Post-traumatic Small Bowel Obstruction

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SUMMARY: Small bowel stenosis due to blunt abdominal trauma is rare (1). This paper reports a Gurkha soldier who sustained apparently minor trauma in a flying accident and presented 11 weeks later with abdominal pain. After extensive investigations, a post-traumatic small bowel stricture was identified and excised.

Case Report

A 23 year old Gurkha was involved in a helicopter accident overseas on 14 May 86. Initial examination and investigations showed a right Galeazzi fracture, a compound fracture of the right third metacarpal, a laceration to the left ear and a bruised abdomen with tenderness and guarding in the right iliac fossa. No other clinical abnormality was detected. Treatment was conservative, with an intravenous infusion, antibiotics for the compound fracture and manipulation and plaster of paris for the Galeazzi fracture. He was transferred to the Cambridge Military Hospital (CMH) arriving on 17 May 86. There was no mention of abdominal pain after the initial assessment and no signs or symptoms on admission to the CMH.

The compound fracture of the third metacarpal healed uneventfully. The Galeazzi fracture was initially treated conservatively but required plating and bone grafting for non-union on 30 July 86. Four days post-operatively he was seen on the ward complaining of constipation and abdominal pain. The abdomen was distended and tympanic and the bowel sounds recorded as being active. He was treated with a phosphate enema and settled. He was discharged on 11 Aug 86.

He was re-admitted on 27 Oct 1986 with the same history and transferred to the medical ward. This time there was a history of *Yersinia enterocolitica* on stool culture organised by his medical officer. Full blood count and differential, erythrocyte sedimentation rate, liver function tests, midstream specimen of urine, calcium, ultrasound of liver and kidneys, chest X-ray, Heaf Test and gastrointestinal endoscopy were all normal.

The lactose tolerance test was pathologically flat and therefore a lactose free diet commenced. A barium meal and follow through showed some dilated small bowel in the left upper quadrant but was otherwise normal. Stool examination showed *Trichuris* and Hookworm: he was treated with Vermox and discharged on 07 Nov 86.

He was re-admitted yet again on 24 Nov 86 with further abdominal pain. A barium enema performed on 26 Nov 86 was reported as showing redundant sigmoid colon, and he was therefore referred back to the surgeons on 28 Nov 86. A reflux small bowel examination done on 05 Dec 86 showed minimal reflux into the ileum, suggesting an

obstruction in the terminal ileum. He was discharged on hospital sick leave and re-admitted for surgery on 17 Dec 86.

At laparotomy on 18 Dec 86 a distal ileal stricture was found 65cms from the ileocaecal valve, to which it was attached by an omental band. The proximal small bowel was decompressed and the stricture excised with end-to-end anastomosis.

Histological examination of the stricture showed only fibrosis there and in the adjoining mesentery. The rest of the bowel was normal: in particular there was no evidence of Crohn's disease.

He made a satisfactory post-operative recovery and was asymptomatic at final discharge on 26 Dec 86. He was readmitted on 01 Mar 87 with a further episode of small bowel obstruction, and at laparotomy on 03 Mar 87 had division of adhesions. He made a good recovery and was finally asymptomatic on 06 Apr 87.

Discussion

Strictures of the small bowel following blunt trauma appear to be very rare (1). A world literature search by Gillet *et al* in 1967 (2) found only 47 cases since 1907, most occurring in the proximal jejunum and distal ileum. Since 1975 there have been 12 cases (3-10) reported in the English language literature of which 9 followed apparently minor blunt abdominal trauma.

The mechanism of stricture formation following blunt trauma is thought to be either by localised bowel ischaemia or following a clinically insignificant small bowel perforation (3). Presumably localised ischaemia was the mechanism in this case as the patient was flown 8,000 miles 3 days after injury with no abdominal symptoms developing. A perforation must be considered unlikely. In 3 cases (Brynor *et al* 1980) (10) there were mesenteric tears parallel to the small bowel: there was, however, no sign of a mesenteric tear in this case.

Such strictures tend to occur near the points of attachment of the small bowel at the ileocaecal valve and Ligament of Treitz. Symptoms in the reported cases usually begin between 4 and 8 weeks after trauma, with a range of 13 days to 18 years (7, 10).

Blunt abdominal trauma only infrequently causes damage to the small bowel. Davis *et al* 1975 (11) found only 34 cases of small bowel injury in 437 cases of blunt abdominal trauma, although the small the bowel is the commonest hollow viscus injured. Significant bowel trauma can occur after apparently minor abdominal trauma (12), a fact known in classical times (13).

This patient, possibly because he was a Gurkha, was extensively investigated for a medical cause of his abdominal pain, and potential causes were identified. Small bowel stricture, although a rare complication, should be borne in mind when a patient presents with obscure abdominal pain and a previous history of even apparently minor abdominal trauma.

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