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Clinical Case

Perforated Ileum Secondary to Gastrointestinal Tuberculosis

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Abstract

Objective: To describe the unusual findings of an exploratory laparotomy for non-specific acute surgical abdomen. **Outcome:** 50-year-old male drug user (cocaine, crack, marijuana) with an acute surgical abdomen compatible with uncomplicated appendicitis. The leukogram showed white blood cells at 15,4 x 10^3/µl and granulocytes at 12,0 x 10^3/µl. Emergency exploratory laparotomy revealed thickening of the ileum with inflammatory changes, erythematous with granulomatous appearance and perforation at 50 cm of the ileocecal valve. The biopsy of the specimen sent reported foci of granulation related to the perforation area, Langhans-type multinucleated giant cells peripheral to an area of necrosis with a caseous appearance and histiocytic epithelioid cells compatible with the diagnosis of tuberculosis. **Discussion:** Intestinal tuberculosis and its complications, even in tuberculosis endemic regions, are not a common finding. In countries with extremely limited diagnostic resources, it is the clinical manifestations that guide the initial management, so histopathological studies are necessary for a definitive diagnosis

Keywords: intestinal perforation, gastrointestinal tuberculosis, biopsy, ileum

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Abbreviations:
RIF; right iliac fossa
TB; tuberculosis
ITB; Intestinal tuberculosis.
EXLA; exploratory laparotomy.

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A third of the world's population is infected with tuberculosis (TB) (mainly Mycobacterium tuberculosis and, to a lesser extent, Mycobacterium bovis) predominant in developing countries. (World Health Organization. Global Tuberculosis Report 2023. Geneva; WHO; 2023 (accessed 01-02-24). Available at: https://www.who. int/teams/global-tuberculosis-programme/tb-reports/global- tuberculosis-report-2023)

It is important to note that extrapulmonary forms of TB affect 20% of immunocompetent patients compared to 50% of immunosuppressed patients. (Pan American Organization of Health. Contract for the revision and updating of the Manual for the Prevention and Control of Tuberculosis in Honduras. Honduras; 2023 (accessed 01-02-2024). Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www. paho.org/sites/default/files/tdr_actualizacion_manual_tb_final_0.pdf.

Intestinal tuberculosis (ITB) represents the sixth most frequent cause of extrapulmonary tuberculosis involvement, studies suggest that in 11% of patients[1] the risk factors for ITB include low social status; immunodeficiencies such as human immunodeficiency virus (HIV) infection; organ transplantation and the use of immunosuppressants.[2-3]

Three general definitions of gastrointestinal (GI) affection are distinguished: 1. Abdominal TB: TB of the intestinal tract and another organ of the abdominal cavity, eso-

phageal TB is excluded. 2. Intestinal TB: Non-peritoneal GI tract TB. 3. Peritoneal TB: TB of the peritoneum (3). The incidence of ITB has increased in parallel with the increase in TB prevalence, the most common site of ITB development is the ileocecal region followed by the colon and jejunum; [4,5] The ITB of the twenty-first century is a disease of young people, with an average age ranging from 32 to 40 years, and with a tendency to affect men[5].

Jejunal perforations secondary to TB infection are a rare finding even in TB endemic regions[6]. ITB continues to pose an important diagnostic challenge, especially in countries with limited economic resources, which conditions the lack of availability of many diagnostic tools, as well as presenting itself unspecifically mimicking a wide variety of intra-abdominal pathologies such as acute appendicitis, Crohn's disease and peritoneal carcinomatosis.[6-7-8]

In this report, we describe a case of acute non-specific surgical abdomen, without a tomography service at the institution, for a differential diagnosis. The biopsy of the specimen sent reports ITB, which is complicated by intestinal perforation, and the only known risk factor in the patient is immunosuppression secondary to long-standing narcotic use, which has not been a cause of immunodeficiency so associated with this type of infection and little described as the only risk factor.

Patient Information

The patient's informed consent was obtained. This is a 50-year-old man from Central America with no known immunodeficiencies who presented to the emergency department of the Mario Catarino Rivas Northwestern Hospital (HNMCR) with cramping abdominal pain of 18 hours of evolution on admission. The pain began in the epigastrium and radiated to the right iliac fossa (RIF) of moderate intensity that quickly progressed to severe, was exasperated on movement and attenuated on rest, the patient denied nausea and vomiting, diarrhea, no changes in bowel habits, no respiratory symptoms. His family history includes a mother who died of cervical cancer, although without TB in close relatives. The personal history reflects chronic alcoholism, smoking index of 9 (5 cigarettes a day for 14 years), marijuana use (5 cigars a day) since the age of 20, cocaine 1 g per month and 2 crack stones a week since the age of 20. Physical examination revealed decreased airborne sounds, tenderness in the mesogastrium, and signs of generalized peritoneal irritation with a positive Blumberg sign predominantly towards RIF, his vital signs: blood pressure of 130/80 mmHg, heart rate of 73 beats/minute, respiratory rate of 18 breaths/minute, temperature of 37.7°C. His chest exam, as well as the rest, was normal. In Table 1 the patient's laboratory tests are shown.

Table 1. Patien's baseline laboratory values

Laboratory data	Values
White blood cells	15,4 x 10^3/µl
Granulocytes	12,0 x 10^3/µl
Hemoglobin	14.3 g/dl
Platelets	253,000
Creatinine	0.94 mg/dl
Glucose	127 mg/dL
Aspartate aminotransferase (AST)	35 UI/L
Alanine amino transferase (ALT)	28 UI/L
Serum sodium	148 meq/L
Serum potassium	3.8 meq/L
Serum chlorine	101 meq/L
Prothrombin time (PT)	9.2 s
Partial Thromboplastin Time (PTT)	33.5 s

Chest x-rays showed slight horizontalization of intercostal spaces, no flow redistribution, no cavitations, no subdiaphragmatic air. The presumptive diagnosis of acute abdomen secondary to acute appendicitis was made based clinically on the evolution and location of pain in the right iliac fossa with signs of peritoneal irritation, in addition to leukocytosis with a predominance of neutrophils. No data of intestinal occlusion and chest x-rays did not suggest perforation of the hollow viscera. Due to the clinical findings suggestive of peritoneal irritation, exploratory laparotomy (EXLA) was prepared in the absence of computed tomography (CT), since this institution does not have the diagnostic imaging resource at that time and the patient cannot afford it, a preoperative evaluation was requested. The Internal Medicine service in its preoperative evaluation reported: premature ventricular contractions (1 in 1 min). The patient was taken to the operating room, with a preoperative diagnosis: acute surgical abdomen secondary to probable acute uncomplicated appendicitis. Intraoperative findings: thickening of the thin intestinal wall (ileum) with inflammatory changes, erythematous, granulomatous appearance and single perforation of the ileum 50 cm from the ileocecal valve, scarce inflammatory fluid. Resection of approximately 15 cm of thin tissue was performed at 50 cm from the ileocecal valve with end-to-end anastomosis in two planes; 1st plan: with Connel-Mayo vidril 3-0 and 2nd. Flat: Halsted silk 3-0, closing gap in mesentery with vicryl 3-0. No complications were reported. Post-peratory diagnosis was recorded:

ileitis of probable infectious origin, a sample was sent for biopsy. After 12 hours postoperatively, the patient still had pain on palpation in RIF, he did not channel gases, but retained hyperactive RHA, he fasted for 24 hours, with moderate hypoalbuminemia (2.9 g/dl). On the second postoperative day, a liquid diet was started, he continued without channeling gases, but with RHA hyperreactivity, the intensity of pain on digital palpation in RIF decreased. On its third day, already gassing, febrile antigens for salmonellosis are requested. On his fourth day, he continued to have sensitivity in RIF, with control tests: blood count, renal and liver function without alterations, with mild hypoalbuminemia (3.2 g/dl). On his sixth day, a patient with noticeable improvement, without hemodynamic alterations, with febrile antigen results: negative, was discharged by appointment in 3 days on the surgery floor and in 15 days in the surgery outpatient clinic with biopsy results.

The patient presented to the outpatient clinic with a biopsy result that reported: (macroscopy of the small intestine) retracted area with thickening throughout the mesenteric face, when cut at this level an area with nodular formation of 2 cm was observed, with thickened folds and a dirty bottom. Lymph nodes are dissected, in content 1 measuring 0.3 cm, it also comes small intestine segment of 1.5cm. On cut, without apparent alterations (Microscopy). Intestinal wall that presents all its identifiable layers, but in the mucosa granulation foci related to the perforation area and close to a granulomatous reaction zone are observed, with Langhans-type multinucleated giant cells that are peripheral to a necrosis area of caseous appearance and with epithelioid histiocyte cells and more peripherally to an area of mature lymphocytes.

No specific pathogens are observed. No data of malignancy were observed. "Small intestine with granulation, granulomatous inflammation with Langhans-like cells compatible with tuberculosis." The patient was referred to the infectious disease department who indicated first-line antifungal treatment for 6 months consisting of isoniazid, rifampicin, pyrazinamide and ethambutol for the first 8 weeks followed by isoniazid and rifampicin for the following 4 months.

Discussion

Tuberculosis should always be considered as a differential diagnosis of unusual gastrointestinal conditions, especially in tuberculosis-endemic areas[4]. The key clinical characteristic in this particular case, as can be seen from the patient's medical history, is that until his admission to the emergency unit of the HNMCR he was perceived as immunocompetent. Abdominal tuberculosis in HIV-uninfected patients remains a diagnostic dilemma that requires a high index of clinical suspicion[4]. A history of drug use (cocaine, crack, marijuana) for 30 years predisposes you to a state of immunosuppression, as reported by the National Institute on Drug Abuse, people who abuse cocaine have a higher risk of developing infectious diseases. (National Institute on Drug Abusse. Are cocaine abusers at risk for HIV/AIDS and hepatitis? US: NIDA; 2020. (accessed 09-02-24). Available at: https://nida.nih.gov/ en/publications/report-series/cocaine-abuse-and-addiction/cocaine-addicts-are in danger-of-contracting HIV-aid-and-hepatitis). This risk results from sharing contaminated syringes and staying in confined spaces[9, 10]. Most patients with abdominal tuberculosis present with symptoms that last between 1 month and 1 year[4], the course of presentation of pain in this case was acute with no other accompanying symptoms.

The biopsy of the specimen sent reports granulation foci related to the perforation area, Langhans-type multinucleated giant cells that are peripheral to a necrosis area of caseous appearance and with epithelioid histiocyte cells compatible with the diagnosis of tuberculosis according to the four criteria of the World Gastroenterology Organization's global guidelines for definitive diagnosis of TBGI[1-4], the presence of necrotizing granulomas (has been the gold standard), tissue culture, biopsy for mycobacteria, or culture of secretions from samples (sputum, pleural and peritoneal fluid) in the medium of Lowenstein-Jensen culture, followed by PCR for TB, that were not available in our institution.[11] Tuberculin test was not used since in Honduras it is the norm of the Ministry of Health vaccinate the newly born with the BCG vaccine giving a false positive test BCG vaccine and when using it, it would give us a false positive of this test. Honduras is a TB endemic country, and the northern region of the country is one of the hotspots (Pan American Health Organization. Contract for the revision and updating of the Manual for prevention and control of tuberculosis in Honduras. Honduras; 2023 (accessed 01-02-2024). Available in: chromeextension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.paho.org/sites/default/files/tdr_actualizacion_manual_tb_final_0.pdf.

There is one report of abdominal TB described in a patient with a history of pulmonary TB and hepatitis B12, despite this, the cases reported in the national literature of intestinal perforation due to extrapulmonary tuberculosis are nil.

Cases of acute abdomen are more common in developing countries, extrapulmonary (abdominal) tuberculosis often appears as acute abdomen that represents true surgical emergencies such as intestinal perforations and obstructions, according to Pattanayaky[13] in a literature review on intestinal tuberculosis, and where systemic manifestations only occur in 30% of cases.

In the clinical approach to intestinal tuberculosis, exploratory laparotomy (EXLA) remains a key treatment option in patients with acute abdominal symptoms, and allows for effective treatment of a wide variety of complex surgical presentations, such as ileal and jejunal perforation, with the flexibility to adjust the type of intervention according to the extent of the disease and the patient's condition. Although laparoscopy has proven to be useful in intraoperative diagnosis, as highlighted by Di Buono et al., in cases where preoperative imaging is nonspecific, EXLA is still preferred to ensure broad access to the abdomen, and also facilitates accurate diagnosis and timely surgical treatment, particularly in emergency scenarios. Given the variability in the clinical presentations of intestinal tuberculosis, the choice between EXLA or laparoscopy will depend on both the available resources and the clinical urgency of the patient.[14-15]

Finally, in conclusion, ITB and its gastrointestinal complications, even in TB-endemic regions, are not a common finding. In countries with extremely limited diagnostic resources, the clinical clinic is the one that guides the initial management, so the histopathological study is necessary for a definitive diagnosis.

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References

1. Merino Gallego E, Gallardo Sánchez F, Gallego Rojo FJ. Tuberculosis intestinal: importancia y dificultad del diagnóstico diferencial con enfermedad de Crohn. Rev Esp Enferm Dig 2018;110:650-657. DOI: 10.17235/reed.2018.5184/2017

2. Zeng J, Zhou G, Pan F. Clinical analysis of intestinal tuberculosis: a retrospective study. J Clin Med. January 5, 2023; 12:445. DOI: 10.3390/jcm12020445

3. Jha DK, Pathiyil MM, Sharma V. Evidence-based approach to diagnosis and management of abdominal tuberculosis. Indian Journal of Gastroenterology. 2023 ;4:17.

4. Tahiri M, Goh KL, Abbas Z, Epstein D, Min-Hu C, Mulder CJJ, et al. Digestive tract tuberculosis guideline. Journal of Clinical Gastroenterology. 2023 agosto de 2023;57:643. DOI: 10.1097/MCG.0000000000001819

5. Al-Zanbagi AB, Shariff MK. Gastrointestinal tuberculosis: a systematic review of epidemiology, presentation, diagnosis and treatment. Saudi J Gastroenterol. 2021;27:261-74. DOI: 10.4103/ sjg.sjg_148_21

6. Ngonge AL, Ekaney DSM, Sama CB, Musonge-Effoe J, Effoe VS, Ekwen G. Multiple jejunal perforation secondary to intestinal tuberculosis infection: a case report. Pan Afr Med J. 2 de junio de 2017; 27: 78. DOI: 10.11604/pamj.2017.27.78.11061

7. F Carrascosa M. Intestinal tuberculosis as first manifestation of human immunodeficiency virus (HIV) infection. A Single History Snapshot. J Mycobac Dis. 2013;04. DOI: 10.4172/ 2161-1068.1000141

8. Park H, Kansara T, Victoria AM, Boma N, Hong J. Intestinal Tuberculosis: A Diagnostic Challenge. Cureus. 202; 13: E13058.

9. Story A, Bothamley G, Hayward A. Crack cocaine and infectious tuberculosis. Emerg Infect Dis. septiembre de 2008;14:1466-9. DOI: 10.3201/eid1409.070654

10. Sala ML, Verhage SM, Zijta F. Abdominal Tuberculosis Complicated by Intestinal Perforation. Case Reports in Gastrointestinal Medicine. 2021:8; 861444.

11. Tuberculosis abdominal del tracto gastrointestinal: una revisión - PMC. DOI: 10.3748/wjg.v20.i40.14831

12. Bonilla R, Martinez J. Intestinal tuberculosis: case report. Arch Clin Trial & Case Rep. 2023; 2(1):188-91. DOI: 10.1016/j.clinmicnews.2025.05.003

13. Is abdominal tuberculosis a surgical problem? Ann R Coll, Cirugía Engl 2015; 97: 414–419 . DOI: 10.1308/rcsann.2015.0010

14. Pathak P, Kumar Sahu S, Agrawal S. Clinico-Pathological Profile and Surgical Outcome of Patients of Gastrointestinal Tuberculosis Undergoing Laparotomy. chr. 2016 ; 111(6):487.

15. Buono GD, Romano G, Amato G, Barletta G, Romano G, Adelfio N, et al. Surgical Management of Complicated Abdominal Tuberculosis: The First Systematic Review—New Treatments for an Ancient Disease and the State of the Art. Journal of Clinical Medicine. 2024; 13:4894.