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Intestinal tuberculosis presented as spindle cell pseudotumor in a HIV-positive case

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Qingfu Zhang and Ying Wen contributed equally to this work.

Author contributions: Ying Wen and Qingfu Zhang had the original idea for the paper. Chengbo Li and Ying Wen were in charge of treatment and management of the patient and wrote the paper. Qingfu Zhang was responsible for the pathological figure description.

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Keywords: Human immunodeficiency virus. Tuberculosis.

Dear Editor,

A 26-year-old Chinese man complained of intermittent and mild right lower abdominal pain over a five-month period in May 2022. He subsequently developed a fever, vomiting, diarrhea and progressive abdominal pain during one month and was diagnosed with human immunodeficiency virus type 1 (HIV-1) infection. The CD4⁺ T-cell count was 47 cells/ μ l and C-reactive protein level was 134.4 mg/l. The blood Widal reaction test, cytomegalovirus (CMV) DNA and Epstein-Barr (EBV) DNA were negative, while the T-SPOT.TB assay was positive. The bacteria and fungus culture in blood and stool were negative and the parasite was not found in stool. Abdominal

computed tomography (CT) showed a thickened intestinal wall in the ascending colon, local effusion in the right lower abdomen, multiple cystic nodules in the abdominal cavity, pelvic cavity and retroperitoneum sites (Fig. 1A). Colonoscopy examination showed multiple nodular apophysis lesions located in the terminal ileum, ileocecum, ascending colon, transverse colon and descending colon (Fig. 1B). Histopathology of biopsy samples showed a mycobacterial spindle cell pseudotumor (MSP) (Fig. 1C). The *Mycobacterium tuberculosis* test using the polymerase chain reaction and an intestinal tissue slice was negative. Metagenomic next-generation sequencing (BGI-Shenzhen) using formalin-fixation and paraffin-embedded intestine samples confirmed *Mycobacterium tuberculosis* complex (MTBC) (reads number was 573), while other pathogens were not found. The anti-tuberculosis regimen included isoniazid, rifampicin, pyrazinamide and ethambutol. The patient declined anti-HIV therapy at that time. Then pyrazinamide and ethambutol were replaced by levofloxacin due to a rash. Two months later, anti-HIV therapy with tenofovir, lamivudine and ritonavir/lopinavir was initiated, while isoniazid and rifabutin was continued as anti-tuberculosis agents. Almost normal abdominal CT and colonoscopy scans were observed in November 2022 and January 2023, respectively.

Discussion

MSP is a rare and atypical form of benign granulomatous inflammation characterized by tumor-like local proliferation of spindle-shaped histiocytes containing acid-fast positive mycobacteria, which should be differentiated from neoplastic lesions. Antimycobacterial therapy in most patients can achieve a good prognosis and surgical resection is only required in a small proportion of patients (1). *Mycobacterium avium* complex was the most frequent organism, followed by MTBC (1). Most cases were immunocompromised, particularly HIV-positive (1). Although lymph nodes were the most common involved site, extranodal sites have also been reported previously (1-4). Gastrointestinal tract tuberculosis presenting as a spindle cell pseudotumor was extremely rare. Here, we report a HIV-positive intestinal tuberculosis case with persistent right lower abdominal pain, whose pathological feature was MSP. The patient was successfully treated with a combination of anti-

tuberculosis therapy and anti-HIV therapy.

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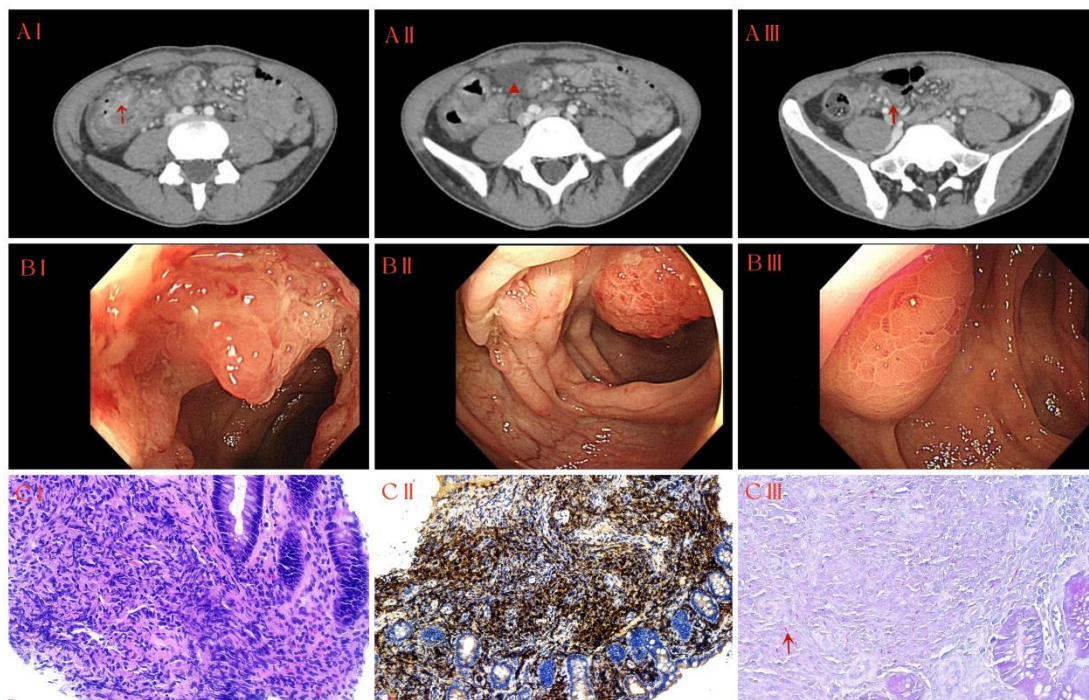


Fig. 1. Presentation of abdominal contrast-enhanced CT scan, colonoscopy and histopathology of intestinal samples. A. I-III: a thickened intestinal wall in the ascending colon (dotted arrow), local enveloped effusion (triangle) in the right lower abdomen, multiple cystic nodules in the abdominal cavity, pelvic cavity and retroperitoneum sites (solid arrow) before anti-tuberculosis therapy. B. I-III: the multiple nodular apophysis lesions located in the terminal ileum, ileocecal junction and ascending colon before anti-tuberculosis therapy. C. I-III: the spindle tissue cells showed an expanded tumor-like growth pattern, not much cellular atypia and mitosis were observed in spindle histocytes, and the boundary was clear. Multiple inflammatory cells including foam-like histocytes, lymphocytes, plasma cells and eosinophils were seen in the background. However, it did not exhibit typical caseous granuloma (H&E staining, original magnification $\times 400$). The spindle tissue cells were CD68-positive (immunohistochemical staining, original magnification $\times 200$). Positive acid-fast staining (solid arrow) indicated mycobacterium infection (acid-fast staining, original magnification $\times 400$).