



A Rare Presentation of Intra-Stomal Small Bowel Evisceration Secondary to Blunt Trauma to a Pre-Existing Parastomal Hernia

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Abstract

Intestinal evisceration secondary to trauma to a parastomal hernia is a rare occurrence. Evisceration through a parastomal hernia occurs secondary to overlying skin weakening, direct pressure from a parastomal hernia or in conditions that increase intrabdominal pressure. Evisceration in the context of blunt abdominal trauma is sparse in the literature. A 62-year-old gentleman presented with intra-stomal evisceration of small bowel, secondary to blunt abdominal trauma. Approximately one meter of bruised small bowel had eviscerated. He was resuscitated as per ATLS principles and transferred to theatre within one hour of presentation. A laparotomy revealed a four-centimeter full-thickness tear in the medial colostomy mucosal surface. Viable bowel perfusion was estimated and the bowel was returned into the abdominal cavity. Timely preoperative optimization and rapid transfer to theatre, resulted in an avoidance of bowel resection and associated complications. This case highlights the need for more research into operative assessment of intestinal viability.

Background

Intestinal stoma formation has been common practice for the surgical management of both benign and malignant bowel disease for centuries [1,2]. Stoma formation complications are most commonly associated with emergency operations [3]. Complications include stenosis, necrosis, prolapse, herniation and retraction of bowel following stoma formation [4]. The risk of a parastomal hernia in the presence of an end colostomy is up to 48.1% [5]. Evisceration is defined as an uncontrolled exteriorization of intraabdominal contents outside of the abdominal cavity [6]. While parastomal hernias are common [5], traumatic evisceration of small bowel at the site of a parastomal hernia is a rare life-threatening phenomenon [7], with very few cases reported in literature [8]. This report presents such a case to bring attention to and promote learning from this uncommon presentation with a high morbidity and mortality.

Case Presentation

A 62-year-old gentleman presented to the accident and emergency department with evisceration of small bowel, originating from a pre-existing end colostomy in the left iliac fossa. He had a past medical history of rectal carcinoma, for which he underwent a sigmoidectomy and colostomy formation in 2017. A parastomal hernia developed at the colostomy site shortly after the operation. In 2018, further imaging demonstrated secondary malignant neoplasm of his liver and intrahepatic bile duct, which was confirmed on liver resection that same year. In 2019 further pelvic recurrence of the disease manifested itself, for which he completed radio-chemotherapy. His past medical history also included osteoarthritis. He is independent for all Activities of Daily Living (ADLs), with minimal alcohol consumption and is a non-smoker. The mechanism of injury was an unwitnessed mechanical fall, without head injury or loss of consciousness. The patient sustained an impact onto his left side, directly onto a pre-existing long-standing para-stomal hernia. The patient presented to the hospital five hours after the injury occurred. Approximately one meter of bruised small bowel was eviscerated on arrival (Figure 1). At the bedside examination, the eviscerated small bowel was strangulated and obstructed, but there was no evidence of perforation. His serum lactate was normal. The patient was rapidly resuscitated, optimized and transferred to theatre within one hour of his presentation. While further imaging was considered, it was not deemed appropriate to delay transfer to theatre, as a Computerized Tomography (CT) scan would not change the overall management plan. It is important to note that consideration was made for the risk of COVID-19 and a rapid

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Received Date: 04 Oct 2022

Accepted Date: 28 Oct 2022

Published Date: 02 Nov 2022

Citation:

Karadaghi RL, Moschidis T, Zaheer M, Huttman M, Klein M. A Rare Presentation of Intra-Stomal Small Bowel Evisceration Secondary to Blunt Trauma to a Pre-Existing Parastomal Hernia. *Ann Clin Case Rep.* 2022; 7: 2333.

ISSN: 2474-1655.

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Figure 1: Preoperative evisceration of bowel.



Figure 2: Perioperative evisceration of bowel.



Figure 3: Perioperative identification of mucosal tear.

COVID-19 swab was sent prior to transfer to theatre. However, as per NCEPOD classification [9], this was an emergency-immediate and organ saving surgery, hence transfer to theatre was not delayed for the result of the swab. Personal Protective Equipment (PPE) measures in line with local and national guidance were put in place, to minimize the overall risk of COVID-19 as much as possible.

Treatment

The patient underwent a laparotomy. The contaminated small bowel was cleaned with saline wash (Figure 2) and gently retracted back into the abdominal cavity and organized into the appropriate anatomical position. The bowel was handled and manoeuvred with caution in an effort to diminish the risk of bowel injury or strain to the



Figure 4: Postoperative review of primary closure.

associated mesentery. Although the eviscerated segment was bruised, it was deemed viable and well-perfused (motility was still present) on assessment. After reduction, it became apparent that the bowel had eviscerated through a full thickness four-centimeter mucosal tear in the medial margin of the colostomy (Figure 3). While there was some discussion on refashioning of the stoma, the priority was to salvage the bowel and avoid submitting the patient to a longer procedure. There was minimal necrosis at the tear site, and a minimal debridement was performed to healthy tissue. A primary repair was performed on the defect with interrupted 3/0 PDS sutures (Figure 4). Following a final washout, the midline incision was closed with a 1-loop Maxon continuous mass closure. Postoperatively, the patient's vital signs were closely monitored, routine bloods were taken daily and medications were prescribed to minimize any pain or nausea.

Outcome and follow-up

There were no peri-operative complications or post-operative concerns. The stoma started functioning on postoperative day four. The patient was discharged from hospital on day five, with outpatient follow up in six weeks from the date of discharge.

Discussion

Spontaneous evisceration through a parastomal hernia usually occurs secondary to skin weakening and necrosis (for example from direct pressure from a parastomal hernia itself or steroid use), traumatic injury, or in conditions where there is an increase in intrabdominal pressure (for example a chronic cough or ascites) [10]. Traumatic evisceration of intra-abdominal organs outside of the abdominal cavity can be due to penetrative injury, blunt trauma or a combination of them both [11]. Abdominal evisceration as a direct consequence of blunt trauma is far less common [12]. Ten publications (one of which document two patient cases each), were identified that described evisceration of bowel at a parastomal hernia [2,8,10,13-20]. However, there is the first case report to specifically describe two unique features resulting in small bowel evisceration.

- The mechanism of injury was blunt trauma to a pre-existing parastomal hernia.
- The small bowel eviscerated through the wall of the stoma (not next to it) hence the first description of an 'intra-stomal' small bowel evisceration.

This case report is unique in that the patient sustained a direct blow over the colostomy site, from a mechanical fall onto a solid blunt surface. We suspect this impact caused the full thickness tear

in the colostomy mucosal surface. The impact together with the pre-existing parastomal hernia is the most likely cause of the small bowel to eviscerate through the stoma in this unique way. Such circumstances are time sensitive, as the exposed abdominal content is at risk of contamination, perforation, strangulation, incarceration and consequential ischemic necrosis of bowel [21]. In this case, the patient presented five hours following from the injury. The eviscerated small bowel was discolored and bruised. Although the small intestine was both strangulated and incarcerated, the extent of ischemia was estimated to be reversible. Tissue viability was estimated by looking at the color of the serosal surface of the small bowel and assessing the presence of bowel peristalsis [22]. Evisceration of a hollow viscus is an indication for immediate laparotomy, while evisceration of omentum only may not mandate a laparotomy [5]. The timely manner in which this patient was optimized and transferred to theatre prevented further complications arising and was in line with best evidence-based practice [1].

Learning points

- Abdominal evisceration due to trauma to a parastomal hernia is a rare, but life-threatening condition that requires urgent operative management and a timely multidisciplinary approach. For this reason, it is imperative that all surgeons are aware of the presentations, complications and operative treatments of bowel evisceration.

- Because of the high prevalence of parastomal hernias in patients with stomas, combined with the probability of blunt abdominal wall trauma, this case is important to highlight the possibility of small bowel evisceration through this mechanism.

- Accurately identifying acute intestinal ischemia and infarction is a critical aspect of managing such cases. Despite this, there is yet to be a widely available, accurate and cost-effective technique to do so [23]. This case further highlights the need for more research into intestinal tissue oxygenation and intraoperative assessment of intestinal viability, like fluorescein and doppler studies [22], to contribute to a more evidence-based approach in managing such presentations.

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