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(CASE REPORT)

Case report of a successful management of traumatic whole bowel evisceration complicated with sepsis and ischemic changes following three-day delayed hospital presentation

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Abstract

Traumatic whole bowel evisceration is a rare but severe injury typically resulting from high-energy blunt or penetrating abdominal trauma. Delayed presentation increases the risk of contamination, ischemia, and sepsis, complicating management and worsening prognosis, especially in resource-limited settings. We present a 51-year-old female rural farmer who sustained lacerative abdominal trauma with complete bowel evisceration following a road traffic accident. Initially unable to access timely care due to financial constraint and geographical location, the patient presented three days later with fever, hypotension, tachycardia, anemia, and exteriorized large and small bowel that was visibly contaminated with sections showing ischemic changes. A multidisciplinary care involving hemodynamic stabilization, coordinated surgical intervention, infection control, and supportive care was crucial in the successful management of the case.

Keywords: Traumatic bowel evisceration; Delayed presentation; Abdominal trauma; Sepsis; bowel viability; Surgical debridement; Abdominal wall repair

1. Introduction

Traumatic abdominal injuries with evisceration of the bowel represent a rare but life-threatening surgical emergency, often resulting from high-impact mechanisms such as road traffic accidents. These injuries pose significant challenges due to the risk of contamination, wound infection and bowel ischemia, particularly when presentation is delayed. In rural and resource-limited settings, financial barriers and limited access to emergency care frequently contribute to delayed treatment, increasing morbidity and mortality. This case report describes a 51-year-old rural farmer who sustained an extensive abdominal laceration with complete evisceration of the bowel following a motorcycle accident. The patient presented three days after the incident with visible contamination of the exposed bowel loop by soil, fever, hypotension, and altered mental status. The clinical presentation and management underscore the complexities involved in treating delayed traumatic abdominal eviscerations with contamination, highlighting the critical importance of timely surgical intervention and comprehensive wound care to optimize outcomes.

2. Case Presentation

Our patient, a 51-year-old female rural farmer was involved in a road traffic accident while riding on a motorcycle, resulting in extensive lacerative injury to her abdomen with evisceration of large and small (entire) bowel. There was visible contamination of the exposed bowel loops with soil and other debris from the accident scene. There was no reported no loss of consciousness or injuries to other body parts. Owing to financial constraint and geographical location, immediate medical care was not sought but she was rather taken home directly from the accident site for local

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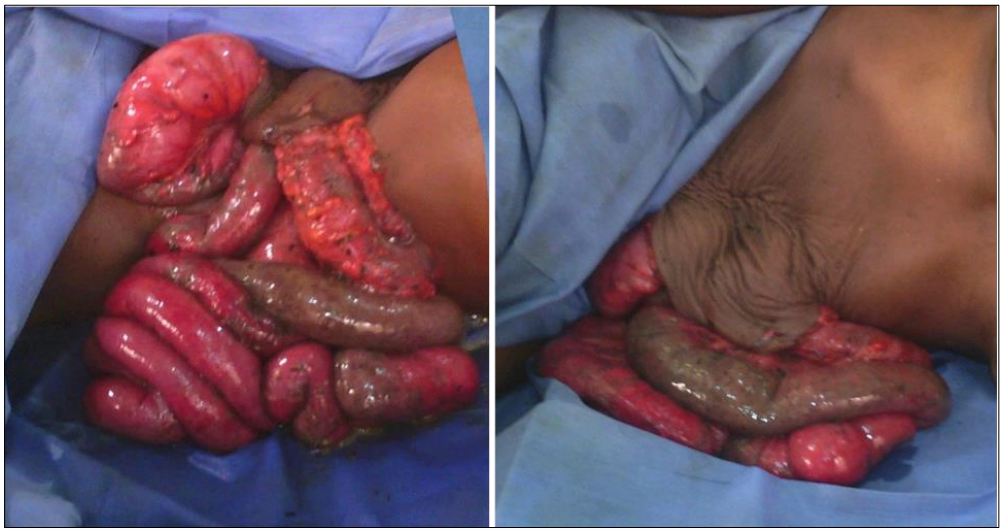
remedies. During the subsequent three days post-trauma and prior to presentation to the hospital, she remained conscious but became confused on the third day prompting her hospital presentation.



Figures A and B Eviscerated bowel with ischemic changes

At presentation, the patient was febrile with a temperature of 38.7°C, hypotensive with a blood pressure recording of 82/56 mmHg, and tachycardic with a pulse rate of 108 beats per minute. Her oxygen saturation was 95% on room air. Physical examination revealed extensive loops of small and large bowel exteriorized through a large, deep, and irregular abdominal laceration running from the pelvis towards the left rib cage. Several segments of the bowel appeared darkened showing signs of possible ischemia and with extensive soil contamination. The patient was pale, and laboratory evaluation revealed a hemoglobin concentration of 7.1 mg/dL and a total WBC; 18.5 $\times 10^9$/L (Ref. 4.0 – 11.0 $\times 10^9$/L), Neutrophils; 80% (Ref. 40 – 70%), Platelet Count; 110 $\times 10^9$/L (Ref. 150 – 450 $\times 10^9$/L) indicating significant anemia likely due to ongoing bleeding, sepsis and systemic stress. Imaging result was unremarkable for organ injuries.

3. Management

At presentation hemodynamic stablization with intravenous fluid and blood transfusion was immidiately instituted to restore blood pressure and address anaemia. The patient's vital signs were closely monitored and oxygen saturation was maintained on 15L intranasal oxygen. Urgent surgical intervention in the operating room beginning with copious irrigation of the wound with sterile saline to reduce bacterial contamination, removal of visible soil particles and tissue debridement. A thorough surgical exploration was performed to examine the eviscerated bowel and the intra-abdominal organs with the aim of identifying any occult injuries followed by local antibiotic infiltration to provide adequate antimicrobial coverage at the contaminated wound site. Warm saline soaking was applied to the exposed bowel segments followed by visual inspection to differentiate viable and nonviable segment and prevent unnecessary resection. The return of peristalsis and a characteristic pink colour after 20 minutes confirmed bowel integrity and viability. The entire bowel was thereafter reduced gently back into its intra-abdominal position. Finally, the abdominal wall was carefully repaired restoring its intergrity and providing adequate protection for the bowel and other internal organs. Systemic intravenous antibiotics was administered intra-operatively and continued for further nine days as per protocol. The patient was monitored closely while on hospital admission for signs of sepsis and other complications. Supportive nursing care including maintenance of adequate fluid balance, wound care and reassessment for healing, and monitoring vital parameters were done to ensure optimal and timely recovery.

4. Discussion

Traumatic whole bowel evisceration is a severe and uncommon injury. Its rarity and life threathening potential with complications of sepsis, ischemia, tissue gangrene and multi-organ involvement is significantly increased when presentation is delayed[1][2]. In this case, the patient presented three days post-injury with extensive contamination of the exteriorized bowel segments by soil and organic debris, intra-abdominal pockets of purulent fluid accumulation and ischemic bowel changes which posed significant management challenge. The delay, in this circumstance was driven by extreme financial and healthcare access limitations which is a common systemic challenge in resource-poor settings that adversely impact trauma and health outcomes[3][6].

A careful but aggressive wound care with copious saline irrigation and tissue debridement is central to controlling contamination and in reducing microbial load[6], a critical step in preventing overwhelming infection. Surgical debridement is an invaluable adjunct to wound irrigation and aided the removal of necrotic tissue while preserving viable structures[3][4]. Warm saline soaking was used to assess the viability of suspicious bowel loop with the ischemic segments regaining color and peristalsis within fifteen to twenty minutes[5]. A meticulous exploration of the abdominal cavity, organs, the paracolic gutters and the whole bowel loop to exclude missed injuries, hidden perforations and potential pockets of high microbial and tissue debris pooling which may perpetuate sepsis if missed. As an adjunct to intravenous broad-spectrum antibiotic therapy[8], the incorporation of antimicrobials in the irrigation fluid and local intra-abdominal antibiotic infiltration ensured that adequate concentration of antibiotics was provided within the vicinity of the contaminated tissues, enhancing recovery from sepsis[6][7].

In septic patients with hypotension and anemia as it is in this case, hemodynamic stabilization is key to getting a favourable outcome. Restoring circulatory volume with fluid resuscitation and blood transfusion will encourage adequate tissue perfusion and encourage recovery[1][3]. Structural repair of the abdominal wall after reducing the bowel back to its anatomic position, restored the integrity of the abdominal cavity, preventing further bowel exposure. Although a primary repair was successfully achieved in this case, the complexity of such procedure may vary depending on the extent of tissue loss and degree of contamination, sometimes necessitating staged closure[3].

5. Conclusion

To improve outcome in severe trauma cases, community based education, enhanced trauma care accessibility, and early referral to advanced trauma care center is required. This rare but complex case of traumatic whole bowel evisceration with sepsis following delayed presentation was successfully managed owing to the multidisciplinary approach focusing on aggressive wound care, proper management of sepsis, a meticulous surgical repair, and adequate hemodynamic support which the team provided. This case highlights the significant healthcare challenges in resource-poor environments, where the rate of morbidity and mortality from health events is soaring as a consequence of delayed presentation and sparse distribution of care facilities with limited number of care provider.

Compliance with ethical standards

Disclosure of conflict of interest

Authors have no conflict of interest.

Authors' contributions

Author 1 led the management team, coordinated the report and literature review, assisted by author 2. Both authors jointly read and approved the final manuscript.

Statement of informed consent

As per international standard, patient's written consent was obtained and preserved by the authors.

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