Rupture of Meckel’s diverticulum after a blunt abdominal trauma

Abstract

Background: Meckel’s diverticulum is relatively rare in the general population. Generally, symptoms are extremely varied and prior diagnosis is difficult because of the abnormality being an occasional finding in laparotomies. This report describes the unusual possibility of basement of diverticulum rupture, even after low-impact abdominal trauma. The case is unusual because of the low frequency of small bowel injury in abdominal contusions, except in trauma with high kinetic energy, such as high-speed car crashes, and the unexpected finding of a ruptured base of diverticulum. Usually, the lesions occur at relatively fixed structures, specifically in the angle of Treitz or ileocecal region, after undergoing stretching.

Case presentation: A 32-year-old male patient presented at another service after incurring a trauma in a car crash about 5 hours earlier. He complained of abdominal pain of moderate intensity and intense thirst. Bruises were found on the mesogastric region. Ultrasoundography and computed tomography suggested the presence of a small amount of free fluid in the abdominal cavity and pneumoperitoneum. Emergency exploratory laparotomy was performed because of the free fluid and air blood and faecal content in the peritoneal cavity. A single lesion, the contusion in Meckel’s diverticulum and perforation at base of diverticulum, was observed. Excision of the segment was performed with thorough washing of the cavity.

Conclusion: Patients with Meckel’s diverticulum may be more susceptible to hollow viscus rupture and can be a finding in exploratory laparotomy. Controversy exists when the MD is an occasional finding. The current recommendation is surgical removal due to the low risk of complication of the procedure. Thereby avoiding possible future complications.
Background

Meckel’s diverticulum (MD) was first described in 1650 by Hildanus [1-3]. It is the most common malformation of the gastrointestinal tract, affecting 0.4% to 3% of the general population, with a male-to-female prevalence of 2:1 [4]. MD results from incomplete closure and obliteration of the proximal portion of the omphalomesenteric duct, near the ileo-cecal valve [5]. Usually, it is small, wide-mouthed, and located in the anti-mesenteric border in the distal 100 cm of the ileum. In approximately 55% of cases, ectopic mucosa (usually gastric or pancreatic) is present. In most cases, it is asymptomatic and an incidental finding during abdominal surgery or autopsy. However, 15% to 20% of cases may be associated with abdominal pain and complications, including haemorrhage, and intestinal obstruction or perforation, etc [6-8].

In patients with trauma, we highlight lesions that affect the hollow viscus due to their high morbidity and mortality, especially in delayed diagnosis [9]. Although the mechanism of trauma allows inferences about the type of injury, diagnosis is extremely difficult because of the lack of specific clinical and radiological findings, and the association with other serious injuries that mask or prevent a proper evaluation of the abdomen [10]. Although the clinical and histo-pathological characteristics, and complications of MD are well known, its preoperative diagnosis is difficult, as it is a rare condition. It may mimic other causes of acute abdomen, and imaging findings are nonspecific [11, 12]. Symptomatic MD is synonymous with the presence of complications.

Injury to the hollow viscus cause symptoms via the combination of blood loss and contamination of the peritoneal cavity, and severe clinical signs may take a while to emerge [13]. The trauma to the anterior wall of the abdomen often leads to injuries of the hollow viscus, although injuries to the back and buttocks can also reach intra-cavitary organs. Treatment is usually surgical [14-16].

Conclusions

Injuries of the hollow viscus are frequent in abdominal trauma, are sometimes difficult to diagnose, and are known for their high morbidity and mortality [18]. Physical examination remains as the primary method of diagnosis of abdominal injuries, and the treatment is emergency surgery [19, 20].
Preoperative diagnosis of MD is difficult and imaging tests, such as ultrasonography and computed tomography are nonspecific [21]. Controversy exists when the MD is an occasional finding. The current recommendation is surgical removal due to the low risk of complication of the procedure. Thereby avoiding possible future complications. Our approach is enterectomy segment with end-to-end primary reconstruction because it reduces the risk of residual ectopic mucosa at the base of the ileum. In the presence of MD drilled associated with peritonitis, we chose proximal ileostomy, since primary anastomosis at high risk of complications in this situation.

This case reports a rare case of blunt abdominal trauma with rupture of MD and intends to call attention to the possibility of its existence and the need for an earliest possible diagnosis to minimize complications, as diverticulum tissues are friable and may be at risk of injury from lower-energy impacts compared with common small intestine injuries.

Consent
The patient received appropriate guidance and signed the “Free and Informed Term of Consent” form.

List of abbreviations
MD: Meckel’s diverticulum
HRC: Cariri Regional Hospital

Competing interests
The authors declare no conflicts of interests.
The case report was submitted to the Research Ethics Committee of Hospital Regional do Cariri.
The authors rigorously complied with the criteria defined in the Declaration of Helsinki.

Authors’ contributions
HMTB conceived and conducted the case study. All the authors read and approved the final manuscript.

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References


