

Acute Small Bowel Obstruction Due to Meckel's Diverticulum Forming a Knot around the Ileum: An Unusual Presentation

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Citation

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Abstract

Small-bowel obstruction that accounts for 20% of causes of intestinal obstruction may be due to many causes and Meckel's diverticulum as a cause is rare. We present a 70-year-old man who presented with symptoms of acute intestinal obstruction. Examination revealed central abdominal distension with visible step-ladder peristalsis. At laparotomy, multiple loops of distended small bowel were found, with a Meckel's diverticulum encircling the ileum and knotting around itself and the ileum from an internal hernial orifice in the mesentery. Resection of the part including the diverticulum and end to end anastomosis of the ileum was carried out. Postoperatively, the patient recovered completely. This case highlights the importance of considering a Meckel's diverticulum as a cause of intestinal obstruction in all age groups with no previous abdominal pathology or surgery and not only in young patients.

INTRODUCTION

In the developed world, small-bowel obstruction accounts for 20% of all acute surgical etiologies¹. The cause of small-bowel obstruction includes several pathological factors, a common cause being postoperative adhesions followed by herniae¹. Here is a case of a Meckel's diverticulum in a 70-year-old man with acute intestinal obstruction wherein the diverticulum formed a knot around the bowel, making this case a rare one. This case also emphasizes the fact that a differential diagnosis of Meckel's diverticulum should be kept in mind whenever a patient of any age group presents with intestinal obstruction, especially when there is no hernia clinically or past history of abdominal surgeries. It also emphasizes rational and precise use of investigations.

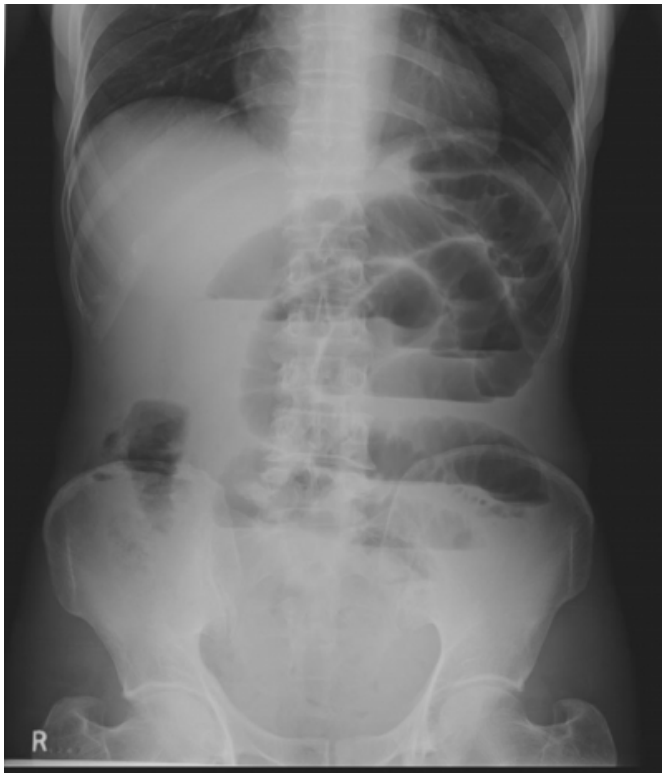
CASE HISTORY

A 70-year-old male patient came to the emergency department with history of abdominal pain and vomiting for the last five days and distension of the abdomen and constipation for the last two days. The abdominal pain was initially dull aching and intermittent but gradually became colicky in nature and had increased in severity and intensity for the past two days associated with bilious vomiting, five to six episodes per day and few hours after food intake. There were no genitourinary complaints or fever or jaundice.

There was no history of similar episodes or abdominal surgeries in the past. On examination, the positive findings were: central abdominal distension with a visible step-ladder peristalsis and the patient was in hypotension with tachycardia. There were no signs of hernia or peritonitis. After initial resuscitation measures with IV fluids and nasogastric tube passage, the patient was investigated in the form of routine blood investigations and an X-ray, supine and erect, of the abdomen, which showed few air-fluid levels with dilated loops of intestine, probably the jejunum (Figure1).

Figure 1

Figure 1: X-ray, erect, of the abdomen showing dilated jejunal loops with concertina appearance



He underwent an exploratory laparotomy due to worsening condition and failure to respond to conservative management for six hours. Midline incision was made after inducing general anaesthesia. At laparotomy, dilated small bowel loops were noticed extending to the duodeno-jejunal junction. On tracing the small bowel distally, a diverticulum arising from the anti-mesenteric border about 20cm from the ileocaecal junction was found. The diverticulum was long enough to rotate around the entire small bowel circumference, to revolve around the bowel through a window in the mesentry and to form a knot with itself [figure 2]. The tip of the diverticulum was inflamed, enlarged and congested due to strangulation of its body and neck [figure 3].

Figure 2

Figure 2: Intraoperative picture showing the Meckel's diverticulum forming a knot around itself and the inflamed tip.

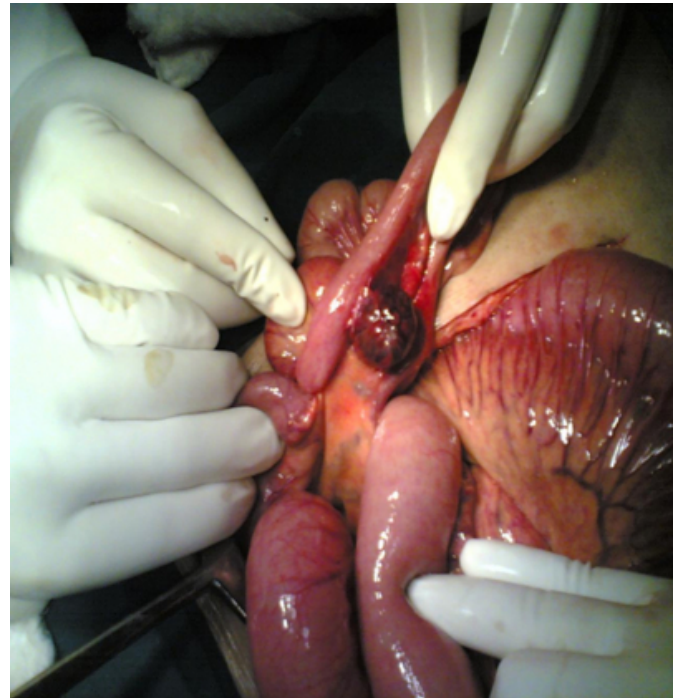


Figure 3

Figure 3: The knot formed around the ileum



The knot was untied and the diverticulum released. The bowel in that part was showing signs of strangulation due to which local resection [figure 4,5] of the ileum with the diverticulum and end to end ileal anastomosis (double layer closure) was carried out. The postoperative period was uneventful; the patient recovered completely and was discharged on the sixth postoperative day.

Figure 4

Figure 4: Resection specimen along with the diverticulum after untying the knot



Figure 5

Figure 5: Resected specimen with the in situ knot showing the point of obstruction of the ileum



DISCUSSION

Acute surgical abdomen is a common problem faced by a surgeon in day-to-day life. The main approach for such acute cases involves a stepwise protocol – (a) initial resuscitation (b) clinical examination (c) coming to a provisional diagnosis (d) important, rational and precise investigations (e) pre-operative final diagnosis (f) decision to operate or

not. The diagnosis of acute intestinal obstruction is mainly clinical and an accurate physical examination can clinch the diagnosis, so investigations are only to confirm and support the decision to operate. The cardinal symptoms of intestinal obstruction are colicky abdominal pain, absolute constipation, vomiting and abdominal distension. X-ray, erect and supine, of the abdomen may be the only investigation needed to prove your diagnosis other than routine preoperative blood investigations. The use of other investigation like ultrasound of the abdomen and CT scan may not provide additional information, cause undue additional expense to the patient and rarely affect the treatment modality i.e., to operate or not. Based on cardinal features and absence of clinical improvement with conservative management by intravenous fluids and tube aspiration, surgery is usually indicated, as in this case. However, the surgical approach to acute bowel obstruction remains controversial. While some surgeons advocate laparoscopic intervention due to its minimal invasive approach and shorter patient hospital stay⁷, others favour an open laparotomy due to the larger surgical space and lower incidence of bowel injury. Further evidence to support the latter approach comes from Kirshtein and colleagues who reviewed 65 cases of bowel obstruction that were initially managed laparoscopically. In that study, although laparoscopy was shown to have a diagnostic accuracy of 96.9%⁸, a significant number of cases still required conversion for their subsequent management. Meckel's diverticulum is a congenital pouch (diverticulum) approximately two inches in length and located at the lower (distal) end of the small intestine. It was named for Johann F. Meckel, a German anatomist who first described the structure. The main complications of Meckel's diverticulum include intussusception and volvulus in adolescents and acute bleeding in adults². It usually presents with symptoms of inflammation or infection that mimic appendicitis: The diagnosis is made at the time of surgery for suspected appendicitis. Bleeding caused by ectopic stomach tissue that results in a bleeding ulcer is the second most frequent problem, usually in adults². The third potential complication is obstruction due to intussusception, or a twist around a persistent connection to the abdominal wall. This problem presents as a small bowel obstruction; however, the true cause is identified at the time of surgical exploration^{3,4,5,6}. A Meckel's diverticulum can present as acute intestinal obstruction as mentioned, but presenting in this unusual way of knotting and encircling the small bowel through a defect in the mesentery without any previous

intraabdominal pathology like adhesions or inflammation, is what makes this case a unique one. The defect in the mesentery may have been caused due to inflammation, as in this case or can be present due to inflammation of the surrounding appendix. This case emphasizes the fact that a differential diagnosis of Meckel's diverticulum should be kept in mind whenever a patient of any age group presents with intestinal obstruction, especially when there is no hernia clinically or past history of abdominal surgeries. It also emphasizes rational and precise use of investigations.

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