



A Case of Enterolith from Jejunal Diverticulum Leading to Obstruction

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Authors' contributions

All the authors contributed equally in treatment, management, and follow up of the patient and in compilation of case report.

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Case Report

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ABSTRACT

Introduction: Diverticular disease of the small bowel (excluding Meckel's) is not common and is found mostly in post- mortem examinations, it's prevalence increases with age. Most of the patients remain asymptomatic and exhibit no symptoms. So the diagnosis is always delayed and found in old aged people. The condition can be complicated by diverticulitis, haemorrhage or perforation [1,2]. The complications of diverticula are life threatening and needs early surgical intervention. Obstruction of small bowel due to formation and extrusion of enterolith is a rare case presentation.

Case Presentation: We reported a case of 75-year old woman who presented to emergency room with symptoms of vomiting ,obstipation, abdominal pain. After performing necessary investigation small bowel obstruction was confirmed. On performing exploratory laprotomy, the gall bladder appeared normal with no stones and no abnormal communication with small bowel so the possibility of a gallstone ileus was eliminated. There were multiple diverticula present in jejunum which is suggestive of enterolith formation from small bowel diverticula and its spontaneous extrusion.

This was a rare case of small bowel obstruction due to enterolith formation.

Keywords: *Jejunal diverticulosis; enterolith; intestinal obstruction.*

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1. INTRODUCTION

Diverticular disease of the small bowel is not common as it is found mostly on post-mortem examinations, its occurrence increases with age. The condition can be complicated by diverticulitis, haemorrhage or perforation [1,2]. The complications of diverticula are life threatening and needs early surgical intervention. Diverticula found in small intestine are either congenital or acquired. Congenital diverticula differ from acquired diverticula with presence of muscular layer. Jejunal diverticula in particular are very rare and have only mucosal and submucosal layer. The formation of jejunal diverticula is possibly due to increased intra luminal pressure and are called pseudo-diverticulæ of pulsion type. Small bowel obstruction due to formation of enterolith and its extrusion from a diverticulum is a rare complication [3-5]. Enteroliths formation occurs in small bowel diverticula either *newly* or around a component such as a fruit stone or undigested organic matter (i.e. bezoar). The usual component of enterolith is choleic acid which is an end product of bile salt metabolism which is formed as a result of acidic pH shift within a small bowel diverticulum [6]. Radiological diagnosis of such stones is rare, unless calcified which usually occurs only in the more alkaline ileum [7]. It is very difficult to diagnose diverticula on radiological investigation unless calcified, multiple diverticula or normal gall bladder (which rules out possibility of a gallstone ileus). Mechanism of how stones are extruded from small bowel diverticula lacking a muscular coat is not known, but larger stones will be extruded and pass distally to cause obstruction- an enterolith ileus.

2. CASE REPORT

2.1 Clinical Findings

A 75-year-old lady with no known co-morbidities presented with a five-day history of vomiting and central, colicky abdominal pain. Appeared dehydrated with fever of 37.6 degrees. Patient had obstipation. Her abdomen was soft but distended with some central and left-sided tenderness. Tachycardia was present on general physical examination. Bowel sounds were absent and no positive findings on per rectal examination. Nasogastric tube was inserted and showed only bilious output and symptoms were not relieved.

2.2 Investigations

Erect x-ray abdomen showed multiple air fluid level. Ultrasonography was suggestive of few dilated bowel loops of calibre 29-30mm. CECT abdomen suggestive of four large wide neck diverticula arising from proximal jejunal loop. 27*41 mm non enhancing mixed density region seen in mid jejunal loop. Proximal jejunal loops were dilated of 32 mm calibre s/o obstruction. Laboratory test were suggestive of normal CBC, renal function test and liver function test.

2.3 Therapeutic Intervention

When laparotomy exploratory was performed, there were presence of multiple wide neck large jejunal diverticula was confirmed and the stone was found impacted in the mid-jejunum. The gall bladder appeared normal without stones.

The stone approximately 4x3 cm and weighing 13.60 g appeared greyish and hard which was removed via a small enterotomy close to it. The patient made a good recovery from operation delayed only by post-operative nausea.

3. DISCUSSION

We reported the first local case of proximal small bowel obstruction due to a calcified enterolith. It is postulated that diverticula's provide the more acidic environment necessary for choleic acid precipitation and stone formation [7] but calcification will not occur without shift to alkaline pH. which normally tends to occurs in the ileum. Our case confirmed calcification occurring in the proximal small bowel which made this theory less definitive but facilitated the diagnosis. The primary management of enterolith ileus at laparotomy is firstly to attempt manual lysis of the stone without enterotomy and to milk the smaller parts into the colon where they are passed through rectum [8]. If this is proved to be impossible or inappropriate, the stone is removed through an enterotomy which is made in a less oedematous segment of proximal small bowel. Large diverticula needs to be removed via diverticulectomy and multiple diverticula removal needs bowel resection and anastomosis. The fact that obstruction occurring due to enterolith is well known and with the condition occurring in conjunction with cases of diverticulosis. However the possibility should be kept in mind that in patients presenting with clinical features of small bowel obstruction without evidence of previous operative abdominal intervention or obstructed

hernia [9]. Radiological investigations are helpful when it gets complicated with perforation or obstruction leading to air fluid level or free gas detectable under dome of diaphragm on X-ray ;though rare jejunal diverticula should be kept in mind as a possibility leading to obstruction or in cases of acute abdomen. Diagnosis of this ailment is particularly difficult as most patients

remain asymptomatic for life time, but its clinical awareness should be spreaded as some patients may have symptoms like malabsorption, irritable bowel syndrome .awareness aids in early diagnosis and treatment so as to prevent fatal life threatening complication.

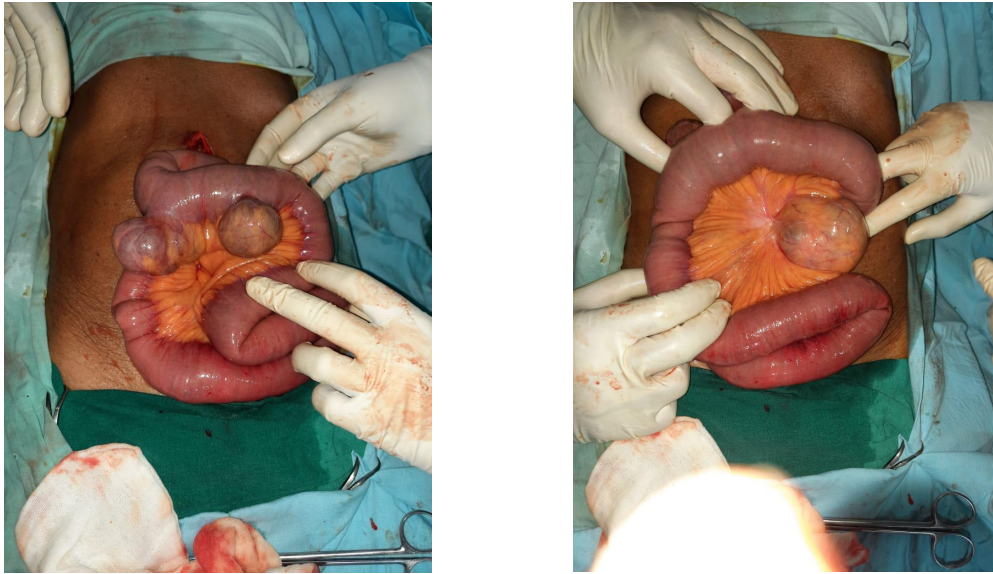


Fig. 1. Multiple large wide neck jejunal diverticuli found on exploratory laprotomy



Fig. 2. Marked arrow showing enterolith in-situ



Fig. 3. Enterolith removed via enterotomy

4. CONCLUSION

Jejunal diverticula are very rare form of small bowel diverticula and are patient remain asymptomatic mostly ;small bowel obstruction due to enterolith from diverticula leading to acute abdomen is very uncommon. Exploratory laprotomy is done with enterotomy to relieve the obstruction ;following to this diverticulectomy may be done for small bowel diverticula.in case of multiple diverticuli resection and anastomosis may be done.

CONSENT

Consent has been taken from the patient.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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