

# Subacute Intestinal Obstruction By An Enterolith-A Rare Case

SRIKANTIAH CHANDRASHEKHARAIH HIREMATH, ZAMEER AHMED, TARIQ IQBAL

## ABSTRACT

This moribund elderly female patient was referred to us for sub-acute intestinal obstruction, and upon clinical evaluation and investigations, she was found to have proximal dilated jejunum and ileal loops. After in-patient pre-operative investigations, a nasogastric tube was inserted and revealed jejunal contents, hence she was operated upon as a priority, laparotomy and retrieval of a stony hard foreign body was done. However, we ruled out choledochal fistula on CECT. Enterolith presents with varied clinical presentation and this unusual case (large stone) warranted surgery, which resolved her symptoms

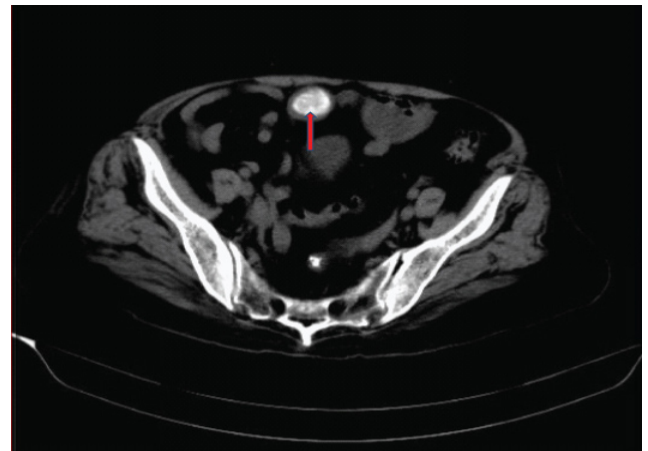
**Keywords:** Adynamic intestinal obstruction, Enterotomy, Foreign body, Stone retrieval

## CASE REPORT

A 70-year-old fragile woman presented to us with complaints of obstipation since 7-days, multiple episodes of bilious vomiting since 6-days and diffuse colicky abdominal pain since 4-days, aggravated by intake of food. Patient was being treated for hypothyroidism since 10 years, in a clinically apparent euthyroid state. On clinical examination, the general condition of the patient appeared to be fair, a soft abdomen with diffuse tenderness in all quadrants and bowel sounds being absent. Ryle's tube showed 300 mL of feculent aspirate. There were no features to clinically suggest peritonitis. The patient was followed-up for a duration of 6 months. Consent of the patient was obtained.

CECT of the abdomen and pelvis with plain and intravenous contrast suggested a sub-acute small bowel obstruction due to an enterolith in the mid-ileum [Table/Fig-1]. CECT depicts a well-defined intraluminal oval non-enhancing area of mixed density, measuring 25 x 30 mm with peripheral calcification in the mid-ileum loops, which is suggestive of an enterolith. Proximal to this, there is dilatation of the small bowel involving the duodenum, jejunum and ileum with no radiological evidence of choledochoduodenal fistula. Rectal contrast was not given as it was clinically suspected to be a foregut obstruction.

After pre-operative investigations, cardiac and anaesthesiology clearance was obtained. On priority, exploratory laparotomy revealed an obstruction identified by following the dilated bowel loops distally, palpation revealed a hard stone and an enterotomy incision at the site delivered a stone of 2.5 x 3 cm [Table/Fig-2,3]. Retrieval was followed by primary closure



[Table/Fig-1]: CECT scan of the abdomen and pelvis

[Table/Fig-4]. There were no strictures, adhesive bands, fistulas and the entire small bowel appeared healthy. Immediate post-operative period was uneventful. Patient admitted for a period of 7 days. At the end of 6 months, patient was asymptomatic and had regular bowel habits. The laparotomy wound healed by primary intention.

## DISCUSSION

Small bowel obstruction, a common surgical emergency, is broadly categorized as due to an obstruction arising from an extra-luminal, an obstruction intrinsic to the bowel wall and/or an intraluminal obturator obstruction [1]. Intra-luminal small bowel obstructions are usually due to gall stone, bezoars, inspissated faeces, foreign body [2] and worm boluses.



**[Table/Fig-2]:** Enterotomy incision of mid ileum loop delivering an enterolith of 2.5 x 3 cm size with normal appearing bowel loops and mesentery.



**[Table/Fig-3]:** Enterolith size comparison to a Bard Parker® handle.



**[Table/Fig-4]:** Retrieval of the stone after an adequate enterotomy incision.

Enterolithiasis or formation of stone concretions is a relatively rare medical condition that develops in areas of intestinal stasis in the setting of an intestinal diverticulum, surgical side-to-side enteroanastomoses, blind pouches (cul-de-sac), afferent loops in the Billroth II gastrojejunostomy or Roux-en-Y procedures, incarcerated hernias, small intestinal tumors,

intestinal kinking from intra-abdominal adhesions, stricturing Crohn's disease and intestinal tuberculosis [3].

Broadly, enterolithiasis is classified into primary and secondary types. Primary enteroliths are formed in the small bowel, usually within an abnormal pouch such as a diverticulum while secondary enteroliths are formed in the gall bladder [4,5] or as renal stones which migrate via a fistulous tract into the gastrointestinal lumen [3]. Primary enteroliths are subdivided into true and false subtypes: true primary enteroliths are made of substances found in chyme under normal alimentary conditions which may have a central fruit pit and are further divided into the choleic acid and calcium (calcium phosphate, calcium oxalate, and calcium carbonate) stones. False primary enteroliths are formed by insoluble foreign substances in the bowel and based on the type of material are further divided into three types: 1) Bezoars (agglutination of a large amount of indigestible materials), 2) Varnish stones in varnish drinkers (precipitation of substances in the intestinal tract that become insoluble because of resorption of their solvents), and 3) Chalk, lime, barium sulphate (concentration of water suspended insoluble salts) [3]. Eventual external calcification of false enteroliths in the distal small bowel may lead to stones of mixed concretions [6]. Their formation in the GI system are mineral concretions or calculi, usually around a nidus not much unlike a process similar to the creation of a pearl and are composed of inspissated faecal matter, calcium phosphate, magnesium, epithelial debris, bacteria and unconjugated cholic acid [7,8]. Differentiating between a primary vs secondary enterolith and identifying the underlying enteropathy is crucial in establishing the disease process.

Wide-spread use of acid suppression, improving surgical techniques, conservative management of chronic intestinal conditions and dietary consumption of calcium products may alter conventional norms of traditional enterolith formation; therefore, the true incidence and prevalence of primary enteroliths remains to be determined [3].

Incidentally detected enterolith are relatively rare causes of small bowel obstruction, none-the-less, if detected, they must be followed-up for the development of obstruction, abscess formation and perforation [1,9]. As stated, enterolith usually forms in a diverticulum of small bowel causing small bowel obstruction [10]. Decreased peristalsis is an important factor pre-disposing to the development of an enterolith [11,12]. Stasis in the distal small bowel may occur in a variety of clinical conditions, including stricturing Crohn's disease, post-surgical anatomical alterations, post-radiation enteritis, gastrointestinal tuberculosis, congenital or acquired ileo-jejunal diverticular disease while our patient had a history of hypothyroidism – with ongoing treatment. Miscellaneous causes of small bowel obstruction account for about 2-3% of all cases and must be considered among the differentials [1]. Since there was no small bowel diverticulum, small bowel tumour, Crohn's

disease, intestinal tuberculosis or history of previous surgeries in our case, we hypothesised, that the enterolith is due to hypo-motility or stasis [13].

## CONCLUSION

Enterolith is a rare clinical entity. X-ray of the abdomen and pelvis was done, CECT of the abdomen confirmed the diagnosis. CECT is the diagnostic imaging tool to confirm and plan-out therapeutic interventions. Upper GI endoscopy may rule-out primary vs secondary enteroliths. Treatment strategies should focus on endoscopic or surgical enterolith removal and correction of the underlying intra- and extra-intestinal pathology to prevent additional stone formation.

## REFERENCES

- [1] Townsend CM, Beauchamp RD, Evers BM, Mattox KL. LIC - Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice. Saunders; 20th ed. 2015, Pg. 1247-48.
- [2] Storck A, Rothschild JE, Ochsner A. Intestinal obstruction due to intraluminal foreign bodies. *Ann Surg.* 1939;109(5): 844-61.
- [3] Gurvits GE, Lan G. Enterolithiasis. *World J Gastroenterol.* 2014 Dec 21;20(47):17819-29.
- [4] Klingler PJ, Seelig MH, Floch NR, Branton SA, Metzger PP. Small-intestinal enteroliths—unusual cause of small-intestinal obstruction. *Dis Colon Rectum.* 1999;42(5):676-9.
- [5] Sudharsanan S, Elamurugan TP, Vijayakumar C, Rajnish K, Jagdish S. An Unusual Cause of Small Bowel Obstruction: A Case Report. *Cureus.* 2017;9(3):e11116.
- [6] Atwell JD, Pollock AV. Intestinal calculi. *Br J Surg.* 1960;47:367-74.
- [7] D'souza C, Bhagavan KR, Sunil H, Mohan R. Unusual case of subacute intestinal obstruction due to eosinophilic enteritis with enteroliths. *Annals of Tropical Medicine and Public Health.* 2010;3(2):83.
- [8] Shivathirthan N, Maheshwari G, Kamath D, Haldar P. Enterolithiasis complicating eosinophilic enteritis: A case report and review of literature. *World J Gastrointest Surg.* 2009;1:68-70.
- [9] Geoghegan T, Stunel H, Ridgeway P, Birido N, Geraghty J, Torreggiani WC. Small bowel obstruction secondary to a giant enterolith complicating Crohn's disease. *Ir J Med Sci.* 2005;174(2):58-9.
- [10] Jones RP, McWhirter D. Intermittent small bowel obstruction caused by Meckel's enterolith. *Ann R Coll Surg Engl.* 2010;92(5):W16-17.
- [11] Gamblin TC, Glenn J, Herring D, McKinney WB. Bowel obstruction caused by a Meckel's diverticulum enterolith: a case report and review of the literature. *Curr Surg.* 2003;60(1):63-64.
- [12] El-Tinay OE, Guraya SY, Noreldin O. Enterolithiasis. *Saudi J Gastroenterol.* 2004; 10:96-98.
- [13] Yadav G, Husain S, Shukla R, Patidar R, Luthra R. A rare case of calcified enterolith presenting as subacute intestinal obstruction. *Indian J Surg.* 2015;77(4): 327-28.

### AUTHOR(S):

1. Dr. Srikantaiah Chandrashekharaiiah Hiremath
2. Dr. Zameer Ahmed
3. Dr. Tariq Iqbal

### PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of General Surgery, Ramaiah Medical College, Bengaluru, Karnataka, India.
2. Junior Resident, Department of General Surgery, Ramaiah Medical College, Bengaluru, Karnataka, India.
3. Junior Resident, Department of General Surgery, Ramaiah Medical College, Bengaluru, Karnataka, India.

### NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Srikantaiah Chandrashekharaiiah Hiremath,  
M S Ramaiah Nagar, Mathikere, MSRIIT Post, Bengaluru,  
Karnataka, India.  
E-mail: drsrikantaiah@gmail.com

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