

Abdominal wall hernia following blunt trauma

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ABSTRACT

Introduction: Despite the relatively high incidence of blunt trauma, traumatic abdominal wall hernia remains relatively rare. Many of the cases reported in literature involve children following handlebar type injuries. Advancing surgical techniques have stimulated much debate with regards to management of such hernias. **Case Report:** An unusual case of a 59-year-old patient presenting to our emergency department following a road traffic accident suffering from such a hernia is reported here. After appropriate investigation, abdominal exploration was undertaken and a primary mesh repair of the hernia was undertaken, with good result. A discussion of literature pertinent to the infrequent trauma scenario is presented. **Conclusion:** Traumatic abdominal wall hernias in adults are a rare entity and, in the absence of significant intra-abdominal injury, may be repaired electively.

Keywords: Hernia, Blunt trauma, Laparotomy

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INTRODUCTION

The incidence of trauma continues to rise worldwide while the incidence of traumatic hernia following a blunt injury remain relatively rare with only a handful of cases reported in literature. It is postulated, hernia following blunt abdominal injury accounts for 2% of all traumatic hernia. Traumatic hernia typically follow penetrating injuries, commonly with herniation of bowel. Blunt injuries often do not result in such hernia and this thought to be due to the elasticity of the abdominal wall resisting the shear forces generated by impacts. More typically seen in pediatric patients, they remain infrequent in the adult population. We report one such case and discuss the management of these traumatic hernia.

CASE REPORT

An unusual case of a 59-year-old female patient who presented to the emergency department having been involved in a high-speed vehicular collision has been reported here. She was hemodynamically stable on arrival, with a Glasgow Coma Score of 15/15. On physical examination, only bruising across the abdomen and chest consistent with seatbelt injuries was visible. Abdominal examination revealed a large, left sided swelling. It was tender on palpation and irreducible. Bloods tests and the chest radiography were unremarkable. Computed tomography scan revealed a large left sided abdominal hernia containing mesentery and small bowel. (Figure 1A–B). A laparotomy was performed with the patient's consent. The bowel was found to be ischemic and a subsequent small bowel resection and end-to-end anastomosis was performed.

The abdominal wall defect was primarily closed and reinforced with a non-absorbable polypropylene mesh. Postoperative recovery was uneventful and the patient was discharged from hospital after 10 days. At most recent follow up her hernia repair was intact with no evidence of recurrence.

DISCUSSION

A traumatic abdominal wall hernia is defined as herniation of viscera through the muscles and fascia of the abdominal wall with the overlying skin remaining intact. First described in 1906 [1], it has a reported prevalence in trauma patients of approximately 1% [2]. Three forms of hernia have been described: (i) a small defect resulting from impact against a blunt object, i.e. handle bars, (ii) a larger defect typically seen following motor vehicle accidents, and (iii) intra-abdominal bowel herniation seen after a deceleration injury. Hernias are more commonly seen in patients involved in high velocity impacts, where a large force is applied to a relatively small area of the abdominal wall. They are typically found in the lower quadrants of the abdomen, possibly due to the absence of the posterior rectus sheath [3]. Though most herniations are evident at the time of presentation, reports exist in literature of delayed presentations, following weakening of the abdominal wall secondary to infection or hematoma formations [4]. As was in our case, in the hemodynamically stable patient, the advent of CT has allowed delineation of abdominal wall defects as well as associated intra-abdominal injuries prior to surgery [5]. However, the association with other intra-abdominal visceral injury is infrequent. We did not find any in our patient. Damschen et al. reported that 17 of 28 patients in their case series had no intra-abdominal injury. It has been argued that this is due to hollow organs being resistant to blunt injury combined with the fact that in reported cases the trauma was delivered to areas away from parenchymatous abdominal organs. Others have argued that given the forces needed to generate such a hernia, a high index of suspicion should be maintained for intra-abdominal injuries that though not initially clinically apparent, may have been missed on initial examination and CT scan. They have advocated a repeat CT scan in the following days [6]. Extra-abdominal injuries have been reported in literature including lumbar fractures and pelvic fractures. Humeral fractures have also been found in association with such herniation. These imply the high kinetic forces that have been transmitted to the body as a result of the trauma [7]. A review of literature drew three conclusions with regards to management of traumatic abdominal wall hernias. Firstly the mechanism of injury should be considered when planning any intervention. Secondly the clinically apparent hernias warrant laparotomy and, finally, that occult hernias may be managed expectantly [2]. However, this paradigm has changed. Traditionally, laparotomy was performed to avoid the complications of

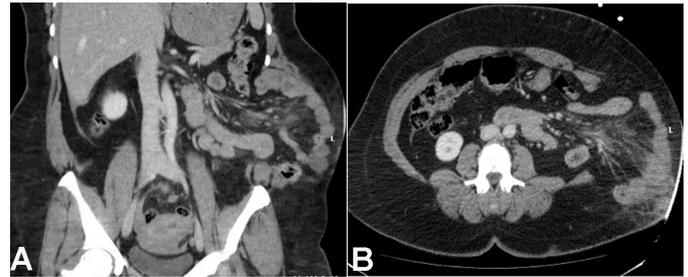


Figure 1: Computed tomographical images showing the presence of a large, left-sided hernia containing small bowel and mesentery.

associated intra-abdominal injury such as bowel perforation. Now the management of the hemodynamically stable patient with a traumatic abdominal hernia has adopted a more conservative approach with reports suggesting that delayed repair occurring is both safe and feasible [8]. With the increasing use of minimally invasive surgery, reports of laparoscopic repairs of such hernias are growing. Indeed, this method has even been described for the immediate repair of traumatic hernias [9]. Although mesh repair is the procedure of choice for the repair of most abdominal wall hernias, there is consensus in favor of a primary sutured repair [10].

CONCLUSION

Traumatic abdominal wall hernias in adults are a rare entity and, in the absence of significant intra-abdominal injury, may be repaired electively.

Author Contributions

Navaratnam R – Substantial contribution to conception and design, Acquisition of data, Drafting the article, revising it, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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