

A Case Report on Bowel Evisceration Following Blunt Abdominal Trauma

Dr. Hetvi Marsonia¹, Dr. J. P. Dave², Dr. J. G. Bhatt³, Dr. Akash Patel⁴, Dr. J. G. Vagadiya⁵

¹Junior Resident; Department of General Surgery, P.D.U. Govt. Medical College and Civil Hospital Rajkot

²Associate Professor; Department of General Surgery, P.D.U. Govt. Medical College and Civil Hospital Rajkot

³Professor and Head; Department of General Surgery, P.D.U. Govt. Medical College and Civil Hospital Rajkot

⁴Junior Resident; Department of General Surgery, P.D.U. Govt. Medical College and Civil Hospital Rajkot

⁵Assistant Professor; Department of General Surgery, P.D.U. Govt. Medical College and Civil Hospital Rajkot

Correspondence address:

Dr. Hetvi Marsonia

Junior Resident, Department of General Surgery, D-34, High Rise Building, Jamanagar Road, Rajkot-360001

Abstract: *Bowel evisceration following blunt abdominal trauma is a very rare occurrence. Here, we report a unique case of 30 year old male patient presented with alleged history of road traffic accident with injury over anterior abdominal wall by handlebar of autorickshaw resulting into evisceration of small bowel loops. On admission patient was vitally stable and abdominal exploration with resection of gangrenous eviscerated small bowel loop with side to side ileo-ileal anastomosis with primary repair of abdominal wall defect was performed. A brief overview of literature related to this rare trauma scenario is presented here.*

Keywords: bowel evisceration, blunt trauma, gangrenous bowel loops

1. Case Report

A 30 year old male patient was brought to the emergency department of P.D.U. civil hospital Rajkot on 20th June 2021 with alleged history of road traffic accident with four wheeler while driving autorickshaw and got injury over the anterior abdominal wall by the handlebar of the autorickshaw. On admission patient was vitally stable, on examination there was evisceration of the small bowels and bleeding from the anterior abdominal wall (figure-1)



Figure 1: defect in the anterior abdominal wall through which gangrenous bowel segment is coming out

patient was taken for emergency abdominal exploration. On exploration 500 cc of hemoperitoneum was drained. Approximately 25 cm of vertical tear found in the mesentery 85 cm proximal to ileo-caecal junction. Ileal segment of small bowel of 30 cm length overlying the mesenteric tear was found to be gangrenous, rest all the solid and hollow abdominal visceral organs were examined and found to be normal (figure -2). The ischemic ileal segment was resected and side to side ileoileal anastomosis was performed with 80mm*4.8 mm linear GIA stapler. Mesenteric defect was closed using silk 3-0 in continuous sutures. After thorough peritoneal lavage two abdominal drains were kept, and primary closure of abdominal wall defect with mass closure of abdomen was done. Patient was shifted to surgical ICU and immediate post operative period was uneventful. Patient's oral intake was started on post operative day-4, both the drains were removed on post operative day-7. 10 days after surgery patient recovered well and discharged with no complications.



Figure 2: Intraoperative finding showing gangrenous bowel loop with mesenteric tear

2. Discussion

Evisceration of abdominal organs through the abdominal wall is a relatively common in case of penetrating injury to abdominal wall but, Evisceration due to blunt trauma is far less common and has been reported through the abdominal wall, vagina, anus and diaphragm. bowel evisceration associated with blunt abdominal trauma is a very rare occurrence with the overall prevalence of 0.2-1% in major reported cases worldwide(2). Bowel evisceration have been linked to both high energy trauma (i. e., road traffic/pedestrian accidents, fall down from heights) and low energy trauma (i.e., “handlebar injury”) mechanisms. bowel evisceration results from increased intra abdominal pressure and the presence of shearing forces that synergistically disrupt the abdominal wall musculature and fascial layers(6). This type of injuries are included in traumatic abdominal wall hernias. Traumatic abdominal wall hernia are generally categorized into three major types: (a) A small abdominal wall defect caused by low-energy trauma with small instruments, e.g., bicycle handlebars, (b) a larger abdominal wall defect caused by high-energy injuries, and (c) rarely, intra-abdominal herniation of the bowel caused by deceleration injuries(3). Most incidences of eviscerations occurring in trauma are caused by abdominal stab wound injuries, which generally require laparotomy. Some cases of blunt evisceration following motor vehicle accidents have been reported. Evisceration can occur through natural orifices such as anal region, vagina as a result of high suction at a pool or from an abdominal crush injury(7). Now a days radiological modalities to promptly detect the intraabdominal defects are easily available at tertiary care centers but, Sometimes associated hollow visceral injuries and vascularity status of the herniated bowel loops can be missed on a computed tomography (CT) scan. Nowadays, multidetector CT (MDCT) is the new imaging technique

commonly used in blunt trauma patients of abdomen and pelvis. It easily detects the solid organ injuries with associated bowel or mesenteric injury. Moreover, with the help of the advanced radiological technology such as MDCT, new CT features of bowel or mesenteric injuries have been identified(3). The presence of extraluminal air or fluid on MDCT is significantly correlated with blunt hollow viscus injury. Presence of unexplained fluid in the absence of solid organ injury had a higher specificity(98.1%) than the unspecified extraluminal fluid(73.3%) . A penetrating or blunt trauma or a combination of both can cause evisceration of intra-abdominal organs through the abdominal wall. First line of management in any case of blunt abdominal trauma is immediate resuscitation. In the presence of vascular compromise of solid and hollow organs, it is important to extend the wound in the abdominal wall to secure adequate perfusion of the eviscerated organs. This can be performed in the emergency room as a temporizing procedure to reduce the intra compartmental pressure(3). However, when there is herniation of strangulated necrotic bowel, the patient should be transferred to the operation theatre immediately. The eviscerated part should be clamped and resected at the neck of the hernia to prevent systemic spread of toxic products like potassium, hydrogen, and lactate, together with endotoxins and bowel flora, which might cause cardiac arrest and/or renal failure(3). Emergency laparotomy should be done in evisceration of both omentum and organ, and in suspected cases of peritonitis. The rate of organ injuries has been reported to be as high as 70 - 80%. Delaying laparoscopy for 24 h allows the patient to undergo serial abdominal observations, thereby defining the patients with significant enteric injury and reducing the need for nontherapeutic laparotomy in the presence of minor haemoperitoneum. Early diagnostic laparoscopy was performed 6 h after admission, to assist in excluding injury to the hollow viscera. An 88% conversion rate to laparotomy was recorded in their series because of the presence of haemoperitoneum and the concern for missing enteric injuries(8). At the time of surgical repair, the surgeon should perform a standard trauma laparotomy via separate midline abdominal incision, followed by either a mesh and/or primary repair of the traumatic abdominal wall defect. At times, immediate abdominal wall reconstruction may not be possible; instead, a staged abdominal wall closure might be required(9).

3. Conclusion

Blunt traumatic abdominal wall hernias associated with abdominal evisceration are exceedingly rare. When encountered, should prompt an aggressive search for other associated injuries and prompt surgical repair of the abdominal wall defect. In more severe cases, staged abdominal wall closure/reconstruction may be required. Long-term follow-up is important and should include the assessment of cosmetic and functional outcomes as well as examination for any recurrent herniation at the site of the injury. It is one of such rare case reported at our setup.

Conflict of interest

Nil declared.

References

- [1] Singal R, Gupta R, Mittal A, Gupta A, Singal RP, Singh B, et al. Delayed presentation of the traumatic abdominal wall hernia; dilemma in the management – Review of literature. *Indian J Surg* 2012; 74:149-56.
- [2] McDaniel E, Stawicki SP, Bahner DP. Blunt traumatic abdominal wall disruption with evisceration. *Int J Crit Illn Inj Sci* 2011;1:164-6
- [3] Singal R, Dalal U, Dalal AK, Attri AK, Gupta R, Gupta A, et al. Traumatic anterior abdominal wall hernia: A report of three rare cases. *J Emerg Trauma Shock* 2011;4:142-5.
- [4] Brenneman FD, Boulanger BR, Antonyshyn O. Surgical management of abdominal wall disruption after blunt trauma. *J Trauma*. 1995; 39:539–44. [PubMed] [Google Scholar]
- [5] Hardcastle TC, Coetzee GJN, Wasserman L. Evisceration from blunt trauma in adults: An unusual injury pattern: 3 cases and a literature review. *Scand J Trauma Resusc Emerg Med*. 2005;13:234–5. [Google Scholar]
- [6] Henrotay J, Honore C, Meurisse M. Traumatic abdominal wall hernia: Case report and review of the literature. *Acta Chir Belg* 2010; 110:471-4.
- [7] Henrotay J, Honore C, Meurisse M. Traumatic abdominal wall hernia: Case report and review of the literature. *Acta Chir Belg* 2010; 110:471-4.
- [8] da Silva M, Navsaria PH, Edu S, Nicol AJ. Evisceration following abdominal stab wounds: Analysis of 66 cases. *World J Surg* 2009; 33:215-9.
- [9] den Hartog D, Tuinebreijer WE, Oprel PP, Patka P. Acute traumatic abdominal wall hernia. *Hernia* 2011; 15:443-5.