

Case Report

Grade V small bowel injury after blunt abdominal trauma: a case report

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ABSTRACT

Injury of the small intestine or mesentery that requires surgical intervention is relatively uncommon, presenting less than 1% of all trauma. Unstable hemodynamically patients with peritoneal irritation signs and stable hemodynamically patients with radiological signs of intestine or mesentery lesions need an exploratory laparotomy. A 33-year-old male patient, suffered a car accident in which he had a frontal impact collision and was between two structures for 30 minutes, and rescued by the fire department. Physical examination of the abdomen presents generalized pain on palpation of moderate intensity and rebound sign. An exploratory laparotomy was performed, the findings were: hemoperitoneum of 1500 ml was found, lesion in the bucket loop of 1.2 meters, 1.8 meters from the Treitz angle and 70 cm from the ileocecal valve. We managed with drainage, vascular control, resection of the devascularized intestinal loop and small bowel shotgun stoma were. The patient was transferred to the intensive care unit for hemodynamic management and a second look was performed 5 days after surgery where cavity lavage, stoma dismantling and end-to-end anastomosis of the small intestine in two planes were performed. On post-operative day 7 drains were removed, and the patient was discharged from the surgical service due to improvement, without complications. We recommend a multidisciplinary approach to patients with polytrauma, since they lead to a better and faster recovery, in the same way it allows us to detect and treat any abnormality that impacts the quality of life of patients early.

Keywords: Blunt trauma, Bucket loop, Anastomosis

INTRODUCTION

Localized lesions in the mesentery that occur after closed abdominal trauma are rare and difficult to diagnose. The incidence of hollow viscus injuries following blunt abdominal trauma varies from 4% to 15%.¹ Injury of the small intestine or mesentery that requires surgical intervention is relatively uncommon, presenting less than 1% of all trauma.²

The usual mechanism of its production involves compression and deceleration forces which result in a spectrum of injuries that range from contusions, to tearing of the bowel wall, to shearing of the mesentery, to loss of vascular supply and compression of the intestinal loops against the vertebral column. Also, it can be the result of forces exerted on the abdomen, particularly at the insertion points of the meso that is near to Treitz

angle and ileocecal valve and more rarely due to a sudden increase in intra-abdominal pressure.³

Clinical manifestations of patients with isolated mesenteric vascular injury include features of intra-abdominal bleeding and peritoneal irritation. The delayed and late manifestations might be due to sepsis, bowel infarction and bowel stenosis or adhesion formation. Abdominal pain, tenderness, distension, hypotension and shock are non-specific clinical findings in mesenteric blunt trauma injuries.⁴ Significant mesenteric injury includes active bleeding (VSD extravasation), irregularity, and/or abrupt termination of mesenteric vessels. The not significant would be the hematoma and the mesenteric infiltration.⁵

In polytrauma patient IV contrasted TC is the election technique to assess intestinal and mesentery lesions, which are really uncommon if solid viscera lesion is not associated.⁵ radiological findings are divided into specific/major (intestinal wall irregularity, extraluminal air, and active bleeding) and less specific/minor (focal mural thickening, mural enhancement, free fluid, intramural air, and mesenteric fat trabeculation).⁶ Some CT scan findings that mandate exploratory laparotomy include extra-luminal gas, extravasation of oral contrast, disruption of bowel wall and active intravenous contrast extravasation.⁷ Unstable hemodynamically patients with peritoneal irritation signs and stable hemodynamically patients with radiological signs of intestine or mesentery lesions need an exploratory laparotomy.⁸

CASE REPORT

We present a clinical case of a 33-year-old male patient, with no history of chronic diseases or surgeries. He started his current condition with a car accident in which he had a frontal impact collision and was between two structures for 30 minutes, and rescued by the fire department.

On arrival at the hospital, he presented gradual deterioration of consciousness with 13 points on the Glasgow coma scale, diaphoresis, tachycardia and hypotension that improved with resuscitation maneuvers. A central venous catheter was placed, and vasoactive amines were started, and a nasogastric tube and Foley tube were placed. Physical examination of the abdomen on inspection with dermabrasions in the mesogastrium, auscultation without peristalsis noises, and presents generalized pain on palpation with moderate intensity and rebound sign. Additionally presents exposed fracture of the tibia and fibula.

FAST ultrasound was performed, and free fluid was reported, so he was evaluated by the general surgery service and exploratory laparotomy was performed.

During surgery, hemoperitoneum of 1500 ml was found, a lesion in the bucket loop of 1.2 meters, 1.8 meters from

the treitz angle and 70 centimeters from the ileocecal valve (Figure 1). Hemoperitoneal drainage, vascular control with simple ligation and transfixion points, resection of the devascularized intestinal loop and small bowel shotgun stoma were performed (Figure 2 and 3).

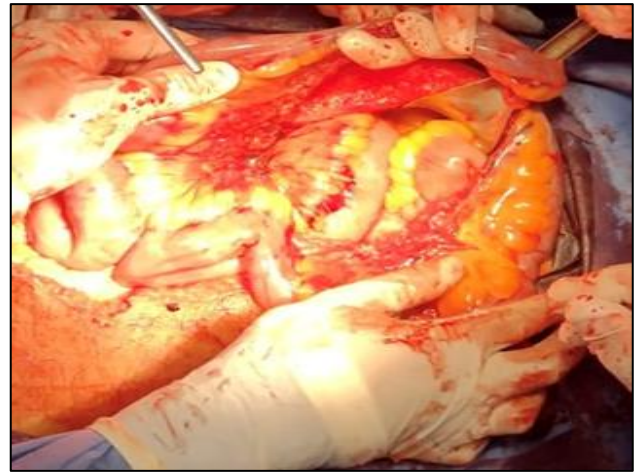


Figure 1: Bucket loop.

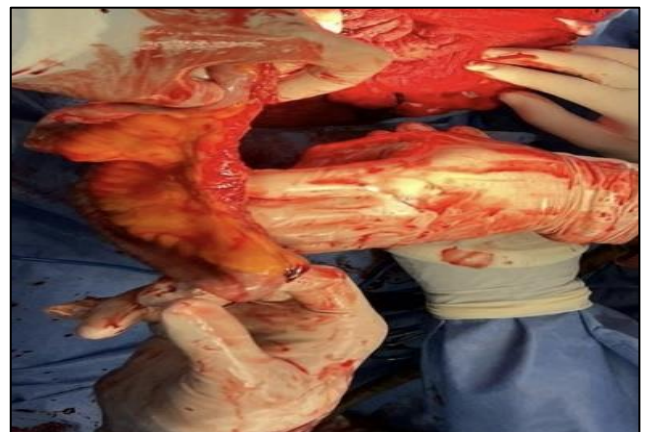


Figure 2: Grade V small bowel injury.



Figure 3: Small bowel shotgun stoma.

The patient was transferred to the intensive care unit for hemodynamic management with improvement of the shock state and stoma, which presented adequate output.

A second look was performed 5 days after surgery where cavity lavage, stoma dismantling and end-to-end anastomosis of the small intestine in two planes were performed, and two open drains were placed in the pelvic hollow and near the anastomosis (Figure 4 and 5).

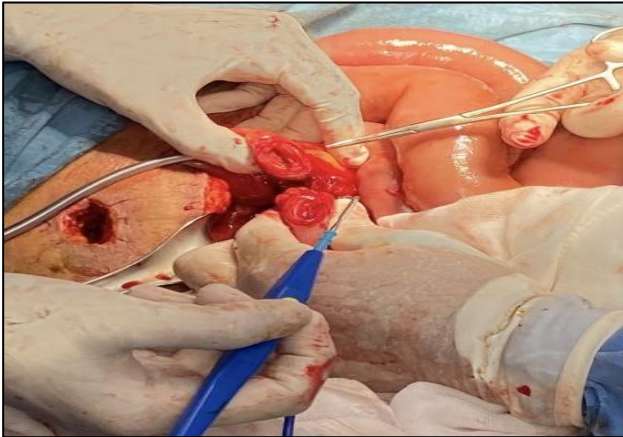


Figure 4: Second look, stoma dismantling.



Figure 5: End-to-end anastomosis.

The patient had an adequate evolution, starting the oral route when presenting peristalsis, with adequate tolerance of liquid and soft diet. The drains showed minimal serohematic output and vital signs within normal ranges, with no evidence of anastomotic leakage. On postoperative day 7 drains were removed, and the patient was discharged from the surgical service due to improvement, without complications, and was referred to the orthopedic and traumatology service for fracture management.

The patient was evaluated three weeks after surgery, with adequate postoperative evolution.

DISCUSSION

Blunt abdominal trauma is a frequent pathology. The training of health personnel in its management, diagnosis, and treatment is important in order to achieve prompt and effective care that leads to saving the patient's life.¹ Damage control surgery should be performed promptly to improve the patient's prognosis, especially with unstable patients with a positive FAST ultrasound as our patient case.³

In the first stage, reconstruction of the structures is not advisable since a prolonged surgical time can worsen the patient's clinical condition, moreover in our patient case probably having established the resection and anastomosis like first stage would be ended in failure of management.⁷

Following up on what was found in the literature, it is important to determine the ideal time for damage control surgery and reconstruction surgery, since the latter requires the patient to be in favorable metabolic conditions to carry out organic repair.⁹ An unstable patient or with many risk factors for anastomosis dehiscence will not benefit from its performance and therefore, in the case of our patient, damage control was decided to subsequently establish parenteral nutrition therapy, metabolic and hemodynamic stabilization in the ICU to bring him the best possible conditions for reconnection, resulting in success.¹⁰

CONCLUSION

Blunt abdominal trauma continues to be a diagnostic-therapeutic challenge despite advances in diagnostic imaging aids, since due to the complexity of the abdominal cavity, a thorough analysis of the mechanism of the trauma is required, the findings on physical examination and cabinet, which together form a series of elements that the surgeon faces to determine whether or not the patient needs surgical intervention.

In this case, a timely intervention that started from prehospital care and its prompt surgical intervention, allowed an early vascular control, with repairs of intestinal injuries with a control of damage to organs and tissues, which led to a reduction in systemic trauma. And a considerable decrease in the risk of mortality, as well as a close monitoring of the post-surgical period.

We recommend a multidisciplinary approach to patients with polytrauma, since they lead to a better and faster recovery, in the same way it allows us to detect and treat any abnormality that impacts the quality of life of patients early.

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