CASE REPORT

Mesenteric injury caused by minor blunt abdominal trauma

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The authors present an unusual case of mesenteric injury caused by minor blunt abdominal trauma and also provide a review of the literature.

Mesenteric injury from blunt abdominal trauma is uncommon and can be difficult to diagnose.¹ It is known that seatbelt trauma from motor vehicle accidents is the most common mechanism of mesenteric injury and that the mesentery of the small bowel is injured more frequently than that of the colon.² We present an unusual case of mesenteric injury caused by minor blunt abdominal trauma and go on to provide a thorough review of the literature.

CASE REPORT

A 63 year old male presented to the emergency department with progressive, dull epigastralgia for two days. He reported that the pain was a result of blunt abdominal injury from being hit by his 3 year old grandson's head while playing. His family witnessed the scenario and stated that the patient was fine except for mild abdominal pain after the collision. There was no significant past medical history. His vital signs on presentation were blood pressure 92/50 mm Hg, heart rate 94 beats/minute, respiratory rate 22 breaths/minute, and temperature 35.9°C (96.2°F). Physical examination was remarkable only in the abdomen which was distended and diffusely tender to palpation. Laboratory tests showed a haematocrit of 38.6%, serum creatinine 1.5 mg/dl, and amylase 64 U/l. The coagulation profile was within normal limits. A rapid trauma sonography demonstrated free intraperitoneal fluid.

After stabilisation of his vital signs, a contrast enhanced abdominal computed tomography (CT) was obtained, which showed the presence of ascites and mesenteric haematoma (fig 1). Yielded bleeding was confirmed by peritoneal sentesis which yielded bloody fluid and the patient was then sent to the theater for an emergent celiotomy. Intraoperative findings revealed the presence of up to one litre of bloody ascites and a stable mesenteric haematoma adjacent to the Treitz ligament. Surgical repair was performed. The spleen, pancreas, liver, duodenum, and small and large bowels were all intact. The postoperation course was uncomplicated and he was discharged on day 15 after admission.

DISCUSSIONS

The mechanism of mesenteric injury in blunt abdominal trauma 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.³⁻⁵ Morbidity and mortality due to delayed diagnosis occur as a result of haemorrhage of injured mesenteric vessels and peritonitis from bowel wall rupture or bowel ischaemia. Patients with a slow oozing mesenteric haematoma may remain clinically undetected for days, until

Figure 1 Contrast enhanced CT scan showing mesenteric haematoma (reproduced with permission).

bowel necrosis occurs leading to peritonitis. Alternatively, a delayed haemorrhage may occur as a result of relaxation of vasospasm, pressure related displacement of thrombus, or liquefaction of temporary blood clot.

The diagnosis of mesenteric injuries tends to be delayed. Early detection and surgical intervention, when necessary, are critical in improving the outcome of treatment. Though non-specific, one or more of the following clinical findings can be usually found: abdominal pain, tenderness, distension, reduced bowel sounds, hypotension, and shock.¹⁻⁵ Diagnostic peritoneal lavage or trauma sonography should be used to assess patients who are haemodynamically unstable. On the other hand, haemodynamically stable patients may benefit from abdominal CT scanning, which helps localise free fluids, pneumoperitoneum, or mesenteric haematomas. It also helps evaluate solid organ injuries.⁶

If the mesenteric laceration is minimal and only a localised haematoma is present, the patient can be managed conservatively.¹ However, the finding of a moderate to large volume of intraperitoneal fluid without solid organ injury should prompt surgical assessment for bowel and mesenteric injury.⁷ Transcatheter treatment of traumatic mesenteric haemorrhage has also been reported.⁸

Our patient showed that the diagnosis of mesenteric injury should be considered even in patients who sustain only minor abdominal trauma and rapid diagnosis depends on a high index of suspicion of the emergency physician.

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REFERENCES

- 1 **Nolan BW**, Gabram SG, Schwartz RJ, *et al*. Mesenteric injury from blunt abdominal trauma. *Am Surg* 1995;**61**:501–6.
- 2 **Rutledge R**, Thomason M, Oller D, *et al*. The spectrum of abdominal injuries associated with the use of seat belts. *J Trauma* 1991;**31**:820–6.
- 3 **Williams RD**, Sargent FT. The mechanism of intestinal injury in trauma. *J Trauma* 1963;**3**:288–94.
- 4 **Vance BM**. Traumatic lesions of the intestine caused by non-penetrating blunt force. *Arch Surg* 1923;**7**:197–212.
- 5 **Xeropotamos NS**, Nousias VE, Ioannou HV, *et al*. Mesenteric injury after blunt abdominal trauma. *Eur J Surg* 2001;**167**:106–9.
- 6 **Dowe MF**, Shanmuganathan K, Mirvis SE, *et al*. CT findings of mesenteric injury after blunt trauma: Implications for surgical intervention. *Am J Roentgenol* 1997;**168**:425–8.
- 7 **Breen DJ**, Janzen DL, Zwirewich CV, *et al*. Blunt bowel and mesenteric injury: diagnostic performance of CT signs. *J Comput Assist Tomogr* 1997;**21**:706–12.
- 8 **Asayama Y**, Matsumoto S, Isoda T, *et al*. A case of traumatic mesenteric bleeding controlled by only transcatheter arterial embolization. *Cardiovasc Intervent Radiol* 2005;**28**:256–8.