CASE REPORT

Case Report: Intestinal Obstruction as a Late Presentation of Perforation of the Transverse Colon Following Blunt Abdominal Trauma

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Abstract Colonic perforation associated with blunt abdominal trauma is rare. Even more so is the formation of an inflammatory adhesion preventing leakage into the peritoneum. We present a case of the above in which the patient presented 1 month later with intestinal obstruction which required surgical intervention. A 38-year-old male, victim of a road traffic accident (RTA), presented with multiple fractures in his extremities which had to be operated on and was later discharged without complications. He was readmitted 1 month following the trauma with intestinal obstruction. During the operation, a stenosing colonic adhesion due to bowel perforation following blunt abdominal trauma was discovered. Resection of the transverse colon and a termino-terminal colo-colonic anastomosis was performed.

Keywords Blunt abdominal trauma · Large bowel injury · Colonic perforation · Intestinal obstruction

Introduction

Gastrointestinal lesions caused by blunt abdominal trauma are rare; less than 1% of all admissions following blunt abdominal trauma will have a hollow visceral lesion and 0.2% will have

bowel perforation [1]. Lesions associated with other parts of the body, the limitations of imaging in small intestinal lesions and a low index of suspicion mean that the diagnosis of bowel perforation is often missed [2]. We present the case of a 38-year-old male with perforation of the transverse colon and a mesenteric lesion due to an RTA, who 1 month following the trauma presented with intestinal obstruction. During surgical exploration, we observed a stenosing adhesion with perforation of the transverse colon.

Case Presentation

A 38-year-old male is admitted following an RTA in which he was driving a motorcycle. On examination, there was intense pain and deformity of the right thigh and right forearm. Following the primary and secondary survey, a right radial and cubital fracture and a proximal right femoral fracture were diagnosed. CT head, chest and abdomen were performed according to protocol and were reported as normal. In the following days, surgical repair with internal fixation of these fractures was performed and the patient was discharged. He was readmitted to the hospital 1 month following the accident with episodes of nausea, vomiting, progressive abdominal distension, colicky abdominal pain, constipation and the inability to pass flatus in the 3 days prior to admission. On examination, BP is 120/70 mmHg, HR 110, RR 22, O₂ sats 97% and intra-abdominal pressure 16 mmHg. Abdomen was distended, tense, tympanic, with reduced bowel sounds and diffuse abdominal pain on palpation.

Blood Analysis is CBC: 15,940 (5/81), Hb 11.7 g/dl, urea 32 mg/dl, creatinine 0.5 mg/dl, glucose 120 mg/dl and amylase 77 U/l. Simple abdominal X-ray demonstrated dilatation

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of the ascending and transverse colon up to splenic flexure (Fig. 1).

The patient was taken for laparotomy with a diagnosis of obstruction. During the operation, we found distension of the descending colon and a colonic adhesion in the middle third of the colon which involved omentum and two ileal loops of bowel. When freed, a 2-cm colonic perforation was seen with purulent liquid and active exit of intestinal contents and gas. An opening in the transverse mesocolon of approximately 7×4 cm with fibrotic borders was also discovered. We resected a segment of the transverse colon and a termino-terminal colo-colonic anastomosis was performed. The post-operative diagnosis was intestinal obstruction by a stenosing colon adhesion following perforation due to blunt abdominal trauma.

Discussion

In blunt abdominal trauma, approximately 1% of all admissions have intestinal lesions and 0.2% colonic perforation [1]. Colonic perforation may present early; however, late presentations of perforation have been reported (between 3 and 60 days post-trauma). RTAs are the most frequent cause of injury [3].

Patients with multisystem trauma receive analgesics and antibiotics on arrival to the emergency room. These frequently mask intestinal lesions and they remain undiagnosed or are evident only when they present with complications such as peritonitis or sepsis, thereby increasing the risk of mortality [4]. Other patients can present late with adhesions which limit the leakage of bowel contents.

Direct contusions or the sudden increase in intra-abdominal pressure could explain the colonic perforation or the tear in the

Fig. 1 Simple abdominal X-ray demonstrating ascending, transverse colon distension and collapsed left hemicolon

Fig. 2 Opening of mesocolonic segment and stenosis of the transverse colon with a 2-cm perforation in its mesenteric border

adjacent mesentery, causing the mesenteric haematoma to provoke a state of low perfusion and complete ischaemia of a segment of bowel already damaged [5]. Small intestinal and mesenteric lesions are usually forgotten due to the tendency not to operate on patients with blunt abdominal trauma [6].

To make an early diagnosis, we require a high index of suspicion which should be based on the mechanism of trauma, the clinical findings and an adequate interpretation of the imaging (especially CT), not only on admission but during the length of hospitalization [7]. If an acute abdomen presents days or weeks following an episode of blunt abdominal trauma, one must consider a late presentation of an intestinal lesion [8].

Our patient presented 1 month later with intestinal obstruction (see Fig. 1), a mesenteric lesion with an area of fibrosis (see Fig. 2) and devascularisation in the mesenteric border of the transverse colon. During his recovery, we believed the patient was presenting with ischaemia and necrosis; in fact, the defence mechanism of the adhesion was preventing the perforation from opening. The adhesion constricted the lumen of the intestine, producing an episode of lower intestinal obstruction.

Conclusion

Colonic lesions associated with blunt abdominal trauma are rare but deadly. Understanding the mechanism of trauma, imaging and a high index of suspicion will allow one to make an early diagnosis. In a patient with multisystem trauma who presents late with features of subacute intestinal obstruction episodes, we must suspect intestinal lesions with adhesion formation.

Compliance with Ethical Standards

Consent Written consent was obtained from the patient to allow us to publish this case and the accompanying images. A copy of the written consent is available for revision by the Chief Editor of the journal.

Conflict of Interest The authors declare that they have no conflict of interest.

References

1. Watts DD, Fakhry SM (2003) EAST multi-institutional hollow viscus injury research group. Incidence of hollow viscus injury in blunt trauma: an analysis from 275,557 trauma admissions from the east multi-institutional trial. *J Trauma* 54(2):289–294
2. Pinto A, Magliocca M, Grassi R, Scaglione M, Romano L, Angelelli G (2001) Role of computerized tomography in the diagnosis of peritoneo-intestinal lesions resulting from closed trauma. Experience at 2 emergency departments. *Radiol Med (Torino)* 101(3):177–182
3. Dauterive AH, Flancbaum L, Cox EF (1985) Blunt intestinal trauma. A modern-day review *Ann Surg febrero de* 201(2):198–203
4. Sule AZ, Kidmas AT, Awani K, Uba F, Misauno M (2007) Gastrointestinal perforation following blunt abdominal trauma. *East Afr Med J* 84(9):429–433
5. Pimenta de Castro J, Gomes G, Mateus N, Escrevente R, Pereira L, Jácome P (2015) Small bowell perforation and mesentery injury after an unusual blunt abdominal trauma-case report. *Int J Surg Case Rep* 7C:51–53
6. Gaspar B, Negoï I, Paun S, Hostiuc S, Ganescu R, Beuran M (2014) Selective nonoperative management of abdominal injuries in polytrauma patients: a protocol only for experienced trauma centers. *Maedica* 9(2):168–172
7. Dowe MF, Shanmuganathan K, Mirvis SE, Steiner RC, Cooper C (1997) CT findings of mesenteric injury after blunt trauma: implications for surgical intervention. *AJR Am J Roentgenol* 168(2):425–428
8. Yusif-Zada K, Safarov R, Gafarov A (2013) Isolated small bowel perforation following blunt abdominal trauma. *Ann Ital Chir* 84(6): 699–703