Perianal Ulcerative Tuberculosis: A Case Report

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Case Report

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Abstract

**Background:** Extra pulmonary tuberculosis (TB), with or without pulmonary lesions, can be found in any organ, including cutaneous involvement, which is a relatively uncommon manifestation and can be acquired either exogenously or endogenously. Among them, rare individuals develop tuberculosis cutis orificialis (TCO) of the mucosa and orificial skin (nose, mouth and anus). Those patients usually suffer from both advanced TB of the gastrointestinal tract, lungs, or genitourinary tract and dramatically impaired cell-mediated immunity. Perianal TB is an extremely rare form which anal mucocutaneous junction becomes infected when mycobacteria are introduced by autoinoculation from gastrointestinal tract draining active TB infection. Due to its rarity, perianal TB could be misclassified as other diseases (e.g. inflammatory bowel disease) and leads to delayed managements in the clinical practise.

**Case presentation:** We report a 73-year-old male patient presented with a refractory perianal ulcer. The diagnosis of TB is rendered by histological examination and confirmed by Polymerase chain reaction (PCR). The lesion was responsive to initial short-course treatment of 2HRZE/4HR antitubercular regimen, but shortly relapsed. The patient was finally cured by supplemental intensive treatment of 3HRZE/6HR regimen.

**Conclusions:** Perianal TB is extremely rare but need to be excluded in immunosuppressed patients with refractory perianal ulcer that do not respond to antibacterial treatment. Microbiological tests should be performed for any suspicious persistent nonhealing wound or ulcer. Differential diagnoses, especially inflammatory bowel disease, are important. Early and sufficient antitubercular treatment should be initiated to minimize morbidity.

**Background**

Although there has been progress in the delivery of tuberculosis (TB) care and a decline in TB-related deaths globally, TB still remains a major public health concern, especially in developing countries (1). Extrapulmonary TB can be found in any organ of the body, with or without pulmonary lesions, constituted 15% of the seven million incident cases according to World Health Organization data (1). Cutaneous involvement is a relatively uncommon manifestation of extrapulmonary TB and accounts for less than 2% of all extrapulmonary manifestations (2).

Tuberculosis cutis orificialis (TCO) is rare and usually develops in individuals with both advanced TB of the gastrointestinal tract, lungs, or genitourinary tract and dramatically impaired cell-mediated immunity (3). The distal and lateral tongue is the most frequent sites but perianal lesions were also reported (4), especially in HIV infection or chemoradiotherapy (5, 6). Ghiya et al. reported three cases of chronic, non-healing perianal ulcers originating from TB with HIV infection(5). Lin et al. presented a patient with angioimmunoblastic T-cell lymphoma who developed perianal TB during the neutropenic phase after chemotherapy (6).
Perianal TB comes in different presentations, including ulceration, fistula, verrucous, lupoid and military. The majority English literatures and almost all Chinese literatures focused on anal fistula and perianal abscess of anorectal TB. Recently Garg et al. analyzed a set of 410 anal fistula patients, which found that 57 patients positive for TB in 410 patients, this is similar to his review of literature (7). Tuberculous fistula has no preferred site to differ from a cryptoglandular fistula, but TB was associated with more complex and recurrent fistulas. However, there are only limited case reports on ulceration form of perianal TB. Our experience of managing the refractory perianal ulcer on an elder male with uneventful medical history could shed some light on diagnosis and treatment for ulcer form perianal TB.

**Case Presentation**

A 73-year-old heterosexual man presented with painful perianal ulceration for 6 months. He reported a small unpainful lump in perianal area initially and rapidly progressed to a superficial ulcer with thin purulent exudate. He had a prior biopsy performed at outside community hospital, which showed unspecific atypical hypertrophic squamous epithelium. Treatment with oral antibiotics, topical dexamethasone and antibiotic ointment was ineffective. His past medical history was otherwise unremarkable. In particular, he had no history of TB or known contact with the disease.

Physical examination showed an afebrile, well-nourished male with 5 cm ulcer in the right perianal region with a nearly round shape (Fig. 1). The ulcer was deep to subcutaneous adipose tissue in the center but was superficial along periphery with a clear “punched-out” margin. Purulent exudate was seen. Laboratory tests demonstrated negative results for serum antibody for TB, Hepatitis B virus, Hepatitis C virus and HIV. Syphilis test is negative. He also had a negative tuberculin skin test. Ulcer exudate culture revealed Morganella Morganii only, Gram negative bacilli usually found in the environment and in the intestinal tracts of humans, reptiles as normal flora. Colonoscopy revealed no abnormalities. The chest X-ray showed streak and nodular opacities in both upper lungs. A second biopsy taken from the edge of ulcer showed several granulomas composed with epithelioid cells and Langerhans multinuclear giant cells (Fig. 2), in which there were numerous Ziehl-Neelsen stained rods. Polymerase chain reaction (PCR) was positive for *M. tuberculosis*.

The patient was given a four-drug antitubercular regimen with short course, which included isoniazid 300mg qd, rifampicin 450mg qd, pyrazinamide 1500mg qd and ethambutol 750mg qd, the course of treatment was four drugs for two months followed by two drugs (isoniazid and rifampicin) for four months. Perianal ulcer was shrunken remarkably within six weeks, and healed about fourteen weeks later. Unfortunately, four weeks after drug withdrawal, ulceration relapsed at the central of the primary lesion. The patient started second round of antitubercular treatment with long-course, which were four drugs for three months followed by two drugs for six months. The recurrent small ulcer was completely healed four weeks from the beginning of the second course of treatment. No recurrence was detected at the last follow-up nineteen months after the end of the second round of treatment.
This study is approved by Ethics Committee of Sir Run Run Shaw Hospital, Zhejiang University School of Medicine. Reference number: 20210203-30. Informed consent to publish this case report was obtained from the patient.

**Discussion And Conclusions**

Perianal TB is an extremely rare form of TCO. The pathogenesis for perianal TB is usually considered as a result of spreading from TB lesion in the lungs. Ingestion of the bacilli from sputum may lead to invasion of the gastrointestinal wall or orifice mucosa or adjacent skin (8). However, Akgun et al. presented a case of isolated perianal TB without pulmonary or gastrointestinal involvement (9).

Diagnosis of our case is challenging. The patient presented with no history of active TB with negative skin test and absence of TB antibody. Tuberculin skin tests could be negative in patients with TCO due to associated impairment in host immunity. However, our patient was not on any immunosuppressive therapy or have a history of immunosuppression. His HIV screening is also negative. Colonoscopy ruled out TB in colon, including ileocecal region, which is the most frequent predilection site accounting for more than 85% in the gastrointestinal tract TB. The only evidence suggestive of TB is the image finding of streak and nodular opacities in both upper lungs. Up to 5% of patients with upper lobe fibrocalcific changes thought to be indicative of healed primary TB (10). We speculated that this patient had been infected but the disease was well confined by host immune system until perianal lesion presented. *M. tuberculosis* released with sputum, ingested to GI tract and inoculated to perianal mucosa and skin.

Definite diagnosis of perianal TB depends on pathologic and *M. tuberculosis* identification by laboratory studies. The typical histological finding is tuberculoid granuloma, an accumulation of epithelioid histiocytes and Langhans-type giant cells that demonstrates a variable degree of central caseation necrosis and a peripheral rim composed of numerous lymphocytes. However, many clinical cases lack these typical histological characteristics. An acid-fast stain (Ziehl-Neelsen) can help to identify the bacilli, but positive bacteria visualized on a slide may represent *M. tuberculosis* or nontuberculous mycobacteria, therefore, culture or nucleic acid amplification tests is required for species identification. Although conventional culture is the most sensitive tool for detection of TB, regular culture usually reveals contamination only, because the *M. tuberculosis* grows very slowly and perianal tuberculosis was often accompanied by nonspecific infection. New diagnostic technique, such as amplification by PCR has been successfully performed, which can detect the presence of the bacterial DNA with a higher sensitivity compared to histology (7, 11).

It is essential to distinguish perianal TB from perianal involvement of Crohn's disease because the latter is much more common compare to TCO and initiation of immunosuppressive therapy in a patient with tuberculous enteritis can lead to dissemination (12, 13). Zhao et al. found that TB-IGRA was a useful indicator in the differential diagnosis of intestinal tuberculosis and Crohn's disease (14). Other differential diagnosis includes sarcoidosis, neoplasm, other microorganism infections like amebiasis, Yersinia infection and actinomycosis (15).
The treatment of perianal tuberculosis depends on the form of the lesion. Ulcerative lesion do not need surgical procedure except a biopsy (5), whereas TB fistula or abscess need local drainage combined with antitubercular treatment. Six months short course antitubercular treatment was reported successfully applied to cure perianal tuberculosis (5, 13) and directly observed treatment short course was reported as an effective strategy in cutaneous tuberculosis (16). However, in our case, the perianal ulcer shortly relapsed after the end of 2HRZE/4HR antitubercular treatment. He was finally cured by an additional 3HRZE/6HR regimen. There have been physicians preferred to extend treatment duration to at least nine months (17). We recommend an initial short course treatment, but if disease recurrent, a more powerful antitubercular treatment should be applied with a course of at least nine months.

**Abbreviations**

TB
Tuberculosis

TCO
Tuberculosis cutis orificialis

PCR
Polymerase chain reaction

**Declarations**

**Ethics approval and consent to participate**

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**Consent for publication**

Informed consent to publish this case report was obtained from the patient and a statement to this effect is also included in the manuscript.

**Availability of data and materials**

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

**Competing interests**

The authors declare that they have no competing interests.

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Authors' contributions

WL summarized and analyzed the patient data, and was a major contributor in writing the manuscript. WM performed the examination and treatment the patient. Both authors read and approved the final manuscript.

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**Figures**

**Figure 2**

Histologic morphology of perianal ulcer. A. The biopsy shows epithelioid histiocytes and giant cells with no obvious central caseation, consistent with tuberculosis granuloma. (HE 100X); B. Ziehl-Neelsen stain for acid-fast bacilli shows a few slender rods that stain brightly red in the necrotic tissue (Ziehl-Neelsen stain, 400X)