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An unusual volvulus – the ileosigmoid knot

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Summary: A case is presented of an ileosigmoid knot in a 70 year old man. A strangulated loop of ileum was wrapped around the neck of a sigmoid volvulus. Following small bowel resection and sigmoid colectomy with colostomy, the patient made an uneventful recovery.

Introduction

Ileosigmoid knot is a well-recognized condition rarely seen in this country. It is described on the very last page of Hamilton Bailey's Emergency Surgery, in the chapter on tropical emergencies (McNair, 1972). A case was recently seen in Bristol which demonstrates the difficulties in preoperative diagnosis, and which was especially unusual in affecting a man of 70 years.

Case report

A 70 year old man presented as an emergency with colicky abdominal pain of 6 hours duration. He had not passed flatus since the pain had started, and had vomited. There was slight abdominal distension but no tenderness; bowel sounds suggested obstruction. Abdominal X-rays showed a sigmoid volvulus with some dilated loops of small bowel (Figure 1), which were thought to be secondary to the large bowel obstruction.

Unsuccessful attempts were made to reduce the volvulus, using both rigid and flexible sigmoidoscopes. Laparotomy revealed a partly gangrenous sigmoid volvulus surrounded by a gangrenous loop of small bowel – an ileosigmoid knot (Figure 2). The gangrenous small bowel and the sigmoid colon were resected and continuity of the ileum was restored by an end-to-end anastomosis. The ends of the colon were brought out as a double-barrelled colostomy. The patient made an uncomplicated recovery, and 3 months later he underwent an uneventful closure of colostomy.

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Discussion

Where sigmoid volvulus is common, ileosigmoid knots are found in approximately 20% of cases coming to laparotomy (Shepherd, 1967; Kakar & Bhatnagar, 1981). The condition has not to my knowledge been reported from the United Kingdom. Ileosigmoid knot more commonly affects males, usually before the age of 55 years. Because of the high incidence of sigmoid volvulus in African and Indian peasants it is usually seen in these peoples, although a recent report from Cape Town includes one white in seven cases (Watson, 1984).

Preoperative diagnosis is difficult, depending on the early occurrence of vomiting, less distension than is usual with sigmoid volvulus (Shepherd, 1967), and the presence of small bowel air-fluid levels to the left of the sigmoid volvulus (White & Palmer, 1963). Most authors state that the clinical signs are difficult to define preoperatively, and that the radiological signs are inconstant. In the present case, the radiological signs were erroneously attributed to secondary small bowel obstruction consequent on the sigmoid volvulus.

Small bowel gangrene is usual: it was present in 67 of 92 patients from Uganda (Shepherd, 1967), in all 11 patients in a report from India (Kakar & Bhatnagar, 1981) and in 6 of the 7 Cape Town patients (Watson, 1984). Sigmoid gangrene is less common, affecting half to three-quarters of patients. Recent reports emphasize the safety of colon resection followed by colostomy, after which all patients survived, and point out the dangers of exteriorization alone and of resection and anastomosis. The gangrene may progress distally to the rectum, presumably as a result of thrombosis in the superior rectal vessels. If the distal colon is not defunctioned, the mortality rate is high (Shepherd, 1967; Kakar & Bhatnagar, 1981).

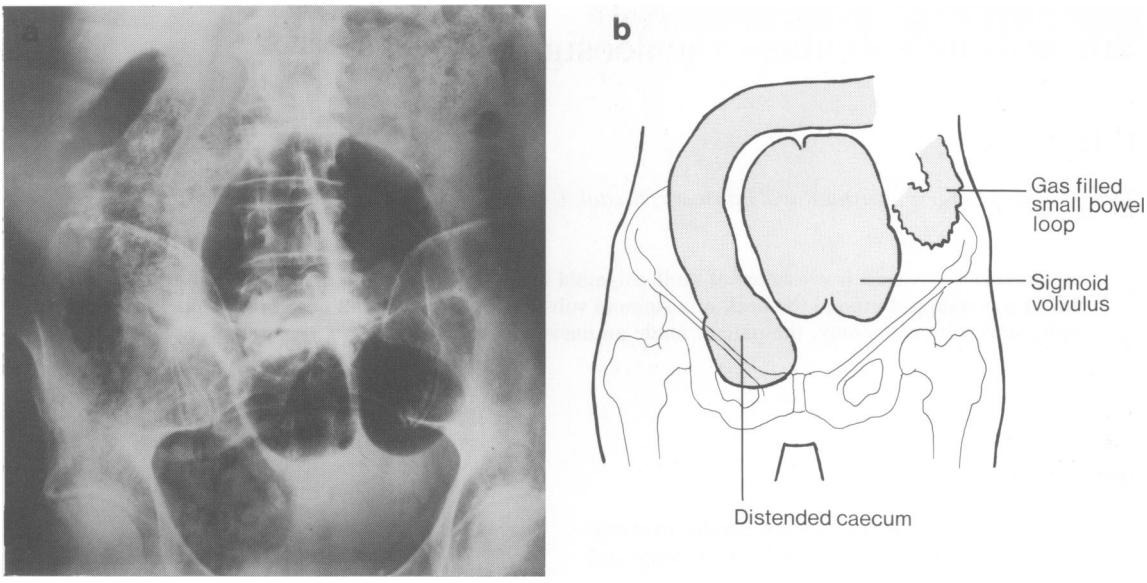

Figure 1 (a) Supine abdominal radiograph. There is a sigmoid volvulus, the caecum is distended and there is a loop of small bowel in the left upper quadrant. (b) Line drawing illustrating Figure 1a.

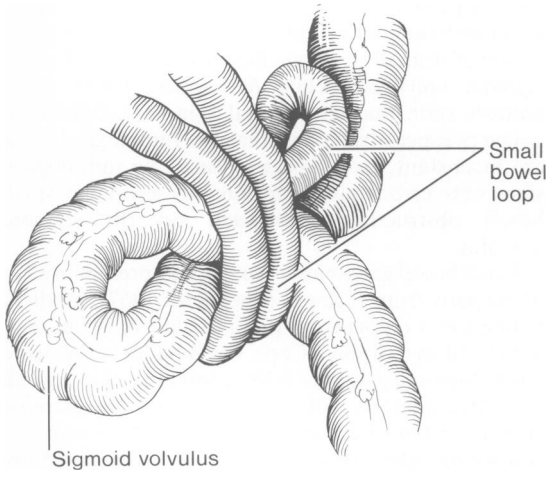

Figure 2 Ileosigmoid knot. The small bowel has wrapped around the base of the sigmoid mesocolon and has passed back between itself, the colon and the posterior abdominal wall to form a knot. Redrawn from Watson (1984) with permission from the *Journal of the Royal College of Surgeons of Edinburgh.*

Shepherd (1967) believed that the ileosigmoid knot was a primary event, with ileum passing down the left paracolic gutter, around a narrow sigmoid mesocolon, and back through the internal opening created by the mesentery, the mesocolon and the posterior abdominal wall, with the sigmoid volvulus developing as the knot tightened around it. In support of this view he cited the high incidence of small bowel strangulation, compared with sigmoid strangulation, and the early onset of small bowel obstruction, with (usually) minimal distension of the colon and of the small bowel between the ileal volvulus and the ileocaecal valve. Others have assumed that the knot is secondary to a sigmoid volvulus, largely because it is commonest in those areas and peoples with the highest incidence of sigmoid volvulus. The present case supports Shepherd's view, in that there was minimal distension, and the sigmoid volvulus was small and only partly gangrenous. Perhaps the same factors which predispose to twisting of the sigmoid also favour wrapping of the small bowel around the colon and mesocolon.

Treatment should be by prompt laparotomy. If the colon is gangrenous, the knot should be resected intact. Attempts to untwist it may lead to perforation of fragile gangrenous bowel, or to septic shock due to release of toxins from the gangrenous loops (Shepherd, 1967). Shepherd recommends that if the colon

is viable, the ileum should be divided to release the colon and to remove the gangrenous bowel, cutting the knot, rather than untying it. Small bowel is anastomosed, and the cut ends of the colon are fashioned into the most appropriate type of colostomy – double-barrelled or end stoma with mucous fistula. Hartmann's operation is performed if the gangrene extends to the rectum.

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