



Traumatic Abdominal Wall Hernia After a Blunt Trauma: A Case Report

Künt Travma Sonrası Gelişen Travmatik Karın Duvarı Hernisi: Olgu Sunumu

Travmatik Karın Duvarı Hernisi Olgusu / A Case with Traumatic Abdominal Wall Hernia

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Özet

Travmatik karın duvarı hernisi, yetişkinlerde künt travmalar sonrasında nadir görülen bir durumdur. Künt travmalar sonrasında karın içi organ yaralanmalarının tespiti öncelikli olsa da, karın duvarı defekti gözlemlenebilir. Bu tip herniler üzerindeki deri katmanı nedeniyle gözden kaçabilirler. Travmatik karın duvarı hernisi oluşumuyla, gözden kaçan tübüler organ yaralanması ya da inkarasyonu yüksek mortalite ve morbidite oranlarıyla sonuçlanabilir. Şiddetli künt travmalar sonrasında travmatik herni ihtimali akılda tutulmalı, bilgisayarlı tomografi şüphe durumunda yüksek tanı koyma değeriyle rutin olarak uygulanmalıdır. Bu çalışmada, ameliyat edilen travmatik karın duvarı hernisi olgusunun literatür eşliğinde tartışılması amaçlanmıştır.

Anahtar Kelimeler

Künt Travma; Travmatik Herni; Karın Duvarı Hernisi

Abstract

Traumatic abdominal wall hernia is a rare result of blunt abdominal traumas in adults. Although the detection of the injuries of the abdominal organs is the priority in blunt traumas, abdominal wall defect may also occur in these patients. These hernias can go undetected due to preservation of the skin overlying the hernia defect. Traumatic abdominal wall hernias can have high morbidity and mortality rates due to incarceration and perforation of tubular hollow organs, especially if there is any delay. The possibility of traumatic hernia should always be considered in cases with serious blunt trauma. Computed Tomography (CT) scan examinations should be performed routinely due to their high diagnostic value if traumatic hernia is suspected. In this report, a traumatic abdominal wall hernia patient who was treated by surgery has been presented with the review of the current literature.

Keywords

Blunt Trauma; Traumatic Hernia; Abdominal Wall Hernia

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Introduction

Although blunt abdominal traumas and traumatic intraabdominal organ injuries are frequently seen in emergency rooms, post-traumatic abdominal wall herniation is a rare condition. The definition and diagnosis are difficult in adults [1]. The criteria for traumatic abdominal wall hernia include immediate appearance of the hernia through the disrupted muscle and fascia after blunt abdominal trauma, and failure of the injury to penetrate the skin. In this paper it is our purpose to discuss traumatic abdominal wall hernia after blunt abdominal trauma in light of current literature.

Case Report

A 52-year-old male presented to emergency department after housework accident (hit by a wooden stick). He complained about left sided abdominal pain and reducible swelling. He was hemodynamically stable on presentation and an impulse on coughing was present in the left upper quadrant and a defect could be felt in the anterior abdominal wall lateral to the rectus abdominis muscle joint with abrasion and echymosis of the overlying skin (Figure 1). When the patient got up, the swelling appeared immediately. He had a history of a fall on a wooden stick 1 hour ago. There was no guarding or rigidity over the abdomen.

His hemoglobin was 10.6 gm/dl and rest of the hematological and coagulation profiles were within normal range. Abdominal ultrasonography revealed a fascial defect of 25 mm on the abdominal wall. He underwent CT scan which revealed a complete tear of left anterolateral abdominal wall musculature with a defect of 32 mm axis (Figure 2).

The patient went on elective surgery after two days with close observation and a transverse incision was applied on the trauma site. In exploration, a full layer rupture which was approximately 35 mm long and included the peritoneum, musculature and fascial structures was observed. The defect had expanded to the subcutaneous tissue and the omentum had herniated through this defect; however the skin was intact. No pathologic condition was observed in intraabdominal organs. The defect was primarily repaired using nonabsorbable sutures. No complication was observed in the patient during postoperative follow-up and he was discharged on postoperative day 2. After two months, we didn't see any recurrence on the operation area.



Figure 1. The swelling on the abdominal



Figure 2. Abdominal wall defect on CT

Discussion

Traumatic abdominal wall hernia has been defined as herniation through disrupted musculature and fascia associated with blunt trauma, without skin penetration, and with no evidence of prior hernia defect at the site of injury [2]. Consistent with the mechanism reported in the current case, many traumatic abdominal wall hernias have been associated with the patient impacting on angled or curved surfaces/objects [3]. Traumatic abdominal wall hernias are thought to result from simultaneous surge in abdominal pressure and the presence of shearing forces that synergistically disrupt the abdominal wall musculature and fascial layers [4]. Wood et al. [5] classify traumatic abdominal wall hernia in 3 major types: type I are sustained from high energy injuries and are commonly associated with intra-abdominal injuries. Type II occurs due to low energy injuries example handle bar hernias. Type III result from deceleration injuries and are associated with intra abdominal herniation. According to Ganchi and Orgill [6] it is divided as focal and diffuse types; while in focal types the defect is small and intraabdominal organ injury is rare; in diffuse types the defect is large and accompanying intraabdominal organ injury is common. Although traumatic abdominal wall hernia incidence is not known, in a study in 25 of 10,868 patients with blunt trauma, some type of abdominal wall hernia was detected [7]. The localization of the defect is usually the lateral side of the rectus sheath, lower abdomen and inguinal regions; however it changes according to the traumatic site [8]. In our case the defect was on the left lateral side of the rectus sheath.

Traumatic abdominal wall hernia can be misdiagnosed as an abdominal wall hematoma [9]. An appropriate history and physical examination is usually sufficient to make the diagnosis. However, various imaging modalities may be needed to detect underlying visceral injuries. The use of computed tomographic scan has been recommended by most reports [10]. Computed tomographic scan of the abdomen is the most effective examination for diagnosis of the traumatic abdominal wall hernia and detection of the accompanying organ injury [7,11]. This method is able to reveal the fascial planes and musculature of the normal abdominal wall and show any irregularities of these planes and the herniations of retroperitoneal adipose tissue and intraabdominal organs. Dennis et al. described an abdominal wall injury scale based on CT scan findings, with overall injury sever-

ity graded on a scale from I to VI (Table 1) [12].

Table 1. Abdominal wall injury grading scale

Grade	Description
I	Subcutaneous tissue contusion
II	Abdominal wall muscle hematoma
III	Singular abdominal wall muscle disruption
IV	Complete abdominal wall muscle disruption
V	Complete abdominal wall muscle disruption with herniation of abdominal contents
VI	Complete abdominal wall muscle disruption with evisceration

Although conservative management has been reported in the literature with spontaneous resolution of the hernia defect, definitive management involves surgical repair of the hernia [13]. Surgery is primary modality of treatment which can be emergent or delayed. Probability of intra-abdominal injuries plays the most important role in deciding the timing of operative intervention. Immediate exploration with hernia repair is generally accepted as favourable choice as it allows to rule out any intraabdominal injury and prevents strangulation of herniated bowel which may occur hours to days after injury [14]. Since there is a high risk for infection and enteric fistula formation, in cases of hernias with tubuler organ injury, it is recommended to avoid prosthetic materials and perform a primary repair [7,15]. In our patient, because the defect was small and there was some concern regarding infection, primary repair was applied. Repair with mesh support may be performed especially in large hernia defects with no accompanying tubuler organ injury or conditions which tension is considered to occur after primary repair [15]. Diagnostic laparoscopy seems to be an excellent adjunct in the management of TAWHs. In the event of a negative diagnostic laparoscopy, one can repair the hernia by the local approach and avoid unnecessary general abdominal exploration [16]. In another study, Rathore et al. [17] showed no differences between laparoscopic and open technique hernia repair in five patients.

In conclusion, traumatic abdominal wall hernia is a type of hernia which is rare and a cause of serious morbidity and mortality due to delayed intervention of incarceration or accompanying organ injury. For these reasons, traumatic abdominal wall hernia should be considered in evaluation of patients with blunt abdominal traumas.

Competing interests

The authors declare that they have no competing interests.

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