

# A Primary Ileal Enterolith Presenting As Subacute Small Bowel Obstruction

Dr. Chaitanya Krishna Ponnaganti<sup>1</sup>, Dr. Ravinthar. A<sup>2</sup>, Dr. P. S. Saravanan<sup>3</sup>

**Abstract:** Enteroliths are a rare cause of intestinal obstruction. We report here a case of 69 years female presented with signs of subacute intestinal obstruction to the department of general surgery in Meenakshi medical college, kanchipuram. She was able to pass flatus, but with cessation of bowel movements. Plain X-ray abdomen and CT Abdomen was done subsequently, which shows a radiopaque shadow in the distal portion of ileal lumen. A choledochal fistula was ruled out. A provisional diagnosis of Subacute intestinal obstruction was made. On Exploratory Laparotomy, multiple ileal strictures with mesenteric edema noted. An enterolith was delivered from one of the segments between two strictures, followed by segmental Ileal resection anastomosis. It was a case of Primary Enterolith, formed due to stasis between ileal strictures leading to subacute intestinal obstruction. Enterolith presents with varied clinical presentation and this unusual case warranted surgery, which resolved her symptoms.

## 1. Introduction

Enterolithiasis is a relatively uncommon clinical condition that has recently gained significant attention with the advances in the gastrointestinal field. Enterolithiasis is classified into primary and secondary types. Primary enteroliths arise in areas of intestinal stasis in the setting of surgical enteroanastomoses, diverticular disease, blind pouches, and intestinal stenosis or strictures seen in the infectious or inflammatory bowel diseases. Secondary enteroliths include gallbladder and renal stones that may migrate into the gastrointestinal tract due to fistula formation. Clinical enterolithiasis is largely affected by its etiology, underlying conditions, age, gender and geographical distribution. Presentation is usually non specific, but typically includes tumbling abdominal pain, nausea, and vomiting related to the bowel obstruction, and may potentially lead to the gastrointestinal bleeding and perforation. Most cases of enterolithiasis are discovered in symptomatic patients, who present with small bowel obstruction [1]. Bowel obstruction occurs when the normal flow of intraluminal contents is interrupted. Obstruction can be functional due to abnormal intestinal pathology or due to mechanical obstruction, which can be acute or chronic [2,3]. The cause of the obstruction may be external to the bowel (extrinsic), within the wall of the bowel (intrinsic), or due to a luminal defect that prevents the passage of gastrointestinal contents. Obstruction of small bowel can be partial or complete. Obstruction leads to progressive dilation of the intestine proximal to the blockage, while distal to the blockage the bowel will decompress as luminal contents pass. Swallowed air and gas from bacterial fermentation can accumulate, adding to bowel distension. As the process continues, the bowel wall becomes edematous, normal absorptive function is lost and fluid is sequestered into the bowel lumen [4]. If bowel dilation is excessive, the intramural vessels of the small intestine is reduced [5]. If perfusion to a segment of intestine is inadequate to meet the metabolic needs of the tissue, ischaemia will occur, which will eventually leads to necrosis and perforation unless the process is interrupted. Here, we report a rare case of Subacute small bowel obstruction caused by an Intraluminal enterolith.

## 2. Case Report

A 69 year female Kamala, presented to the department of general surgery with Intermittent right lower abdominal pain since 9 months. History of intermittent bilious vomiting with loss of appetite since 1 week. She was able to pass flatus, but with cessation of bowel movements. Her abdomen was not distended and she was hemodynamically stable. Plain X-ray abdomen shows a radiopaque shadow in the right lower quadrant, no air – fluid levels or dilated bowel loops [Figure 1]. A CT Abdomen was done subsequently, which shows a well defined hyperdense structure of 3 x 2 cm in the distal portion of ileal lumen [Figure 2]. A provisional diagnosis of Subacute intestinal obstruction was made. On Exploratory Laparotomy, multiple ileal strictures with mesenteric edema and adhesions noted [Figure 3]. An enterolith was delivered from one of the segments between two strictures at about 30 cm from ileocaecal junction [Figure 5], followed by segmental Ileal resection anastomosis [Figure 6,7]. There was no abnormal communication between the Gall bladder and intestinal tract, excluding the possibility of Gall stone ileus. Histopathology of the resected ileal segment showed chronic non specific inflammation.



**Figure 1:** Plain X ray abdomen showing radiopaque shadow in right lower quadrant

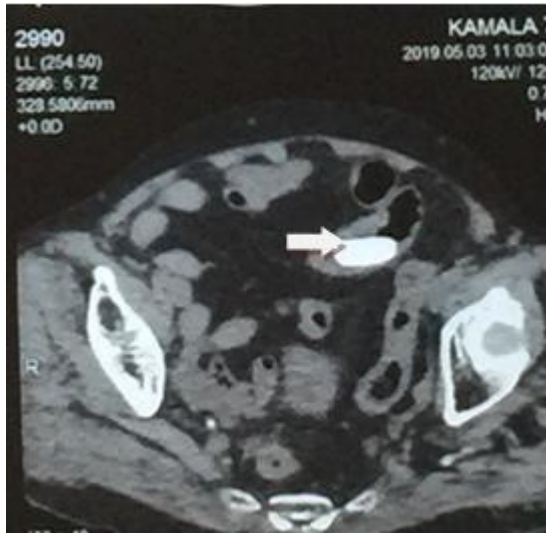


Figure 2: CT abdomen showing structure in Distal ileal lumen

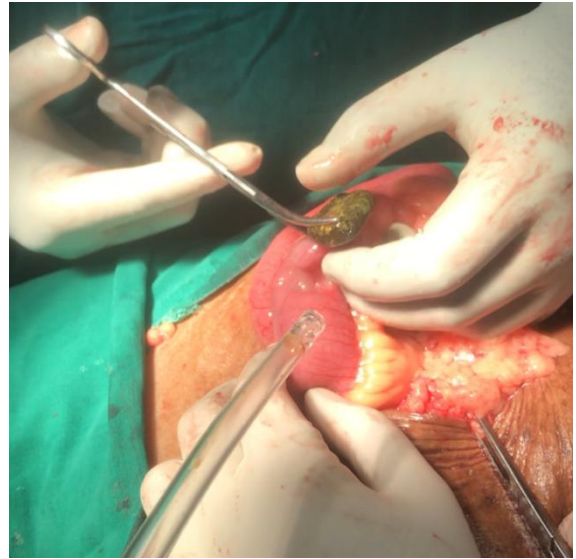


Figure 5: Retrieval of Enterolith by Enterotomy



Figure 3: Stricture with Mesenteric edema hyperdense



Figure 6: Enterolith with Gross specimen of resected ileum

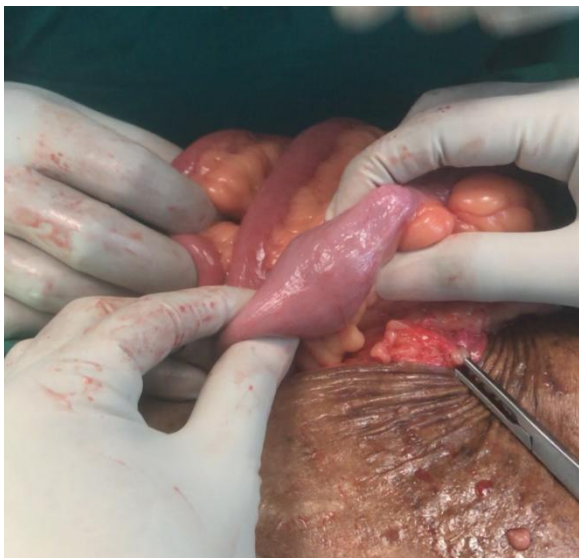


Figure 4: Intraluminal mass palpable 30cm from ileocaecal junction



Figure 7: Ileo-ileal anastomosis

### 3. Discussion

Intestinal obstruction is a common surgical emergency. Enteroliths are the abnormal concretions occurring in the intestine, which are usually composed of mineral salts [7].



A French physician by name Chomelin J was first described enterolith in 1970, during autopsy for a case of stone formation in duodenal diverticulum [8]. Enteroliths are classified as, Primary enteroliths that form within the bowel or Secondary enteroliths that form outside the bowel and migrate into the intestine. Gall stones and renal calculi can erode into the adjacent bowel, resulting in secondary enteroliths [9]. Enteroliths can also be classified as True or false enteroliths based on their chemical composition. True enteroliths are usually composed of substances that are normally found in the gut. Examples for true enteroliths are – Calcium stones, Choleic acid stones, Hydroxy fatty acid stones, Ammonium – magnesium phosphate stones. False enteroliths are composed of substances that are normally not found in the gut. Undigested bezoars, inspissated faecal stones, concretions of chalk, barium sulfate or lime stones, precipitation of insoluble varnish stones [9]. The most common factor responsible for development of an enterolith is Stasis with in the bowel, as a result of the altered peristaltic function and endoluminal propagation. Risk factors for enterolith development include Intestinal strictures, intestinal diverticula, Roux-en-Y anastomosis sites, sites of intestinal anastomosis, intestinal adhesions/kinking, incarcerated hernias, small intestinal tumours, Crohn's disease, intestinal infections like Tuberculosis [10]. The presentation of enterolith is usually non specific with most of them remain asymptomatic. The enterolith rolling or tumbling through the bowel lumen can lead to fluctuating subacute intestinal obstruction. Over the course of time, they can also present as surgical emergencies like Acute intestinal obstruction, bowel perforations and haemorrhage [10]. In our case, the patient presented with features of subacute intestinal obstruction due to multiple strictures in the small bowel with mesenteric edema and adhesions leading to stasis within the bowel which is responsible for development of enterolith proximal to a stricture, at about 30 cm from the ileocaecal junction. Gall stone ileus was excluded, as there is no abnormal communication between gall bladder and intestinal tract. In our case, the diagnosis of enterolithiasis was made only at the time of Laparotomy. Endoscopic retrieval of enteroliths can be done for duodenal enteroliths. In enteroliths < 2 cm size and without any luminal compromise can be managed conservatively with serial abdominal examinations, Nil per oral, resuscitation with Intravenous fluids with Nasogastric aspiration or suctioning can be attempted. Most enteroliths pass spontaneously with the above management [11]. Larger stones of size: > 2cm can be managed by Endoscopic mechanical lithotripsy (EML) and Endoscopic electrohydraulic lithotripsy (EEHL). Single and double balloon enteroscopy with carbondioxide insufflation have also been described for management of proximal small bowel enteroliths [12]. Surgical management is usually reserved for Larger stones, when interventional methods were not available and when there is failure of attempted expectant management. Digital fragmentation of the stone followed by manual milking of the smaller stone fragments into the Large bowel is successful in about 50% of cases [13]. Hard enteroliths which cannot be fragmented mechanically are retrieved through a proximal enterotomy with manual removal of enterolith. Segmental small bowel resection with primary anastomosis is necessary in cases of

enteroliths associated with bowel pathologies like Stricture, diverticulum, tumours etc.

#### 4. Conclusion

Majority of the reported enterolith cases are usually occur in pathologic bowels, like in Intestinal inflammatory strictures or diverticular diseases or post bowel anastomosis sites. This is a rare case of an Enterolith occurring in the small bowel and the location of enterolith is approximately 30 cm proximal to the ileo-caecal junction. The possible factor responsible for enterolith formation in this patient is, long standing stasis of small bowel contents due to chronic non specific inflammatory strictures. An Enterolith should also be included in differential diagnosis while evaluating a case of Subacute or acute intestinal obstruction.

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