

## Tuberculosis and Crohn's disease – A challenging endoscopic diagnosis. A case report<sup>☆</sup>



### Tuberculosis y enfermedad de Crohn. Desafío en el diagnóstico endoscópico. Reporte de caso

A 21-year-old man, with no personal medical history, was admitted to the internal medicine service due to intermittent fever of 2-month progression, accompanied by generalized adenopathies. The patient stated he had no abdominal pain, diarrhea, or any change in bowel habit. As part of the evaluation, a fecal calprotectin test was carried out. The result was 250  $\mu\text{g/g}$ , and so endoscopic studies were performed.

Upper gastrointestinal (GI) endoscopy revealed multiple elevated nodular lesions, smaller than 5 mm, at the level of the duodenum and the first jejunal segments. The lesions were rose-colored, as was the surrounding mucosa, and were present along the entire circumference of the organ (Fig. 1A and B).

The colonoscopy study identified elevated pseudopolypoid lesions at the level of the ileum (Fig. 2A), as well as a superficial linear transverse ulcer, with a fibrinous base (Fig. 2B). An edematous ileocecal valve was observed, that had a superficial, oval-shaped ulcer, measuring approximately 1.5 cm in diameter, with irregular edges and a whitish, fibrinous base. The mucosa surrounding the ileocecal valve was normal (Fig. 2C and D). Given the endoscopic findings, inflammatory bowel disease, specifically Crohn's disease (CD), with moderate endoscopic activity (CDEIS 10), was diagnosed.

The histology study of the lesions documented in the upper GI endoscopy reported tuberculoid granulomatous chronic duodenojejunitis and tuberculoid granulomatous chronic enterocolitis with ulceration, which are results consistent with tuberculous infection (Fig. 3A–D).

The patient had two positive sputum cultures (code 8). A chest x-ray identified small well-defined nodular lesions, with central distribution in the upper lobe of the right lung, and the presence of mediastinal adenopathies. Those data confirmed extrapulmonary tuberculosis (TB), exposing the misdiagnosis resulting from the endoscopic examinations. The patient was given anti-tuberculosis treatment and discharged.

TB is a prevalent disease in developing countries and is currently on the rise in developed countries, as a consequence of the increase in immunocompromised patients, patients with AIDS, and migration.<sup>1</sup> Intestinal TB accounts for 0.5–2%<sup>1</sup> of the types of TB. It is a rare presentation, corresponding to 11%<sup>2</sup> of the extrapulmonary forms.

Endoscopic images of TB are very similar to those seen in CD, making endoscopic diagnosis a challenge, resulting in misdiagnoses, as occurred in the case presented herein.

**Table 1** Endoscopic characteristics for differentiating Crohn's disease from intestinal tuberculosis.<sup>6,7</sup>

	Crohn's disease	Intestinal tuberculosis
Longitudinal ulcers	+++	+
Aphthous ulcers	++	+
Circumferential ulcer	+	+++
Mucosa with a cobblestone pattern	+++	+
Pseudopolyps and scarring	++	+
Ileocecal valve involvement	+	+++
Strictures and fistulas	+++	+

Histologic study is very useful for making the definitive diagnosis.

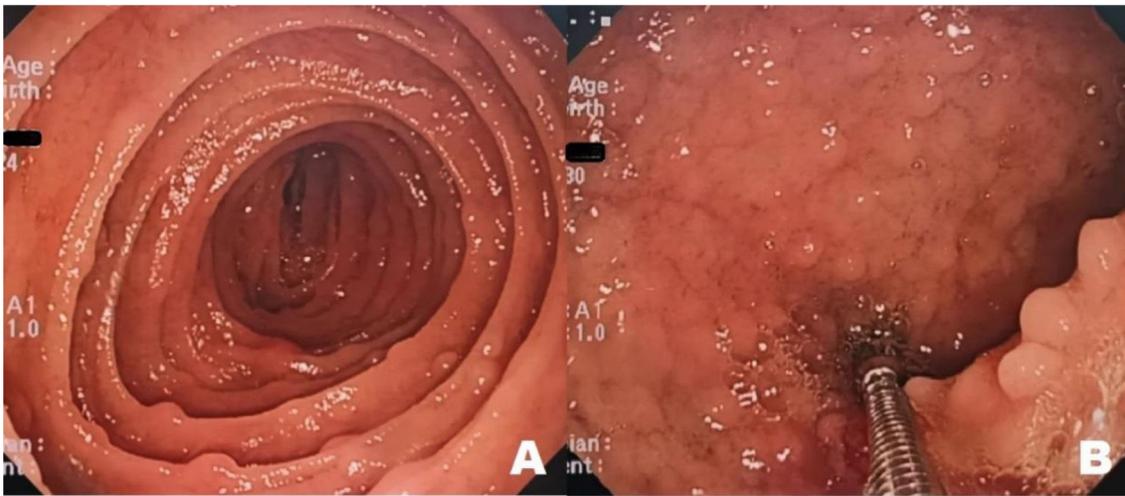
Both entities can affect any part of the digestive tract, from the esophagus to the rectum.<sup>3</sup> There are endoscopic characteristics that differentiate CD from intestinal TB. Longitudinal, linear, or serpiginous, deep, aphthous ulcers are more frequent in CD and contrast with the transverse, circular, oval-shaped, shallow ulcers of TB. The presence of pseudopolyps, strictures, or nodular mucosa present in the two entities but do not differentiate one disease from the other.<sup>3–4</sup> In addition, TB has a greater predilection for affecting the ileocecal valve, compared with CD, which more commonly affects the terminal ileum.<sup>4–5</sup> Table 1<sup>6,7</sup> summarizes the characteristics and frequency of presentation of the two diseases.

With respect to endoscopic location as a predictive factor for differentiating between the two entities, involvement of the perianal region, rectum, and sigmoid colon is predictive of CD, whereas involvement of the ileocecal valve is predictive of TB. Involvement of the ileum, cecum, and the ascending, transverse, and descending colon is not significantly different in the two diseases.<sup>4,8</sup>

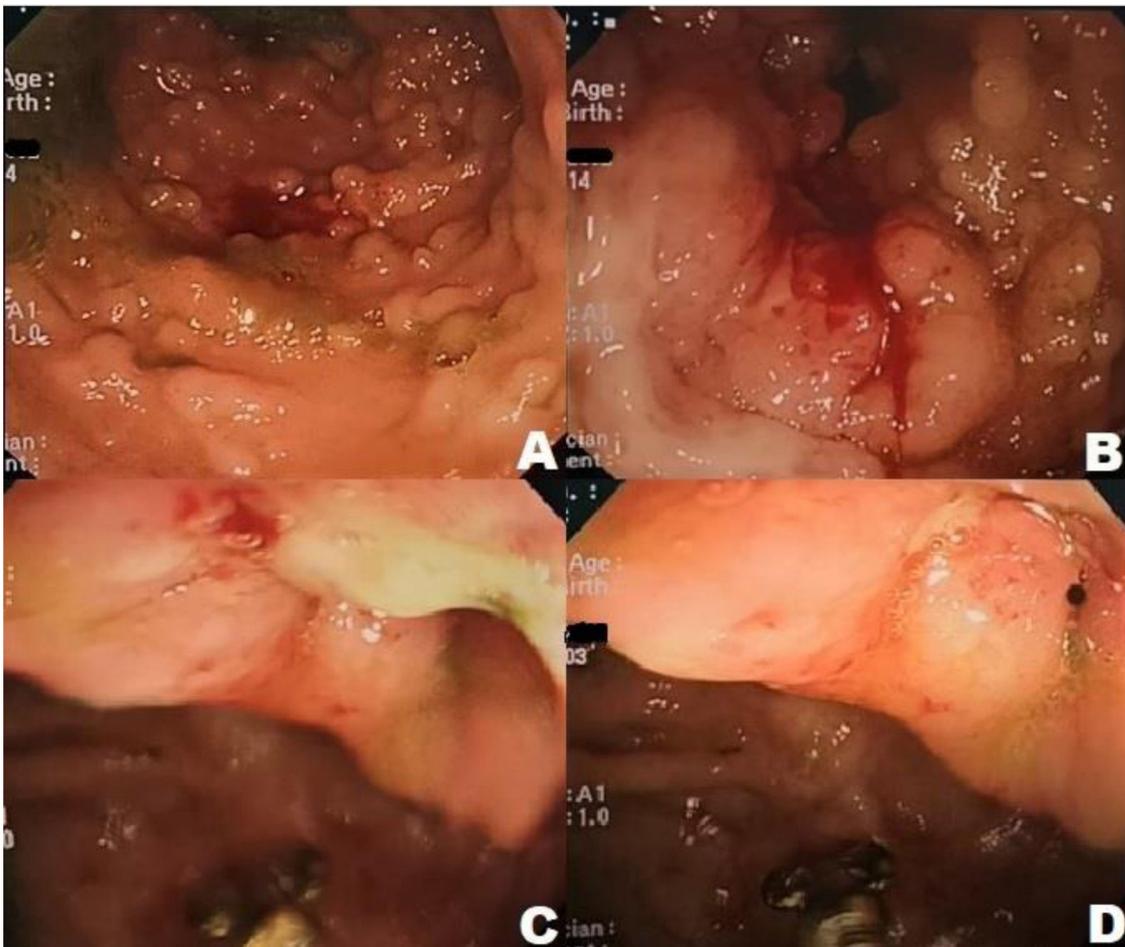
The fecal calprotectin test is useful for discriminating between an organic and a functional digestive pathology and has 84–90% sensitivity and 66–79% specificity, with a cutoff value  $>200 \mu\text{g/g}$ .<sup>9</sup> Fecal calprotectin levels are 5 to 40-times higher in inflammatory and organic diseases. The test can be very useful for diagnosing inflammatory bowel disease, when it reports very high values. Nevertheless, it is limited by the fact that levels can also be high because of other causes and factors, such as intestinal infections. The present case was a bacterial infection due to intestinal TB.<sup>7,10–11</sup>

The clinical characteristics of patients with TB are broad and varied, which is why it is known as the "great simulator". Abdominal pain, fever, and anorexia are common symptoms in TB and CD. Purely symptomatologic orientation in the present case was complex. In several studies, the presence of perianal disease, extraintestinal manifestations, diarrhea, and rectal bleeding was more frequent in CD, whereas fever, night sweats, and weight loss were more frequent in intestinal TB.<sup>8</sup> Symptom duration and characteristics are important because they can aid in guiding the physician toward the diagnosis. CD has a long progression, with episodes of flares and remission. However, the symptoms are not pathognomonic of either disease and cannot be used on their own, in the differential diagnosis of CD and TB.

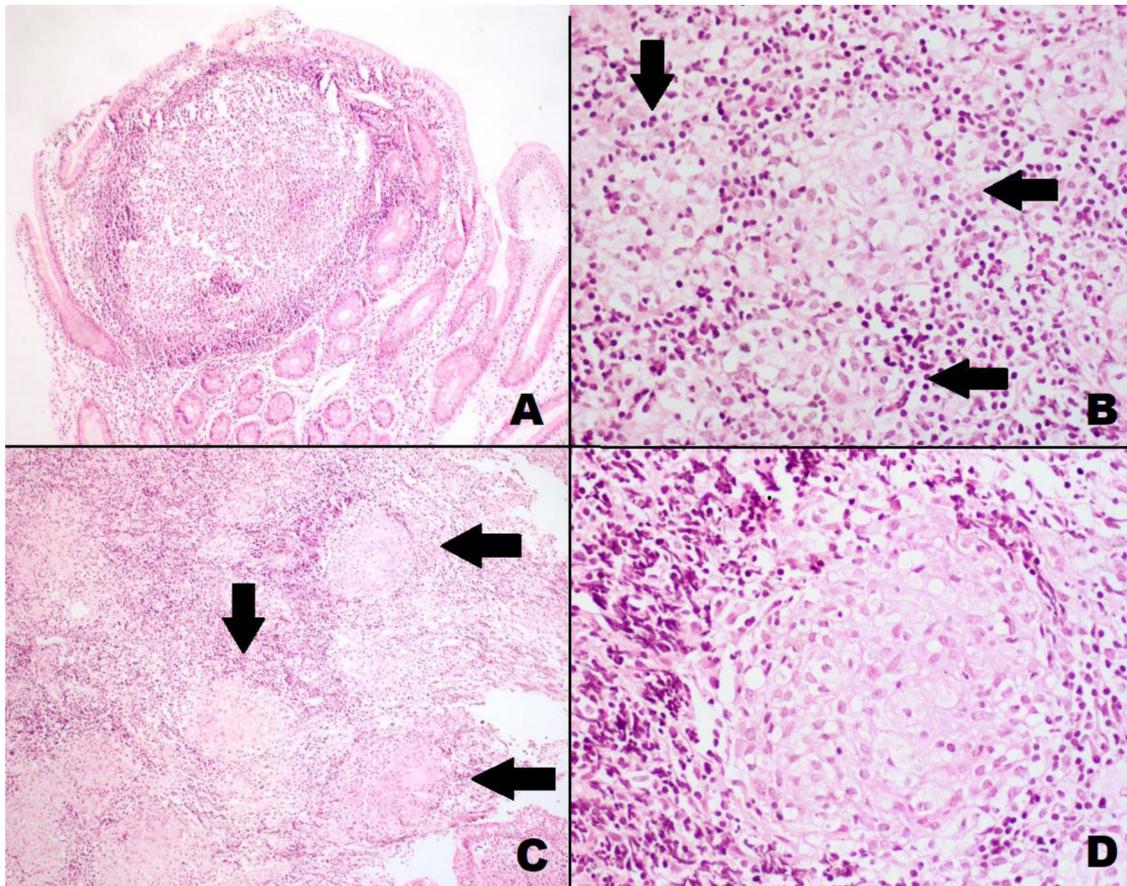
<sup>☆</sup> Please cite this article as: Aguirre-Padilla LM, Madrid-Villanueva BE, Ugarte-Olvera ME, et al. Tuberculosis y enfermedad de Crohn. Desafío en el diagnóstico endoscópico. Reporte de caso. Revista de Gastroenterología de México. 2022;87:113–116.



**Figure 1** Upper endoscopy. A) The jejunal mucosa has disperse nodular lesions. B) The duodenal bulb, with multiple nodular lesions. A cobblestone pattern can be seen in some of the segments.



**Figure 2** A) Terminal ileum with friable mucosa and the presence of nodular lesions and pseudopolypoid lesions. B) Superficial transverse ulcer in the terminal ileum. (C and D) Ulcerated and edematous ileocecal valve.



**Figure 3** A) Pseudopolypoid lesion in the small bowel. The formation of a nodule can be seen, with a central accumulation of histiocytic cells and a periphery of lymphocytes (H&E  $\times 100$ ). B) Small bowel with histiocytic clear cells, grouped and organized with a tendency to form microgranulomas (arrows) (H&E  $\times 200$ ). C) Small bowel with multiple solid granulomas (arrows) and diffuse lymphocytic infiltrate (H&E  $\times 100$ ). D) Solid granuloma in the small bowel, with multinucleated giant histiocytic cells and clear cytoplasm (H&E  $\times 200$ ).

**Table 2** Clinical characteristics of patients with Crohn’s disease and intestinal tuberculosis.<sup>6–8</sup>

	Crohn’s disease	Intestinal tuberculosis
Abdominal pain	++	++
Fever	+	+++
Diarrhea	+++	++
Night sweats	–	++
Weight loss	+	++
Rectal bleeding	+++	+
Perianal disease	++	–
Constipation	+	++
Anorexia	+	+
Intestinal obstruction	+	++
Abdominal mass	+	+
Extraintestinal manifestations	++	+

Table 2 summarizes the clinical symptoms of both entities and their presentation frequency.<sup>6–8</sup>

Even though the clinical and endoscopic characteristics described herein are not characteristics of each entity, they are valuable for orienting the physician toward an accurate

diagnosis, thus reducing the number of cases of intestinal TB misdiagnosed as CD. The usefulness of the fecal calprotectin test in the differential diagnosis of CD and TB is limited, given that both entities have elevated values of the biomarker, albeit very high values are suggestive of CD. Its main usefulness is in aiding the physician to determine a functional pathology, and in turn, make the decision to perform endoscopy.

### Ethical considerations

The authors declare that they met all ethical responsibilities regarding data protection, right to privacy, and informed consent.

Approval by an institutional ethics committee was not required, given that patient anonymity norms were not broken, nor were any experimental procedures performed that could have put the patient at risk.

The authors declare that the present article contains no personal information that could identify patients.

## Financial disclosure

No financial support was received in relation to this article.

## Conflict of interest

The authors declare that there is no conflict of interest.

## References

1. Kentley J, Ooi JL, Potter J, et al. Intestinal tuberculosis: a diagnostic challenge. *Trop Med Int Health*. 2017;22:994–9, <http://dx.doi.org/10.1111/tmi.12908>.
2. Ruiz Cuesta P, Iglesias Flores E, García Sánchez V, et al. Tuberculosis intestinal y diagnóstico diferencial con enfermedad de Crohn. *RAPD Online*. 2012;35:269–72.
3. Ma JY, Tong JL, Ran ZH. Intestinal tuberculosis and Crohn's disease: challenging differential diagnosis. *J Dig Dis*. 2016;17:155–61, <http://dx.doi.org/10.1111/1751-2980.12324>.
4. Limsrivilai J, Shreiner A, Pongpaibul A, et al. Meta-analytic Bayesian model for differentiating intestinal tuberculosis from Crohn's disease. *Am J Gastroenterol*. 2017;112:415–27, <http://dx.doi.org/10.1038/ajg.2016.529>.
5. Giouleme O, Paschos P, Katsarons M, et al. Intestinal tuberculosis: a diagnostic challenge – case report and review of the literature. *Eur J Gastroenterol Hepatol*. 2012;23:1074–7, <http://dx.doi.org/10.1097/MEG.0b013e32834a9470>.
6. Merino Gallego E, Gallardo Sánchez F, Gallego Rojo F. Tuberculosis intestinal: importancia y dificultad del diagnóstico diferencial con enfermedad de Crohn. *Rev Esp Enferm Dig*. 2018;110:650–7, <http://dx.doi.org/10.17235/reed.2018.5184/2017>.
7. Mosquera Klineger GA, Ucroz Benavides A. Enfermedad de Crohn vs tuberculosis intestinal: un diagnóstico diferencial desafiante.

Revisión de tema. *Rev Colomb Gastroenterol*. 2018;33:423–30, <http://dx.doi.org/10.22516/25007440.172>.

8. Kedia S, Das P, Madhusudhan KS, et al. Differentiating Crohn's disease from intestinal tuberculosis. *World J Gastroenterol*. 2019;25:418–32, <http://dx.doi.org/10.3748/wjg.v25.i4.418>.
9. Mosli MH, Zou G, Garg SK, et al. C-reactive protein, fecal calprotectin, and stool lactoferrin for detection of endoscopic activity in symptomatic inflammatory bowel disease patients: a systematic review and meta-analysis. *Am J Gastroenterol*. 2015;110:802–19, <http://dx.doi.org/10.1038/ajg.2015.120>.
10. Ricciuto A, Griffiths AM. Clinical value of fecal calprotectin. *Crit Rev Clin Lab Sci*. 2019;56:307–20, <http://dx.doi.org/10.1080/10408363.2019.1619159>.
11. Ayling RM, Kok K. Chapter six - fecal calprotectin. *Adv Clin Chem*. 2018;87:161–90, <http://dx.doi.org/10.1016/bs.acc.2018.07.005>.

L.M. Aguirre-Padilla\*, B.E. Madrid-Villanueva, M.E. Ugarte-Olvera, J. Alonso-Soto

*Servicio de Gastroenterología y Endoscopia Digestiva, Hospital Clínico Quirúrgico Hermanos Ameijeiras, Universidad de Ciencias Médicas de La Habana, La Habana, Cuba*

\*Corresponding author at: Hospital Hermanos Clínico Quirúrgico Hermanos Ameijeiras. Departamento de Gastroenterología y Endoscopia Digestiva. Centro Habana, La Habana, Cuba, 10200. Tel.: + 5356080535

*E-mail address: luismarcelo931028@gmail.com (L.M. Aguirre-Padilla).*

2255-534X/ © 2021 Asociación Mexicana de Gastroenterología. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Ampullary adenocarcinoma in a patient with portal annular pancreas: Relevance of the surgical approach in the Whipple procedure<sup>☆</sup>



### Adenocarcinoma ampular en un paciente con páncreas anular portal: relevancia del abordaje quirúrgico en el procedimiento de Whipple

A 41-year-old woman with an unremarkable medical history presented with abdominal pain, associated with jaundice and weight loss of 10 kg in one month, as well as elevated transaminase levels.

In the initial approach, endoscopic retrograde cholangiopancreatography was performed, with transpapillary biliary drainage via a stent. An ampullary lesion was identified

and the histopathologic report stated moderately differentiated adenocarcinoma. The patient was referred to our hospital. A computed tomography scan revealed a dilated common bile duct secondary to an ampullary lesion. The main pancreatic duct (MPD) was situated in a retroportal position and pancreatic tissue encircled the portal vein and the splenoportal confluence (Fig. 1).

The patient underwent a pylorus-preserving Whipple procedure (pancreaticoduodenectomy), with a 2-step resection of the pancreas. First, the anteportal portion was divided, revealing an accessory pancreatic duct, with a 5 mm diameter. The retroportal portion was then divided, revealing the MPD, with a 1.5 mm diameter. Gross pathologic examination identified a tumor measuring 1.6 × 1.6 cm, located on the ampulla of Vater, 1/10 positive lymph nodes (peripancreatic), and tumor-free surgical margins. Microscopic examination showed a moderately differentiated intestinal-type adenocarcinoma. The patient's postoperative course was uneventful, and she received 8 cycles of capecitabine/gemcitabine adjuvant chemotherapy. The patient is currently in active follow-up with the oncology service and the latest control imaging study revealed local recurrence of the disease, 27 months from the initial diagnosis.

Annular pancreas is a rare condition characterized by circumferential involvement of another anatomical struc-

<sup>☆</sup> Please cite this article as: Castro E, Sánchez-Morales GE, Hernández-Acevedo JD, Sánchez García-Ramos E, Chan C. Adenocarcinoma ampular en un paciente con páncreas anular portal: relevancia del abordaje quirúrgico en el procedimiento de Whipple. *Revista de Gastroenterología de México*. 2022;87:116–118.