

# Enterolithiasis: An Unusual Cause of Acute Abdomen

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**Abstract:** Enterolithiasis is an uncommon medical condition that develops due to stasis of intestinal content associated with underlying cause of stone formation. chemical composition of these stones varies according to their site of origin. Its prevalence ranges from 0.3% to 10% in selected populations. A 69 yr old men admitted with complain of intestinal obstruction.. X ray and CECT abdomen suggest enterolith with perforation peritonitis. he underwent to emergency laparotomy. postoperative course was uneventfull. early recognition of the disease and surgical intervention is mainstay of treatment in case of enterolithiasis with acute abdomen.

**Keywords:** Enterolithiasis, Intestinal obstruction, perforation peritonitis

## 1. Introduction

Enterolithiasis, or presence of stone concretions in the gastrointestinal tract, is an important but relatively uncommon clinical condition. Enterolithiasis was first described by a French physician Chomelin J in 1710 in the medical series of *Historie de l'Academie Royal*[1] as a case of stone formation in a duodenal diverticulum that was discovered during an autopsy. Sjoqvist initially reported on chemical composition of enterolith in 1908[3] In 1947, Grettve[3] proposed classification of enteroliths into primary and secondary types, with primary enteroliths being formed inside the gastrointestinal tract and secondary enteroliths introduced from outside the bowel. The clinical setting for this entity may vary from the completely asymptomatic patient to that of acute intestinal obstruction or gastrointestinal hemorrhage .proper history, physical and radiological evaluation helps to reach the diagnosis. Definitive treatment is surgical [1].

## 2. Case Presentation

A 69-year-old male presented with sub-acute intestinal obstruction for 5 days with history of recurrent colicky pain in abdomen and vomiting. After thorough history taking and examination patient was subjected to radiological imaging.



Figure 1

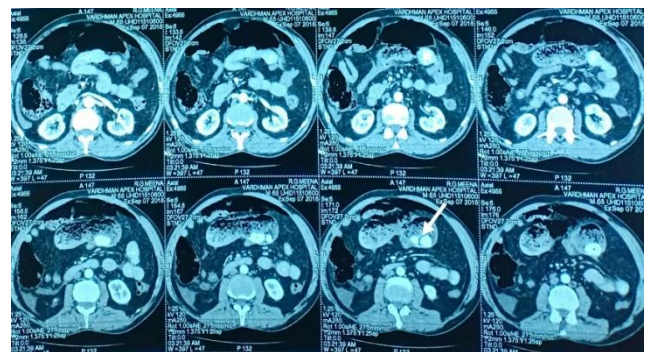


Figure 2

Plain X-ray shows round opacity in abdomen with air fluid level and gas under diaphragm. CT (figure -1,2) was suggestive of mechanical cause of small bowel obstruction with enterolith and perforation peritonitis. no evidence of choledochoduodenal fistula and any fistulous communication with urinary tract. Hence decision for operative exploration was done after optimization of the patient.



Figure 3



Figure 4

On exploration, there was obstruction in the ileum with perforation peritonitis at approximately 30 cm proximal to ileocaecal junction due to multiple hard impacted enterolith and multiple ileal stricture. The stone was immobile and no amount of maneuvering would allow removal on enterotomy. Hence resection was planned. The rest of the proximal bowel was dilated and distended. Resection and Anastomosis of the involved segment of Ileum was done. Specimen can be seen below in Fig 4.

Bowel activity returned in 48 hour and postoperative recovery was uneventful, and the patient was discharged on the 6th postoperative day. Chemical analysis of stone (FTIR) suggestive of ammonium urate and inflammatory pathology in histopathological examination.

### 3. Discussion

Enterolithiasis, or presence of stone concretions in the gastrointestinal tract, is an important but relatively uncommon clinical condition. The prevalence of primary and secondary enterolithiasis varies widely from 0.3% to 10%. Primary enteroliths arise in areas of intestinal stasis in the setting of diverticular disease, surgical enteroanastomosis, blind pouches, and intestinal stenosis or strictures seen in the infectious (tuberculosis) or inflammatory bowel diseases (chrons).

Secondary enteroliths include gallbladder and renal stones that may migrate into the gastrointestinal tract as a result of fistula formation. Primary enteroliths are formed within the gastrointestinal tract and can be further subdivided into the "true" and "false" subtypes. True primary enteroliths are made of substances found in chyme under normal alimentary conditions, may occasionally have a central "fruit pit", and are subdivided into the choleic acid and calcium (calcium phosphate, calcium oxalate, and calcium carbonate) stones. False primary enteroliths are formed from insoluble foreign substances in the bowel and are divided into three types: agglutination of a large amount of indigestible materials (bezoars), precipitation of substances in the intestinal tract that become insoluble because of resorption of their solvents (varnish stones in varnish drinkers), and concentration of water suspended insoluble salts (chalk, lime, barium sulfate). In our case ammonium urate stone was found in the absence of any fistulous communication between bowel and urinary tract.[7].

Secondary type enteroliths are stones that are formed in the organs outside of the proper gastrointestinal tract and then migrate into the bowel causing obstruction, with the most common type being gallstones[14,28]. X ray and cect abdomen helpful in early diagnosis. Plain radiographs may suggest the probable level of obstruction but may not reveal specific shadows, making it a diagnostic surprise on table. Probably owing to low calcium content in these stones, they are rarely picked up in plain X-rays [9, 10]; on the other hand findings like pneumobilia on the same could suggest gallstone ileus that must be supported with findings of biliary abnormalities on ultrasonography [11]. In our case X-ray and CECT abdomen was suggestive of enterolithiasis with perforation peritonitis and obstruction.

Definitive treatment is surgical [1]. The consensus management policy at laparotomy is to first attempt manual lysis of the calculus without enterotomy and then milking the smaller parts into proximal colon allowing exit via rectum [1, 12]. If this is not possible, enterotomy removal from a proximal less edematous portion can be done [1, 6]. Bowel resection and anastomosis are usually done if there is a coexistent severe inflammation, perforation, necrotic bowel diverticulosis, or long segment or multiple strictures causing enterolithiasis [1, 2]. We also performed resection anastomosis.

### 4. Conclusion

Enterolithiasis is a rare clinical condition with raising incidence and prevalence. Alterations in bowel anatomy and microenvironment play a significant role in pathogenesis of this disease and provide an important clue in its etiologic recognition, chemical classification, and clinical presentation. Clinical diagnosis relies on detailed history and physical examination complemented by radiologic imaging modalities. Treatment should be aimed at endoscopic or surgical enterolith removal and correction of the underlying intra- and extra-intestinal pathology to prevent additional stone formation. Rapid advances in medical field will continue to lead to improved diagnosis and help expand therapeutic options for the affected patients.

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