

Traumatic Abdominal Wall Hernia : A Johor Case Report

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SUMMARY

Most reported cases of traumatic abdominal wall herniation result from blunt impact particularly handlebar injuries. The diagnosis is often made on physical examination or abdominal computed tomography (CT). We report a 22-year-old man with anterior abdominal wall swelling following blunt handle bar injury to the abdomen. This patient was initially thought to have an abdominal wall haematoma. However he developed symptoms of abdominal pain and vomiting 4 days later. An urgent CT was performed which confirmed the diagnosis of traumatic abdominal hernia. Intraoperatively, the herniated small bowel loops were gangrenous with multiple perforations leading to bowel contents contamination in the abdomen, chest and neck region. This case highlights the need for a high index of suspicion for traumatic herniation in patients who sustain low-velocity blunt abdominal wall trauma.

Keywords: handlebar injury, blunt, traumatic, abdominal, hernia

INTRODUCTION

Traumatic herniation of the abdominal wall is a rare occurrence following blunt abdominal trauma with only about 50 reports worldwide. Most herniations are diagnosed at presentation by physical examination or on abdominal computed tomography (CT), which mostly proceeded to immediate laparotomy and repair because of the high incidence of associated intra-abdominal injury. We report a case of traumatic anterior abdominal

wall hernia that was initially thought to be an abdominal wall haematoma, and was treated non-operatively. The patient developed symptoms of bowel obstruction four days later and urgent CT was performed followed by immediate laparotomy.

CASE REPORT

A 21-year-old male was brought to casualty department 3 days after a road traffic accident. His motorcycle handle bar had impaled over the right side of his abdomen. Prior to admission, he presented himself to a local hospital for right abdominal swelling and was treated for abdominal hematoma. However he later complained of generalized abdominal pain, vomiting, shortness of breath and chest pain which subsequently brought him to our casualty department.

On examination, he was tachypnoeic, tachycardic and febrile. There was crepitus felt over the chest wall and right flank. His abdomen was distended with tenderness over right iliac fossa region. A 4 x 5cm swelling was palpated over right anterior abdomen. There were no other injuries.

ACT scan of the thorax, abdomen and pelvis revealed an anterior abdominal wall defect (5cm wide and 7cm caudocranial diameter) just lateral to the right rectus abdominis muscle at right iliac fossa region. There was herniation of small bowels loops through the wall defect with evidence of rupture of herniated bowel segment (Figure 1). There was also extensive subcutaneous emphysema involving the right abdomen, thorax and neck (Figure 2). Other solid organs were unremarkable. No free fluid per abdomen or pneumoperitoneum.

Emergency exploratory laparotomy was performed on the same day. A large full thickness defect found in the anterior wall abdominal muscle (6cm x 8cm) from right iliac fossa to right hypochondriac region, with herniation of strangulated small bowels. A 40cm length of small bowel was gangrenous and perforated at 45cm from the ileocaecal junction, leading to bowel contents contamination in the abdominal wall, chest wall, neck and inguinal region. There was also a mesenteric hematoma noted the right lower pelvic region. A bowel resection-anastomosis was done and the defect was repaired. The patient's recovery was uneventful and was discharged on the 24th day postoperatively.

DISCUSSION

Traumatic abdominal wall hernia is defined as herniation of the viscera through a defect of disrupted muscle and fascia layers of the abdominal wall where there is distinct history of trauma preceding the occurrence of the hernia¹. The impact usually involves a significantly large force which is suddenly applied and distributed over a small area of the abdominal wall. The first case was reported by Selby et al in 1906, and since then only about 50 cases have been reported in the literature¹.

These traumatic hernias have been divided into two groups based on the mechanism of injury¹. There is a high-energy impact group, with mainly tangential energy transfer, with hernias involving the flank and supra-umbilical abdominal wall. The other group includes the so-called 'handle-bar' hernia, initially described by Dimyan et al with low impact and usually minimal intra-abdominal injuries^{1,2}. This type of injury is the most frequently reported and often presents later. Our patient who sustained handle bar injury to the abdomen after a road traffic accident while riding a motorcycle, bears out these characteristics in that there was no intraperitoneal pathology beyond the obvious hernia except for a small mesenteric hematoma within the pelvic cavity.

In regards to diagnosis and management of patients with suspected blunt abdominal trauma, particularly patients with handle bar injury, the differential diagnosis of rectus and abdominal wall haematomas must be carefully excluded. Traumatic hernia should also be differentiated from a pre-existing hernia or a tumour in the abdominal wall¹. Lateral or oblique radiographs, barium studies or sonography may help in diagnosis. However CT scan of the abdomen with oral and intravenous contrast remained the most reliable diagnostic test. In places with no radiological modalities available, a high index of clinical suspicion is required in order to make the correct diagnosis. If unrecognized and left untreated, the herniated bowel may obstruct or even strangulate¹. This occurred to our patient in which the abdominal hernia was initially mistaken for a haematoma in the abdominal wall. This led to the delayed diagnosis and subsequent development of bowel strangulation and perforation which required extensive resection.

In terms of operative management of traumatic abdominal hernia, most cases in the literature offered early surgical repair, and repair was delayed only where other injuries took higher priority^{1,2}. Among the cases reported internationally, about 84% were repaired using suture alone¹. There were also sporadic reports of laparoscopic repair, but mostly these were in cases with delay in presentation, often in the setting of the 'handle-bar' type hernia¹. Late repair has been recommended in patients with associated severe injuries and local skin sepsis. Artificial grafts or mesh may be necessary in patients presenting late with a large defect³. In our patient, the abdominal wall defect is closed using suture alone although there are evidence of local contamination and infection. This is to prevent further herniation of the content and to prevent contamination into the peritoneal cavity.

CONCLUSION

In conclusion, this case illustrates how an abdominal haematoma may mimic a traumatic abdominal wall herniation. It highlights the need for a high index of suspicion for a traumatic abdominal wall herniation in patients who sustained blunt hand bar injury to the abdomen. This is important to prevent unwanted complications. CT scan remained the most reliable diagnostic test and will probably lead to more frequent diagnosis of these hernias in the future.

CONFLICT OF INTEREST

None of the authors declare any conflicts of interest.

REFERENCES

1. Hardcastle TC, Du Toit DF, Malherbe C, Coetzee GN, Hoogerboord M, Warren BL. Traumatic abdominal wall hernia – four cases and a review of the literature. *South Africa Journal of Surgery* 2005; (43)2: 41-42.
2. Tan EY, Kaushal S, Siow WY and Chia KH. Traumatic abdominal wall herniation. *Singapore Medical Journal* 2007; 48(10):e270 – e271.
3. Nitin Agarwal, Sunil Kumar, Mohit Kumar Joshi and Mriganka Sekhar Sharma. Traumatic abdominal wall hernia in two adults: a case series. *Journal of Medical Cases Reports* 2009; 3: 7324. Available from: <http://jmedicalcasereports.com/jmedicalcasereports/article/view/7324>.



Figure 1 Axial contrast enhanced CT abdomen demonstrated a right anterior abdominal wall defect just lateral the right rectus abdominis muscle. Small bowel loops herniated through the defect with evidence of bowel wall perforation (white arrow).



Figure 2 Coronal contrast enhancement CT thorax and abdomen in lung window setting demonstrated extensive subcutaneous emphysema along the right flank extending up to involve the chest and neck. There is also evidence of pneumomediastinum.