abdominal wall herniation consequent to such trauma is a rare occurrence as compared to injury to the intraabdominal organs. These hernia can range from small defects to disruption of most of the anterior abdominal wall, and at times can be associated with significant internal injuries that can divert the attention of the clinician. It was Selby who reported the first such case of traumatic abdominal wall hernia (TAWH) in 1906, but even after so many years, the diagnosis of TAWH is often delayed or missed completely. The reported prevalence among trauma patients, even at dedicated trauma centers with the best of facilities, is less than 1%.

Various criteria have been laid down from time to time to define TAWH, but of prime importance is the presence of intact skin at the site of herniation, and the absence of any hernia at the site prior to the trauma. TAWH usually occurs as a result of a direct blow to the abdominal wall, which results in disruption of the muscle layers, but the skin remains intact since the force was not sufficient enough to penetrate the skin. A tangential shearing force associated with increase in abdominal pressure has also been hypothesized to be responsible for muscle or fascial disruption. Wood et al[4]. categorized TAWH into three categories: small defects caused by impact against the blunt objects, e.g. handle bars (also known as handle bar hernia); larger defects sustained during motor vehicle accidents; and rarely intraabdominal bowel herniation that is seen associated with deceleration injury. TAWH can occur in any region of the abdominal wall, but is most commonly seen in the lower quadrants, just lateral to the rectus sheath. A possible explanation for this is the absence of a posterior rectus sheath in this region.

Disruption of abdominal musculature and associated intraabdominal injury may not be evident on physical examination, as these patients are often difficult to examine and have a varied clinical presentation. Such defects may be palpable, with a reducible or irreducible swelling, or may be present over a large area with visible peristalsis or surgical emphysema. Delayed presentation can further worsen the picture since incarceration of a gut loop in the defect with subsequent perforation or strangulation may be 'contained', and may present with minimal signs of peritonitis. In such cases, a plain X-ray of the abdomen and/or a CT scan may help to establish the diagnosis. A lateral or oblique X-ray film may show a gas-filled loop outside the abdominal cavity. CT of the abdomen has been found to be more useful in defining the anatomy of the disrupted muscles, differentiating swelling from the hematoma and evaluating the associated injuries[5].

The mortality associated with isolated TAWH is rare. It is usually the associated injury that can lead to mortality in such patients. All patients who are diagnosed with TAWH should be explored as early as possible because of chances of early as well as late incarceration of the bowel in the defect, leading to the subsequent perforation or strangulation. This has been well documented to have a worse effect on the outcome. Early exploration, preferably through a midline incision, also helps to deal with other associated injuries, which have been reported in up to 100% of cases. In addition, mesenteric and bowel injuries that are liable to be missed on CT scan can also be managed well in time[6]. However the above reported case had isolated traumatic abdominal wall (TAWH) hernia without other injuries.

The surgical treatment includes primary closure of the defect in layers, with debridement of any surrounding devitalized tissue.Though we did not require the use of a prosthetic mesh for the closure of the defect, it is to be considered only in those cases where there is no hollow viscous injury or where a tension-free repair of the tissue is not possible[7].The use of laparoscopy has also been advocated by some, especially in hemodynamically stable patients and with equivocal CT scan. This has been found to be helpful in preventing negative laparotomies, in diagnosing any associated injury and in planning the incision. Laparoscopic repair of such injuries has also been reported[8].

To conclude, TAWH though rare in trauma patients, has been found to be associated with significant mortality and morbidity. A high index of suspicion is required for the diagnosis of this condition. Apart from associated injuries, a delay in the diagnosis and intervention can significantly affect the outcome of these patients.

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