

Case Report

Small bowel obstruction by enterolith in an elderly woman: a case study

Obstrução de intestino delgado por enterólito em uma paciente idosa: um estudo de caso

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Teles-Filho RV, Viggiano GF, Franco G, Abe GM, Teixeira OAPM, Gomes JVP, Lima FG, Afiune GA. Small bowel obstruction by enterolith in an elderly woman: a case study / *Obstrução de intestino delgado por enterólito em uma paciente idosa: um estudo de caso*. Rev Med (São Paulo). 2023 March-April;102(2):e-200419.

ABSTRACT: Enteroliths are intraluminal calculi formed in the small bowel, commonly caused by chronic intestinal constipation associated with other comorbidities. We describe an atypical case of enterolithiasis diagnosed with computed tomography scan (CT) and which was confirmed during subsequent surgical resection. A 66-year-old female patient had a history of chronic constipation and use of laxatives and presented with abdominal pain. A CT scan showed heterogeneous annular formations with a hyperdense halo and a hypodense center within the loops of small bowel. A segment was resected for enterectomy, allowing several yellowish stony structures to be identified, corresponding to enteroliths.

Keywords: Enteroliths; Chronic constipation; Enterolithiasis.

RESUMO: Enterólitos são cálculos intraluminais formados no intestino delgado, comumente causados por constipação intestinal crônica associada a outras comorbidades. Descrevemos um caso atípico de enterolitiase diagnosticado com tomografia computadorizada (TC) e que foi confirmado durante a ressecção cirúrgica subsequente. Uma paciente do sexo feminino de 66 anos tinha história de constipação crônica e uso de laxantes e apresentou-se com dor abdominal. A TC mostrou formações anulares heterogêneas com halo hiperdenso e centro hipodenso dentro das alças do intestino delgado. Um segmento foi ressecado para enterectomia, permitindo que várias estruturas pétreas amareladas fossem identificadas, correspondendo a enterólitos.

Palavras-chave: Enterólitos; Constipação crônica; Enterolitiase.

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INTRODUCTION

Enteroliths are calculi formed within the lumen of the small bowel that may cause enterolithiasis, an uncommon medical condition. Its most common etiology is chronic intestinal constipation associated with other conditions such as intestinal diverticula, surgical enterostomy, bowel blind pouch, incarcerated hernia, small intestine tumors, bowel twisting due to intra-abdominal adhesions, and stenosis or sub-stenosis due to Crohn's disease or abdominal tuberculosis¹.

Various studies described enterolithiasis with impaction of the intraluminal calculi as an extremely rare cause of small bowel obstruction. Most reports also demonstrate that enteroliths are rarely detected with radiographic exams, unless the calculi are calcified; they are more usually diagnosed during laparotomy².

We thereby describe an atypical case of enterolithiasis being diagnosed with computed tomography (CT) that showed foreign bodies confirmed to be enteroliths during subsequent surgical resection.

CASE REPORT

A 66-year-old female patient was admitted due to nonspecific abdominal pain lasting for one year, associated with nausea and vomiting during eating, and mild weight loss; she also referred chronic constipation with use of laxatives. A subsequent abdominal CT with oral and venous contrast was performed: the non-contrast phase showed heterogeneous annular formations with a hyperdense halo and a hypodense center within the loops of small bowel in the left iliac fossa (Figure 1), and these lesions had no enhancement after venous contrast; also, segmental thickening and parietal enhancement of the small bowel was demonstrated, indicating some inflammatory process (Figure 2). Another CT with oral contrast was performed five days later and showed crisper images of the bowel lesions (Figure 3). The patient was then diagnosed with sub-occlusive acute abdomen and underwent exploratory laparotomy for treatment.



Figure 1: Abdominal computed tomography slices without contrast in the sagittal (A) and axial (B) planes showing regular, heterogeneous, annular formations with hyperdense halo and hypodense center within jejunoileal loops in the left iliac fossa. Note the thickening of the small bowel wall.



Figure 2: Abdominal computed tomography slices with contrast in the portal venous phase in the coronal (A) and axial (B) planes showing thickened and hyperenhanced jejunoileal loops, suggesting inflammation.

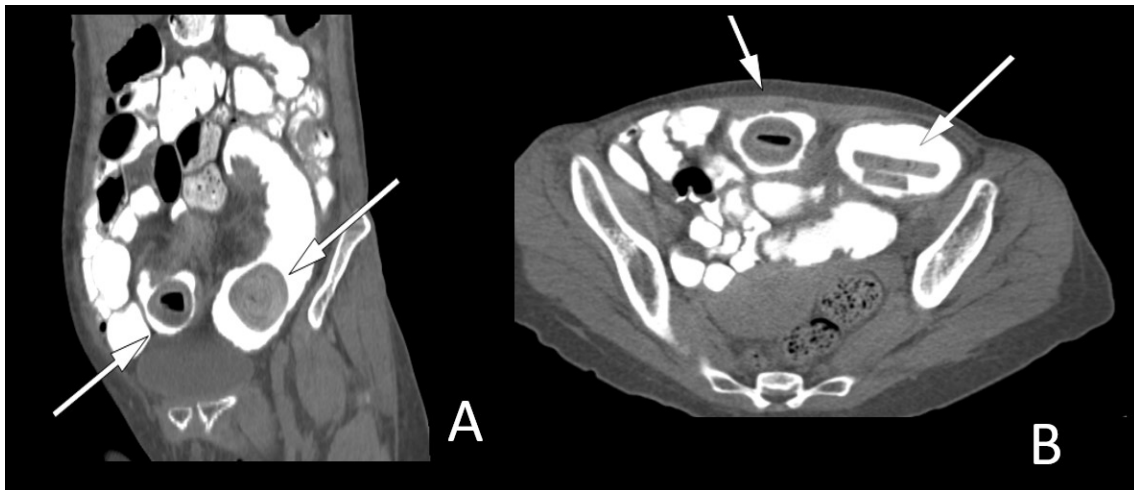


Figure 3: Abdominal computed tomography performed five days after the first one with oral contrast in the coronal (A) and axial (B) planes, showing the formations in the loops.

Intraoperatively, the mesentery was thickened, infiltrated, and had palpable reactive lymph nodes. Several segments of the small bowel had intense inflammation and stenosis. Enterectomy of these segments (Figure 4)

revealed multiple yellowish stony structures within their lumen, corresponding to enteroliths (Figure 5). End-to-end enteroenterostomy of the involved segment at 110 cm from the Treitz angle was then completed.



Figure 4: Resected small bowel segment exhibiting mucosal erosion, fold obliteration, intense exudate, and stenotic ring inferiorly. This pattern is repeated throughout the resected segment.

The histopathological study of the resected segment of the small bowel was consistent with active chronic ulcerative enteritis, without signs of malignancy; however, due to extensive intestinal eosinophilia, Crohn's disease could not be excluded.

DISCUSSION



Figure 5: Yellowish stony structures, corresponding to enteroliths, taken from the resected small bowel segment.

Enterolithiasis, or the presence of stony concretions within the intestines, is an important albeit very uncommon clinical condition that has recently attracted significant attention with the advancements of Gastroenterology. Most cases are asymptomatic, with the diagnosis being made incidentally during imaging, including endoscopy procedures. It was first described by the French doctor Chomelin in 1710, in the medical series *Histoire de L'Académie Royale* as a case of stone formation within

a duodenal diverticulum, discovered during an autopsy. Pfahler et al. recognized the first radiological diagnosis of a food calculus in 1915³.

In 1947, Grettve proposed to classify enteroliths as *primary* and *secondary*. Primary calculi are those formed within the intestine itself, while secondary ones are those which translocate from other organs to the bowel. The most common condition involving secondary calculi is gallstone ileus^{2,4}.

Primary enteroliths may be further classified as *true* and *false*: the true are composed by substances found in the chyme under normal dietary conditions, occasionally presenting a “fruit pit” core. Therefore, true primary enteroliths are composed by substances already present in anatomically compromised areas of the bowel, which may vary according to the obstructed region. False primary enteroliths are formed by exogenous insoluble substances and may occur in three different conditions: aggregation of a sizeable amount of undigestible material (bezoars); precipitation of substances that become insoluble due to the resorption of their solvents; and concentration of insoluble salts in water suspension (chalk, quicklime, barium sulfate)^{2,4}.

Prolonged intestinal stasis creates endoluminal conditions that favor particle aggregation with subsequent enterolith formation. The amount of enteroliths is greatly dependent on the underlying disease; up to a hundred may be found. Enteroliths are classically rounded, ovoid, discoid or faceted; however, they may appear in triangular, rectangular, or needle shapes, a phenomenon probably related to the calculus’ original “nucleus”, anatomic origin, and migration route^{2,4}.

Financial support: none.

Conflict of interest: none.

Participation of the authors: *RVTF* - participated in data collection, analysis, and interpretation and writing of the manuscript. *GMA* - participated in data collection, analysis, and interpretation. *GFV* and *GLF* - participated in the writing of the manuscript and updating of references. *OAPMT* and *JVPG* - participated in the writing of the manuscript and helped guide the project. *FGL* and *GAA* - coordinated the project and participated in data collection, analysis and interpretation and writing of the manuscript.

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We described a case in which enterolithiasis occurred in an elderly woman with chronic constipation and no other symptoms or known inflammatory bowel disease. Based on the CT, she was first diagnosed with foreign bodies inside the lumen of thickened small bowel loops. Therefore, we emphasize that the diagnosis of enterolithiasis can hardly be made with simple CT, with the use of oral contrast for better studies being mandatory. While the typical history of stenosing inflammatory disease was absent in our case, CT resulted in a good diagnostic clue for enterolithiasis, which was later confirmed by surgery. Thus, we highlight the importance of considering enterolithiasis as a differential diagnosis and remembering the existence of this condition in cases of intestinal occlusion or pseudo-occlusion in patients with a history of chronic constipation or underlying intestinal disease^{2,5}.

CONCLUSION

Imaging diagnosis of enterolithiasis without typical clinical information may be challenging. Chronic constipation without anatomical abnormalities, especially when associated with underlying stenosing intestinal inflammatory disease, should raise the suspicion of enterolithiasis when atypical images suggestive of foreign bodies are demonstrated within the context of bowel obstruction syndromes. The present case shows an elderly woman with no known intestinal disease presenting with abdominal pain and intestinal sub-occlusion, diagnosed with foreign bodies in the small bowel. These were proved during surgery to be enteroliths within bowel loops affected with chronic inflammatory disease.

Received: 2022, July 25

Accepted: 2022, October 26