



Enterolithiasis with Multiple Ileal Strictures with ileocecal Mass – A Case Report

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ABSTRACT

Enteroliths can be formed in variety of conditions causing intestinal strictures. Strictures of the small bowel can be caused by various benign and malignant causes, while formation of enteroliths is a rare complication due to stasis caused by stricture formation. We present a case in which enterolithiasis with multiple ileal strictures secondary to intestinal tuberculosis were present. In this patient on laparotomy two proximal strictures were included in resection anastomosis and stricturoplasty at two distal strictures along with resection of ileocecal mass with ileoascending anastomosis was done with successful surgical outcomes.

KEYWORDS : Enteroliths, Strictures, Intestinal tuberculosis, Anastomosis

CASE REPORT

A 35 year old male patient reported to our department with eight days history of pain in abdomen and abdominal distention. He had similar episode of pain 8 yrs back and was diagnosed as Koch's Abdomen for which he had taken Anti Tubercular treatment for 3 months. On examination abdomen was mildly distended with moderate tenderness and guarding in right iliac fossa. Bowel sounds were hyperdynamic. Radiograph of abdomen (Fig 1.) revealed dilated bowel loops with multiple oval radioopaque shadows in right lower quadrant. Ultrasonography revealed similar bowel pattern.

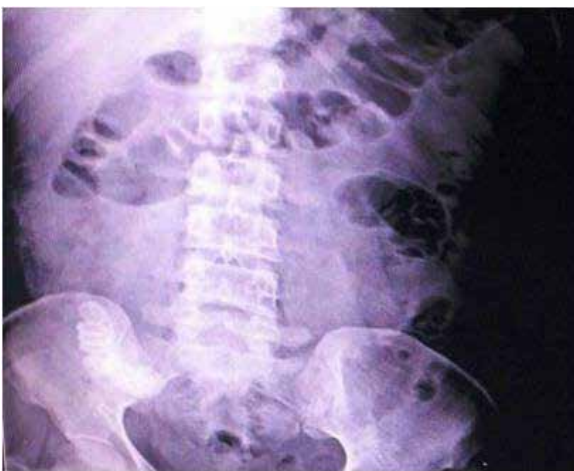


Figure 1: Skiagram Abdomen

Intraoperatively two feet distal to Duodenojejunal junction tight stricture was present which was not passable (Fig 2.) and multiple stones were present proximal to the stricture. Three strictures were present in small bowel distal to previous stricture up to ileocecal junction and they were passable (Fig 3). Ileocecal mass was present. Appendix was not visualized.



Figure 2: Two feet distal to Duodenojejunal junction tight stricture was present which was not passable

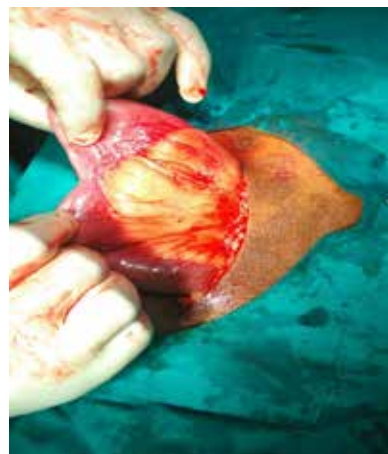


Figure 3: Image showing passable small bowel stricture

Surgical procedure: Two proximal strictures were included in resection anastomosis (Fig. 4) of involved small bowel of around 15 cm lengths. Two-layer anastomoses was carried out. It is inverted anastomosis, constructed in two layers. An inner layer of 3-0 absorbable suture applied as a looping or locking stitch posteriorly and as a Connell suture anteriorly.

This inner layer is reinforced further with an outer seromuscular layer of interrupted 3-0 silk lumbar suture. The posterior outer raw of suture is placed first followed by posterior inner raw and finally an anterior outer raw. The hallmark of an inverting anastomosis is creation of a precise serosa to serosa apposition.



Figure 4: Resection anastomosis at tight stricture which was not passable

Strictureplasty of two distal strictures was done (Fig. 5). The gut was incised longitudinally on antimesenteric border from normal gut proximally, through the stricture, to normal gut beyond the stricture, incision was made with diathermy. Since the gut was hyperemic and bleeds readily the center of each side of the incision was distracted laterally with a stay suture or tissue forceps. This revealed luminal ulceration on the mesenteric border of the gut and allowed assessment of the length of stricture. A horizontal mattress stay suture to secure the center of the wound was placed and the gut was then closed transversely with continuous layer of vicryl suture.



Figure 5: Image showing strictureplasty

Resection of ileocecal junction with ileoascending anastomosis was done (Fig. 6).

Postoperative phase was uneventful. Patient is under regular follow up with post surgical successful outcomes.

The enteroliths obtained from the bowel (Fig. 7) were sent for biochemical investigations. The chemical analysis of the enteroliths suggested that they were chemically identifiable as renal calculi.



Figure 6: Ileo ascending anastomosis-ileo cecal mass was present so resection of IC junction with ileo ascending anastomosis done



Figure 7: Enteroliths obtained from bowel

DISCUSSION

Intestinal tuberculosis is a relatively common ailment in South East Asia. Enterolithiasis is a rare complication arising due to stasis caused by stricture formation. Strictures of the small bowel can be caused by various benign and malignant causes. The benign causes of small bowel strictures include inflammatory, ischemic and postradiation strictures and the common inflammatory causes are intestinal tuberculosis and Crohn's disease. Enteroliths are stones primarily formed in the gastrointestinal tract. Primary enterolith are formed in the small intestine, while secondary enteroliths are formed in the associated organs like gall bladder.¹Primary enteroliths can be grouped into false and true types.^{1,2}False enteroliths are fecoliths, varnish stains, almond pits, fruit skin, oat stones, phytobezoars or trichobezoars, and foreign bodies that clump together and intestinal content deposit around them. On the other hand, true enteroliths are formed de novo as a result of precipitation and deposition of substances from the alimentary chime.^{2,3} Primary enterolithiasis mostly occurs in association with pathological conditions leading to hypomotility and stasis.²Mainstay treatment of tubercular stricture is surgery (strictureplasty/RA) followed by ATT, some early cases may respond with ATT. Medical therapy including steroids can help improve the symptoms in inflammatory strictures by decreasing the inflammation, but is not effective in patients with scarred fibrosed strictures, and these are treated by Surgery. We present a case of enterolithiasis secondary to intestinal tuberculosis.

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Enterolithiasis is a rare disease complicating stasis in small or large bowel. It has been described with congenital and acquired diverticula⁴. Stone formation is also associated with Crohn's disease, intestinal tuberculosis and malignancy leading to stricture formation⁵. Stones usually form around nidus of vegetable origin or bacterial clumps. Enteroliths are divided into two groups, false enteroliths which are inspissated intestinal contents (fecoliths) and true enteroliths. True enteroliths are again classified into those that are formed in proximal small bowel and distal small bowel. Stones that are formed in proximal small bowel are composed of choleic acid and are radiolucent. These are the commonest type of enteroliths found. These may be formed in duodenal or jejunal diverticula due to altered flora because of stasis. Second type of true enteroliths are formed in distal small bowel and are radio-opaque, composed of calcium carbonate or calcium phosphate in nature. This is because of the fact that distal small bowel is more alkaline which renders calcium less soluble. Stones composed of calcium oxalate⁴. Magnesium barium and casein have also been reported⁵. Patients present with symptoms of intermittent acute or subacute intestinal obstruction. Diagnosis depends on seeing mobile calcific densities on repeated plain abdominal films. Barium enema and enteroclysis can be used to confirm the stones to be in the intestinal lumen. C.T. appearance of enterolith has been described which presents as concentric laminated mass resembling intersusception⁶. The chemical composition and radiolucency of the enteroliths depend on the site of its formation. When formed in proximal ileum or jejunum, they are made up of choleic acid and are radiolucent while the enteroliths formed in distal ileum and colon encounters alkaline environment and thus are formed by calcium salts, result being radiopacity of the stones⁷. Enteroliths should be differentiated from vesical calculi, gall stones, and renal calculi. Oral cholecystogram, excretory urography and ultrasound are helpful in differentiating.

CONCLUSION

Enterolithiasis is an uncommon cause of intestinal obstruction and can occur in patients of all age groups. It should be considered when plain abdominal radiograph shows multiple radio opaque shadows in a patient with mechanical small bowel obstruction. It can be differentiated from gallstone ileus by documenting the absence of biliary pathology by ultrasound or CT scan. Enterolithiasis may occur in the absence of any bowel pathology. The treatment is essentially surgical for relieving obstruction as well as for confirmation of diagnosis. Associated pathologies like stricture or diverticulae, if present, will need resection at the time of exploration.

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