Case Report

Enterolith with Enterocolic Fistula: The Diagnostic Approach

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ABSTRACT

An enterolith is a mixed concretion formed in GIT, usually rare in humans. Primary enteroliths are formed in small bowel, typically within a diverticulum and secondary enteroliths in gallbladder. This case report highlights the presence of an enterocolic fistula; probably a postradiotherapy complication; and an enterolith without associated small bowel or colonic diverticuli. We have discussed the various diagnostic modalities used to reach a preoperative diagnosis of this rare condition. Imaging plays an important role in the detection and management of acquired gastrointestinal fistulas. The more routine use of cross-sectional imaging (especially computed tomography and magnetic resonance imaging) has altered the standard sequence of radiologic evaluation for possible fistulas, but fluoroscopic studies remain a valuable complement, especially for confirming and defining the anomalous communications.

Key Words: Enterolith, enterocolic fistula, imaging modalities

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An enterolith is a mixed concretion formed in GIT, usually rare in humans. Enteroliths are of endogenous origin and most usually formed from the bile constituents. However, when calcium salts predominate, they form in the distal small bowel. It is suggested that stasis is the most important factor in their production.[1] Herein, we report the presence of a calcified enterolith at the site of an enterocolic fistula. Such an occurrence has not been reported earlier to the best of our knowledge.

CASE REPORT

A 52-year-old female presented with anorexia and abdominal pain since 2 years. Patient gave history of undergoing hysterectomy eight years back, for endometrial carcinoma. Postoperatively radiotherapy was advised; but due to extreme morbidity, she could receive only 10 fractions. Details of this treatment were not available as she was treated at a different hospital. Clinically, the patient's vital organs were stable. On per abdomen examination, a 12 × 10 cm firm mobile lump was palpable in the left lumbar region. Her hemoglobin and counts were normal. Renal functions were also normal. Abdominal USG revealed an echogenic mass, 8 × 7 cm, showing posterior acoustic shadowing, probably inspissated fecal matter. A repeat USG performed 4 days later after giving water enema showed the mass unchanged in size and echotexture. CT scan indicated a mass with peripheral calcification [Figure 1], but was unable to differentiate whether it was in colon or small bowel loops. There was no evidence of any recurrence or metastatic lesion of the endometrial primary. Barium enema revealed an entero-colic fistula with an enterolith at the site of the fistula [Figure 2]. Colonoscopy showed a

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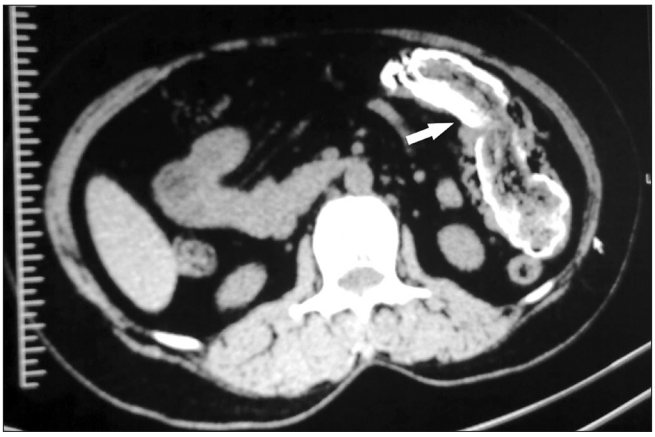

Figure 1: CT scan indicating a mass with peripheral calcification.

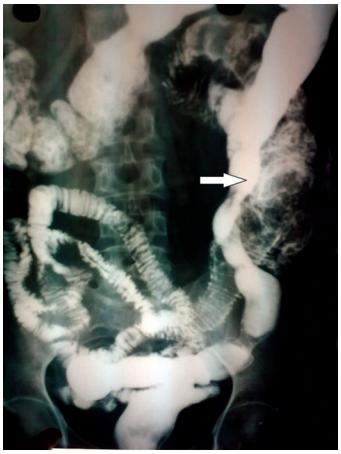

Figure 2: Barium enema showing an entero-colic fistula with an enterolith at the site of the fistula

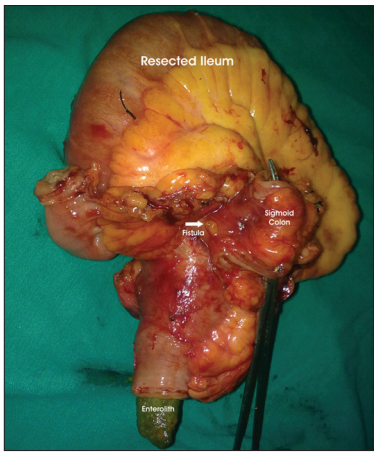

Figure 3: Segmental enterectomy with sigmoidectomy specimen with enterolith

fistulous opening in region of sigmoid colon. A clinical and radiological diagnosis of enterolith with entero-colic fistula was made. Patient underwent an exploratory laprotomy under general anesthesia after bowel preparation. At laprotomy a fistula between mid-ileum and sigmoid colon was seen, containing a hard nonmobile mass. Rest of the small bowel and colon was normal, no diverticuli were detected. Gall bladder and common bile duct were normal. Segmental enterectomy with sigmoidectomy [Figure 3] was done and patient had an uneventful recovery. Cut-section of the specimen showed presence of an enterolith obliterating the lumen of the fistulous connection between the two bowel loops. The mucosa appeared normal. Histopathology was unremarkable, showing congestion and acute on chronic inflammation. The presence of enlarged nuclei was the only change that could be attributed to radiotherapy. Chemical analysis of the enterolith revealed calcium carbonate in a matrix of amorphous material.

DISCUSSION

An enterolith is a mixed concretion formed in GIT, usually rare in humans. Enteroliths are divided into two groups: false enteroliths and true enteroliths. False enteroliths are common than true. They develop, often in presence of stasis by clumping together and inspissation of intestinal contents. They form around a nidus, usually a foreign body, which acts as an irritant. True enteroliths result from precipitation and deposition of substances normally found in solution in the gastrointestinal tract.[1] Proximal small bowel enteroliths are usually composed of bile acids whereas distal small bowel (ileal) enteroliths contain calcium. It is postulated that diverticuli provide the more acidic environment necessary for choleic acid precipitation and stone formation.[2] However, calcification cannot occur without an alkaline pH shift, which normally occurs in the ileum,[3] and hence, enteroliths in the distal small bowel are mainly composed of calcium salts which are less soluble in alkali and, therefore, tend to be precipitated in the distal small intestine.[4]

Primary enteroliths are formed in small bowel, typically within a diverticulum and secondary enteroliths are formed in gallbladder,[1] which reach the small bowel due to choledochoenteric fistulas. Most enteroliths are asymptomatic. Complications, if any, are likely to be severe such as obstruction,[5] ileus,[6] and perforation. Therapeutic approach is to crush and milk the enterolith down to colon. If this fails, Enterotomy with extraction or segmental resection of bowel are other options.[6] In this patient, the gall bladder and the common bile duct were normal and, hence, the enterolith was a primary enterolith. As mentioned earlier, primary enteroliths are usually associated with small bowel diverticuli and the absence of small bowel or colonic diverticuli in this patient makes this case unusual. This case report highlights the presence of an enterocolic fistula with an enterolith; an occurrence which has not been reported earlier.

This enterocolic fistula was probably a postradiotherapy complication. The patient had undergone hysterectomy and this pelvic surgery may be the reason for the ileal loop getting adherent to the sigmoid colon and thus exposed in the radiation portal. Fistula formation, along with bowel obstruction and perforation, are late complications of radiotherapy and are thought to be secondary effects of radiation-induced endarteritis and diffuse collagen deposition.[7] The H-shaped enterocolic fistula acted like a side to side enteric anastomosis and the outpouching caused pooling of intestinal contents. Thus, the relative stasis at the fistula site coupled with the alkaline pH medium in the ileum probably led to precipitation of this calcium containing enterolith. Diarrhea, with or

without abdominal pain, is the most common symptom of intestinal fistulae.[8] This patient, however, was relatively asymptomatic for the fistula because of the presence of the enterolith which obliterated the lumen of the fistula. In this case, the sequential use of cross-sectional imaging and contrast imaging helped in diagnosing the fistula as well as the presence of the enterolith. Cross-sectional imaging, particularly computed tomography (CT), has strengthened the radiologist's armamentarium for evaluating GI fistulas. CT effectively complements conventional radiography with its ability to demonstrate extraluminal disease, including associated abscesses, tumor, or other coexisting processes. In this patient, CT helped to detect the enterolith and also ruled out any recurrence of the primary pelvic malignancy. Although CT may be less sensitive for direct detection of some GI fistulas, it often yields more valuable information overall with respect to patient care.

CONCLUSION

When evaluating abdominal complaints in patients treated with pelvic surgery and radiotherapy in the past, delayed complications of radiotherapy such as fistula formation and intestinal obstruction should be ruled out. Enterolith formation at the fistula is a rare complication, not described earlier, and sequential use of diagnostic modalities helped in reaching a diagnosis. In general, contrast-enhanced fluoroscopic GI studies remain the most effective means for help in diagnosing intestinal fistulas.[8] Furthermore, it is important to at least consider the need for obtaining a CT scan prior to performing a conventional barium examination, because residual barium can produce troubling artifacts on CT.

REFERENCES

1. Singleton JM. Calcific enterolith obstruction of the intestine. Br J Surg 1970;57:234-6.
2. Shocket E, Simon SA. Small bowel obstruction due to enterolith (bezoar) formed in a duodenal diverticulum: A case report and review of the literature. Am J Gastroenterol 1982;77:621-4.
3. Hayee B, Khan HN, Al-Mishlab T, McPartlin JF. A case of enterolith small bowel obstruction and jejunal diveticulosis. World J Gastroenterol 2003;9:883-4.
4. Crane PW, Crocker PR, Levison DA, Gilmore OJ. Enterolith ileus. J R Soc Med 1988;81:2924.
5. Gamlin TC, Glenn J, Herring D, Mckinney WB. Bowel obstruction caused by a meckels diverticulum enterolith: A case report and review of literature. Current Surg 2003;60:63-4.
6. Steenvoorde P, Schaardenburgh P, Viersma JH. Enterolith ileus as a complication of jejunal diverticulosis: Two case reports and a review of literature. Dig Surg 2003:20:57-60.
7. Cheung CP, Chiu HS, Chung CH. Small bowel perforation after radiotherapy for cervical carcinoma. Hong Kong Med J 2003;9:461-3.
8. Pickardt PJ, Bhalla S, Balfe M. Acquired gastrointestinal fistulas: Classification, Etiologies and imaging evaluation. Radiology 2002;224:9-23.

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