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Case presentation

Concomitant metastatic cutaneous tuberculous abscesses and Pott disease in an immunocompetent patient

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Abstract

Tuberculosis affects one-third of the world's population. The incidence of extrapulmonary tuberculosis including cutaneous and skeletal manifestations has increased in the last decades. The authors report a clinical case of concomitant metastatic cutaneous abscesses and Pott disease in an immunocompetent patient, a rare presentation of tuberculosis.

Key-words: Cutaneous tuberculosis; metastatic cutaneous tuberculous abscess; Pott disease.

Introduction

Tuberculosis is caused by *Mycobacterium tuberculosis* and it generally involves the lung, but in one-third of the cases there is extrapulmonary involvement. The prevalence of extra-pulmonary tuberculosis has increased in the recent years, owing to immunosuppression-related HIV infection, cancer, diabetes mellitus, end-stage chronic renal disease, organ transplantion, immunosuppressant drugs, and the emergence of multidrug-resistance strains [1, 2].

The incidence of cutaneous tuberculosis among all forms of tuberculosis is approximately 1%. Metastatic tuberculosis abscess, also known as tuberculous gumma is a rare form of cutaneous tuberculosis [1, 3, 4, 5].

Skeletal tuberculosis represents 1-3% of all tuberculosis cases. Spinal tuberculosis, also known as Pott disease is the most frequent form, followed by hip and knee joint involvement [1, 3]. There are few reports of simultaneous cutaneous and skeletal tuberculosis in immunocompetent patients.

Case synopsis

We present a case of a 40-year-old man who was a resident of Cape Verde, São Vicente island. He was admitted with a six month history of back pain associated with weight loss (about 10% of body weight) and night sweats, without fever, chronic cough, or sputum. He also had a subcutaneous nodule on the dorsal surface of his left hand that had been excised and had

become a non-healing ulcer. There was no history of diabetes, renal failure, or long term treatment with corticosteroids or immunosuppressant drugs.

His physical examination revealed two skin lesions: a fluctuating nodule in the proximal region of the left forearm, about 3 centimeters in greatest diameter. It was painless and adherant to deep tissues. He also exhibited an ulcerated plaque on the dorsal surface of the left hand, about 5 centimeters in greatest diameter, with a multinodular surface. Both skin lesions were biopsied.

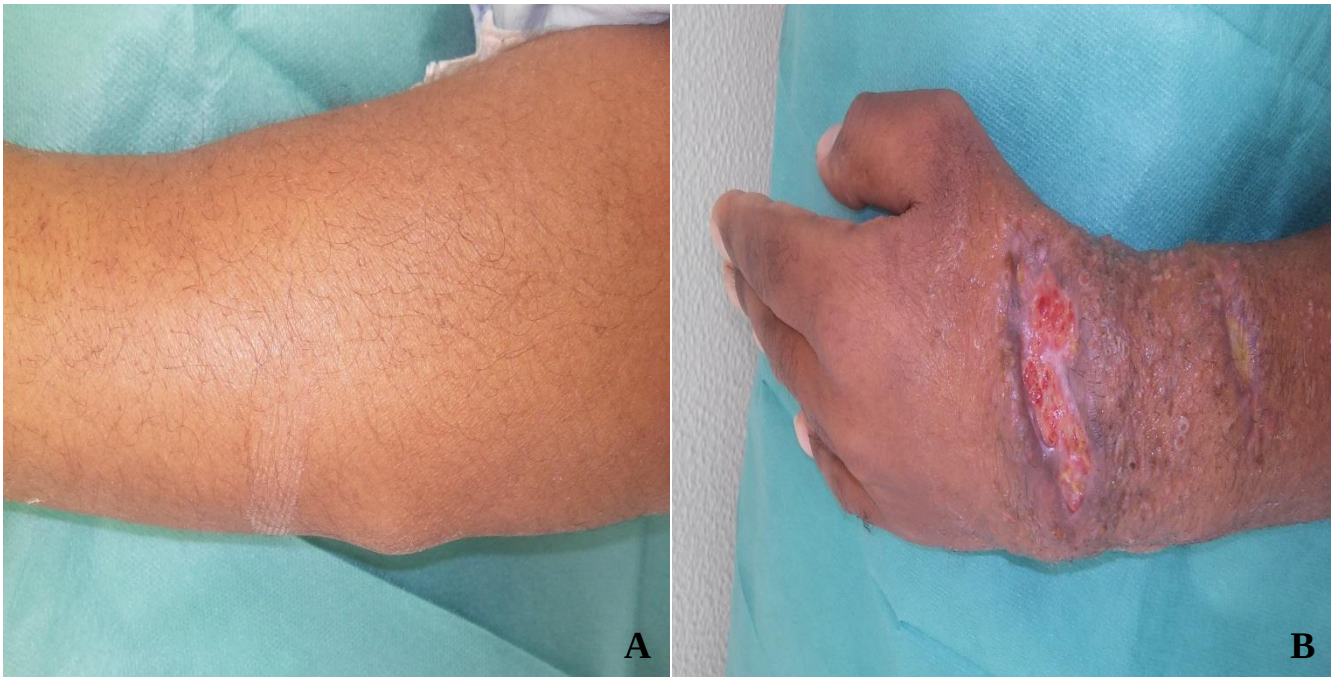

Figure 1. A), Nodule of the left forearm, painless, adhering to the deep plans. B), Ulcerated plaque on the dorsal surface of the left hand.

A blood count revealed hemoglobin 13.6 g/dL, leukocytes 5750 mm3, erythrocyte sedimentation rate 44 mm/h, and C-reactive protein 0. 980 mg /dL. Interferon gamma release assay (IGRA) was positive. HIV and primary immunodeficiency testing were negative. A chest X-ray was normal. A magnetic resonance image (MRI) was compatible with spondylodiscitis at the thoracic (T10 –T12) level with destruction of the vertebral bodies that extended to the pedicle bilaterally and there were evident paraspinal abscesses. In a computed tomography (CT) guided biopsy of one paraspinal abscess, no causative organism was isolated.

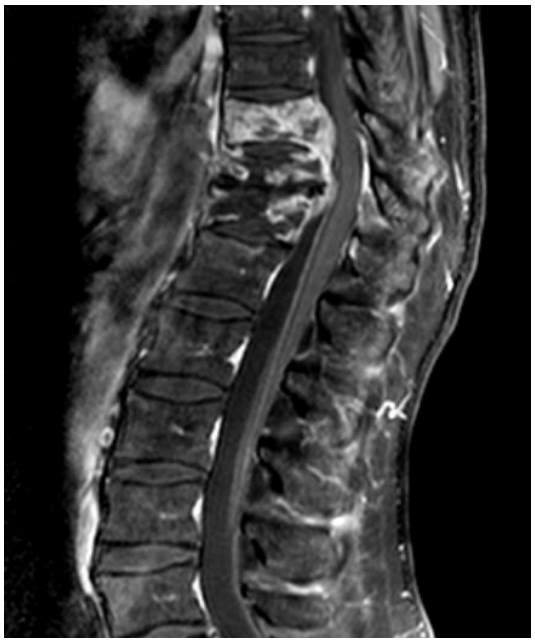

Figure 2. MRI T1– Destruction of vertebral bodies (T10-T12).

The histological examination of skin lesions revealed pseudoepitheliomatous hyperplasia of the epidermis and the presence of dermal suppurative granulomas, with foci of necrosis and multinucleated Langhans cells. Various stains were performed to find an infectious agent: Gram for bacteria, periodic acid-schiff and Grocott for fungi, Ziehl-Neelsen staining for mycobacteria. All were negative.

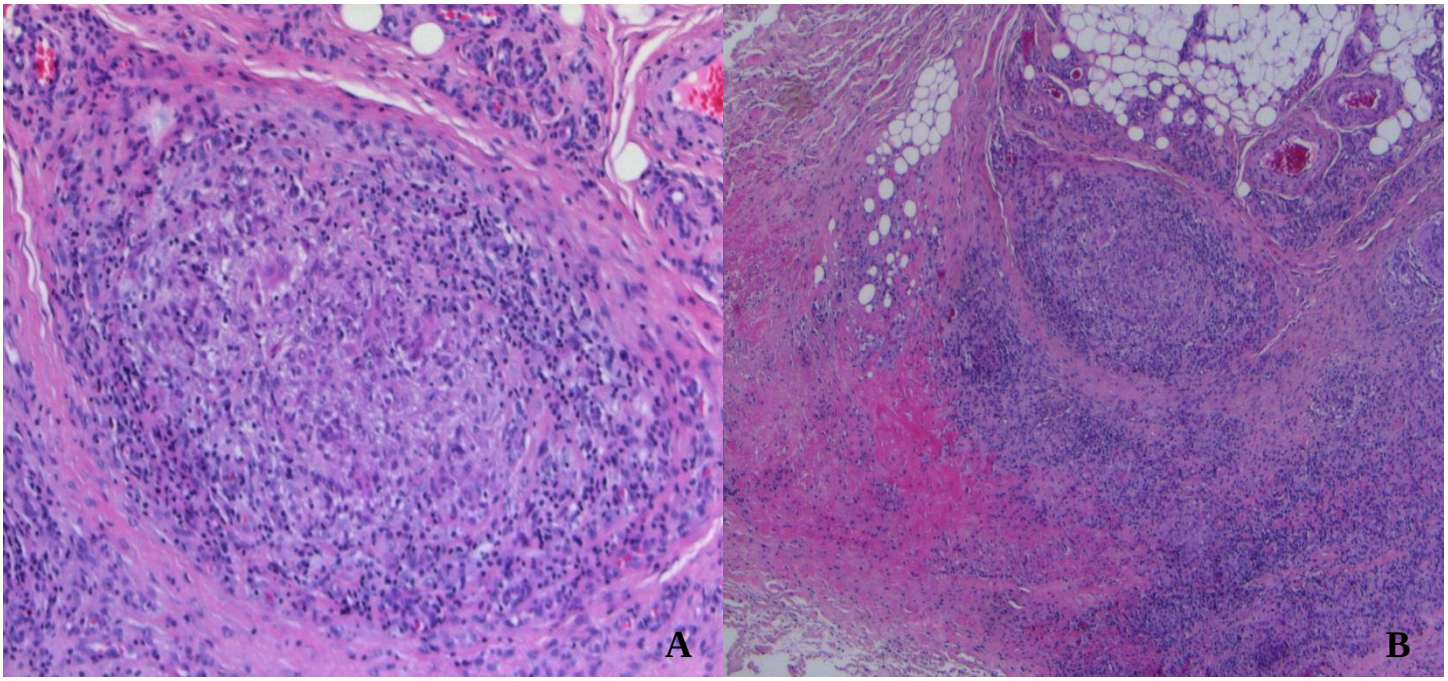

Figure 3. Histologic picture of the skin biopsy. A), Granuloma with Langhans-type multinucleate giant cells (hematoxylin and eosin, x 10). B), Granuloma with additional foci of necrosis (hematoxylin and eosin, x 40).

Owing to the high clinical suspicion, it was decided to start empirical antimycobacterial therapy (rifampicin, isoniazid, ethambutol and pyrazinamide). This produced a good clinical response and healing of the skin lesion on the left hand within 3 weeks.

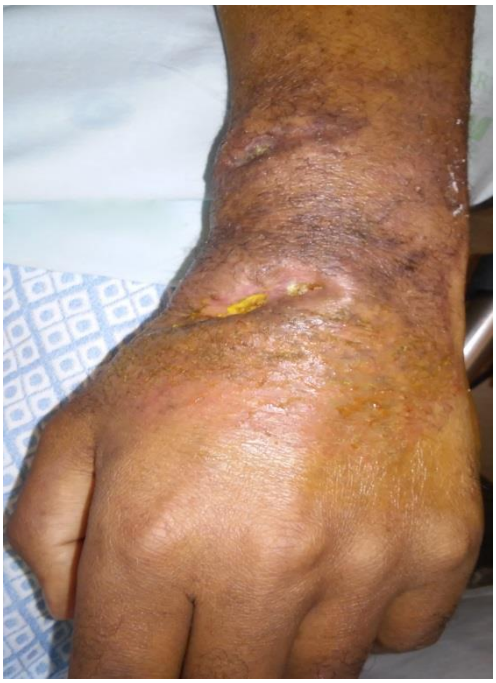

Figure 4. Healed ulcer after 3 weeks treatment.

Finally, one month later, *Mycobacterium tuberculosis* was isolated from the cultures of skin lesions. However, the patient had worsening back pain and onset of neurological deficits (lower limb hypertonicity with hypoesthesia) and it was necessary to perform a surgical debridement and an arthrodesis of the spine. Ziehl-Neelsen staining of the pus collected in the surgery was positive for acid-fast bacilli and *M. tuberculosis* was isolated at the cultures. After this surgical procedure, the patient had a

good clinical response with complete recovery of neurological deficits. He completed 12 months of the antimycobacterial therapy (2 months with rifampicin, isoniazid, ethambutol and pyrazinamide and 10 months with rifampicin and isoniazid).

Discussion

M. tuberculosis can cause several forms of cutaneous tuberculosis. Primary inoculation tuberculosis and tuberculosis verrucosa cutis are exogenous infections. Lupus vulgaris, scrofuloderma, metastatic tuberculous abscess, acute miliary tuberculosis, and orificial tuberculosis are endogenously spread cutaneous forms [3-10]. Kumar et al, reported that lupus vulgaris was the most common clinical presentation, followed by scrofuloderma, tuberculosis verrucosa cutis, and cutaneous metastatic tuberculous abscess in their series [2].

The skin lesions of this patient were compatible with metastatic tuberculous abscesses, which are characterized by fluctuating subcutaneous nodules, more frequent in the trunk and extremities. They can ulcerate and persist for years without treatment. Regional adenopathy is usually not present. The abcesses result from hematogenous spread of bacilli from a visceral localization and there are rare reports in immunocompetent patients. Hence, an evaluation for underlying immunosuppression should be performed [4].

The differential diagnosis includes forms of panniculitis, staphylococcal abscess, deep fungal infections, leishmaniasis, atypical mycobacterial infections, and other bacterial causes, such as syphilis, and leprosy [3, 5].

Tuberculous spondylodiscitis (TS), known as Pott disease, has been reported to account for about 50% of skeletal tuberculous infections. The thoracic segment is the most frequent location, followed by lumbar and cervical segments. Lesions usually affect more than two vertebrae and the posterior elements of the vertebrae could be involved. It is frequently complicated by formation of large paravertebral abscesses [11].

MRI has become the method of choice for diagnosis of spondylodiscitis owing to its high sensitivity and specificity. A CT-guided or open biopsy should be considered in suspected cases because the definitive diagnosis of TS is established by culturing *M. tuberculosis* from pathological specimens [11, 12].

Simultaneous presentation of tuberculosis of bone and skin is uncommon [1, 3]. In this particular clinical case, the constitutional symptoms with the imaging characteristics of spondylodiscitis (impairment of the dorsal column, paraspinal abscess, and extension to pedicles), and the histological findings of skin lesions with positive IGRA were suggestive of a tuberculous etiology.

Our patient had a good response to empirical antimycobacterial therapy and the diagnosis was confirmed by cultures of *M. tuberculosis* from exudate collected during neurosurgery.

This case is an example that extrapulmonary tuberculosis. Awareness of this unusual presentation of tuberculosis is essential for early diagnosis and appropriate therapy.

References

1. Pereira A, Miranda A, Santo FE, Fernandes P. Cutaneous and Skeletal Simultaneous Locations as a Rare Clinical Presentation of Tuberculosis. Case Reports in Infectious Diseases. 2015; 2015: 618546. [PMID: 26064719]
2. Kumar B, Muralidhar S. Cutaneous tuberculosis: a twenty-year prospective study. Int J Tuberc Lung Dis. 1999; 3(6):494–500 [PMID: 10383062]
3. Sezgin B, Atilganoglu U, Yigit O, Ergun, S, Cambaz, N, and Demirkesen C. Concomitant cutaneous metastatic tuberculous abscesses and multifocal skeletal tuberculosis. Indian Journal of Dermatology. 2008; 53(3):149– 153. [PMID: 19882018]
4. Santos JB; Figueiredo AR, Ferraz CE, Oliveira MH, Silva PG, Medeiros VL. Cutaneous tuberculosis: epidemiologic, etiopathogenic and clinical aspects - Part I". An Bras Dermatol. 2014; 89(2):219-28. [PMID: 24770496]
5. Pacheco C, Silva E, Miranda J, Duarte R. Cutaneous tuberculosis as metastatic tuberculous abscess. J Bras Pneumol. 2015;41(2):200-202. [PMID: 25972972]
6. Dias MFRG, Bernardes Filho F, Quaresma MV, do Nascimento LV, Nery JA da C, Azulay DR. Update on cutaneous tuberculosis. Anais Brasileiros de Dermatologia. 2014;89(6):925-938. [PMID: 25387498]

7. Saral Y1, Coskun BK, Ozturk P, Bulut Y, Cobanoglu B. Multiple metastatic tuberculosis abscesses in a patient with Pott disease and lung tuberculosis: a case report. J Cutan Pathol 2005; 32: 629–633. [PMID: 16176301]
8. Santos JB, Figueiredo AR, Ferraz CE, Oliveira MH, Silva PG, Medeiros VL. Cutaneous tuberculosis: epidemiologic, etiopathogenic and clinical aspects - Part II. An Bras Dermatol. 2014; 89(4):545-55. [PMID: 24770496]
9. Sehgal VN, Srivastava G, Khurana VK, Sharma VK, Bhalla P, Beohar PC. An appraisal of epidemiologic, clinical, bacteriologic, histopathologic, and immunologic parameters in cutaneous tuberculosis. International Journal of Dermatology, 1987; 26 (8), 521–526. [PMID: 3119506]
10. Gopinathan R, Pandit D, Joshi J, Jerajani H, and Mathur M. Clinical and morphological variants of cutaneous tuberculosis and its relation to mycobacterium species. Indian Journal of Medical Microbiology, 2001;19: 193–196. [PMID: 17664831]
11. Trecarichi EM, Di Meco E, Mazzotta V, Fantoni M. Tuberculous spondylodiscitis: epidemiology, clinical features, treatment, and outcome. European Review for Medical and Pharmacological Sciences, 2012; 16(2): 58-72 [PMID: 22655484]
12. Duarte RM, Vaccaro AR. Spinal infection: state of the art and management algorithm. European Spine Journal. 2013; 22(12): 2787-2799. [PMID: 23756630]