Traumatic Abdominal Wall Hernia Associated with Small Bowel Injury—Case Report

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Abstract Traumatic abdominal wall hernias (TAWHs) are rare. Their diagnosis is mostly clinical and can be overlooked in the setting of trauma and distracting injuries or they can be misinterpreted as parietal hematomas. Associated lesions can influence decision making regarding time of operation and surgical technique. Our case highlights the management of a high-energy TAWH that associates a small bowel traumatic lesion. Surgical repair of TAWHs should follow general hernia repair principles. Further exploration of surgical options is necessary for a consensus to be reached.

Keywords Trauma · Hernia · Small bowel

Introduction

Traumatic abdominal wall hernias (TAWHs) are a rare occurrence in medical practice. Since the first report in 1906 [1], few cases have been documented. The most frequently encountered clinical entity is the handlebar injury, a specific TAWH, caused by a specific mechanism. Reported handlebar

TAWHs were fewer than 30 cases in 2002 [2]. TAWHs can give rise to diagnostic problems, due to their equivocal clinical manifestations, and to management issues concerning time of repair, surgical solution, and the management of related injuries. High-energy TAWHs are frequently associated with visceral injuries accompanying the abdominal parietal damage. We present the case of a high-energy TAWH with associated small bowel injury.

Case Report

A 19-year-old patient was brought to the emergency room after sustaining a blow with a blunt object to the abdomen 3 h after the trauma. The patient had stable vital signs and no evidence of additional trauma. He reports no prior medical conditions, his BMI is 21.2 kg/m², and he is conscious and alert. The clinical exam of the abdomen reveals a protruding mass (Fig. 1) in the peri-umbilical region, about 20 cm in diameter, and a linear ecchymosis over the mass extending from the right abdominal flank. His abdomen is diffusely tender with the point of greatest intensity over the mass. He presents guarding in the epigastrium and the peri-umbilical region. The mass was irreducible on palpation. During the clinical examination, the patient vomits, revealing that he had his latest meal half an hour prior to trauma. Abdominal X-ray and focused assessment with sonography in trauma (FAST) exam are both negative. Blood count reveals leukocytosis (13,200/μL), and blood chemistry, coagulation tests, and urinalysis are normal.

One hour later, he complains of generalized abdominal tenderness and guarding in all four quadrants. Exploratory laparotomy is decided. Through a midline incision above and below the umbilicus, inspection reveals a tear in the right rectus muscle together with the anterior and posterior sheaths, a hematoma at this level, gross spillage of intestinal content in

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Fig. 1 Traumatic abdominal wall hernia

the abdominal cavity, and a type II small bowel injury (Fig. 2). After thorough lavage of the peritoneal cavity, the injured small bowel is resected with its mesentery, and a mechanical side to side anastomosis is created with a linear cutter. The mesenteric breach is closed with interrupted absorbable sutures, and the Douglas cul-de-sac is drained. The abdominal wall defect is closed primarily, with heavy monofilament, non-absorbable, running suture. Another drain is placed under the skin.

Patient's recovery was uneventful. He was started on clear fluids in the first postoperative day and gradually returned to a normal diet by the 4th day. Bowel function returned on the 3rd day. Drains were removed on the 4th day, by this time returning only minimal drainage (<20 mL/day). He was discharged on the 7th day. Follow-up visit at 1 year revealed

a well-healed scar and no abdominal wall defect on clinical examination. The patient had no complaints at this time.

Discussion

TAWH is a herniation through the layers of the abdominal wall, associated with trauma, without skin penetration [3]. Despite the high incidence of blunt abdominal trauma, TAWHs are a rare pathology. The reported incidence is 1 case in 10,000 hernia cases and 2 in 3522 motor vehicle accidents [4]. Associated serious intra-abdominal injuries can divert attention from the hernia, and an element of underreporting has to be taken into account. Yegane et al. found only 70 cases of handlebar hernias reported by 2010 [5]. Conventional radiology and barium contrast films have a debatable role and are rarely used. US, while readily available at the bedside, has problems differentiating between bowel loops and hematoma, as they can both appear hyperechoic [6]. It also aids in the diagnostic of associated lesions, especially as FAST and E-FAST (particularly useful for multiple trauma) have become worldwide tools for the diagnosis of trauma-related injuries. As reported by Hickey et al., CT can differentiate traumatic hernias from hematomas of the abdominal wall finding no false-negative results [7]. Although immediate laparotomy was advocated in 1983 [8], management options have diversified with the increasing use of non-operative management in trauma, and recent hernia repair progresses like almost constant mesh use and laparoscopy. Most authors, however, still advocate an early operation. Delayed exploration can lead to bowel strangulation and excessive tension in the primary closure of the defect.

Fig. 2 Small bowel and mesentery lesion

Conflict of Interest V.C., A.C., S.B., M.A., E.N., and B.S. declare no conflict of interest.

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