Handlebar Hernia: A Rare Type of Abdominal Wall Hernia

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Abstract- Traumatic abdominal wall hernias are a type of acquired hernia secondary to blunt trauma caused by direct trauma from handlebar like object. This rare hernia is named ‘Handlebar hernia’. We report a case of such hernia without any significant intra-abdominal injury. The abdominal wall defect was repaired in layers by Jones technique. Postoperative course was uneventful. The authors recommend clinical suspicion for traumatic hernia in all patients with traumatic abdominal wall injury. Definitive treatment includes surgical exploration with primary repair of all tissue layers of the abdominal wall.

Key words: Hernia, traumatic hernia, abdominal wall

Introduction

Traumatic hernia of the anterior abdominal wall is rare. One of the mechanisms of such injury is hitting the abdomen against a handlebar like object. These injuries are localized hernias resulting from local blunt trauma to the abdominal wall. It was first described by Dimyan et al. (1) in 1980. Up to now only 70 cases have been reported in the literature (1-6). The aim of this report is to evaluate the clinical picture and management of all injuries of such case.

Case Report

A 4 years old boy presented to the emergency room after falling from his bicycle and hitting his upper abdomen sustained a direct hit on the handlebar. The patient didn't have history of ventral hernia before. Physical examination revealed stable patient. His abdominal examination showed tenderness in upper abdomen and reducible soft tissue swelling in upper of umbilicus and epigastrium with superficial ecchymosed (Figure 1) and positive cough impulse. Bowel sounds were auscultated but diminished. Laboratory investigations were within normal limits. X-ray films of the cervical spine, chest and abdomen were normal. Abdominal sonography (FAST) for free fluid was negative and revealed the defect 3*3cm in traumatic site (Figure 2). Exploratory laparotomy was performed. There was also a defect involving all layers of the anterior abdominal wall muscle in the paraumblical and epigastrium (Figure 3) with intact skin. No other intra-abdominal injury was found. The abdominal wall defect was repaired in anatomic layers using non absorbable suture material by Jones technique. The abdominal incision was closed in standard fashion. Post operative course was uneventful.

Figure 1. Ecchymosed the skin. Bowel protruding into the subcutaneous space

Figure 2. Defect 3*3 in sonography of abdominal wall
Discussion

Traumatic abdominal wall hernias are produced by direct blunt trauma from an object with insufficient force to penetrated the skin yet able to disrupt deeper tissues of muscles and fascia. This is possible because the skin is more elastic than the rest of the layers. There are three major types of traumatic abdominal wall hernias based on the mechanism of injury and the size of the defect. Type I includes small defect caused by blunt trauma. Type II larger defect developed during high energy transfer events such as motor vehicle crash or fall from a height. Type III includes defect that involves intra-abdominal bowel herniation that has been described in deceleration injuries. Recently, a thoracic handlebar hernia secondary to blunt trauma from a bicycle handlebar has been reported. Our case was type II handlebar hernia.

Some criteria have been proposed to identify traumatic hernias: absence of preexisting hernia in the same location, evidence of abdominal injury at presentation and immediate or delayed development of a hernia (usually close to the site of injury). The diagnosis is usually made based on the clinical finding. However, plain abdominal radiographs, CT scans, gastrointestinal contrast studies, and ultrasonography may be helpful in difficult cases. Occasionally, the hernia is discovered at laparotomy or peritoneal lavage done for associated injuries. In our patient, diagnosis was based on clinical picture.

In the majority of reported cases of handlebar hernia, the abdominal wall defect was in the lower abdomen. Only two cases have been reported in the upper abdomen. Abdominal wall defect in our cases was in upper abdomen. The majority of the cases described with handlebar hernias, there was no significant intra-abdominal injury. Few cases have been reported with significant intra-abdominal injury.

Definitive treatment of these hernias mandates surgical exploration and prompt repair to prevent incarceration or strangulation. This repair can be done with primary closure if the tissue allows or with prosthetic material if the defect is too large. Debate exists regarding local wound exploration versus midline exploratory laparotomy to rule out intra-abdominal injuries. Associated intra-abdominal injury would necessitate exploratory laparotomy. In conclusion, we recommend that clinical suspicion for traumatic hernia is required in cases of abdominal wall injury. Such patients should be evaluated and treated properly for the possibility of significant intra-abdominal injury.

References