CASE REPORT

Delayed presentation of perforation of the ileum following seat belt trauma

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SUMMARY

A 36-year-old man presented with an acute abdomen due to perforation of the terminal ileum, 26 days after sustaining blunt abdominal trauma from a seat belt. He had been completely well and undertaking vigorous physical exercise since the injury. This is the first reported case of this type of injury presenting after a long asymptomatic interval.

CASE REPORT

A 36-year-old man was admitted after being found unconscious in an overturned car beside a motorway. On arrival in Casualty he was alert and orientated with right sided chest pain and evidence of right upper lobe contusion on chest X-ray. The abdomen was soft with mild upper right quadrant tenderness extending up over the right ribs, bowel sounds being normal. He was treated conservatively and made a rapid recovery, being discharged two days later, at this time noticing the development of bruising on both flanks and across the chest. He remained perfectly well and asymptomatic, eating normally with no discomfort and taking up his usual vigorous exercise routine, including 40 sit-ups a day.

Twenty-six days after the injury he experienced sudden onset of lower abdominal pain which generalized to the whole abdomen with vomiting over the next few hours. On admission he was shocked but afebrile, with generalized rebound abdominal tenderness and intense guarding. The white cell count was raised at $26.6 \times 10^9/l$ and plain abdominal radiograph was unremarkable.

At laparotomy there was free pus in the peritoneum and a mass in the pelvis consisting of an abscess surrounded by small bowel and omentum adherent to the

bladder. Two lesions of the terminal ileum were present on the mesenteric border of the bowel, each adjacent to a radial mesenteric tear 1 cm in length, one of these lesions containing an obvious perforation. A 20 cm length of distal ileum was resected, which when opened contained an ulcerated area 4 cm in length surrounding the perforation showing histological changes consistent with ischaemia. No pre-existing pathological lesion was found.

The patient made an uncomplicated recovery and was discharged home 10 days later.

DISCUSSION

Following legislation on the use of seat belts the pattern of injury in road traffic accidents has changed (Rutherford *et al.*, 1985), with a dramatic reduction in some forms of serious injury. However injuries due to the seat belt itself, although tending to be less severe, are now seen more frequently. Injury to the small bowel is uncommon after blunt trauma, the distal ileum and proximal jejunum being the most frequent sites of damage (Dauterive *et al.*, 1985), several different mechanisms resulting in either complete transection, perforation or mesenteric tear. Delay in diagnosis by a number of hours leading to an increased mortality (Rouse *et al.*, 1984) has been a feature of previous reports, as a paucity of signs, other injuries or a lack of clinical awareness may make the diagnosis difficult.

Presentation of injury after many days is much less common, however ischaemic stricture is a well recognized late complication of small bowel or mesenteric trauma (Welch & Anderson, 1985). In contrast later perforation is not well recognized, two previous cases having been reported, at 11 and 35 days (Burrell *et al.*, 1973; Fleishman *et al.*, 1979), both of these patients being unwell with episodes of abdominal pain, fevers and weight loss during the period between injury and subsequent presentation, unlike the patient presented here who was completely fit and well.

The density of the adhesions around the lesion in this case suggests that the most likely mechanism for this sequence of events is that the perforation occurred at the time of impact and was then walled off by surrounding omentum and bowel, rupture of the resulting abscess giving the sudden symptoms 26 days later.

This case illustrates that ileal perforation should be considered in the differential diagnosis of the acute abdomen up to 4 weeks after blunt trauma, even if this interval has been completely asymptomatic.

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