



Disseminated Tuberculosis of the Skin Detected on Gallium-67 Scintigraphy

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Tuberculosis of the skin is a rare disease, but it can occur in patients with immunodeficiency or in patients treated with immunosuppressants such as corticosteroids, as described here.

A 42 year old woman was admitted due to fever and polyarthralgia. Based on the clinical and laboratory data she was diagnosed as having systemic lupus erythematosus. Steroid therapy (prednisolone 1 mg/kg) was administered and the symptoms subsided; however, 8 months later the high fever returned and she started to expectorate bloody sputum. Chest X-ray showed bilateral diffuse interstitial infiltrates and the sputum smear was positive for acid-fast bacilli. Open lung biopsy revealed multiple necrotizing granulomas compatible with millitary tuberculosis and the patient was treated with anti-tuberculoids, which included isoniazid, rifampicin, pyrazinamide and ethambutol. Since the SLE was no longer active, steroid treatment was gradually reduced. During this time, the patient complained of swelling in her left forearm. The skin lesion was initially red in color with induration of the skin, which subsequently became purplish and fluctuated with discharging sinus. Although sputum and urinary cultures that were positive for *Mycobacterium tuberculosis* became negative after 2 months of treatment, the skin lesion showed a slight improvement and multiple additional skin lesions appeared on her limbs [Figure 1].

SLE = systemic lupus erythematosus



Figure 1. Tuberculous skin lesion over the lower limb showing induration and ulceration. Multiple similar purplish lesions appeared over the limbs.

She was referred for a whole-body Gallium-67 scintigraphy which was performed with 8 mCi. Anterior and posterior views were obtained. The gallium scan demonstrated multiple focal areas of increased tracer uptake over the skin, most prominent in the posterior aspect of the proximal left arm, medial aspect of the distal left thigh, and lateral aspect of the right lower leg [Figure 2, arrowheads]. A skin biopsy revealed necrotizing granuloma. A polymerase chain reaction test was positive for *M. tuberculosis* and a diagnosis of disseminated skin tuberculosis was made. Gallium scan also revealed

bilateral pulmonary and right renal involvement [Figure 2, arrow].

Although cutaneous tuberculosis is rare, representing only 1.5% of all cases of extrapulmonary TB worldwide [1], disseminated skin involvement may still be seen in patients considered to be “compromised hosts,” such as patients with AIDS or patients with vascular collagen disease, especially during corticosteroid therapy [2–4]. Physicians should consider this disease as a differential diagnosis of lasting eruption. Tuberculosis of the skin can show a wide spectrum of morphology (tuberculous chancre, tuberculosis verrucosa cutis, lu-

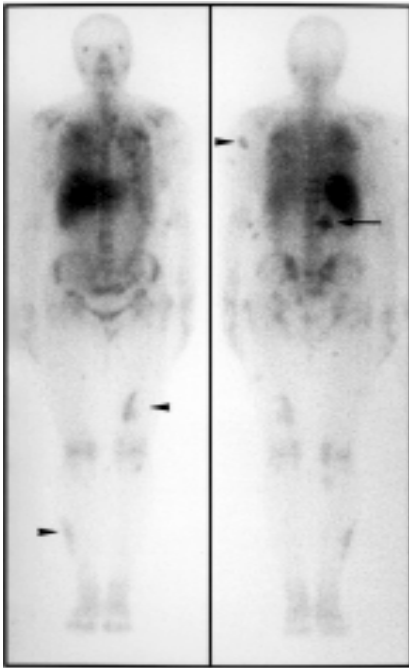


Figure 2. Anterior and posterior whole-body gallium scintigraphy showing multiple focal areas of increased tracer uptake in the tuberculous skin lesions (arrowheads). Bilateral pulmonary and right renal involvement (arrow), are also seen.

pus vulgaris, scrofuloderma, miliary tuberculosis and tuberculids) and the involve-

ment can be classified into localized or disseminated disease. The case described here qualifies as a disseminated disease due to skin involvement that was present with involvement of another system.

A whole-body survey in a patient with extrapulmonary TB is important because multiple lesions are not uncommon. Gallium scan, which has the capability of detecting infection and inflammation, is a useful method to locate suspected and occult extrapulmonary sites of tuberculosis infection. It offers the convenience of surveying the entire body for pathologic findings that warrant further detailed evaluation by computed tomography, magnetic resonance imaging, or biopsy [4,5]. The degree of abnormal gallium uptake is believed to reflect the activity of the inflammatory process, and when the disease process is arrested, as in patients with inactive tuberculosis, gallium uptake returns to normal. In this unusual case, gallium scintigraphy clarified the presence of multiple sites of active skin tuberculosis infection, a finding that has rarely been reported. Pulmonary and renal involvement were also demonstrated. This single whole-body survey can be used as

a reference for follow-up scintigraphic gallium imaging in order to evaluate the therapeutic effects and monitor disease activity.

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Literary intellectuals at one pole – at the other scientists ... Between the two a gulf of mutual incomprehension

C.P. Snow (1905-80), British novelist and scientist

Capsule

VZV infects early but appears late

Chickenpox is caused by the varicella-zoster virus (VZV), which infects via the respiratory tract before producing the skin rash 2 to 3 weeks later. It is currently assumed that this latency results from incubation of the virus in lymphoid tissue and organs such as the liver, before being transported to the skin as the final stage of a secondary viremia. Ku et al. challenge this model by showing that in fact the virus quickly makes its way to the skin by infecting T cells. Using immune-deficient mice that had received grafts of human skin, the authors observed that transferred human T cells appeared in the grafts as early as 24 hours after being infected with the virus. Predominantly, these proved to be memory T cells,

which is consistent with the observation that such cells are significantly more susceptible to infection with VZV. Potentially, the high rates of recirculation to peripheral tissues shown by memory T cells would benefit the virus by allowing it to access the skin efficiently. On arrival, innate antiviral mechanisms were induced, suggesting that the delay in the appearance of VZV pox lesions may arise from the virus having to overcome local defenses.

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