

# ILEOSIGMOID KNOT — CASE REPORT

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## INTRODUCTION

Ileosigmoid knot has a high incidence in East Africa but is rare in other parts of the world.<sup>(1)</sup> Occasionally cases have been reported from South Africa, North European countries and India and very rarely from U.S.A. and Britain.<sup>(1)</sup> Awareness of the condition is essential for optimal management.<sup>(1)</sup>

The following case report illustrates some typical features of this clinical entity.

## CASE REPORT

A 36 year old Malay female was admitted late in the night with history of abdominal pain of sudden onset from that morning. She had 'absolute constipation' from that morning and was nauseated but did not vomit. There was no significant past history except for caesarean section done four years earlier. On examination she was in pain, dehydrated and the vital signs were normal. There was central abdominal distension with visible loops of small bowel and a lower midline scar. The loops of bowel were palpable, tender and the bowel sounds were increased. Plain X ray of the abdomen was unremarkable, showing a few distended loops of small bowel, a few large bowel shadows in the periphery and the erect film showed some fluid levels. With the diagnosis of early acute intestinal obstruction of undetermined cause, the patient was put on conservative management.

Initially there was a slight decrease in pain but few hours later, the patient became more distressed and developed tachycardia, hypotension and tachypnoea. The abdominal tenderness had increased with evidence of guarding and rebound. She was resuscitated with rapid intravenous infusion and underwent a laparotomy with the diagnosis of 'strangulating intestinal obstruction of unknown cause.' The following were the results of blood investigations: Hb 2.2gms%. Total WBC count 23 900/cmm with differential count of 95 polymorphs and 5 lymphocytes. Blood urea and electrolytes were normal. Serum amylase 230 U/dl.

Laparotomy revealed a large volume of haemorrhagic fluid and distended gangrenous loops of small bowel. The gangrene of the small bowel extended from mid ileum to 1½" from ileocaecal junction. The apex of the sigmoid loop was lying deep in the right iliac fossa and the small bowel with its mesentery had become tightly twisted (knotted) round the base of sigmoid loop. (Fig. 1). The sigmoid colon was viable, not distended and the apex of the sigmoid was found under the small bowel mesentery close to the ileocaecal junction.

The mesentery of the distal ileum was taut with the viable sigmoid colon immediately beneath it. The distal ileum could not be resected without damaging the sigmoid colon beneath

due to the limited space available. The sigmoid colon and the gangrenous ileum including the knot were resected 'en masse', first by dividing the efferent loop of sigmoid above the rectosigmoid junction and the proximal loop before its entrance into the knot. The gangrenous ileum was resected proximally through the viable mid ileum and distally just proximal to ileocaecal junction. (Fig 2.) The distal ileum was closed and the proximal ileum was anastomosed end to side to ascending colon. Colonic continuity was restored by end to end anastomosis.

Intravenous saline, mannitol and two pints of blood were infused during operation. The postoperative period was uneventful and wound healed primarily.

## DISCUSSION

An ileosigmoid knot occurs when a loop of small bowel descends into left paracolic gutter to encircle the sigmoid colon in a clockwise or anti-clockwise direction.<sup>(2)</sup> As the knot tightens the bowel is obstructed, forming a double closed loop and the mesenteric involvement progresses to early strangulation. Though the terms 'double volvulus' or 'compound volvulus' are used to describe ileosigmoid knot, they are not accurate as axial rotation of the sigmoid does not always occur.<sup>(1)</sup>

Because of the high incidence of simple volvulus of sigmoid colon and ileosigmoid knot in African countries, it is postulated that a rotating sigmoid might catch a loop of small bowel and drag it around as it rotates.<sup>(1)</sup> This explanation is questionable as there are many differences between the two conditions<sup>(1)</sup> (Table 1). It is more likely that the knot is not initiated by the colon but by hyperactive ileum which winds around the pedicle of a passive sigmoid loop.<sup>(1)</sup>

The etiology of ileosigmoid knot is controversial.<sup>(1, 2)</sup> Racial factors are implicated since the condition has a high incidence in East Africa particularly among young males of the Baganda tribe<sup>(1, 2)</sup> but there is no definite evidence of racial differences in the length of mesenteries of small and large bowels to account for the predisposition.<sup>(1)</sup> Moreover, the condition does occur in Caucasians and other races also.<sup>(2)</sup> Dietary factors, certain chemicals like 5-hydroxy tryptamine (in certain bananas) leading to hypermotility of ileum and bulky diet have been incriminated.<sup>(1)</sup> A relaxed abdominal wall particularly during sleep may predispose to knotting because in many cases the onset is during the early hours of the morning and cases have been reported during the post partum period.<sup>(1)</sup>

Preoperative diagnosis is seldom possible except in areas with high incidence.<sup>(1, 2)</sup> At laparotomy the diagnosis is easier if the condition is kept in mind. Usually the knot is quite tight.<sup>(2)</sup> Hence untwisting the knot after deflating the loops is only possible in the early cases, especially when both loops are viable.<sup>(2)</sup> But this is seldom seen in practice.<sup>(2)</sup> Often the gut is soggy and friable, hence perforation and septic shock can result from attempts at untwisting the knot.<sup>(1, 2)</sup> So, en bloc resection of the gangrenous loops with the knot is recommended.<sup>(1, 2)</sup> If ileal resection extends to less than 3" from ileocaecal junction the distal stump of ileum is closed and end to side anastomosis of proximal small bowel to ascending colon, performed.<sup>(1)</sup> The continuity of large bowel can be established by end to end anastomosis but if the

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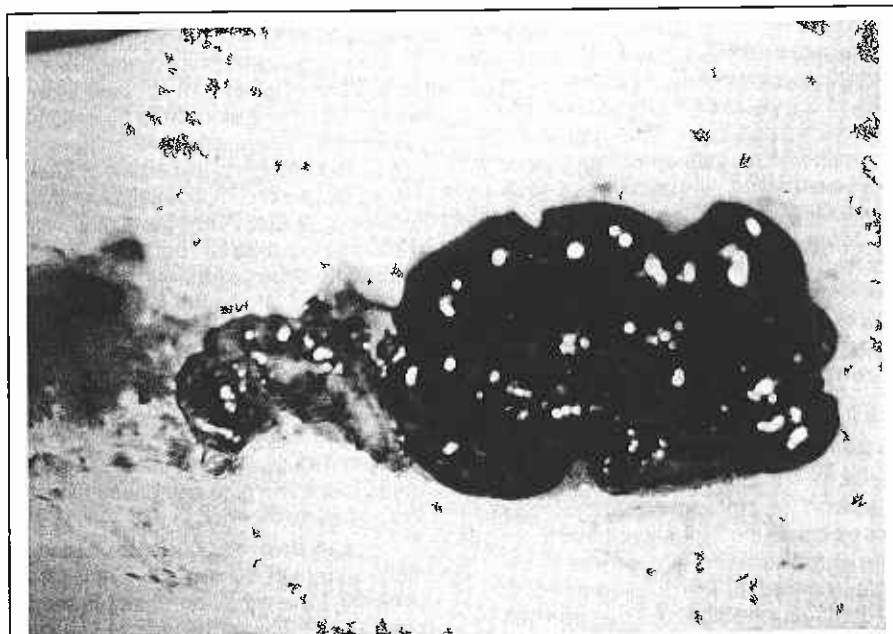
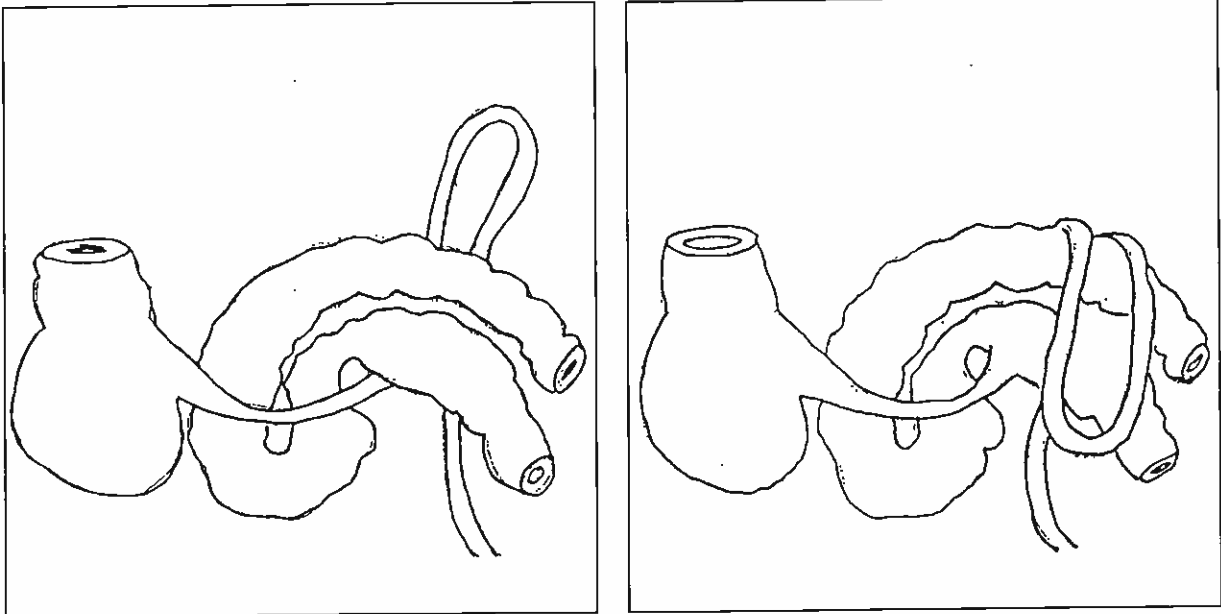
condition of the bowel or general condition of the patient does not permit primary colonic anastomosis, an ileac colostomy with distal mucous fistula is recommended.<sup>(3)</sup>

Careful replacement of fluid and blood loss is essential and prophylactic mannitol lessens renal shut down.<sup>(3)</sup>

#### ACKNOWLEDGEMENT

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**Fig. 1** Illustrating ileosigmoid knot in this case. The mesentery of ileum was in fact tightly twisted around the base of the sigmoid, thus occluding the ileal blood supply.



**Fig. 2** Resected gangrenous ileum and viable sigmoid

Features	Sigmoid Volvulus	Ileosigmoid Knot
Average age (years)	53	42
Sex	97% of cases are males	15% of cases are females
History of previous attacks	Present	Absent
Time of admission since onset of symptoms	> 24 hours in 75% of cases	< 24 hours in 75% of cases
Vomiting	Often absent	Usual
Abdominal distension	Marked	Usually mild
Bowel gangrene	Infrequent	In majority (ileum most often, usually both ileum & sigmoid)
Plain X ray abdomen	Diagnostic	Doubtful

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