






Case Report

A Postpartum Immigrant with Pulmonary, Pleural, and Intestinal Tuberculosis

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Abstract

Intestinal tuberculosis is a rare extrapulmonary condition and mainly involves the ileocecal region. Most of the patients with tuberculosis during the postpartum period present with extrapulmonary involvement. The postpartum period has a higher risk of the reactivation of tuberculosis due to changes in the immune system. We present the case of a 22-year-old postpartum immigrant patient, with pulmonary, pleural, and intestinal tuberculosis with intestinal perforation. Due to the nonspecific symptoms of intestinal tuberculosis, clinical suspicion is extremely important.

KEYWORDS: Intestinal tuberculosis, pleural tuberculosis, postpartum tuberculosis, pulmonary tuberculosis

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INTRODUCTION

Tuberculosis (TB) caused by *Mycobacterium tuberculosis* is one of the top 10 causes of death worldwide. According to the World Health Organization, in 2019, 10 million people were diagnosed with TB and 1.2 million lost their lives from this preventable and curable disease.¹ Extrapulmonary TB is diagnosed in almost 20% of all TB cases, while abdominal TB is approximately 10% of all extra-pulmonary TB.^{2,3} Abdominal TB may involve the gastrointestinal tract, peritoneum, lymph nodes, and genitourinary tract.⁴ The ileocecal area is the most common site of involvement in gastrointestinal TB. Severe complications such as bowel obstruction, perforation, or fistula formation can occur. Because of the nonspecific presentation, clinical suspicion is of utmost importance for the diagnosis of intestinal TB. We present the case of a 22-year-old postpartum immigrant patient, with pulmonary, pleural, and intestinal TB with intestinal perforation.

CASE REPORT

A 22-year-old immigrant female, with no significant medical history, presented to the emergency department with complaints of cough, dyspnea, loss of appetite, and fatigue. She gave birth 15 days ago. She was born and lived in a TB-endemic country. On admission, she was cachectic and in respiratory distress. Her heart rate and respiratory rate were 120 beats per minute and 25 breaths per minute, respectively. On chest auscultation, she had bilateral fine rales. Laboratory work-up showed anemia (hemoglobin 5.7 g/dL), hypoalbuminemia (19.3 g/L), mild elevation of aspartate aminotransferase (86 U/L), elevated lactate dehydrogenase (593 U/L), and elevated C-reactive protein (160 mg/L). The HIV test was negative. Her initial chest computed tomography (CT) revealed bilateral hilar and mediastinal lymphadenopathy, bilateral pleural effusions, and patchy consolidation areas (Figure 1A). Additionally, abdominal CT showed a small amount of ascites at the perihepatic and perisplenic regions.

Her sputum smear was negative for acid-fast bacilli (AFB). Thoracentesis and bronchoscopy were performed. The pleural fluid AFB smear was negative, and the adenosine deaminase level was 19.8 IU/L. While we were waiting for the other results of the thoracentesis and bronchoscopy procedure, the patient had severe abdominal pain and distension. Abdominal CT revealed multiple para-aortic and para-caval enlarged lymph nodes, air-fluid levels in the bowel at lower quadrants, and free fluid in the Douglas pouch (Figure 1B). Ileal perforation was observed in many areas in explorative laparotomy, and she underwent primary repair. In the postoperative period, pleural fluid PCR was found to be positive for *Mycobacterium tuberculosis*. Also, the bronchoalveolar lavage smear was positive for AFB.

The patient was given oral anti-tuberculosis drug therapy consisting of isoniazid 300 mg once daily, rifampicin 450 mg once daily, pyrazinamide 1000 mg once daily, and ethambutol 1000 mg once daily. After 2 weeks of antituberculous therapy, her symptoms improved. All TB drugs were stopped 19 days after it started since the aspartate aminotransferase level was 55 U/L and the alanine aminotransferase level was 108 U/L. After 8 days, liver function tests returned to normal, and the treatment was restarted. Anemia investigation demonstrated a positive fecal occult blood test. Colonoscopy and endoscopy revealed normal findings. During these procedures, no lesion, bleeding focus, or complication was recorded. Furthermore, no biopsies were performed throughout these procedures. Because of the right lower quadrant pain and tenderness, abdominal

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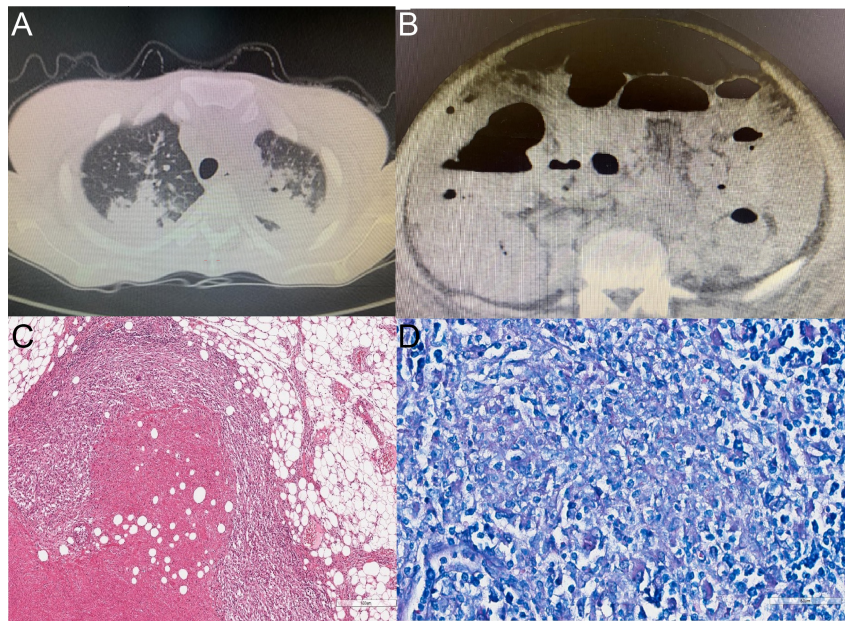


Figure 1. (A) Axial image from thorax computed tomography (CT) revealed bilateral consolidation and pleural effusion. (B) Abdominal CT revealed air-fluid levels in the bowel at lower quadrants and free fluid in the Douglas pouch. (C) Small intestinal wall with typical tuberculous granuloma consisting of well-defined cluster of epitheloid cells with central caseous necrosis and Langerhans giant cells (hematoxylin & eosin staining, $\times 600$). (D) Ziehl-Neelsen stain reveals multiple acid-fast bacilli in the intestinal mucosa.

ultrasound was done. Abdominal ultrasound showed abscess formation in the pelvis and dilatation in bowel loops. In emergent explorative laparotomy, pelvic abscess and multiple perforations in the terminal ileum and cecum were detected. The pelvic abscess was drained, and ileal resection and right hemicolectomy were performed. Histopathological examination showed granulomatous inflammation with caseification necrosis with AFB-positive bacilli (Figure 1C and 1D). *Mycobacterium tuberculosis* culture was verified in the bronchoalveolar lavage, and no resistance was detected in the drug susceptibility test. Antituberculous treatment was reinitiated after the operation. Despite intensive surgical and medical treatment, the patient passed away.

DISCUSSION

Intestinal TB mostly affects younger adults, and living in an endemic region for TB is an important clue for the diagnosis. The diagnosis of TB requires bacteriological or histopathological confirmation. The coexistence of abdominal TB and pulmonary TB is approximately 15%-25%.⁵ The bronchoalveolar lavage of our patient stain was positive for AFB, and additionally, pleural fluid PCR was found to be positive for *Mycobacterium tuberculosis* despite the AFB smear of pleural fluid being negative. This was compatible with the knowledge that the positivity of pleural fluid microscopy for TB is less than 10% and nucleic acid amplification tests on pleural fluid have a sensitivity of 62%-76.5% and specificity of 91%-98%.^{6,7} Intestinal involvement in our patient was confirmed by histopathological examination.

Abdominal TB may involve any part of the gastrointestinal tract, peritoneum, genitourinary tract, and lymph nodes, but more common locations are the peritoneum, intestines, and liver.⁵ In our patient, the disease involved the ileocecal area which is the most frequent site of involvement in the gastrointestinal tract.³ According to the Turkish Ministry

of Health's 2020 TB report, gastrointestinal and peritoneal involvement are approximately twice as common in women as in men. Gastrointestinal and peritoneal TB cases are 35.4% and 64.6% in men and women, respectively, according to this report.⁸ Because of the vague symptoms and clinical presentations, the definitive diagnosis of intestinal TB is challenging. Clinical and radiological findings of abdominal TB are nonspecific. The symptoms are abdominal pain generally at the right lower quadrant, diarrhea, weight loss, anemia, and fever. Intestinal obstruction, perforation, bleeding, and fistula formation can be seen as complications.^{4,9} Our patient underwent laparoscopy for intestinal perforation twice and also pelvic abscess formation was detected.

In most cases of intestinal TB, ulcerative lesions (53%) are detected in colonoscopy, and colonoscopy may be normal in some individuals as in our patient.^{10,11} Trauma, obstruction, and tumors are the most frequent causes of intestinal perforation in developed countries; however, infections including TB are more frequently seen in developing countries. Crohn's disease, ischemia, iatrogenic causes, foreign bodies, and small bowel diverticulitis are the less common causes.¹²

Our patient became symptomatic on the 15th day after delivery with pleural and intestinal TB besides pulmonary TB and she died despite antituberculous therapy. Cheng et al¹³ found that 93% of the postpartum TB cases presented with extrapulmonary involvement. They also reported 38% mortality for postpartum TB. The risk of extrapulmonary TB increases with advancing immunosuppression. Many extrapulmonary TB cases are associated with HIV infection. Our patient's HIV result is negative, but she was in postpartum period which may be a risk factor responsible for immunosuppression. It has been shown that infections and noninfectious diseases with an autoimmune basis may begin or progress during the postpartum period.¹⁴ As a result of the immunosuppression

during pregnancy, TB is less symptomatic in pregnant women. After delivery, the lymphocytic proliferative response rapidly returns to normal. Reversal of T-helper function after pregnancy may result in the appearance of new symptoms or worsening of the former symptoms.¹³

CONCLUSION

Although nonspecific symptoms can be confusing in the diagnosis, extrapulmonary TB should be considered in every patient in the postpartum period and living in developing countries. In the suspicion of extrapulmonary TB, pulmonary TB coexistence must be researched.

Informed Consent: Written informed consent was obtained from the patient who participated in this study.

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