



## Primary tuberculous pyomyositis in a prisoner man

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Received: 24 January 2016

Revised: 23 April 2016

Accepted: 26 April 2016

### ARTICLE INFO

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Keywords:  
Tuberculous pyomyositis;  
Prisoner;  
Man

### ABSTRACT

Primary tuberculous pyomyositis is a rare manifestation of musculoskeletal tuberculosis especially in immunocompetent individuals without a focus of tuberculosis in the body and the underlying bone disease. We describe a 45-year-old incarcerated immunocompetent man with nontraumatic wound of right thumb since 9 months before. The diagnosis of tuberculous dactylitis was based on positive acid fast bacilli using Ziehl-Neelson staining and histopathology from involved skin

**Citation:** Naderpour Z, Ebrahimpur M, Khademi M. **Primary tuberculous pyomyositis in a prisoner man.** Case Rep Clin Pract 2016; 1(2): 58-60.

### Introduction

Tuberculosis (TB) which involves the soft tissue from adjacent bone or joint is well recognized (1). Tuberculous pyomyositis is the least frequent location of extra-spinal musculoskeletal tuberculosis reported in the literature (2, 3) and this is a rare condition even in countries where TB is relatively common disease. Tubercular myositis in an immunocompetent patient without underlying bony involvement is an unusual presentation and its pathogenesis is still unclear (4, 5). We present a case of tuberculous pyomyositis in 45 years-old incarcerated

immunocompetent man with nontraumatic wound on lateral aspect of right thumb.

### Case Report

A 45 years-old incarcerated man presented with painless wound on lateral aspect of right thumb since 9 months before. It began as nodule and then spread concentrically to undermine healthy skin; lesion then became ulcerated with purulent discharge surrounded by erythematous margin.

He denied any pain, fever, cough, night sweat, weight loss or other systemic symptoms. There was no preceding history of

any trauma, diabetes, immunosuppression, corticosteroid usage, or renal failure and no past history of tuberculosis or contact. Examination was normal except an ulcer on right thumb surrounded by erythema and swelling without discharge (Figure 1). Blood investigations including complete blood count (CBC) and erythrocyte sedimentation rate (ESR) were normal and serology was negative for human immunodeficiency virus (HIV).



**Figure 1.** An ulcer on right thumb surrounded by erythema and swelling without discharge

X-ray showed soft tissue swelling without bony involvement (Figure 2). CXR was normal. Tumor and infection were considered as main differential diagnosis. Open biopsy was taken from the wound. The samples were sent for gram staining, culture and acid-fast staining. The diagnosis of tuberculous dactylitis was based on positive acid-fast bacilli using Ziehl-Neelson staining and histological characteristics, granuloma with central caseous necrosis. Histopathology from involved skin revealed inflammatory cells and granulomatous cells suggestive of tuberculosis.

Four-drug antitubercular treatment as isoniazid, rifampicin, ethambutol, pyrazinamide daily for two months, followed by four months of isoniazid and rifampicin (2HREZ/4HR) was started for the patient. After 6 months, his wound completely healed.



**Figure 2.** Right hand X-ray, Minimal soft tissue swelling without bony involvement

### Discussion

Musculoskeletal tuberculosis accounts for 10-35% of extra-pulmonary tuberculosis (6) and only 1-15% of all cases of tuberculosis (6, 7). Common sites of extra-pulmonary tuberculosis are lymph nodes and abdomen. Tuberculous myositis is extremely rare, even in countries where TB is relatively common disease.

The exact mechanism of how *Mycobacterium tuberculosis* reaches the musculoskeletal system is not fully understood (3). Tuberculous pyomyositis may be caused by direct invasion from adjacent structures, lymphatic spread or hematogenous dissemination after pulmonary disease (8).

Tuberculous pyomyositis in comparison with pyogenic pyomyositis is rare with less systemic manifestations such as fever, chills, myalgia and septic shock (8). Bacterial, tuberculous or fungal abscesses, hematoma and neoplasm should be considered as differential diagnosis. Diagnosis would be confirmed via demonstration of acid-fast bacilli on Ziehl-Neelson staining and histological characteristics, granuloma with central caseous necrosis in tissue.

Musculoskeletal tuberculosis is difficult to

diagnose because of its indolent onset and course, nonspecific manifestations and rarity; it is still largely based on clinical suspicion and non-responsiveness to various antibiotics and healing with anti-tuberculosis chemotherapy.

The literature abounds with cases of delayed or wrong diagnosis because of lack of awareness particularly in young clinicians (4).

Although tuberculous pyomyositis can occur in immunocompetent persons, it is more common in immunodeficient people and associated risk factors include age greater than 60 years, low socioeconomic status, malnutrition, a history of tuberculosis, alcohol abuse, and previous local injection of corticosteroid and presence of HIV (7). The incidence of tuberculosis in prisoners is higher than general population. That comes from prisoners-associated risk factors and living conditions in jails. Mass incarceration and inadequate ventilation promote transmission of *Mycobacterium tuberculosis* bacilli in these settings. Poor nutrition, stress, drug and alcohol abuse, and chronic underlying diseases facilitate disease progression from latent to active form (9).

We present this case of immunocompetent person with long prison sentence without any identifiable focus elsewhere in the body in a tubercular endemic country like Iran.

### **Conflict of Interests**

Authors have no conflict of interests.

### **Acknowledgments**

None.

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