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The Elusive Face of Intestinal Tuberculosis: Insights from a Rare Case and Comprehensive Literature Review

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ABSTRACT

Background: Intestinal tuberculosis is an uncommon manifestation of extrapulmonary tuberculosis but remains clinically relevant in endemic countries such as Mexico. It may involve any segment of the gastrointestinal tract, most frequently the ileocecal region, and often presents with nonspecific symptoms, which may delay diagnosis and increase the risk of complications.

Case Report: A 20-year-old male with no significant medical history presented with a one-month history of asthenia, fatigue, weight loss, fever, cough, and diarrhea. He was admitted due to hematochezia and syncope, with evidence of hemodynamic instability and severe anemia. Imaging studies revealed findings compatible with pulmonary tuberculosis, and sputum smear microscopy confirmed Mycobacterium tuberculosis. Colonoscopy demonstrated lesions in the ileum and ileocecal valve. Histopathological examination and polymerase chain reaction (PCR) of biopsy specimens were positive for intestinal tuberculosis. Antituberculous therapy was initiated, leading to clinical improvement, resolution of gastrointestinal bleeding, and progressive recovery. At three-month follow-up, the patient remained asymptomatic with weight gain.

Conclusions: Intestinal tuberculosis poses a diagnostic challenge due to its nonspecific clinical presentation. Diagnosis requires integration of clinical findings, imaging studies, endoscopy, and histopathological and microbiological confirmation. In endemic regions, a high index of suspicion is essential to ensure early diagnosis, prompt treatment, and prevention of complications.

Key words: Gastrointestinal tuberculosis; Extrapulmonary tuberculosis; Mycobacterium tuberculosis; Colonoscopy.

INTRODUCTION

Tuberculosis remains one of the leading infectious diseases worldwide; however, its extrapulmonary presentations, particularly intestinal tuberculosis, present a diagnostic challenge due to their low frequency and nonspecific clinical presentation, leading to diagnostic delays and a higher risk of serious complications [1,2].

The case of intestinal tuberculosis is clinically relevant because it illustrates an uncommon manifestation of the disease, which can mimic other abdominal pathologies and present as a surgical emergency. Anatomopathological reports and clinical series have demonstrated that this entity is frequently underdiagnosed, highlighting the importance of its timely recognition. Furthermore, the integration of clinical, surgical, and histopathological findings, along with the support of current diagnostic methods, provides useful evidence to strengthen clinical suspicion and optimize the diagnostic and therapeutic approach in similar scenarios [3,4].

CLINICAL CASE

A 20-year-old male with no relevant medical history or history of contact with a person with tuberculosis. Occasional use of alcohol, crystal meth, and cannabis since age 15. Occupation: Maintenance assistant at an addiction rehabilitation center. He presents with a one-month history of progressive asthenia and adynamia, grade II dyspnea, and weight loss exceeding 10 kg. Intermittent fever (38-38.5°C) and occasional cough with clear sputum. He also reports moderate, colicky abdominal pain, starting in the periumbilical region and radiating to the colon, which improves slightly after bowel movements. He describes his bowel movements as mostly diarrheal (Bristol scale 6-7) without mucus or blood, 4-5 times a day, and also experiences nausea without vomiting. He came to our hospital unit accompanied by family members after experiencing an episode of hematochezia followed by syncope.

Upon admission, the patient presented with the following vital signs: BP 87/44 mmHg, HR 128 bpm, RR 20 bpm, Saturation 96% (with supplemental oxygen via nasal cannula at 4 L/hr), Temperature 36°C, and capillary blood glucose 171 mg/dL. Vasoactive medications (norepinephrine at 3 mL/hr) were initiated via a right subclavian central line due to low cardiac output. During his stay in the emergency department, he experienced hematochezia on four additional occasions. The patient was evaluated by our service and found to be cachectic, diaphoretic, and with generalized pallor. He was awake and oriented. Chest examination revealed increased respiratory effort, with auscultation of decreased breath sounds at both bases, muffled crackles at the base of the right hemithorax, and precordial tachycardia at 128 beats per minute. Abdominal examination revealed a flat abdomen. On palpation, the abdomen was non-tender with voluntary muscle resistance. Generalized tenderness was noted on both superficial and deep palpation, without signs of peritoneal irritation. No organomegaly or masses were palpated. Percussion revealed tympany over the colonic frame, and auscultation revealed increased bowel sounds per minute. The patient was admitted to the general surgery service, and laboratory tests were performed, including a complete blood count, biochemical profile, and liver function tests (Figure1).

Figure1: Laboratory results.

Hematological parameters

Parameter	Result	Units	Reference interpretation
Erythrocytes	3.15	$\times 10^6/\mu L$	Low
Hemoglobin	5.6	g/dL	Very low
Hematocrit	26	%	Low
Mean corpuscular volume (MCV)	81	fL	Borderline low
Leukocytes	20.1	$\times 10^3/\mu L$	High
Neutrophils	90	%	High
Lymphocytes	6	%	Low
Platelets	250	$\times 10^3/\mu L$	Normal

Biochemical parameters

Parameter	Result	Units	Reference interpretation
Glucose	96	mg/dL	Normal
Urea	28.9	mg/dL	Normal
Creatinine	0.74	mg/dL	Normal
Uric acid	6.7	mg/dL	Borderline high
Total cholesterol	118	mg/dL	Normal
Triglycerides	51	mg/dL	Normal
HDL cholesterol	49	mg/dL	Normal
LDL cholesterol	75	mg/dL	Normal

Liver function tests

Parameter	Result	Units	Reference interpretation
AST (SGOT)	38	U/L	Upper limit
ALT (SGPT)	35	U/L	Normal
GGT	50	U/L	High
LDH	235	U/L	Upper limit

The Enzyme-Linked Immunosorbent Assay (ELISA) was requested as a screening method for immunosuppression. It was non-reactive, and tumor markers (CEA, CA 19-9, and AFP) were requested. Although these markers do not have an established role in the diagnostic approach to intestinal tuberculosis, as it can mimic some gastrointestinal malignancies, they were requested to rule out any neoplastic process. These values were found to be within normal ranges (CEA <3 ng/ml, CA 19-9 34 U/ml, AFP 8 ng/ml). A contrast-enhanced computed tomography (CT) scan of the thorax and abdomen was requested as part of the diagnostic workup to assess the extent of the disease by looking for ileocecal pathology, nodules, stenosis, and/or ascites. The CT scan revealed a right pleural effusion with some air-density bubbles within it and increased attenuation of the lung parenchyma with a consolidation pattern and air bronchograms, as well as diffusely distributed, tree-in-bud pattern micronodular opacities and a small, thick-walled cavity within the consolidations in the upper lobe of the right lung (Figure 2). Abdominal examination revealed only

free perihepatic and perisplenic fluid; the rest of the abdomen showed no structural abnormalities or abnormal enhancement (Figure 3,4).

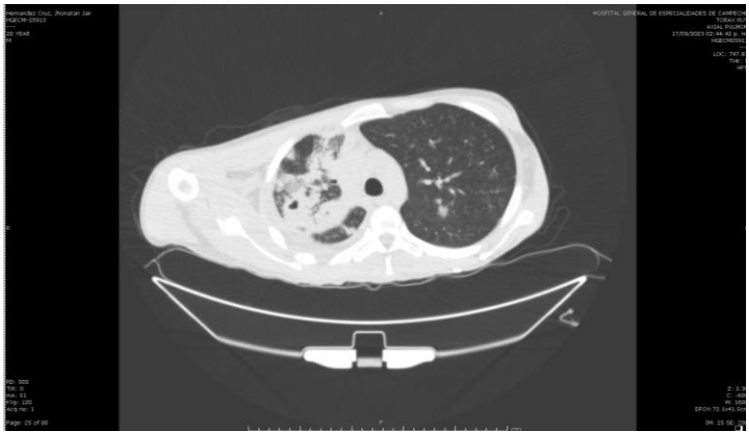
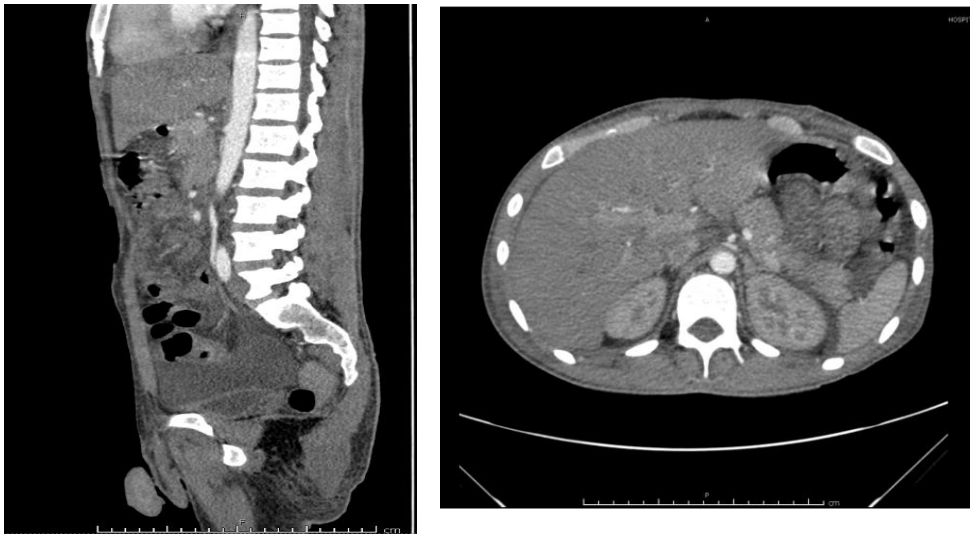


Figure 2: Axial CT scan of the chest, lung window, with increased attenuation of the lung parenchyma, consolidation pattern with air bronchogram, as well as micronodular opacities with a tree-in-bud pattern of diffuse distribution and a small thick-walled cavity within the consolidations in the upper lobe of the right lung.

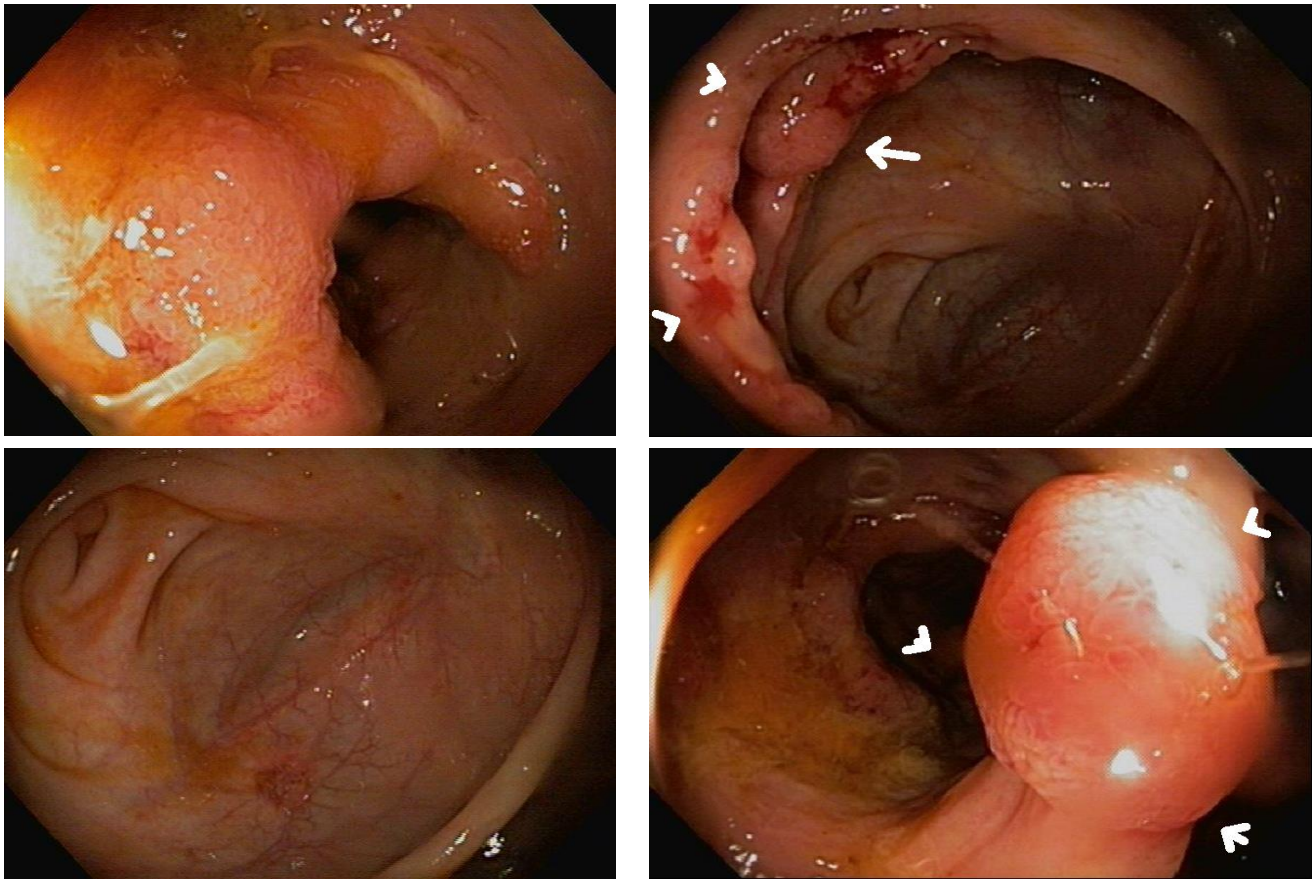


Figures 3,4: Axial and sagittal contrast CT scans of the abdomen in arterial phase, showing free perihepatic and perisplenic fluid, liver, spleen, pancreas, gallbladder and both kidneys without structural alterations or abnormal enhancements.

Crohn's disease is the main differential diagnosis for intestinal tuberculosis. Based on the history of fever, dyspnea, and cough, it was decided to investigate for tuberculosis, and three serial sputum smears were performed, all of which were positive for Mycobacterium tuberculosis. A consultation was held with the epidemiology service, and strictly supervised, short-course (SSSC) treatment was initiated in the intensive phase, using pyrazinamide 25

mg/kg/day, ethambutol hydrochloride 20 mg/kg/day, rifampicin 10 mg/kg/day, and isoniazid 5 mg/kg/day. The bleeding stopped after three days of treatment.

Colonoscopy was performed with gastrointestinal preparation the day before using a polyethylene glycol (PEG) solution dissolved in 4 liters of water to look for disease in the small intestine and, at the level of the ileocecal valve, to obtain biopsies. At the level of the ileocecal valve and terminal ileum, mucosa with low, poorly defined, patchy, irregular, non-infiltrative exophytic lesions was observed, associated with edematous and erythematous mucosa (Figure 5). Small, sessile polypoid lesions measuring 1-3 mm (Paris 0-Is) were identified (Figure 6). They had a smooth, non-ulcerated surface, were friable, and did not bleed on chromoendoscopy.



The lesions were pale compared to the adjacent mucosa, with a preserved vascular pattern and a regular distribution (NICE II) (Figure 7,8).

Figures 5-8: Cecal mucosa with ulcerative lesions without active bleeding. Ileocecal valve with an exophytic lesion involving both sides, with irregular borders. Ileum with patchy, irregular, and friable exophytic lesions.

Biopsies were taken from the lesions using cold forceps, yielding six fragments. Histopathological examination revealed inflammation of the lamina propria, epithelioid histiocytes with granulomas, areas of focal caseous

necrosis, and lymphocytic infiltration. No neoplasm was identified. Given the diagnosis of pulmonary tuberculosis, extrapulmonary infiltration was suspected. Therefore, a polymerase chain reaction (PCR) test was requested for morphological confirmation. This test provides faster results and has greater sensitivity than culture. The result was positive for Mycobacterium tuberculosis, establishing the final diagnosis of intestinal tuberculosis. During the 10-day hospital stay, two units of packed red blood cells and two units of fresh frozen plasma were transfused in the emergency department. Four additional units of packed red blood cells were administered in the inpatient ward, and vasoactive medications were gradually discontinued starting on the second day of hospitalization. Laboratory tests showed an increase in hemoglobin to 9.2 g/dL, white blood cell count to 4.3, hematocrit to 30%, platelet count to 338,000, prothrombin time (PT) to 12.2 seconds, partial thromboplastin time (PTT) to 32.6 seconds, and INR to 1.09. Clinically, improvement in digestive symptoms was observed.

DISCUSION

Intestinal tuberculosis can manifest as a single or concomitant extrapulmonary pathology, which poses a diagnostic challenge. It accounts for approximately 2% of tuberculosis cases worldwide. It may be asymptomatic or may present with few symptoms and mimic other intra-abdominal diseases. The most frequently reported clinical manifestations include abdominal pain, weight loss, fever, anemia, diarrhea, night sweats, abdominal mass, ascites, constipation, intestinal obstruction, intestinal bleeding, fistula, and intestinal perforation, among others. Abdominal pain frequently occurs in the right lower quadrant and periumbilical region [5].

The ileocecal region is the most common site, affecting 44.2% to 83.6% of cases, followed by the colon (27.8%), the stomach (5.7%), and the perianal region (less frequent) [6,7]. Diagnosis involves various approaches and is based on suspicion as a diagnosis of exclusion. Microbiological examination should be performed using Ziehl-Neelsen staining to demonstrate the presence of acid-fast bacilli, with a specificity of up to 100% and a sensitivity of 17.3–31%. Another microbiological examination is the culture of M. tuberculosis, considered the gold standard. In our particular case, a polymerase chain reaction (PCR) study was chosen. In clinical cohorts, PCR has shown a sensitivity of up to 86% and a specificity close to 100%, making it a reliable diagnostic method, especially as a rapid test when combined with clinical evaluation and adjunctive diagnostic studies [8,9,10].

Abdominal CT scans can reveal findings suggestive of intestinal tuberculosis, such as ileocecal valve thickening, large nodules, ascites, or even abscesses. In this case, only scant free fluid was observed in the abdomen [11]. Colonoscopy is a fundamental part of the diagnostic approach, with the ileocecal region being the most frequently involved. Findings that often favor a diagnosis of intestinal tuberculosis include transverse or circumferential ulcers, pseudopolyps, predominantly involving the terminal ileum, cecum, and ascending colon, with a patulous or deformed ileocecal valve [10,11,12]. Standard antituberculosis treatment regimens recommended by most guidelines treat extrapulmonary forms of tuberculosis in the same way as the pulmonary presentation. This regimen consists of an intensive phase lasting 2 months with isoniazid, rifampicin, pyrazinamide, and ethambutol, followed by a

maintenance phase of approximately 4–7 months with isoniazid plus rifampicin to complete 6 months of treatment [13].

Hepatotoxicity is the most significant and potentially fatal complication, occurring in 3-13% of patients, mostly associated with pyrazinamide [14,15].

The most common gastrointestinal symptoms include nausea, vomiting, epigastric pain, and poor appetite. These symptoms can usually be managed without complications. If they persist or become more severe, evaluation for possible hepatotoxicity is necessary [16]. Treatment-related adverse reactions may require interruption or discontinuation of certain medications, and in some cases, hospitalization [15]. Crohn's disease or neoplasms must be considered in the differential diagnosis and ruled out with endoscopic studies, biopsies, and imaging, as misdiagnosis is quite common [17]. The usual course of management for an uncomplicated presentation of intestinal tuberculosis consists of antituberculosis therapy for 6 months; in some specific cases, extending it to 9-12 months may be considered if there is little response [13,17]. When complications such as obstruction or stenosis exist, the use of steroids must be considered.

When complications such as obstruction or stenosis are present, the use of steroids, endoscopic dilation, or surgery should be considered, even given the possibility of perforation or massive bleeding [18,19,20]. In general, most patients with intestinal tuberculosis recover effectively after a 6-month course of antituberculosis treatment. Sometimes, this is achieved with an extended course of treatment combined with surgery or intravenous therapy. Management should be individualized, with endoscopic follow-up and in conjunction with an infectious disease specialist [21,22].

This case highlights a comprehensive and timely diagnostic approach, based on the appropriate clinical, endoscopic, histopathological, and microbiological correlation in an unusual presentation of intestinal tuberculosis with lower gastrointestinal bleeding. Early suspicion of extrapulmonary involvement, colonoscopy with biopsy sampling, and accurate characterization of the lesions, along with PCR confirmation for M. tuberculosis, were key strengths of the management, facilitating appropriate therapy and a favorable patient outcome.

The lack of Ziehl-Neelsen staining and microbiological culture, the latter considered the gold standard, is recognized as a limitation of this case and should be considered in its comprehensive interpretation.
This case report underscores the importance of a structured approach and follow-up, as well as the explicit justification for diagnostic omissions and the rational use of complementary tools in the assessment and management of intestinal tuberculosis.

CONCLUSION

This case highlights how intestinal tuberculosis can be a diagnostic challenge due to its nonspecific clinical presentation and its potential similarity to other pathologies, such as inflammatory bowel diseases or even

gastrointestinal tract neoplasms. In this case, the integration of clinical data with imaging techniques, endoscopy with targeted biopsies, and histological and microbiological confirmation allowed for a timely diagnosis. In endemic areas, maintaining a high index of suspicion is crucial to avoid diagnostic delays and complications.

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