

Case Report

A curious case of a large enterolith in small bowel presenting with obstruction

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ABSTRACT

Most reported cases of enteroliths causing obstruction occur in large bowel. If in small bowel, it is usually associated with underlying pathology. This is a curious case of a large enterolith in a normal small bowel, causing obstruction without any underlying pathology at the site of impaction, makes this case a rare one.

Keywords: Large enterolith, Small bowel obstruction

INTRODUCTION

Small bowel obstruction is a common condition, encountered in the emergency room of the surgery department. Adhesions, particularly after pelvic operations, are responsible for more than 60% of all causes of bowel obstruction followed by malignant tumours (20%), intestinal hernias (10%), Crohn's disease (5%); intraluminal causes of small bowel obstruction in adults are rare.¹

The prevalence of enteroliths is reported to be 0.3% to 10%. The exact incidence of enterolithiasis is not known because most cases are asymptomatic or they are not diagnosed or they remain underreported.

CASE REPORT

83 years old man presented with diffuse abdominal pain, obstipation and vomiting since last 3 days. Abdominal pain was diffuse, colicky in nature, intermittent griping pain, non-radiating. Vomiting profuse quantity, mostly after meals, contents being food particles. No history of fever/trauma/previous surgeries in abdomen.

On examination, the patient was reported febrile, pulse-96/min, and blood pressure- 140/80 mm Hg. Per abdomen was distended, diffuse tenderness was present, no guarding or rigidity, no obvious lump, hyperperistaltic bowel sounds, and per rectum was empty.

Total leucocyte count of 10420, serum bilirubin 1.1 (direct 0.73), potassium 3.3 meq/litres. X-ray abdomen erect was done suggestive of multiple air fluid levels with a radio-opaque shadow in right iliac fossa as shown in the Figure 1.

Computed tomography scan abdomen was done suggestive of dilated small bowel loops with transition zone at radio-opaque foreign body in distal ileum, with no evidence of cholelithiasis, nondilated common bile duct, no pneumobilia, no intrahepatic biliary radical dilatation shown in the Figure 2.

Patient was managed with intravenous fluids, correction of electrolyte imbalance, gastric decompression was done by nasogastric tube. Patient was taken up for surgery in view of failure of conservative line of treatment given for 3 days.

Intra-operative findings

Dilated small bowel loops, 3×2.5×1 cm stone was detected which was impacted 30 cm proximal to ileocecal junction, stone was retrieved out via an enterotomy and closed with polydioxanone sutures in 2 layers. Gall bladder appeared normal with no evidence of choledocho-duodenal or cholecysto-duodenal fistula. No evidence of any other pathology was found.

The stone analysis was done, which revealed iron, calcium, phosphate as contents of stone. No evidence of bile salts or pigments which ruled out no gall stone ileus.

Postoperatively patient was managed on intravenous fluids and antibiotics. Drain output reduced and patient was started on oral liquids after confirming bowel sounds and subsequently on solid diet as patient tolerated. He was discharged on postoperative day 5 with all vital parameters within normal limits.

On follow-up patient is doing well and has no complaints at present.



Figure 1: X-ray abdomen erect film showing multiple air-fluid levels with a radio-opaque shadow in right iliac fossa.



Figure 2: CT scan of the abdomen showing 3×2.5×1 cm radio-opaque foreign body in the distal ileum with normal hepato-biliary region.

DISCUSSION

An enterolith is a mineral concretion or calculus formed anywhere in gastrointestinal tract, most commonly in large intestine.² The prevalence of enteroliths is reported to be 0.3% to 10% in various population.³ The exact incidence of enterolithiasis is not known because most cases are asymptomatic or they are not diagnosed or they remain underreported.

Broadly enterolithiasis is classified into primary enteroliths (that form within the bowel) and secondary enteroliths (that form outside the bowel and migrate to the intestine). Gall stones and renal calculi can erode into the adjacent bowel, resulting in secondary enteroliths.

True primary enteroliths are formed from chemical elements already present in the bowel in the anatomically compromised areas of stasis as a result of altered endoluminal propagation or peristaltic functionality. Stasis occurs frequently at areas of intestinal diverticula, sites of intestinal anastomoses, Roux-en-Y sites, intestinal kinking (adhesions), incarcerated hernias, and strictures.³ Intestinal stasis leads to crystallisation of food particles by calcium salt depending on pH of that segment of gut. Choleic acid aggregates and forms enteroliths at acidic pH whereas calcium enteroliths are formed at alkaline pH. Hence cholic acid enteroliths are seen in the proximal small intestine and calcium containing enteroliths are mostly seen in the distal ileum or colon.⁴

Primary enterolithiasis remains asymptomatic most commonly or may present with sub-acute or acute intestinal obstruction or sometimes also present as surgical haemorrhage, and bowel perforations. In the present case, the patient presented with features of acute intestinal obstruction due to the impacted enterolith in the ileum that warranted a surgical management.

An abdominal x-ray is usually the first investigation in a patient who presents with features of intestinal obstruction. Only one-third of the enteroliths are radio-opaque.⁵ Radio-opaque stones have peripheral calcifications with a radiolucent centre and are usually seen in the right iliac fossa region in a roentgenogram. A CT scan can identify radiolucent enteroliths, the exact location, and the total number of enteroliths along with the presence of underlying bowel pathology hence is more preferable investigation. In most cases, the diagnosis of enterolithiasis could be made only at the time of laparotomy.

In enteroliths less than 2 cm in size and without any luminal compromise, conservative management with serial abdominal examinations, nil per oral, and intravenous fluids along with nasogastric suctioning can be attempted. Most enteroliths pass spontaneously with the above management.⁶ Endoscopic retrieval of enteroliths can be done if they are located in the duodenum. Larger stones can be managed by endoscopic electrohydraulic

lithotripsy (EEHL) and endoscopic mechanical lithotripsy (EML). Single and double balloon enteroscopy with carbon dioxide insufflation have also been described for management of enteroliths in the proximal small intestine.⁷

Surgical management is reserved in cases of large stones when interventional methods are not available and when expectant management fails.⁸ Hard enteroliths that cannot be fragmented mechanically can be retrieved by a proximal enterotomy with manual enterolith removal. In the presence of associated strictures, stricturoplasty may be done for small solitary stricture, but for long or multiple strictures and associated complications, resection of the affected bowel is indicated.

In this case, a large enterolith of around 3.5-4 cm was found in mid portion of ileum associated with acute intestinal obstruction with no underlying pathology or risk factor promoting the formation of enterolith. Enterolith formation in small bowel with no underlying pathology with intestinal obstruction as complication is extremely rare.

CONCLUSION

Enteroliths are more commonly found in large bowel, however when they occur in small bowel they are associated with other underlying pathologies. Primary enteroliths are formed in the areas of stasis as a result of altered endoluminal propagation or peristaltic functionality e.g. areas of intestinal diverticula, sites of intestinal anastomoses, Roux-en-Y sites, intestinal kinking (adhesions), incarcerated hernias, and strictures. Secondary enteroliths (form outside the bowel and migrate to the intestine) e.g. Gall stones and renal calculi can erode into the adjacent bowel. Abdominal X-ray is usually the first investigation, however CT scan is more informative as it shows the transition zone, surrounding inflammation and the level of obstruction. Surgery is the mainstay of

treatment, enterotomy or resection and anastomosis as indicated should be performed.

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