penicillamine.[3,14-19] Most reports of D-penicillamine-induced pemphigus are in patients with rheumatoid arthritis.

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Bacillary angiomatosis by *Bartonella quintana* in an HIV-infected patient

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Bacillary angiomatosis and bacillary peliosis are opportunistic infections caused by *Bartonella henselae* and *Bartonella quintana*, which occur in patients with late-stage infection. We report a case of bacillary angiomatosis in an HIV-infected patient with skin, bone, and probably liver involvement, The identification of the agent (*B quintana*) was done by polymerase chain reaction in the skin specimen. The patient had complete regression of all lesions after a 6-month regimen of oral erythromycin. (J Am Acad Dermatol 2000;42:299-301.)

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Bacillary angiomatosis and bacillary peliosis are opportunistic infections that were first recognized in 1983 by Stoler et al,[1] at the beginning of the AIDS epidemic. The causative organisms are *Bartonella henselae* and *B quintana*, and the infection occurs in severely immunocompromised patients with late stage HIV infection. The manifestations of *Bartonella* infection in the

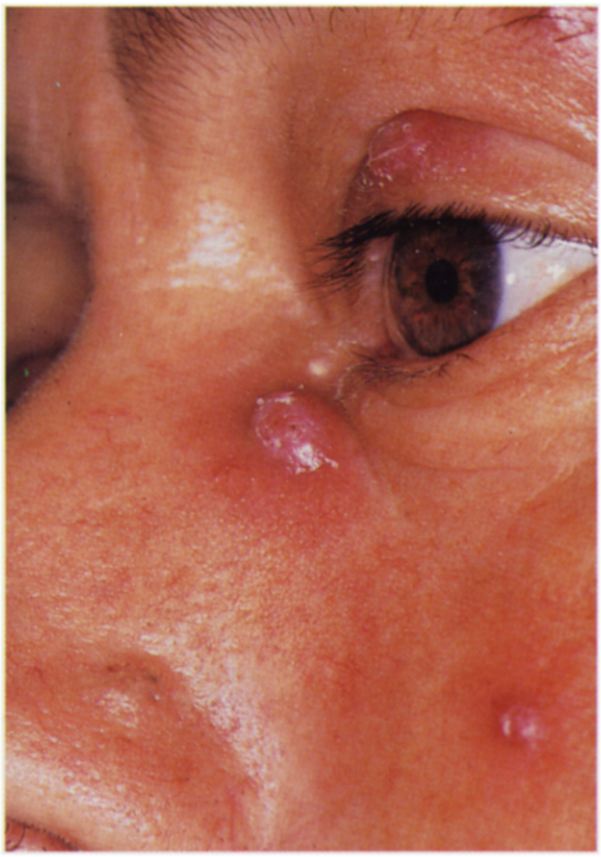

Fig 1. Multiple erythematous-violaceous cutaneous nodules on face.

immunocompromised host are diverse and sometimes nonspecific, which can result in failure to diagnose this infection. Bacillary angiomatosis is a systemic disease, and cutaneous lesions may be accompanied by brain, bone, lymph node, gastrointestinal tract, respiratory tract, and bone marrow involvement. Bacillary angiomatosis can be life-threatening if untreated.

CASE REPORT

A 50-year-old man, HIV-1 positive since 1994, was receiving antiretroviral triple therapy with zidovudine (AZT), lamivudine (3TC), and indinavir, and prophylaxis with trimethoprim-sulfamethoxazole. He had fever for 8 weeks (39°C), weight loss, and several erythematous-violaceous cutaneous nodules on the face (Fig 1), oral mucosa, trunk, and arms. There were also painful subcutaneous masses on the arms and limbs. He was severely immunocompromised (CD4 cell count <10 cells/mm^3, and HIV viral load of 81,000 copies/mL [5.25 log]). Other laboratory studies showed leukocyte count 2200 cells/mm^3, hemoglobin 9.1 g/dL, hematocrit 27.1%, and platelets 291,000/mm^3. Erythrocyte sedimentation

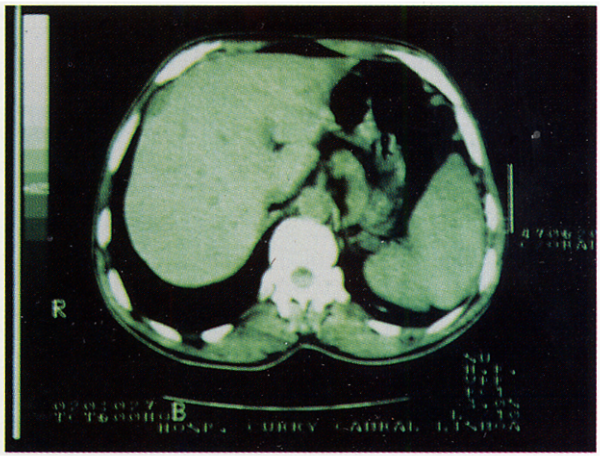

Fig 2. Abdominal CT scan shows hypodense liver lesion suggestive of bacillary peliosis *(arrow)*.

rate was 117 mm/h. Liver function test results and chest radiograph were within normal limits. There was bone involvement with several lytic lesions visible on plain film and easily identified with technetium scanning. An abdominal computed tomographic scan showed a hypodense liver lesion suggestive of bacillary peliosis (Fig 2). A liver biopsy was not performed. The clinical diagnosis of bacillary angiomatosis was confirmed by histopathologic examination of the skin lesions and Warthin-Starry staining. Blood cultures performed on EDTA blood tubes and inoculated onto chocolate agar were negative. Serology using indirect immunofluorescence for *Bartonella* species was negative. The identification of the agent, *B quintana*, was accomplished by means of polymerase chain reaction (PCR) in the skin specimen (VRZB/CDC, Atlanta). The domestic cat owned by the patient was negative for *Bartonella* spp (blood culture and serology). PCR was not performed on blood from the cat.

The patient was treated with oral erythromycin, 2 g/day for 6 months, with complete regression of cutaneous, bone, and hepatic lesions. He continued antiretroviral triple therapy (AZT, 3TC, indinavir) and prophylactic therapy with trimethoprim-sulfamethoxazole. After 1 year of follow-up the patient is well (CD4 cell count 190 cells/mm^3 and HIV viral load <500 copies/mL).

DISCUSSION

Bacillary angiomatosis and bacillary peliosis are opportunistic infections caused by *B henselae* and *B quintana* that occur in patients with late-stage HIV infection. Cutaneous involvement is the most frequently recognized manifestation, but can appear as diverse angiomatous lesions.[2,3] The patients can also

present with subcutaneous nodules or deep soft tissue masses.

The two above-mentioned *Bartonella* spp are equally likely to cause cutaneous bacillary angiomatosis, but *B quintana* is responsible for most cases of subcutaneous infection, deep soft-tissue disease, and lytic bone lesions. To date peliosis hepatis and lymph node involvement have been associated exclusively with *B henselae* infection.[4,5] In the past, *B quintana* (formerly called *Rochalimaea quintana* or *Rickettsia quintana*) was known as the cause of trench fever. Transmission occurred through the bite of the human body louse. A study in Seattle showed that those at greater risk are homeless persons of low socioeconomic status and those with exposure to head and body lice.[6] Koehler, Glaser, and Tappero[7] documented that the domestic cat serves as a major reservoir for *B henselae*, and that the cat flea is a potential vector. Our patient had skin, bone, and probable liver involvement, findings not typically described in the literature associated with *B quintana* infection. Although he had a cat, its serology and blood culture were negative for *Bartonella* sp. The source of bacillary angiomatosis caused by *B quintana* remains unknown, and the only recommendation for preventing infection is to avoid contact with head and body lice, known vectors of *B quintana.*

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