

## Case report

# Ileo Sigmoid Knot Review Of Literatures And Record Of Seven Cases

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## Summary

Intestinal obstruction is common surgical emergency; ileosigmoid knot is a rare cause of intestinal obstruction (a loop of ileum and sigmoid colon twisted around each other in a knot). This knot is common in Negro people. About 150 cases recorded in literatures, but we recorded a more seven cases in Basrah General Teaching Hospital and Baghdad Teaching Hospital in the last 10 years.

## Introduction

Intestinal obstruction is common surgical emergency<sup>(1,2,3)</sup>. Colonic obstruction accounts for 25% of all intestinal obstruction<sup>(2)</sup>. Tumours, volvulus, diverticulitis and hernias are common causes<sup>(2,3)</sup>. But volvulus of sigmoid colon is the commonest cause of large bowel (colon) obstruction in Black Africans due to high residual diet (*Loefler*)<sup>(1,3)</sup>. Compound or double volvulus is a rare cause of obstruction also known as ileosigmoid knot.

Since *Kallio* recorded the first case in (1932)<sup>(4)</sup>, just about 150 cases recorded in the world literatures. *Shepherd* recorded 92 cases in Uganda (1967)<sup>(5)</sup>, *Roy* recorded 9 cases in India (1973)<sup>(6)</sup>, *Hsu* recorded 3 cases in Great Britain in (1978) two of them were Negro in origin<sup>(7)</sup>, *Watson* recorded 7 cases, in South Africa in (1984), 4 of them were cape coloured, two were black Africans and one was Caucasian<sup>(8)</sup>, *Guessan* recorded 16 cases in Abidjan in (1992)<sup>(9)</sup>, *Akgun* recorded 16 cases in Turkey (1997)<sup>(13)</sup>.

Most of the cases were Africans in origin but other races were also involved. Here we report

7 cases in Basrah -Baghdad - Iraq during the last 10 years, only two of them were Negro in origin.

## Case 1

A seventy years old man, admitted in August 1989 to our surgical department with abdominal pain, vomiting and absolute constipation for two days duration. On examination he was dehydrated, abdomen was distended with tenderness and rigidity, it was also silent and empty rectum on rectal examination. Plain erect radiological examination of the abdomen showed multiple air-fluid levels. So a diagnosis of intestinal obstruction was made. After resuscitation of the patient, urgent laparotomy was done, an ileosigmoid knot was found with gangrenous sigmoid and small bowel. The knot was so tight causing gangrene of the ileum and sigmoid colon, so resection of the knot without unknotting. The continuity of small and large bowel were restored by end to end anastomosis (EEA) with proximal defunctioning transverse colostomy. The patient run smooth post operative course and discharged well from hospital. His colostomy closed six weeks later.

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## Case 2

A five years old boy was admitted to the surgical department of our hospital in February 1990 with severe abdominal pain, vomiting of two days duration. The patient was toxic, dehydrated and hypotensive, abdomen was distended with generalised tenderness and rigidity. There was absence of bowel sound and empty rectum. Plain abdominal x-ray showed multiple air-fluid levels, so provisional diagnosis of intestinal obstruction with peritonitis was made.

After resuscitation of the patient, laparotomy was done and showed gangrenous ileosigmoid knot. Resection of the knot in toto was done. The continuity of the ileum was restored by EEA while the sigmoid was exteriorized as colostomy and mucous fistula. The child was discharged from hospital well in the 10th postoperative day. His colostomy and mucous fistula closed 8 weeks later.

## Case 3

Negro multiparous female patient 35 years old admitted to our surgical department in March 1992 with abdominal pain, vomiting and abdominal distension. The abdomen was tender, rigid and silent, the rectum was empty. Plain abdominal x-ray showed air-fluid level. After preparation of patient to surgery, laparotomy was done and gangrenous ileosigmoid knot was found. Resection of the knot was done. The continuity of small bowel was restored by EEA, while Hartman's procedure was done for the sigmoid. The patient was discharged from hospital well on seventh post-operative day. Closure of her colostomy was done in other hospital after 10 weeks.

## Case 4

A 52 old male admitted to our surgical ward in April 1995 as an emergency with severe abdominal pain, distension and constipation of 3 days duration. The patient was toxic, dehydrated, hypotensive with tachycardia. Plain x-ray of the abdomen does not give any clue to the diagnosis.

After resuscitation, exploratory laparotomy was performed and gangrenous ileosigmoid knot noticed. The knot excised and the continuity of small bowel restored by EEA. The sigmoid was exteriorized as end colostomy with Hartman's procedure. His colostomy was closed and large bowel continuity was restored after 8 weeks. The patient had uneventful follow up.

## Case 5

A fifty years old female referred from a district center to our hospital in March 1999 as a case of acute abdomen. The patient was dehydrated, toxic, with tachycardia. The abdomen was distended with

bowel continuity was restored after 8 weeks. The patient had uneventful follow up.

## Case 5

A fifty years old female referred from a district center to our hospital in March 1999 as a case of acute abdomen. The patient was dehydrated, toxic, with tachycardia. The abdomen was distended with generalized tenderness and rigidity. The plain abdominal x-ray was not conclusive. Resuscitation was done and emergency explorative laparotomy was performed. There was ileosigmoid knot with gangrenous ileum and sigmoid. Resection of the knot was done. The continuity of small bowel was restored by EEA while sigmoid was exteriorized as colostomy and mucous fistula. The patient run uneventful postoperative course and her colostomy was closed after 12 weeks.

## Case 6

An old patient of 75 years, of age was admitted to our surgical unit in September 1999 with history of hypertension, IHD and cor pulmonale. He was suffering from abdominal pain, vomiting and abdominal distension. He was so ill, toxic, dehydrated and hypotensive. There was rigidity of the abdomen. Plain abdominal x-ray showed air-fluid levels. On exploration foul smell reactionary fluid with gangrenous ileosigmoid knot were found. Resection of the knot was done in toto and the continuity of small bowel was restored by EEA. Hartman's procedure was done for sigmoid colon. The patient died on the third post-operative day because of respiratory failure and septicaemia.

## Case 7

60 years old Negro patient brought to casualty department with clinical features of intestinal obstruction (vomiting, abdominal pain, absolute constipation and abdominal distension). He was slightly dehydrated, tachycardia 120/min. His abdomen on examination was tender all over. Plain x-ray of abdomen show distended bowel with fluid level.

After correction of his dehydration and measure his B. urea and serum electrolytes and preparing blood for him, an emergency laparotomy was done. Show ileosigmoid knot, but large bowel is not gangrenous.

So unknotting ileosigmoid knot was done, the gangrenous small bowel was resected and EEA was done. Large bowel is viable. Closure of abdomen was done. The patient is discharge well on his 6<sup>th</sup> post operate period after passing normal bowel motion.

## Discussion

The etiology of ileosigmoid knot remains

So unknotting ileosigmoid knot was done, the gangrenous small bowel was resected and EEA was done. Large bowel was viable. Closure of abdomine was done. The patient was discharged well on his 6<sup>th</sup> post operate period after passing normal bowel motion.

## Discussion

The etiology of ileosigmoid knot remains controversial <sup>(5)</sup>. But the mechanism of the knot occur (*Shepherd*) as a loop of small intestine descends into left paracolic gutter to encircle the sigmoid in clockwise or an anti clockwise direction. As the knot tightens the bowel obstructs forming a double closed loops and the mesenteric involvement usually progresses to early strangulation <sup>(5)</sup>. The condition is common in African people especially in Negros may be due to geographical, racial, habitual and dietary factors<sup>(5,8,9)</sup>. Two of our cases (case 3 and 7) were Negro patients.

Abdominal wall relaxation during sleep or post partum also play an important role in etiology (*Kallio & Visserf*) <sup>(4,10)</sup>. The diagnosis could not be done before surgery in all our cases: even abdominal radiography save no idea about condition and only showed intestinal obstruction (*White-Pointer & Frirman - Dahl*) found abdominal radiographic examination unhelpful in the diagnosis of the knot <sup>(11,12)</sup>.

The diagnosis was only confirmed during surgical exploration except in (case 6) which was difficult to registrar to diagnose without the help of the consultant. In all our cases the knot involved gangrenous ileum and sigmoid, except the case 7 in which the sigmoid colon was viable. Resection of the knot was done in toto without unknotting to reduce the contamination and complications <sup>(5,7)</sup>. The continuity of small bowel was restored in all our cases by EEA, while the large bowel (sigmoid) either continuity was restored immediately by EEA and proximal de-functioning colostomy as in case (1) or exteriorization of large bowel as colostomy with mucous fistula as in case (2) and (5) or as Hartman's procedure as in case (3), (4) and (6). After 6-12 weeks the colostomy closed and the continuity of sigmoid colon was restored <sup>(1,3,7,8)</sup>.

There was one death in our cases making our mortality percentage (16.6%) in comparison

with one study before which was (60%) <sup>(4)</sup>.

So we have to consider ileosigmoid knot as possible cause of intestinal obstruction especially in Negro patients when they were to ill and toxic.

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