

VARIED GENESIS IN SMALL BOWEL OBSTRUCTION- A CASE SERIES

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ABSTRACT

Small bowel obstruction is a common surgical emergency caused by a mechanical blockage of the bowel. Small bowel obstruction can result from many pathological processes, but the leading cause in the developed world is intra-abdominal adhesions. Small bowel obstructions can be partial or complete and can be non-strangulated or strangulated. We aimed to retrospectively study the various causes and presentations of small bowel obstruction in patients presenting to our department. Patients with small bowel obstruction and aged more than 13 years were included in this study, except for patients with subacute obstruction and those who were managed conservatively. A total of 5 patients were studied retrospectively over a period of 6 months. Each case presented with similar clinical features but had different etiologies. The causes identified in this study were radiation enteritis, Meckel's diverticulitis, ileo-ileal intussusception, band adhesion from a PS scar, and mesenteric vascular ischemia.

INTRODUCTION

Small bowel obstruction is a partial or complete blockage of the small intestine. If the small bowel is functioning normally, digested products continue to pass into the large intestine. An obstruction in the small bowel can partially or completely prevent contents from passing through. This causes waste material and gases to accumulate in the portion above the blockage. It can also interfere with the absorption of nutrients and fluids. Postsurgical adhesions are the most common cause of small bowel obstruction. Incarcerated hernias are the second most common etiology. Other common causes include malignancy, inflammatory bowel disease (Crohn's disease), stool impaction, foreign bodies, and volvulus. In the pediatric population, common causes include congenital atresia, pyloric stenosis, other congenital anomalies, and intussusception. Here, we focus on the varied causes of small bowel obstruction presenting at our institution.

CASE SERIES

CASE 1:

A 74-year-old female, a known case of carcinoma of the cervix who had completed 25 cycles of radiotherapy and 6 cycles of chemotherapy, presented with complaints of abdominal pain, constipation, and obstipation for 3 days. On evaluation, a CT scan of the abdomen showed

features of radiation enteritis. She was initially treated conservatively, but progression of signs and symptoms led to an emergency laparotomy. Intraoperatively, a portion of the ileum, approximately 20 cm from the ileocaecal junction, was found to be densely adherent to the cervix and could not be separated. A proximal end ileostomy was performed. [Figure 1]

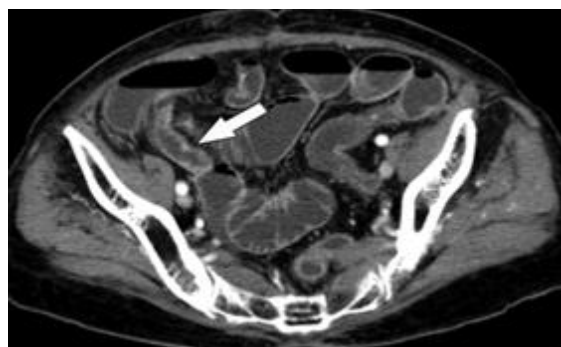


Figure 1: CECT Abdomen showing ileal luminal narrowing and thickened enhanced bowel wall (arrow), findings consistent with radiation enteritis

CASE 2

A 36-year-old female with no comorbidities presented with complaints of intermittent episodes of constipation and abdominal pain for the past 2 months and obstipation for the past 2 days. She

underwent an emergency laparotomy, and intraoperatively, ileo-ileal intussusception with a lipoma as the lead point was identified. Resection of the involved segment of the ileum along with the lead point was performed, followed by ileo-ileal anastomosis. [Figure 2-5]

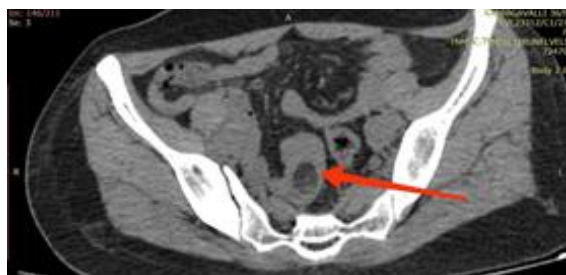


Figure 2: CT Abdomen showing hypodense lesion intraluminally in the ileum

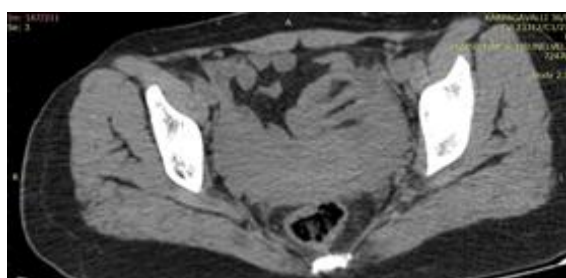


Figure 3: CT Abdomen showing telescoping of bowel inside another bowel possibility of intussusception



Figure 4: Telescoping of ileum into ileum



Figure 5: After reducing intussuscepted segment. Lipoma is seen as the lead point

CASE 3

A 38-year-old male presented to the emergency department with features of acute intestinal obstruction. Intraoperatively, Meckel's diverticulum was found to be causing obstruction and gangrene of a segment of the ileum. Resection of Meckel's

diverticulum along with the gangrenous segment of the ileum was performed, followed by an end ileostomy. [Figure 6-7]

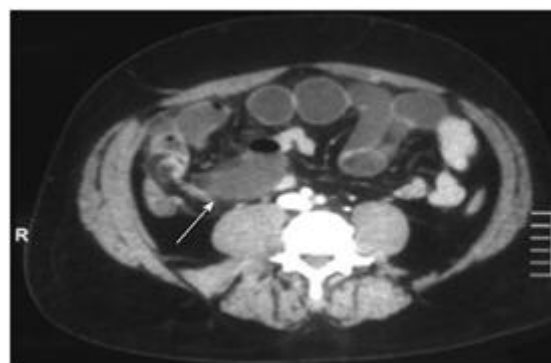


Figure 6: CECT Abdomen showing blind-ending fluid-filled structure causing obstruction



Figure 7: Meckel's diverticulitis with gangrene of segment of ileum

CASE 4:

A 46-year-old female who had undergone puerperal sterilisation 5 years earlier presented to our emergency department with features of intestinal obstruction. An emergency laparotomy was performed, and a segment of the ileum was found to be obstructed by a fibrous band between the anterior abdominal wall and the right fallopian tube. Adhesiolysis, resection of the gangrenous segment of the ileum, and ileo-ileal anastomosis were performed. [Figure 8]



Figure 8: Image showing band between fallopian tube and parietal wall

CASE 5

A 42-year-old female presented with complaints of abdominal pain and vomiting for 2 days and obstipation for 1 day. Ultrasonography of the abdomen showed a dilated bowel loop measuring 2.7 cm in diameter with absent peristalsis. The patient was resuscitated and taken for laparotomy. Intraoperatively, the proximal ileum was found to be knotted around the distal ileum, and the entrapped bowel loop was gangrenous. Resection of the gangrenous segment and ileotransverse anastomosis were performed. [Figure 9-10]

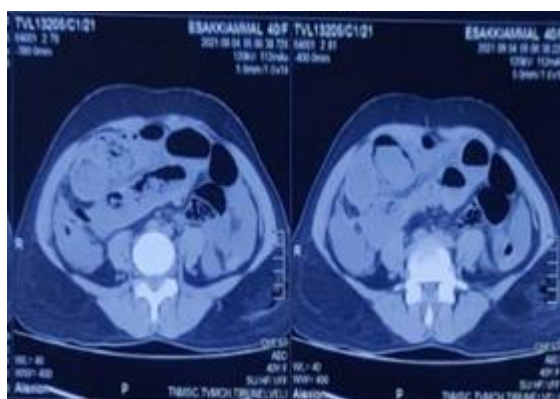


Figure 9: CT Abdomen shows dilated bowel loops, pneumatosis intestinalis, bowel wall edema with fat stranding and inter bowel fluids noted



Figure 10: Knotting of proximal ileum on the distal ileum

DISCUSSION

The cardinal symptoms of intestinal obstruction include colicky abdominal pain, nausea, vomiting, abdominal distention, and obstipation. These symptoms may vary with the site and duration of obstruction. Plain abdominal radiographs are usually diagnostic of bowel obstruction in up to 86% of cases, but further evaluation may be necessary in 20% to 30% of cases.^[2] Management of intestinal obstruction has shifted more toward conservative care with nasogastric tube decompression and rehydration. Operative intervention is reserved for patients who fail conservative management or have evidence of vascular compromise, strangulation, or perforation.

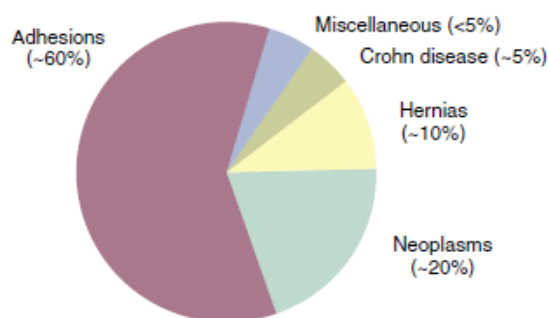


Figure 11: Common causes of small bowel obstruction in industrialized countries

Compared with the common causes reported worldwide, the cases of small bowel obstruction presenting to our institution showed varied etiologies, including radiation enteritis, intussusception, Meckel's diverticulitis, adhesions, and ileo-ileal knotting.

Radiation enteritis is a complication secondary to the use of radiotherapy in the treatment of pelvic tumours, more frequently affecting the small bowel (primarily the ileum) and the colon. It should initially be managed conservatively, and surgery should be considered in patients with complications of chronic radiation enteritis, as it is associated with a high morbidity rate, prolonged hospital stay, and the possibility of reoperation.^[3] Turina et al,^[4] proposed criteria for radiation-induced morbidity in bowel injury. Based on these criteria, the outcome of radiation enteritis can be predicted.

Intussusception is a leading cause of intestinal obstruction in the paediatric population, whereas in adults it is a rare entity that accounts for only 1–5% of all cases presenting as bowel obstruction.^[5] Reijnen et al,^[6] reported that a preoperative diagnosis could be made in only 50% of patients with the help of imaging studies. In our study, the cause of intussusception was a submucosal lipoma, and it was diagnosed preoperatively using CT of the abdomen. Hence, early surgical intervention remains the mainstay of definitive diagnosis and treatment of intussusception.^[7]

Meckel's diverticulum is difficult to diagnose preoperatively because most cases are asymptomatic.^[8] Obstruction can occur due to entrapment of a bowel loop by a mesodiverticular band. In this study, the Meckel's diverticulum was found 80 cm from the ileocaecal junction and was gangrenous. Resection of the gangrenous segment and anastomosis were performed. Therefore, treatment of symptomatic patients should always include resection of the diverticulum or the affected segment of bowel.

About 93% to 100% of patients who undergo transperitoneal surgery develop postoperative adhesions.^[9] Our patient also presented with adhesive small bowel obstruction following puerperal sterilisation. Adhesiolysis is the mainstay of treatment. Therefore, the formation of adhesions can

be minimised by meticulous dissection and gentle handling of tissues.

Ileo-ileal knotting presents similarly to most cases of small bowel obstruction, without any particular or classical signs and symptoms, except for rapid deterioration and progression.^[10] Treatment should be initiated as early as possible with aggressive intravenous fluid resuscitation, insertion of a nasogastric tube, and broad-spectrum intravenous antibiotics. Once the patient is adequately resuscitated, emergency laparotomy should be performed. The knot should be carefully unravelled if both bowel loops are viable, whereas en bloc resection should be performed if gangrenous segments are present. Decompression of gangrenous segments or untying a gangrenous knot is not recommended.

Thus, the varied etiologies, management strategies, and outcomes in these five patients with small bowel obstruction were studied and elaborated.

CONCLUSION

Small bowel obstruction is a common presentation in the emergency department. Due to the high morbidity and mortality associated with this condition, an interprofessional team is required to evaluate and manage the patient. With prompt diagnosis and management, the prognosis for most patients with small bowel obstruction is good. However, complete obstructions, even when treated, can have a high recurrence rate. When surgery is performed within 24

to 36 hours, mortality rates are low; however, if surgery is delayed, mortality rates can exceed 10%. All patients should be educated at discharge about the signs and symptoms of recurrent bowel obstruction and advised on when to present to the emergency department.

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