

Jacobs Journal of Emergency Medicine

Case Report

Pediatric Traumatic Spigelian Hernia Treated in a War Setting

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Received: 07-25-2014

Accepted: 08-02-2014

Published: 09-15-2014

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Abstract

Spigelian hernia is a rare clinical entity. It is difficult to diagnose due to its location and no definitive agreement has been reached about the best technique to repair it.

Materials and Methods: The article reports about a case of traumatic spigelian hernia in children after abdominal wall injury occurred during Afghanistan war.

Results: Spigelian hernia has been repaired using an open technique with direct suture with a good long term outcome.

Conclusions: In remote rural areas or war fields, the ability to use advanced techniques as laparoscopy remains a distant mirage even considering the impossibility of finding mesh for repair. Despite these difficulties, good long term results can be obtained repairing these kind of hernia by direct suture.

Keywords: Spigelian Hernia; Pediatric; Direct suture; Repair; War

Conflict of interest: All authors declare to have no conflict of interest

Core Tips: In remote rural areas or war fields, when it's impossible to obtain technological facilities spigelian hernia can be repaired using an open technique with direct suture with good outcomes.

Author contributions:

Roberto Manfredi, Federico Coccolini designed research;

Roberto Manfredi, Federico Coccolini, Luca Ansaloni, Dario Piazzalunga Paolo Bertoli analyzed data; Roberto Manfredi, Federico Coccolini, Giulia Montori, Paolo Bertoli wrote the paper. All authors read and approved the manuscript.

Acknowledgement:

Informed consent was obtained from the patient for publication

Introduction

Spigelian hernia (SH), or ventro-lateral hernia is a rare clinical condition, it represents about 1,5% of abdominal wall hernia. It is localized laterally to the rectus muscle and emerges from the semilunar arch. The line, which joins the IX rib to the pubic tubercle, defines the limit between muscular and aponeurotic portion of transversus abdominis muscle. Diagnosis often results misunderstood. As a matter of fact, this hernia has typically an intraparietal localization and the clinical picture seldom presents characteristic signs. The hernial sac and its content can be appreciated subcutaneously in only 2% of cases. About 50% of patients affected by this spigelian hernia have a certain diagnosis before surgery. The early clinical signs are generally aspecific and deceitful, represented by oppressive grief and rarely by an abdominal wall tumor; it occurs that it starts with a complication: intestinal occlusion (23%), sub-occlusion (8%), strangulation (20%, but some authors report percentage up to 50%). Trauma is a rare cause of spigelian hernia. The diameters of spigelian hernia necks have usually been reported as ranging from 0.5 to 2 cm in size, but few cases with diameters of 4–6 cm have been reported. The present paper reports a case of post-traumatic spigelian hernia in

pediatric patient during Afghanistan War.

Case Report

During the Afghanistan war a 8-year-old children complaining of abdominal pain and an irregular mass in the right lower quadrant was admitted to our hospital. He had a history of a blunt trauma in a traumatic accident, the building where he lived collapse for the explosion of a bomb. The hemodynamic parameters were stable and on physical examination, we found a palpable mass in the right lower quadrant. Because of the absence of a CT scan was not possible to have preoperative imaging. The diagnosis of Spigelian Hernia was mainly clinical, based on the characteristic site and weakness of anterior abdominal wall. The child required surgery under general anesthesia with manual ventilation. Drawn on the skin the alleged defect hernia we proceeded to surgery with a transverse incision of 8 cm in length performed on the right lateral side of the umbilicus. The exploration showed a fascial defect of 10 cm in size between the lateral border of the rectus abdominis muscle and the medial border of the transversus abdominis. The defect was repaired by direct suture with interrupted stitches of absorbable material, the mesh was not available. The duration of the operation was 55 min. The patient's postoperative course was uneventful, and he was asymptomatic with an intact repair at 48 months follow-up.

Discussion

Spigelian hernia is considered rare, but it is more likely underreported, because of the diagnosis is often difficult and sometimes missed [1]. SH is an uncommon type of abdominal wall defect and represents the 1%-2% of all abdominal wall hernias [2]. SH takes its name from the anatomist Adriaan van Spieghel who described the semi-lunar line for the first time in 1645 [2,3]. Its content may vary and its severity is mostly due to small bowel complication. "Banding" of the abdominal muscles at the semi-lunar line, neurovascular openings in the transversus abdominis aponeurosis, infiltration of the abdominal wall layers with preperitoneal fat, and muscle paralysis have all been discussed as possible etiologic factors, but none of them has been consistently a factor in the cases described in the modern literature [4-6]. Anatomically, the spigelian fascia is located between the semilunar line that extends from the tip of the ninth costal cartilage to the pubic spine and the external edge of the anterior rectus muscle. Most cases of SH occur within the SH belt of Spangen which is a transverse band between the line joining both anterior superior iliac spines and a parallel line lying 6-cm cranial to it [1]. In the literature, the left side is the most frequent location of SH [7,8]. Clinical diagnosis of SH is often very difficult. Symptoms may vary considerably and are mostly non specific. [1,9,10]. During the last 10 years, the use of computed tomography (CT) has increased dramatically in acute abdomen and today CT is considered the best imaging tool

for the diagnosis of abdominal wall hernia. Because clinical diagnosis of SH is often difficult, the diagnosis of SH is currently made with CT. SH usually requires surgery. Different types of surgery have been studied and proposed for the treatment of SH. The classical approach consists of open surgery but a rapid expansion of laparoscopic procedures in SH treatment is currently underway [11,12]. Abdominal trauma is a recognized factor in hernia formation. Spigelian hernia is a misnomer for traumatic disruption of the abdominal wall. Traumatic hernias occur at the site of impact; a random chance involves more medial or lateral impacts, sometimes occurring at the typical SH site. In this respect, SHs and traumatic hernias should be distinguished one from another. A physical diagnosis is usually easy in the majority of pediatric cases [1,13,14], differently to the usual situation in adult SHs [1]. Thinner and more elastic abdominal wall layers and less subcutaneous fat in children probably serve to make hernia bulges more readily visible on physical exam. While the patient is under anesthesia, a horizontal incision is made above the hernia and the subcutaneous tissue is dissected down to the aponeurosis of the external oblique muscle. A cut is made in the direction of the fibers, the peritoneal sac is located, and after circumferential dissection, the peritoneal cavity is entered. The aponeurosis of the external oblique muscle is closed by continuous suture, and the subcutaneous tissue and skin are brought together using non-absorbable sutures. The hernia defect can often be closed without tension, but a mesh graft may be required. Reports on laparoscopic surgery [17-19] using preperitoneal or intra-abdominal closure techniques have been published. Evidence-based recommendations related to the size of the defect and the need for a mesh graft, or laparoscopy versus laparotomy, have not been reported. However, Moreno-Egea et al. [17] demonstrated in a randomized clinical trial a significant advantage for laparoscopic repair in terms of morbidity and hospital stay. In their study postoperative haematoma occurred only after open repair.

Conclusion:

In remote rural areas or war fields, the ability to use advanced techniques as laparoscopy remains a distant mirage even considering the impossibility of finding mesh for repair. Despite these difficulties, good long term results can be obtained repairing this kind of hernia by direct suture.

Legends:**Figure 1a:** Preoperative view of the hernia**Figure 1b:** Preoperative view of the hernia with hernia margins**Figure 2:** Intraoperative view**References:**

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