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Abdominal tuberculosis mimicking Crohn's disease's exacerbation: A clinical, diagnostic and surgical dilemma. A case report

Davide Papis^{a,*}, Vittorio Branchi^{b,1,2}, Luis Gomez^{a,3}, Fernando Herrerias^{a,3}, Felip Vilardell^{c,4}, Marta Gonzalez^{d,3}, Jorge J Olsina^{e,3}

^a Colorectal Unit, General Surgery Division, University Hospital Arnau de Vilanova, University of Lleida, Avinguda Alcalde Rovira Roure, 80 25198 Lleida, Spain

^b Department of Surgery, Bonn University Hospital, Sigmund-Freud-Strasse 25, Bonn 53127, Germany

^c Anatomical Pathology Division, University Hospital Arnau de Vilanova, University of Lleida, Avinguda Alcalde Rovira Roure, 80 25198 Lleida, Spain

^d Hepatobiliarypancreatic Unit, General Surgery Division, University Hospital Arnau de Vilanova, University of Lleida, Avinguda Alcalde Rovira Roure, 80 25198 Lleida, Spain

^e General Surgery Division, University Hospital Arnau de Vilanova, University of Lleida, Avinguda Alcalde Rovira Roure, 80 25198 Lleida, Spain

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ABSTRACT

INTRODUCTION: Tuberculosis in Europe is a health public problem, which has increased constantly over the last few decades. The most common clinical manifestation of tuberculosis is pulmonary. The diagnosis of extrapulmonary tuberculosis can be challenging and clinical manifestations of gastrointestinal tuberculosis are unspecific and can mimic other pathologies.

PRESENTATION OF CASE: A young Chinese man, who had recently been diagnosed with Crohn's disease, was admitted to the emergency room of our hospital with a one-month history of diffuse abdominal pain and weight loss. The patient initially presented with epigastric pain, which had been constantly increasing over the last 48 h. Other symptoms included diarrhea, nausea, and fever. The patient was then admitted with the diagnosis of Crohn's disease exacerbation, and a treatment with corticosteroids, azathioprine, mesalazine, adalimumab, and antibiotic therapy was started. The symptoms were due to an initially misdiagnosed case of abdominal tuberculosis.

DISCUSSION: Intestinal tuberculosis is mainly localized at the ileocecal level in 85% of patients. Medical therapy is the treatment of choice and surgery is not required if it is diagnosed at an early stage.

CONCLUSION: The diagnosis of abdominal tuberculosis still remains a challenge for both internists and surgeons. Before starting a therapy with adalimumab, every patient should be tested for latent tuberculosis infection.

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1. Introduction

Tuberculosis (TB) is a public health problem, which has increased over the last 20 years [1]. The most common clinical presentation is pulmonary tuberculosis. The extrapulmonary diagnosis

Abbreviation: CT, computed tomography; PCR, polymerase chain reaction; RIPE, rifampin, isoniazid, pyrazinamid and ethambutol; ESBL, extended spectrum beta-lactamase; ICU, intensive care unit; AIDS, acquired immune deficiency syndrome; CRP, C-reactive protein.

* Corresponding author. Tel.: +34 973 705 298; fax: +34 973 705 294.

E-mail addresses: davide.papis@gmail.com (D. Papis), vittorio.branchi@hotmail.com (V. Branchi), luisgomezquiles@hotmail.com (L. Gomez), ferherrerias@gmail.com (F. Herrerias), fvilardell@arnau.scs.es (F. Vilardell), jo_marta@hotmail.com (M. Gonzalez), jjolsina@gmail.com (J.J. Olsina).

¹ The first two authors equally contribute to the work.

² Tel.: +49 228 287 15109.

³ Tel.: +34 973 705 298; fax: +34 973 705 294.

⁴ Tel.: +34 973 248 100.

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remains a complex clinical challenge, due to unspecific symptoms and signs. Clinical manifestations of gastrointestinal tuberculosis can lead to a misdiagnosed inflammatory bowel disease, advanced ovarian cancer, ileocecal cancer, mycosis, yersinia infection and amebomas [1]. Abdominal tuberculosis is an uncommon form of extrapulmonary tuberculosis. More common presentations include the lymphatic system infection, the genitourinary tract infection, the osteoarticular infection, the miliary form and central nervous system infection. Gastrointestinal TB is usually associated with an immunosuppressive state, such as acquired immune deficiency syndrome (AIDS) [2] and treatment with immunosuppressive drugs like anti-TNF α . Surgical treatment is required in 25–75%. A partial intestinal resection is needed in case of complications such as perforation, occlusion, bleeding and abscess formation [3].

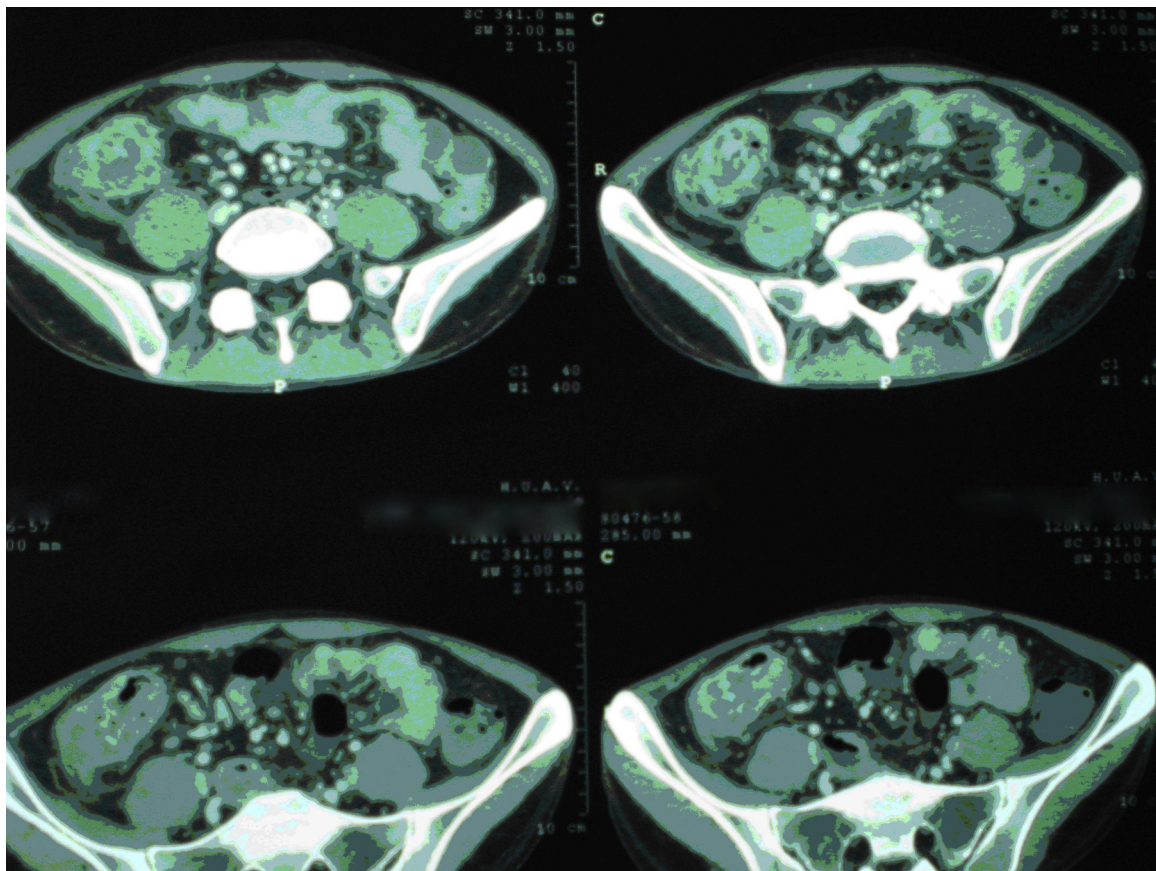


Fig. 1. Abdominal CT-scan that displays moderate ascites, mesenteric lymphadenopathy, and diffuse small bowel and colonic wall thickening concentrating in the cecum.

2. Presentation of case

A 21-year-old man was brought to our Emergency Room presenting with a one-month history of abdominal pain, which had increased during the last 48 h. The pain was originally localized

in the epigastrium and had migrated to the right lower abdominal quadrant. The patient complained of nausea, diarrhea and weight loss during the last couple of months. Physical examinations revealed abdominal distension with tenderness at the McBurney point, increased peristalsis and fever. The rest of the physical



Fig. 2. Surgical specimen.

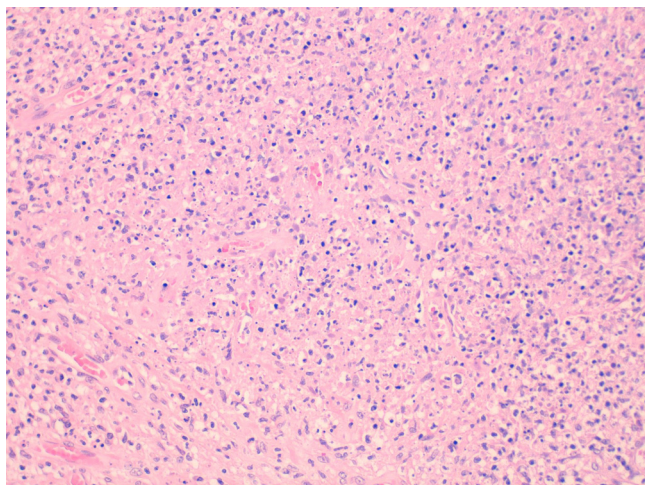


Fig. 3. The histological findings in the surgery specimen mimicked a chronic inflammatory bowel disease Crohn type: distortion of glandular pattern, decreased goblet cells and crypt abscesses.

examination was normal. The patient denied any drug or alcohol abuse. The patient had recently been diagnosed with Crohn's disease and treatment had previously been initiated with azathioprine, mesalazine and corticosteroids. Laboratory blood test were in normal range, except for C-reactive protein (209 mg/L) and albumin (2.8 g/dL). An abdominal CT-scan was performed (Fig. 1), displaying moderate ascites, mesenteric lymphadenopathy, diffuse small bowel, and colonic wall thickening, concentrating in the cecum. The chest X-ray was normal. The patient underwent a colonoscopy, which could not be completed due to the patient's incontinence. The patient was then admitted to the Gastroenterological Unit with the diagnosis of Crohn's disease exacerbation. Medical treatment was started with corticosteroids, azathioprine, mesalazine, therapeutic monoclonal antibody (adalimumab), and antibiotic therapy. Due to the worsening of symptoms, a sudden increase in the white cell blood count and C-reactive protein and the display of acute abdomen on physical examination, an emergency explorative laparotomy was performed a week after admission. During surgery a distal ileum and right colon wall thickening, signs of perforation and purulent four-quadrant peritonitis were observed. Hence, we decided to perform a right colectomy, with an 80 cm terminal ileum resection (Fig. 2), an ileostomy on the right side of the abdominal wall and a colonic mucous fistula on the left side. During the postoperative course, the patient was admitted to the ICU with severe sepsis and acute respiratory distress syndrome caused by an Extended Spectrum Beta-Lactamase (ESBL) *Escherichia coli* infection. Total parenteral nutrition, and antibiotic therapy with meropenem and metronidazole were started. The histopathological findings of the surgical specimen (Fig. 3) revealed a severe distortion of glandular pattern, decreased goblet cell number, crypt abscesses and necrotic areas. This result was consistent with the biopsy obtained during the initial colonoscopy. The presence of necrotic areas in the surgical specimen led the pathologist to consider TB as a differential diagnosis. The key to diagnosis was performing a PCR to identify *M. tuberculosis* DNA on the tissue in paraffin. *M. tuberculosis* DNA was detected in a high concentration. After the histological diagnosis of abdominal tuberculosis, the patient was started on tuberculosis RIFE therapy (rifampin, isoniazid, pyrazinamid, and ethambutol). A postoperative chest CT scan was performed, showing bilateral pleural effusion (treated with bilateral chest tube placement) but without signs of active TB. Bacterial cultures from the pleural fluid, and from the bronchial lavage were performed and the diagnosis of TB was confirmed. The patient was finally discharged after one hundred days of hospitalization.

3. Discussion

This case underlines that every patient with Crohn's disease have to be tested extensively for TB before starting a treatment with adalimumab, and other anti-TNF α agents [3]. TNF α is a proinflammatory cytokine, which has a central role in the host response to a tuberculosis infection. It increases the macrophage ability to phagocytate the mycobacterium, and to form a granuloma [4]. Therefore, in a patient with a latent tuberculosis infection the administration of anti-TNF α agent can lead to a reactivation of a latent *M. tuberculosis* infection, which is one of the most common complications of such therapy. Patient with a latent TB confirmed by a tuberculin skin test or a chest X-ray should receive a prophylactic treatment before starting a therapy with adalimumab and other anti-TNF α agents [3]. Patients who have a negative Tuberculin skin test should also be considered for prophylactic treatment of latent tuberculosis if risk factors are present [4]. Conventional tests for confirmation of TB also include acid-fast bacilli (AFB) smear microscopy, which can produce results in 24 h, and culture, which produce results in 2–6 weeks [5]. In the rest of the cases, the diagnosis is often arbitrary or on the basis of a constellation of evidences, including the geographic region of the case. In developing countries (example in South Asia), this dilemma (and diagnostic errors) is a day-to-day occurrence. In 85% of patients, intestinal tuberculosis is usually localized at the ileocecal level [6], while colorectal involvement is uncommon. This can be attributed to the tubercular bacillus' affinity to the abundant lymphoid tissue in the ileocecal region, the relative physiologic stasis, the minimal digestive activity and the high rate of absorption in this region [7]. Abdominal involvement may occur through different ways: swallowing infected sputum, hematogenous spread from a primary pulmonary focus, direct seeding from an adjacent involved organ and ingestion of contaminated food [8]. Only in 12% of the cases intestinal tuberculosis is associated with pulmonary disease [1]. Tuberculous peritonitis is associated with an overall mortality rate of approximately 25% [6]. The diagnosis can be very difficult since signs, symptoms, and laboratory abnormalities are neither specific nor diagnostic: therefore, it is crucial to consider TB as a differential diagnosis [9,10]. Symptoms are usually abdominal colicky pain, diarrhea, loss of weight, anorexia, fever, constipation, bleeding and intermittent bowel obstruction, while laboratory abnormalities include anemia, leukocytosis, hypoalbuminemia, and elevated blood sedimentation rate [7]. The gold standard for diagnosis is colonoscopy. Histopathological findings can display mucosal ulcerations, nodules, edematous mucosal folds, pseudopolyps, luminal narrowing, stenosis, caseous necrosis and large, multiple and confluent granulomas [2]. Biopsies should be taken from the margins of ulcers, since granulomas are often localized in the submucosal layer. The culture of the biopsy material can increase the rate of diagnosis. The Mantoux test, blood and sputum cultures are often negative [8]. PCR of the biopsy tissue is more sensitive than culture or Ziehl-Neelsen staining for acid-fast bacillus [2,11]. The CT-scan is the most reliable imaging technique, although there isn't any pathognomonic radiological finding which simplify the diagnostic process [12,13]. Hence, the diagnosis of intestinal tuberculosis in most cases is an incidental finding made during an explorative laparotomy or laparoscopy or during surgical procedures performed with different surgical intents. Excessive manipulation of the abdominal organs in the presence of abdominal TB may produce unexpected bowel lesions, increasing morbidity and mortality [6]. Usually the surgical treatment is not the standard therapy for abdominal TB. A medical treatment is effective even for moderated stenosis [6] and surgical treatment should be reserved in case of complications such as perforation (1–15%), abscess, and fistula (2–30%), bleeding (2%) or stenosis (15–60%). These complications are often due to a delayed diagnosis [1]. In our case the initial false diag-

nosis was obtained because the symptoms and histopathology of abdominal tuberculosis mimicked Crohn's disease. The unspecific clinical history of the patient and the inadequacy of the colonoscopy led to a delay in diagnosis. Only a PCR of the surgical specimen allowed us to make the right diagnosis. Nonetheless, the therapy with adalimumab could have possibly led to a rush exacerbation of a preexisting condition.

4. Conclusion

Despite of improvements in the diagnostic tools, the diagnosis of abdominal tuberculosis still remains a challenge for both internists and surgeons. In developing countries, such as India, this dilemma and therefore this kind of diagnostic errors are quite common in the everyday practice. In Europe and in the US, where the TB rates are lower, the risk of misdiagnosis is higher because the medical personal is not used to this disease. This case emphasizes the importance of consider TB as a differential diagnosis in such context.

Conflicts of interest

The authors declare that they have no conflicts of interest.

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Consent

Case report has been approved by ethical committee of Arnau Hospital. Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Davide Papis, MD: data collection and interpretation, case report design, writing the paper.

Vittorio Branchi, MD: data collection interpretation, case report design, writing the paper.

The first two authors equally contributed to the work. All authors contributed to researching and editing the article. All authors read and approved the final manuscript.

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