

Case report: Burst of hollow viscus due to blunt abdominal trauma

Valentina da Rosa Carneiro¹, Javier Fender², Pablo Ramade Francolino³, Raúl Perdomo Pereira³

¹ General Surgery Resident

² General Surgeon

³ Clinical Assistant

Department of General Surgery, Hospital Escuela del Litoral, Paysandú, Uruguay

ABSTRACT

Intestinal injuries due to blunt abdominal trauma are rare, especially in a sports environment. Delays in diagnosis are associated with high morbidity and mortality. We present the case of a 23-year-old male patient who attended to the emergency department due to severe abdominal pain after blunt abdominal trauma secondary to soccer practice. Abdominopelvic computed tomography showed pneumoperitoneum and findings compatible with hollow viscus injury. Emergency laparoscopy was performed, finding diffuse peritonitis and tangential injury of the terminal ileum, that was sutured with good results.

Key words: intestinal burst, blunt abdominal trauma, laparoscopy

INTRODUCTION

In blunt abdominal trauma, solid organ injuries are the most common, unlike hollow viscera injuries. The latter are only suspected when symptoms are suggestive.¹ In these traumas, the intestine is the third most common viscera injured, with an incidence that ranges between 3.1 and 5%, which increases if other organs are injured.²

These injuries are caused by three mechanisms: crushing between the abdominal wall and the spine, tearing due to sudden deceleration, and bursting as a consequence of increased intraluminal pressure.¹

There are four small bowel injuries described by the American Association for Surgery and Trauma (AAST).

Grade I: Hematoma or contusion without devascularization, or partial thickness tear without perforation.

Grade II: Laceration of less than 50% of the circumference.

Grade III: Laceration equal or greater than 50% of the circumference, without transection.

Grade IV: Vascular laceration, intestinal transection, transection with segmental loss of tissue or presence of a devascularized segment.³

From what has already been mentioned the diagnosis is not always made early, which generates a delay in treatment with an increase in the patient's morbidity and mortality.¹

The present clinical case seeks to present our institutional experience with a patient who presented intestinal burst injury as a consequence of blunt abdominal trauma, with laparoscopic surgical resolution with good results.

CASE

A 23-year-old male patient, with no personal history of note, attended a rural clinic for severe right inguinal pain associated with the presence of a tumor at that level, one hour after a blunt trauma during soccer practice. Since the patient was hemodynamically stable and had no acute anemia, he was given intravenous analgesia and discharged afterwards.

24 hours later he returned to the clinic due to severe diffuse abdominal pain accompanied by anorexia, nausea, sporadic bilious vomiting and intestinal transit arrest, for which he was referred to the regional hospital.

The physical examination revealed a patient on good general condition, lucid, dehydrated, hemodynamically stable, with pain expressions in his face. Upon abdominal inspection, there was evidence of trauma at the right iliac fossa (Fig. 1). On palpation, abdomen was rigid, painful on superficial palpation with diffuse rebound tenderness and absent bowel sounds.



Figure 1. Patient in the operating room. Traces of trauma is observed in the right iliac fossa.

Blood tests showed leukocytosis (15.000 cells/mm³ with predominance of neutrophils), C-Reactive Protein 162. Abdominopelvic computed tomography revealed mild pneumoperitoneum and diffuse intra-abdominal free fluid (Fig. 2). On the right flank there was heterogeneous density in relation to the intestinal contents. Loops of small intestine partially distended with air-fluid levels and inflammatory thickening of the peritoneum were found. Findings were in relation to rupture of hollow viscus.

Preoperative medical treatment was initiated with analgesics, empiric antibiotics and intravenous hydration. Urgent laparoscopy was indicated (Fig. 3). Upon examination, abundant enteral content with pseudomembranes was observed in all peritoneal recesses associated with a large hematoma in the mesentery. At the level of the last ileal loop, a tangential lesion of approximately 0.5 cm was observed. Extensive peritoneal cleansing was performed, the injured intestine was sutured with PDS 4-0, and silicone drainage was left in the pouch of Douglas.

The authors declare no conflict of interest. **Valentina da Rosa Carneiro:** valedarosa_13@hotmail.com

Valentina da Rosa Carneiro: <https://orcid.org/0000-0002-0145-3015>, Javier Fender: <https://orcid.org/0009-0005-5652-6401>, Pablo Ramade Francolino: <https://orcid.org/0000-0001-5414-151X>, Raúl Perdomo Pereira: <https://orcid.org/0000-0001-9463-9355>

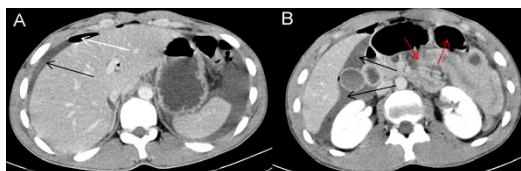


Figure 2. CT scan. Axial section. **A.** Pneumoperitoneum (white arrow) and perihepatic free fluid (black arrow) are visualized. **B.** Free fluid (black arrows) and distended loops of small intestine (red arrows).

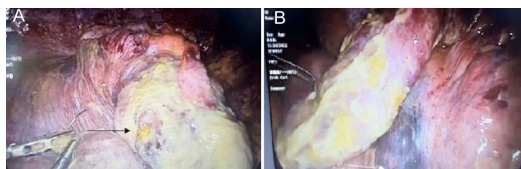


Figure 3. **A.** Small intestine covered with pseudomembranes is visualized. In the distal ileum, tangential lesion with enteral contents (black arrow). **B.** Large hematoma of the mesentery (white arrow) and loops of small intestine covered with pseudomembranes.

The patient had a good postoperative evolution, initiating oral intake after 48 hours. He was walking by his own means, without abdominal pain, with positive intestinal transit and with low serohematic output drainage. After a week, the drain was removed and the patient was discharged.

He was monitored in the clinic one week and one month after surgery. He had no further symptoms and he was surgically discharged.

DISCUSSION

Small bowel injuries have a better prognosis than colon injuries due to their lower bacterial load, better vascularization and easier surgical management. However, they have a worse prognosis when caused by blunt trauma than by penetrating trauma due to a delay diagnosis and surgical exploration.⁴

Regarding the diagnosis, the physical examination will present abdominal pain on palpation, signs of peritoneal irritation and absent bowel sounds. These are signs suggesting an acute abdomen, but not they are not sufficient to determine the organ injured.⁵

If hemodynamics are stable, contrast-enhanced computed tomography is a priority. It provides information on possible affected organs such as the spleen, liver or retroperitoneum, it shows the presence of free fluid, as well as elements suggestive of hollow viscus injury.⁵

Regarding treatment, blunt trauma can be addressed by laparoscopy. However, since the majority of patients are polytraumatized and may present associated injuries, hemodynamic instability, or brain trauma, laparotomy is usually performed.⁶ Laparoscopy is a valid option in hemodynamically stable patients. The purpose of laparoscopy in trauma is to avoid more than 20% of unnecessary laparotomies.⁷

In minor intestinal injuries, primary closure is the appropriate treatment but when there are ischemic segments, intestinal resection is paramount.¹

One of the situations in which laparoscopy is very useful is when CT visualizes free fluid without injury of solid organs or pneumoperitoneum, since there may be an injury of the mesentery or hollow viscus, both of which require immediate surgical resolution.^{6,8}

CONCLUSIONS

The advent of laparoscopic surgery in trauma in our environment will allow us to avoid unnecessary laparotomies, reduce hospital stay and associated morbidity, reduce costs

in medical care, providing timely and decisive treatment with its undeniable benefits.

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