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# Ileosigmoid knotting in early pregnancy: A case report

Aspect Jacob Vengani Maunganidze[a], Simbarashe Gift Mungazi[a,b], Maphios Siamuchembu[a,b], Makhosini Mlotshwa[b,*]

[a] Department of Surgery, College of Health Sciences, University of Zimbabwe, Box, A167 Avondale, Harare, Zimbabwe
[b] Colorectal Surgery, Western Sussex Hospitals NHS Trust, Chichester PO19 6SE, UK

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ABSTRACT

Ileosigmoid knotting refers to the wrapping of the ileum around the base of the sigmoid colon, or vice versa thus forming a knot. It is a rare cause of intestinal obstruction, more so in pregnancy. We herein report a case of a primigravid woman who presented with an acute abdomen at 13weeks of gestation. The patient underwent emergency surgery. Laparotomy showed ileosigmoid knotting with gangrenous loops of both small bowel and sigmoid colon. The gangrenous bowel was resected. Primary anastomosis of small bowel and a Hartman's procedure was performed.



## 1. Introduction

Intestinal obstruction in pregnancy is rare and its incidence is estimated at 1:1500–1:66431 pregnancies [1,2]. Ileosigmoid knotting (ISK) is a rare cause of intestinal obstruction [3]. ISK refers to the wrapping of the ileum around the base of the sigmoid colon, or vice versa, forming a knot. The incidence of ISK is not known [3]. ISK in pregnancy is rare and it is associated with a poor prognosis [4]. It usually occurs in multiparous women and in the third trimester [4]. We report a rare case of ISK in pregnancy in a young primigravid patient at an early stage of pregnancy, who presented with acute abdomen which necessitated an emergency laparotomy.

## 2. Case report

A 20 year old woman in the 13th week of pregnancy was referred to the surgical emergency department in May 2015 at Parirenyatwa Group of Hospitals, with a 2 day history of severe abdominal pain. This was associated with vomiting and absolute constipation. She did not have a history of a fever or per vaginal bleeding. She did not have a medical or surgical history. On examination she was ill looking, pale, tachypnoiec and tachycardic. Her vitals were blood pressure 90/50 mmHg, pulse rate of 147/min regular, respiratory rate of 30 bpm and a temperature of 36.7 °C. Her abdomen was distended with marked generalized tenderness, guarding, rebound tenderness and absent bowel sounds. Vaginal and digital rectal examinations were unremarkable. Laboratory investigations showed a white blood cell count of 21,000/mm$^3$ (4–11), hemoglobin level of 9.6 g/dl (15+/−1.7), sodium 136 mmol/l (133–146), potassium 4.8 mmol/l (3.5–5.2), urea 8.9 mmol/l (2–6.7), creatinine 138 umol/l (98–131). An ultrasound scan of the pelvis had confirmed a live intrauterine pregnancy, estimated to be at 13 weeks of gestation. A diagnosis of an acute abdomen in pregnancy was made. The patient was resuscitated with intravenous fluids and was taken for an emergency exploratory laparotomy. At laparotomy gangrenous loops of both small bowel and the sigmoid colon were found. The small bowel was twisted at the base of the sigmoid colon (Fig. 1). A gravid uterus was also noted. Resection of 400 cm of involved small bowel, the distal end being 15 cm from the ileocecal valve as well as resection of 20 cm of the sigmoid colon was done. We proceeded to do primary anastomosis of the small bowel and a sigmoid colostomy. Post operatively she was managed in the intensive care unit with intravenous fluids, transfusion, antibiotics and analgesia. Unfortunately she had a miscarriage day 2 post operatively. The patient was discharged home on day 10 post operatively. She did not show any signs of short bowel syndrome in view of the amount of small bowel resected. She had a closure of colostomy after 6 weeks from the day of discharge.

* Corresponding author.
*E-mail address:* makhosini.mlotshwa@wsht.nhs.uk (M. Mlotshwa).

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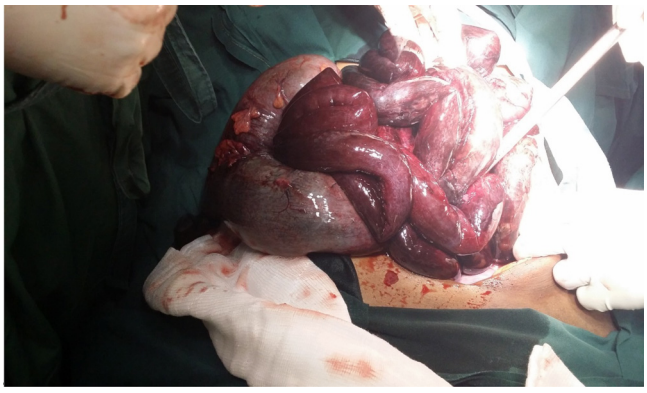

**Fig. 1.** Ileosigmoid knot.

## 3. Discussion

Intestinal obstruction in pregnancy is rare with its incidence varying from 1 in 1500 to 1 in 66,431 deliveries [1]. Adhesions are the most common cause of intestinal obstruction in pregnancy, accounting for 58% of cases whilst volvulus is the second most common cause accounting for 24% of intestinal obstructions in pregnant patients [1]. ISK is a rare cause of intestinal obstruction and its incidence is not known [3]. ISK is common in Africa, Asia, Middle East and South Africa [3]. It is more common in males (80.2%) than females and presents at a mean age of 40 years (range 4–90 years) [5]. ISK in pregnancy is rare [4]. There are only 9 reported cases of ISK in pregnancy in literature between 1967 and 2009; however some cases are likely not to have been reported [2,4]. In literature the reported incidence of ISK in pregnancy ranges from 3.2% to 5.9% of all ISK cases and 12.5% to 36.4% of ISK cases in female patients [5–7].

There are several factors that predispose to ISK. A long small bowel mesentery and freely mobile small bowel, a long sigmoid colon with a narrow pedicle and the ingestion of a high bulk diet in the presence of an empty small bowel have been identified as some of the factors [6–8]. When a semi liquid bulky meal progresses into the proximal jejunum it increases the mobility of the small bowel and the heavier segments of the proximal jejunum fall into the left lower quadrant. The empty loops of ileum and distal jejunum twist in a clockwise manner around the base of a narrow sigmoid colon. Further peristalsis forms an ileosigmoid knot with two closed loop obstructions [6,8]. Studies on Bagandans in Uganda who eat once a day and Muslims who eat a single daily meal during the Ramzan fast suggests the possibility of the above mechanism [6,8]. Late pregnancy is also a predisposing risk factor for ISK because of displacement of the bowel due to an enlarged uterus [6,9]. This is an unlikely risk in the present case, since the patient was in early pregnancy. In our case, possible risk factors were the anatomical factors and dietary habits of reduced oral intake due to pregnancy related morning sickness.

Normal pregnancy complaints may obscure the clinical presentation of ISK in pregnancy [4]. Symptoms include colicky abdominal pain, abdominal distension, constipation and vomiting. If the bowel is gangrenous there is tenderness, guarding and rebound tenderness [3,7]. The current case presented with the above symptoms of gangrenous bowel. Specific investigations for ISK include a plain erect radiography which may show dilated sigmoid colon and multiple small bowel air-fluid levels, which might be difficult to identify [6–8]. Abdominal computed tomography (CT) scan will show the whirl sign which is due to the twisted intestine and sigmoid mesocolon, with the medial deviated cecum and descending colon [5,9]. The diagnosis of ISK in pregnancy is often delayed because the condition is rare and diagnostic radiographic studies are often avoided [4]. However these investigations were not done in our patient since she had features of an acute abdomen, which required an urgent emergency laparotomy.

Management of ISK requires a multidisciplinary approach involving general surgeons, obstetricians and neonatologists [4]. Preoperative fluid resuscitation, electrolyte balance correction, intravenous broad spectrum antibiotics and nasogastric decompression are the initial management followed by emergency surgery in all patients [4,5]. Surgical options depend on the intraoperative findings. In non-gangrenous cases untwisting the knot combined with a volvulus preventing procedure such as mesopexy or resection and primary anastomosis is acceptable management [5]. In cases where both the small bowel and sigmoid colon are gangrenous, untying the knot maybe difficult and rapture of the gangrenous bowel may lead to spillage of toxic bowel contents [6]. In our patient we resected the gangrenous small bowel and performed small bowel anastomosis plus a Hartmann's procedure.

In conclusion, ISK in pregnancy is rare. Once the diagnosis is suspected preoperative aggressive resuscitation and emergency surgery is the mainstay form of treatment. The current case is a rare case of ISK in a young primigravid woman at an early stage of pregnancy who presented with an acute abdomen.

## Conflicts of interest

All authors have no conflict of interest.

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There was no funding needed to write up this case report.

## Ethical approval

No ethical approval was needed but consent was obtained from the patient to use her photographs for publication.

## Authors contribution

Aspect Maunganidze—case report design, subject research and writing.

Simbarashe Mungazi—case report design, subject research, consent and writing.

Maphios Siamuchembu—case report design, subject research and writing.

Makhosini Mlotshwa—editing, writing and submission for publication.

## Guarantor

Mr. Aspect Maunganidze.
Mr. Makhosini Mlotshwa.

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