

## Duodenojejunal Junction Diverticulitis Resulting in a Distal Enterolith Bowel Obstruction

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### Abstract

Small bowel diverticulosis is a rare well recognized entity, this pathology creates an environment suitable for enterolith formation which would cause intestinal obstruction if it were to be dislodged. While jejunal diverticula are usually multiple we present a rare case of a single duodenojejunal junction diverticulum from which an enterolith was expelled to cause bowel obstruction. To the best of our best knowledge this is the third reported case of a single small bowel diverticulum to cause enterolith bowel obstruction.

**Keywords:** Bowel obstruction; Diverticulitis; Duodenojejunal junction; Enteroliths

### Introduction

One of the most popular and widespread diseases in the Western world are diverticular diseases and they're the most discovered finding during colonoscopies [1]. Colon is the most common site for diverticula to occur, and then the duodenum comes right after it [2]. Enterocolitis is the process of the formation of stone-like substances by the GIT and enteroliths are usually made of bile constituents [3]. This is a rare case report about duodenojejunal junction diverticulitis resulting in a distal enterolith bowel obstruction.

### Case Presentation

A 78-year-old lady a known case of hypertension, presented to the Accident and Emergency Department of Worcestershire NHS trust, on the 15th of March 2019 after suffering from abdominal pain. The patient's symptoms dated back to two weeks prior to the presentation when she started suffering from abdominal pain that was localized to the left iliac fossa but proceeded to involve

the lower abdomen. On examination the patient's vital signs were within normal limits, examination of the abdomen was pertinent for lower abdominal tenderness that was more pronounced in the left iliac fossa, no signs of generalized peritonitis were appreciated. The patient's past medical history was remarkable for hypertension, diverticular disease of the colon, hiatal hernia, and haemorrhoids. The patient had previously undergone a hysterectomy through a lower midline laparotomy.

### Investigations

Upon admission laboratory investigations were carried out including Complete Blood Count (CBC), kidney function test, liver function test, electrolytes, and amylase. Abnormal findings included a white cell count of 24,200 cells per microliter, an Amylase level of 220 U/L, and an Alkaline Phosphatase level 134 U/L. Computed Tomography (CT) scan was done revealing a number of findings including, sigmoid colon diverticulosis, a collapsed small bowel apart from a focally dilated segment followed by a sharp transitional zone occupied by an area of semi-solid appearance, moreover a sudden change in the orientation of the mesenteric vessels was suggestive of an internal hernia (Figures 1 and 2).

## Management

In the light of the subacute nature of the patient's presentation, her past surgical history and the clinical findings on examination, the patient was assessed to have an adhesive intestinal obstruction. Oral intake was withheld while intravenous fluids hydration was initiated. Three days later the patient started suffering from bilious vomiting with inability to pass stool or flatus, to which a nasogastric tube was inserted. Ten days after initiating conservative treatment, the patient failed to show any significant improvement, in addition, she suffered from worsening in her abdominal pain, an abdominal X-ray was performed revealing dilated small bowel loops on the left side of the abdomen, as a result the decision for laparotomy and adhesiolysis was made (Figure 3). On the 25th of March 2019 the patient underwent laparotomy, very minimal adhesions were encountered with no internal hernia, however, a transitional obstruction point in the distal jejunum was found to be occupied by a  $2 \times 3$  cm enterolith, an enterotomy was made through which the stone was delivered, the enterotomy was closed by simple interrupted sutures using polydioxanone 3.0 sutures.

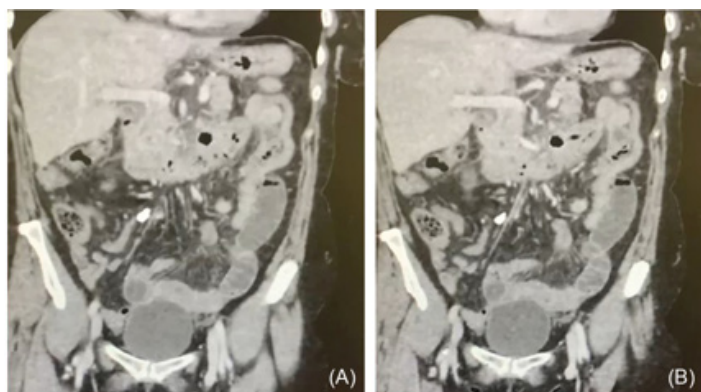


**Figure 3:** an abdominal X-ray showing dilated small bowel loops on the left side of the abdomen.

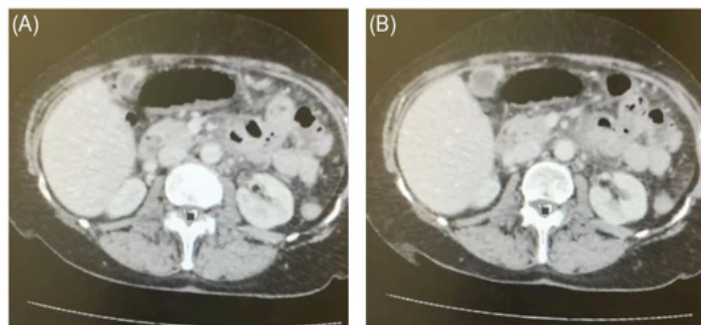
## Discussion

Small bowel diverticulosis has an incidence of approximately 1-5% of the general population, however, it is most prevalent among patients between 60-70 years of age [4]. Eighty percent of small bowel diverticula are found in the jejunum; they are usually large and multiple; the diverticula are located on the mesenteric side as this is the site where blood vessels penetrate the intestine [5,6]. Complications may occur in up to 10% of patients with small bowel diverticula [7]. These complications include diverticulitis, hemorrhage, or perforation. Steatorrhea and megaloblastic anemia due to vitamin B12 malabsorption are described as chronic complications due to stasis and bacterial overgrowth within the diverticula. This condition has a male predominance with a male to female ratio of 2:1. The most common location for jejunoileal diverticulosis is the jejunum with 80% of cases detected there, only 15% of cases are confined to the ileum while in 5% of cases synchronous jejunoileal diverticula are found [8].

The treatment for enterolith intestinal obstruction is surgical. When feasible, the stone is milked into the colon for it to be expelled by bowel motion, other options include distal milking of the stone followed by extraction via an enterotomy. Where indicated segmental resection and anastomosis may be performed by either the open or the minimally invasive techniques, this may be carried out in cases of diverticulitis complicated by perforation or multiple diverticula. Jejunal diverticular disease is an entity that should be considered when assessing elderly patients with small bowel obstruction without an obvious cause [9]. Considering the higher incidence of small intestinal diverticulosis in the elderly



**Figure 1:** CT scan showing collapsed small bowel apart from a focally dilated segment followed by a sharp transitional zone occupied by an area of semi-solid appearance.



**Figure 2:** An inflamed diverticulum seen at the Duodenojejunal junction.

population, intestinal obstruction brought about by enterolith impaction was mostly reported in patients over the age of 60. While the diagnosis of intestinal obstruction was fairly evident at presentation, the detection of an obstructing enterolith was often not made preoperatively despite the use of Computer tomography scan [8-11].

However, in one case the stone was detected preoperatively by an abdominal X-ray [12]. In some cases the CT scan suggested a different cause for intestinal obstruction, in one case a CT scan reported the presence of enterolith along with volvulus, however upon surgical exploration multiple jejunal diverticula with one containing a perforating enterolith were found without volvulus [13]. Furthermore, the diagnosis of intussusception was suggested by another patient who presented with a picture of intestinal obstruction, however on surgical exploration an intraluminal calculus in the ileum was found to be responsible for the small bowel obstruction, without an evidence of intussusception [11]. Interestingly, a case where Intussusception of the small bowel was found to be led by an enterolith which had originated from a jejunal diverticulum [1]. The condition was often coincided with other intestinal pathologies, some cases were associated with colon diverticulosis, in one case an incidental Meckel's diverticulum was found, this allowed for an enterotomy tube made through it to deliver the stone [8].

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