Late small bowel obstruction after blunt abdominal trauma

D Maharaj, A Perry, M Ramdass, V Naraynsingh

Blunt abdominal trauma with intraperitoneal injury usually presents acutely. On rare occasions, such patients can present later on with features of small bowel obstruction due to stricture formation. It is thought that such a delayed stricture is due to subclinical bowel perforation, localised gut ischaemia, or injury to the mesenteric vasculature. This case demonstrates the mesenteric vascular injury theory to be the cause of the bowel stricture.

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Blunt abdominal trauma producing intraperitoneal injury usually presents acutely, necessitating laparotomy for intestinal perforation or mesenteric vascular injury. In the absence of shock and peritonism, patients with blunt abdominal injury may be treated conservatively. On rare occasions, such patients can present later on with features of small bowel obstruction. Delays in presentation between the initial insult to the abdomen and the obstructive episode have been documented to be as long as 26 years in the European literature.

The exact pathophysiology is unclear, with three possible causes cited—subclinical small bowel perforation, localised bowel ischaemia, and mesenteric vascular injury. We report the case of a 22 year old man who presented with small bowel obstruction two years after blunt abdominal trauma. Laparotomy revealed distal ileal stenosis with vascular mesenteric injury. This case reinforces the mesenteric vascular injury theory as the cause of the bowel stricture.

CASE REPORT

A healthy 20 year old man presented to the General Hospital, Port-of-Spain, having been involved in a motor vehicle accident one hour beforehand. He was the driver of a car that smashed into the rear of a stationary vehicle at low velocity. He was wearing a lap and shoulder belt at the time.

Though he sustained blunt abdominal injury, bruising or the seatbelt sign were not evident. He was found to be stable with minimal abdominal tenderness. He was observed for a 24 hour period and subsequently discharged.

He was seen repeatedly in the outpatient clinic for vague colicky abdominal pains which he had not experienced before injury. No investigations were ordered. Two years after the initial injury he presented to the surgical service with vomiting and constipation. His abdomen was mildly tender and grossly distended with increased bowel sounds. Plain abdominal radiographs revealed small bowel distension involving the jejunum and ileum.

A laparotomy was performed and a stricture of the terminal ileum was observed. The adjacent mesentery was scarred and the mesenteric arterial pulsations were impalpable (fig 1). On table Doppler assessment revealed reduced biphasic arterial impulses within this segment of mesentery.

The stenosed segment of ileum was resected and an end to end anastomosis performed. The specimen was examined his-
tears or intramural haematomas have been found on close inspection of the specimens.10 Bryner et al described three patients with strictures due to mesenteric rents and subsequent devascularisation.11 Our case supports the mesenteric injury theory. At laparotomy, obvious mesenteric scarring was associated with the stricture formation; furthermore, impaired vascularity was confirmed by palpation and examination of audible Doppler signals.

Regardless of the pathophysiology of this complication of blunt abdominal trauma, the diagnosis of post-traumatic small bowel stricture should be suspected when a patient presents with features of bowel obstruction weeks, or even years, after sustaining abdominal injury. Plain abdominal films may confirm the diagnosis particularly during a bout of colicky pain. Unfortunately in this case the condition remained undiagnosed due to his vague presentation and the lack of clinical suspicion. In the unclear case, contrast enhanced computed tomography or angiography may reveal a lack of clinical suspicion. In the unclear case, contrast enhanced computed tomography or angiography may reveal a mesenteric haematoma or mesenteric vessel occlusion respectively. With the incidence of blunt abdominal trauma due to seatbelt injuries on the upsurge,12 awareness of this interesting phenomenon cannot be overemphasised.

<table>
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<th>Summary points</th>
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<td>• Patients sustaining blunt abdominal trauma may present with delayed small bowel obstruction due to stricture formation.</td>
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<td>• The possible causes of the small bowel stricture include: subclinical small bowel perforation, localised bowel ischaemia, and mesenteric vascular injury.</td>
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<td>• This case demonstrates two points:</td>
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<tr>
<td>1. Small bowel stricture formation is likely to be due to mesenteric vascular injury.</td>
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<td>2. This clinical entity should be borne in mind when faced with a patient presenting with small bowel obstruction after blunt abdominal trauma, even if the initial insult was months before.</td>
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</table>

**References**


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