

**Title:**

**Intestinal ultrasound and its role in the acute setting: stenosing Crohn's disease and acute bowel obstruction due to foreign body ingestion (dental post and crown)**

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**Intestinal ultrasound and its role in the acute setting: stenosing Crohn's disease and acute bowel obstruction due to foreign body ingestion (dental post and crown)**

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*Dear Editor,*

A 39-year-old female with a history of Crohn's disease presented to the Emergency Room due to a two-hour long colicky abdominal pain with bloating, vomiting and no gas passing. She referred accidental ingestion of a foreign body three weeks ago, a dental post and crown. Her Crohn's disease affected the terminal ileum, and was diagnosed eight years previously. She had been suffering mild to no symptoms for the last years, but due to evidence of biochemical, endoscopic and ultrasonographic

activity she was on ustekinumab 90 mg subcutaneously every four weeks, after infliximab and adalimumab loss of response.

An abdominal X-ray revealed bowel dilation and hydro-aerial levels, as well as a radiopaque element in the pelvis, consistent with the dental post and crown. Computed tomography (CT) scan confirmed the bowel obstruction, and ileal stenosis was found. Intestinal ultrasound performed at our center found a long ileal stenosis (33 cm), thickened wall of 5.6 mm, destructuring of the layer pattern, hyperemia (modified Limberg score 3), ileoileal fistula with associated no collection, and a prestenotic dilation of 40 mm. The dental foreign body was found, non-impacted, in the prestenotic dilated loop (Fig. 1). Even though an initial course of intravenous steroids was ordered, due to a previous medical history of a persistent active Crohn's disease with loss of response to three advanced therapies, as well as the very low probability of progression of the foreign body, along with the risk of permanent impaction or perforation, surgery was indicated. Ileocecal resection with extraction of the foreign body was performed uneventfully.

## Discussion

This case illustrates the dangers of foreign body ingestion in a patient with stenosing Crohn's disease (1), an underreported complication. We consider that since the foreign body did not become permanently impacted into the stenosis, the patient did not perforate and that may be why the acute obstruction took three weeks to completely develop.

Intestinal ultrasound is an underused diagnostic tool in the acute setting, whereas CT scan is still widely employed. Ultrasound is an appropriate tool to assess Crohn's disease complications (2), unless peritoneal signs are present, and it may help reduce the amount of cumulative radiation (3). Ultrasound in Crohn's disease is commonly used to assess stenosis (2), but its use in the setting of acute obstruction is still scarce. However, there is mounting evidence that ultrasound is an appropriate tool and an alternative to emergency CT scan (4). Ultrasound may also help with foreign body ingestion, particularly in non-radio-opaque materials (5).

## References

1. Vanrell Garau M, Ginard Vicens D, Llompart Rigo A, et al. Impacted foreign body in a patient with Crohn's disease. *Gastroenterol Hepatol* 2009;32(5):339-42. DOI: 10.1016/J.GASTROHEP.2008.11.010
2. Muñoz F, Ripollés T, Poza Cordon J, et al. Recommendations of the Spanish Working Group on Crohn's Disease and Ulcerative Colitis (GETECCU) on the use of abdominal ultrasound in inflammatory bowel disease. *Gastroenterol Hepatol* 2021;44(2):158-74. DOI: 10.1016/J.GASTROHEP.2020.05.009
3. Nguyen GC, Low D, Chong RY, et al. Utilization of diagnostic imaging and ionization radiation exposure among an inflammatory bowel disease inception cohort. *Inflamm Bowel Dis* 2020;26(6):898-906. DOI: 10.1093/IBD/IZZ219
4. Motavaselian M, Farrokhi M, Jafari Khouzani P, et al. Diagnostic performance of ultrasonography for identification of small bowel obstruction; a systematic review and meta-analysis. *Arch Acad Emerg Med* 2024;12(1):e33. DOI: 10.22037/AAEM.V12I1.2265
5. Díaz IG, Cordon JP, Anguita OC, et al. Effectiveness of ultrasound in the differential diagnosis of ileitis detected by computed tomography. *Rev Esp Enferm Dig* 2023;115(8):450-1. DOI: 10.17235/REED.2022.9011/2022



Fig. 1. A-C. Intestinal ultrasound of Crohn's disease of the terminal ileum where signs of active inflammation and stenosis were found. D. Ultrasound image of the retained foreign body in the prestenotic ileal loop. E. Computed tomography (CT) scan image where the same findings were found as in the ultrasound. F. Plain abdominal X-ray where the foreign body was identified.