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A Case Series Of Traumatic Bowel Evisceration

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ABSTRACT
Trauma is the cause of 10% of all the deaths worldwide. Penetrating trauma is uncommon accounting for around 1% of that. Blunt trauma is a close second. Timely intervention, multimodality approach and apt surgical decision arenecessary for the treatment. Here is a series of 7 cases of bowel evisceration and our experience in the management.

INTRODUCTION

Most penetrating and blunt abdominal injuries causing evisceration of the bowel result from road traffic accidents and a majority of them are multisystem injuries. The incidence of major intestinal injuries among patients sustaining penetrating abdominal trauma ranges from 5-15% in various series. (1)

This is a series of our management of 7 cases of bowel evisceration and our role in the management of the same.

CASE 1

43-year-old male was the victim of a RTA while travelling on a two-wheeler. He presented to the ER in a state of shock with unstable vitals. His injuries included a transverse laceration across the left lateral segment of abdomen with eviscerated bowel and contaminated peritoneal cavity.

Upon arriving, primary survey was done. Head injury and orthopedic injuries were ruled out. On examination, part of the eviscerated small bowel was peeled off from the mesentery. The eviscerated bowel was aligned over abdominal wall and covered by sterile drapes. The patient was shifted to the operation room immediately.

On exploring the abdomen at laparotomy, 10 cm from Dj flexure there was 15 cm of jejunum peeled off from the mesentery and distal 12cm of ileum was peeled off the mesentery, which was resected. Right limited hemicolectomy was done and the shattered sigmoid colon was resected. Jejunojejunalanastomosis,ileo colic anastomosis and distal colostomy with Hartmann's procedure was done followed by thorough wash of abdominal cavity.

Post operatively he was managed with ICU care. He was discharged on post operative day 6,

tolerating a normal diet with a colostomy, which was reversed 3 months later.

CASE 2

A 48 year old patient was a victim of a RTA when he fell off from a 2 wheeler .He presented to the ER with a laceration on the left lateral thoraco abdominal wall with bowel and omentum protruding from the wound, associated with decreased breath sounds on the left side of the chest. Other injuries included a nasal bone fracture with a nasal bleed. He had decreased saturation in the ER with no evidence of tension pneumothorax. CT thorax revealed multiple rib fractures on the left side with a left hemothorax with underlying lung contusion. CT Brain and PNS showed right hemosinus and paranasal sinuses. A leftintercostals drainage was placed, nasal packing was done and he was taken up for a laparotomy. Two diaphragmatic rents were noted which were repaired. Periosteal layer of ribs were approximated. Thorough laparotomy was done and bowel was found to be normal. Post operatively, he was monitored in ICU, treated conservatively. He was discharged on post operative day 7 to review for ICD removal at a later date.

CASE 3

15 year old male who was a victim of a pedestrian vehicle collision, presented with an abdominal injury with evisceration of bowel through a lacerated abdomen on the left side. He was hemodynamically stable and needed minimal fluid resuscitation. Other injuries included a compound fracture of the left radius.

On completion of primary survey, he was shifted to the OR. Resection and anastomosis was done of the ileal perforation, 10cms from the ileocaecal junction, with resection of the gangrenous and transected terminal transverse colon and descending colon. The proximal stump was made as colostomy and distal stump was closed.

Internal fixation of the fracture was done. Post operatively he was managed conservatively and

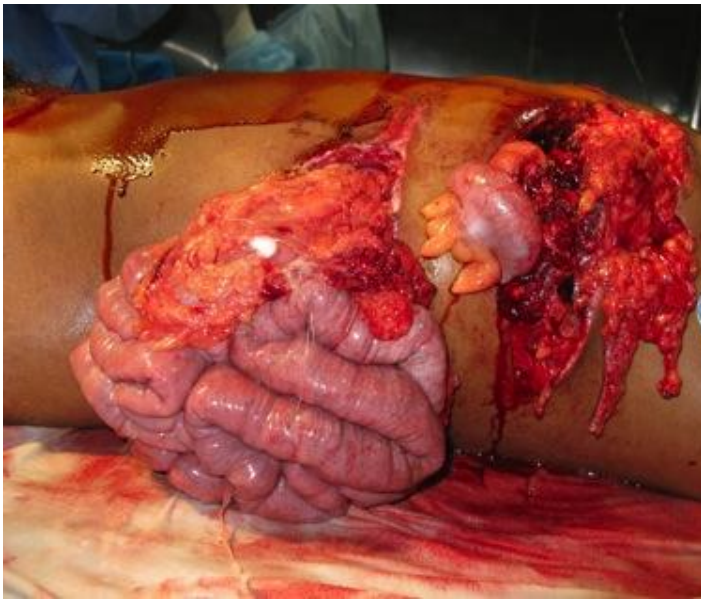
discharged on post operative day 6. Colostomy reversal was done 3 months later.

CASE 4

24 year old male was brought to the ER with evisceration of the bowel following a RTA while riding a two wheeler. He was managed by ATLS protocol having secured A,B,C. External injuries included a puncture on the right hand and an abrasion of the left knee. He was taken up for laparotomy. Multiple mesenteric tears and serosal tears were noted in the caecum and the ileum with extensive contamination of the peritoneum. The tears were repaired and the abdomen was closed after a thorough wash. On post operative day 3, he was taken up for a wound debridement of the infected wound. Recovery was uneventful thereafter and he was discharged on post operative day10.

CASE 5

27 year old male patient was a victim of a RTA while riding a bike. He presented to the ER with a penetrating abdominal injury on the left side. Other injuries included multiple rib fractures and a laceration of the left upper arm. On stabilizing the patient, he was shifted for a laparotomy. A diaphragmatic rent was noted with herniation of small bowel and descending colon. The small bowel was checked for viability and then the affected bowel was resected. A colostomy and mucous fistula were created. Thorough wash was given and left ICD was placed. Patient was extubated on post operative day 2 and discharged on post operative day 8. Colostomy was reversed at 4 months.



CASE 6

18 year old boy alleged to have had fallen on pieces of glass while playing, presented to the ER with eviscerated bowel in the periumbilical region. Vitals were stable on arrival. Laparotomy revealed omental tear and serosal tear of the small bowel, which were repaired with absorbable sutures. Thorough wash was given following which the abdomen was closed. Patient recovered well post operatively and was discharged on post operative day 4 tolerating a diet.

CASE 7

5o year old male who was a victim of a bull gore injury was brought to the ER with evisceration of small bowel from the left iliac fossa. He was taken up for a laparotomy after a primary survey. Strangulated small bowel was noted which regained its integrity on wrapping it with a warm baby towel and hyperbaric oxygen. Peritoneal wash was given and abdomen was closed. Recovery was uneventful. He was discharged on post operative day 5.

DISCUSSION

Trauma is the cause of 10% of all deaths worldwide. It is projected that road traffic deaths will increase by 83% between 2000 and 2020 in developing countries. [9]Abdominal injuries have been on a rise in developing and developed countries due to industrialization and weapons used. [10]The reported incidence of all abdominal wall injuries following penetrating trauma in about 9% [2]

Total abdominal injuries associated with penetrating injury mechanisms are uncommon, with an approximate prevalence of 1% in major reported series.[3]Abdominal eviscerations constitute an extreme form of total abdominal wall hernias with the main difference between the two being the amount of force that is focally delivered to the abdominal wall tissues, as well as the anatomic location of the force application.

As the standard of care that the hospital provides has been evolving, the scope of care given by the paramedics at the site of trauma has been progressing parallel. Most of the deaths occur due to prehospital hypotension and lack of circulatory support. Hence, the trauma system response has been designed to minimize care in the field of trauma and expedite transport to the ER for further prompt management.

Paramedics being the first ones at the site of trauma, should be well trained in assessing the patients and transporting them to the closest hospital or trauma center. The hospitals should be

notified prior to the arrival of the patient by radio or ground line.[8]

In the urban setting, the mode of transport would be by ground but in the rural areas, especially in our country, the closest facility is typically 25 minutes away. Hence the best chance for survival mat be transport by air ambulance.

When a patient presents to the Emergency room with an abdominal injury, the role of the emergency physician is straightforward. It is essential to provide a patent airway, effective ventilation and maintain emergency circulation immediately. A general surgeon on call should be alerted immediately. It maybe tempting to the surgeon to reduce the contents of bowel into the abdominal wall but that could lead to introducing infected contents into the abdomen or dislodging clots. The bowel should be covered with warm sterile dressings. Most experts recommend the use of antibiotics in the emergency department before shifting the patient to the operation theater.

Dennis has adapted an abdominal wall injury scoring scale to grade the injury.[3]

Grade	Description
I	Subcutaneous tissue contusion
II	Abdominal wall muscle hematoma
III	Singular abdominal wall muscle disruption
IV	Complete abdominal wall muscle disruption
V	Complete abdominal wall disruption with herniation of abdominal contents
VI	Complete abdominal wall distruption with evisceration

Adapted from Dennis *et al.*[7]

Visibly eviscerated organs constitute a surgical emergency, as their exposure can lead to sepsis from bacterial contamination.

Steps of treatment in brief

- Emergency triage—Treatment for shock, assessment and management of secondary injuries, protection of the exposed abdominal organs, and initiation of antimicrobial therapy.
- The necessary blood products have to be arranged and an informed consent from the patient's relatives has to be taken in the meanwhile
- Wound decontamination—Conversion of the dirty wound into a clean contaminated wound and temporary closure of the abdomen for surgical prep.
- Documentation of the appearance of the open wound and, the eviscerated organs.(3)
- Surgical exploration—Identification and definitive treatment of lesions affecting the abdominal organs, abdominal lavage, culture sampling, and placement of closed suction drains, if applicable.
- Post–operative management—Broad-spectrum antimicrobial therapy tailored by culture results, abdominal drainage and/or lavage, fluid and colloid support, pain management, and early refeeding.
- If a second procedure is required, he should be taken up without hesitancy

When encountered, abdominal evisceration should prompt an aggressive search for other associated injuries and prompt surgical repair of the abdominal wall defect.[4,5,6] In more severe cases, staged abdominal wall closure/reconstruction may be required.[7]Long-term follow-up is needed to ensure that both cosmetic and functional outcomes are satisfactory. It is also important to monitor the patient for the possibility of a recurrent hernia at the injury site [3]

CONCLUSION

Bowel evisceration from penetrating trauma to the abdomen is not very common. Most of the patient deaths occur due to late arrival to the ER, improper, delayed or inadequate treatment or uninformed decisions. All the 7 cases mentioned above were brought to the ER within a few minutes of the incident and treated as per protocol. With apt and accelerated treatment the prognosis of such patients can be improved.All penetrating injuries with eviscerated bowel should be treated seriously and potentially life threatening.

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