Pustular Skin Lesions in a Patient With Advanced HIV Infection and Pneumonia

(See pages 1162–3 for the Photo Quiz.)

Diagnosis: Tuberculosis cutis miliaris acuta generalisata in the context of advanced human immunodeficiency virus (HIV) infection.

Histopathological findings on the skin biopsy (Figure 1) revealed superficial dermal granulomatous inflammation (Figure 2) and acid-fast bacilli (Figure 3). Empirical treatment for tuberculosis and Mycobacterium avium complex (MAC) infection was commenced with rifampicin, isoniazid, pyrazinamide, ethambutol, and clarithromycin. Mycobacterium tuberculosis complex (MTB) polymerase chain reaction (PCR) performed on the skin biopsy specimen was positive and clarithromycin was discontinued. The fever defervesced within 48 hours. Over the subsequent weeks, fully sensitive MTB was cultured from blood cultures, sputum, bronchoalveolar lavage fluid, and urine from the acute admission.

Cutaneous tuberculosis has long been recognized as a clinical syndrome having been first described by Laennec in 1826. It continues to be an important but rare clinical manifestation of tuberculosis in a resource-rich setting [1] with highly variable skin findings. Direct inoculation from an exogenous source,
endogenous spread by contiguous extension, and hematogenous spread have been identified as mechanisms in the pathogenesis of cutaneous tuberculosis [2]. This case demonstrates a form of cutaneous tuberculosis termed tuberculosis cutis miliaris acuta generalisata that has been recognized as a complication of disseminated tuberculosis. It is a vanishingly rare clinical syndrome, with only 25 cases being reported in the literature between 1900 and 1991 [3]. However, there has been an association with advanced HIV infection and poor outcome [4].

Our case highlights the importance of skin biopsy, which allowed a rapid and accurate diagnosis and should be performed in all HIV-infected patients with papulopustular eruptions. The use of PCR on the skin biopsy sample hastened our diagnosis by several weeks and helped to differentiate between MTB and MAC infection. PCR had a high sensitivity in a case series of patients with cutaneous lesions compatible with tuberculosis. In a study of 65 patients who were culture positive for tuberculosis on skin biopsy specimens, 48 patients had a positive PCR for MTB [5]. Tuberculosis diagnostics have experienced significant advances with the increasing use of the GeneXpert MTB/RIF molecular diagnostic test (Cepheid, Sunnyvale, California) to allow rapid detection of tuberculosis and the presence of rifampicin resistance [6]. Despite not being validated for use in skin biopsy specimens or blood culture isolates, this test may provide a promising diagnostic avenue in the future.

Notes

Acknowledgment. The authors thank the patient for his participation.
Potential conflicts of interest. All authors: No reported conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

N. Macesic,1 C. Chang,1,2 I. A. Abbott,1 J. Trevillyan,1 A. Pham,3 and S. R. Lewin1,2,4
1Infectious Diseases Unit, Alfred Hospital; 2Centre for Biomedical Research, Burnet Institute; 3Department of Pathology, Alfred Hospital; and 4Department of Infectious Diseases, Monash University, Melbourne, Australia

References


Figure 3. Ziehl-Neelsen stain of skin biopsy (∗1000 magnification, oil immersion) showing numerous acid-fast bacilli within the upper dermis (arrows).