

Handlebar Hernia: A Rare Type of Abdominal Wall Hernia

Rooh-Allah Yegane, Hassan Peyvandi, Soheil Nowrouzi, and Seyed Amir Mosavian

Department of Surgery, Loqman-Hakim Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Received: 13 Apr. 2009; Received in revised form: 24 Sep. 2009; Accepted: 21 Dec. 2009

Abstract- Traumatic abdominal wall hernias are a type of acquired hernia secondary to blunt trauma. Caused, by direct trauma from handlebar like objects. 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.

© 2010 Tehran University of Medical Sciences. All rights reserved.

Acta Medica Iranica 2010; 48(5): 351-352.

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 patients 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 epigastria 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 paraumbilical 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

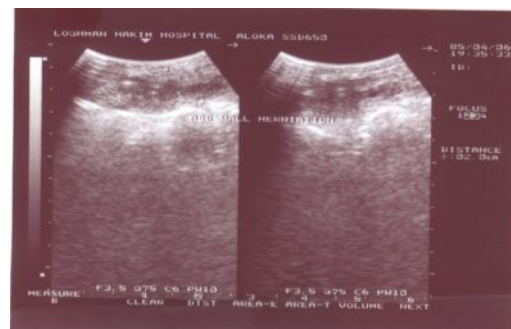


Figure 2. Defect 3*3 in sonography of abdominal wall

*Corresponding Author: Rooh-Allah Yegane

Department of Surgery, Loqman-Hakim Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran
Tel: +98 21 55419390, 912 1081073, Fax: +98 21 55416170, E-mail: yeganeh33_r@yahoo.com

Handlebar hernia



Figure 3. Surgical exploration shows a defect throughout the abdominal

Wall with bowel protruding into the subcutaneous space.

Discussion

Traumatic abdominal wall hernias are produced by direct blunt trauma from an object with insufficient force to penetrate 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 (7). Recently, a thoracic handlebar hernia secondary to blunt trauma from a bicycle handlebar has been reported (8). 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) (9). 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 (10). Occasionally, the hernia is discovered at laparotomy or peritoneal lavage done for associated injuries (8). 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 (3, 4). Only two cases have been reported in the upper abdomen (1, 5). 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 (4) 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 (8, 10, 11). Debate exists regarding local wound exploration versus midline exploratory laparotomy to rule out intraabdominal injuries (12). Associated intraabdominal 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 intraabdominal injury.

References

1. Dimyan W, Robb J, MacKay C. Handle bar Hernia. *J Trauma* 1980; 20:812.
2. Kumar A, Hazrah P, Bal S, Seth A, Parshad R. Traumatic abdominal wall hernia: a reappraisal. *Hernia* 2004;8(3):277—80.
3. Goliath J, Mittal V, MC Donough J: traumatic handlebar hernia: a rare abdominal wall hernia. *J Pediatr Surgery* 2004; 39(10), 20-22.
4. Yarbrough D.R. III: Intra-abdominal injury with handlebar hernia: case report and literature Review. *J Trauma*. 1996; 40(1):116-118.
5. Kubalk G: Handlebar hernia: case report and review of the literature. *J Trauma* 1994; 36(3): 438-439.
6. Wood RJ, Ney AL, Bubrick MP: Traumatic Abdominal Hernia: A case report and review of the literature. *Am J Surg*. 1998; 11:648-651.
7. Holmes JH, Hall RA, and Schaller RT: thoracic handlebar hernia: presentation and management. *J Trauma*. 2002; 52(1):165-6.
8. Sahdev P, Garramore RR jr, Desani B, Ferris V, Welch JP: Traumatic abdominal hernia: report of three cases and review of the literature. *Am J Emerg Med*. 1992; 10:237-241.
9. Mitchiner JC: Handlebar Hernia: diagnosis by abdominal tomography. *Ann Emerg Med*. 1990; 19(7):812-813
10. Al-Qasabi QO, Tandon RC: Traumatic hernia of the abdominal wall. *J Trauma*. 1988; 28:875-876.
11. Jones BV, Sanchez JA, Vinh D: Acute traumatic abdominal wall hernia. *Am J Emerg Med*. 1989; 7:667-668
12. Perez VM, Mc Donald AD, Ghani A, Bleacher JH: Handlebar hernia: a rare traumatic abdominal wall hernia. *J Trauma* 1998; 44(3):568-70.