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 hematoge-
nous spread have been identified as mechanisms in the patho-
genesis 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 associa-
tion 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 per-
formed in all HIV-infected patients with papulopustular eru-
tions. 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 tuber-
culosis. 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 expe-
renced 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 rifampcin resistance [6]. Despite not being
validated for use in skin biopsy specimens or blood culture iso-
lates, this test may provide a promising diagnostic avenue in the
future.

Notes

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