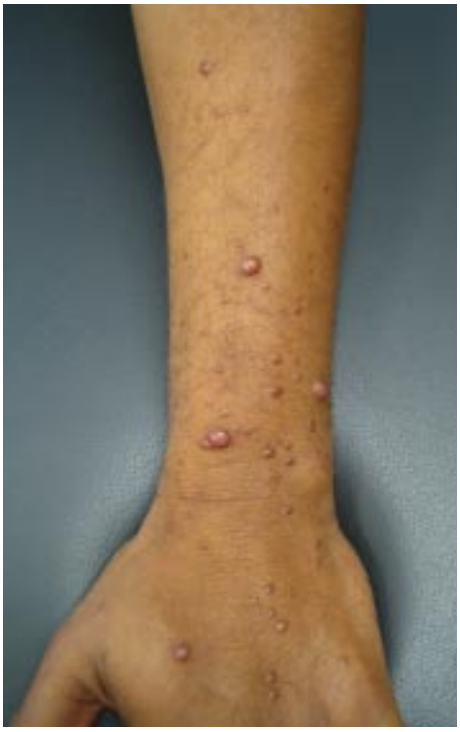
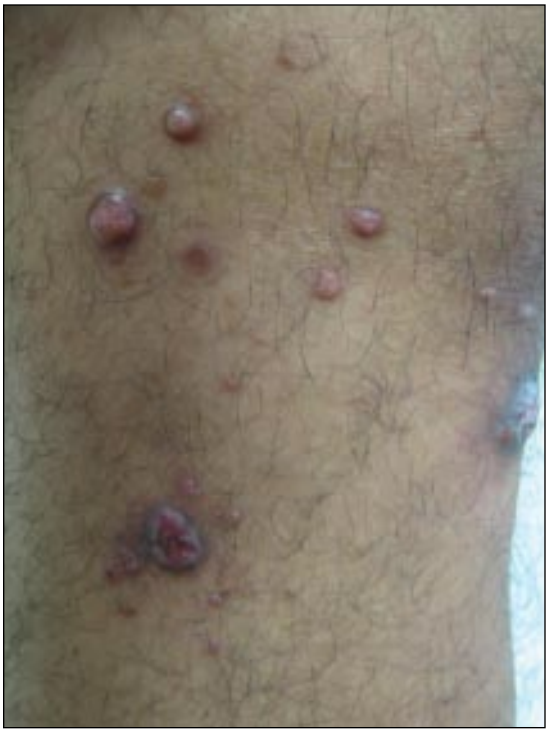
What Is Your Diagnosis?





A 31-year-old Brazilian man presented with more than 20 firm, flesh-colored to yellow papules on the arms, legs, and trunk. The lesions had been present for approximately 2 years and had recently increased in number and size. They were otherwise asymptomatic. The patient had no systemic symptoms and was in good health. He had not resided in Brazil for more than 4 years, and he had no history of recent travel.

PLEASE TURN TO PAGE 73 FOR DISCUSSION

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The authors report no conflict of interest.

The Diagnosis: Hansen Disease (Lepromatous Leprosy/Multibacillary Disease)

Hansen disease, formerly known as leprosy, is a slowly progressing, chronic disease caused by *Mycobacterium leprae*. The disease primarily affects peripheral nerves, skin, and eyes. The incubation period ranges from 6 months to 40 years, with an average of 5 years before signs or symptoms develop.[1,2] If left untreated, the disease can progress to cause permanent nerve damage, skin deformity, and eventual disability.[1-3]

The first reports of the disease date back to 600 BC in India. In 1873, Gerhard Hansen, a Norwegian physician, discovered the causative organism (M *leprae*), the first bacillus associated with human disease.[4] The disease originally was believed to be highly contagious, and individuals with leprosy often were socially stigmatized because of their physical disfigurements.[1] In 1921, the US Public Health Service created a leprosarium located in Carville, Louisiana. The center was renamed the Gillis W. Long Hansen's Disease Center in 1986 and continues to be an important national center for the care and rehabilitation of patients with Hansen disease as well as a premier center for training and research on the disease.[5]

According to the US Department of Health and Human Services, there were 166 new cases of Hansen disease reported in the United States in 2005. Currently, there are approximately 6500 individuals with Hansen disease residing in the United States.[6] In the majority of these cases, the disease was contracted in developing countries where the disease is endemic. In 2001, the World Health Organization (WHO) reported that the following countries have the highest rates of disease: India, Brazil, Nepal, Myanmar, Mozambique, and Angola.[4] The disease is thought to be transmitted in humans via respiratory droplets.[1] Naturally occurring leprosy also has been found among wild 9-banded armadillos in Texas. Although it has been postulated that some cases of Hansen disease in the United States may have been contracted through direct contact with these armadillos, there are no studies proving direct transmission.[7]

The clinical presentation of Hansen disease can vary widely, depending on the host immune response.[8] In 1966, the Ridley-Jopling classification system characterized the disease into 5 subtypes based on clinical presentation and immune response. One end of the spectrum represents patients with tuberculoid disease. These patients present with few skin lesions and oftentimes pronounced neural involvement. Immunologically, they demonstrate a weak humoral response to the organism coupled with a strong cell-mediated response, which yields low mycobacterial loads or so-called paucibacillary infection. At the opposite end of the spectrum are

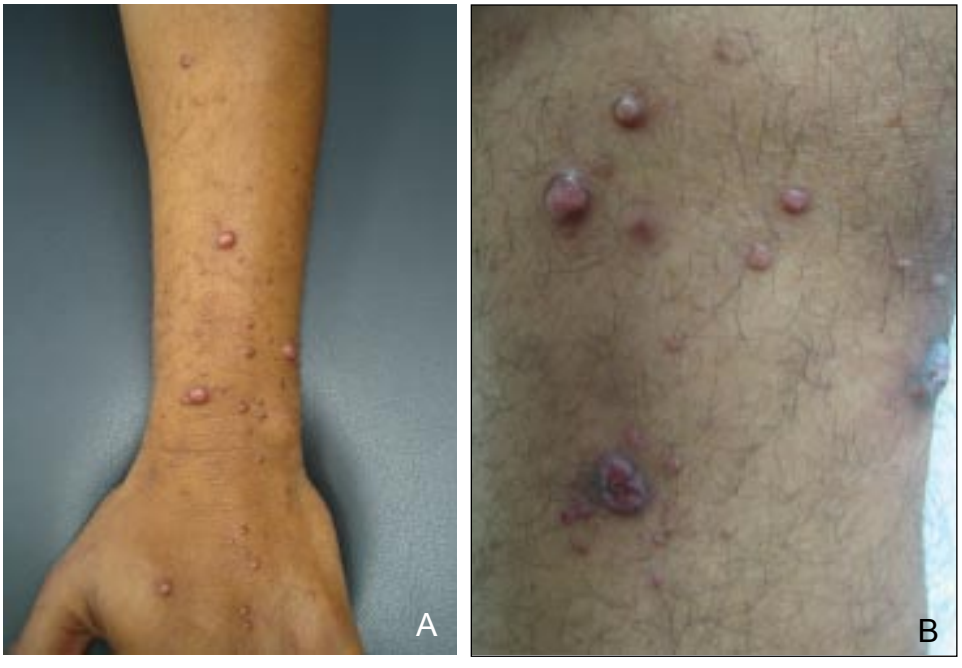

Figure 1. Multiple firm, flesh-colored to yellow papules scattered on the extremities (A and B).

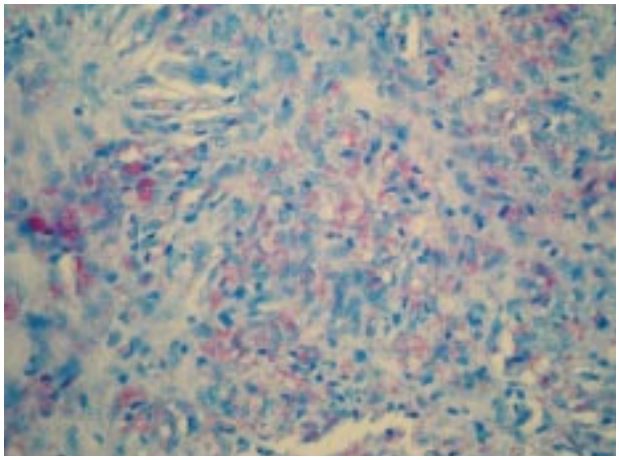

Figure 2. Numerous, red-staining acid-fast bacilli are apparent, many of them clumped into globi within the histiocytes (Fite, original magnification ×40).

patients with so-called lepromatous leprosy. Clinically, these patients manifest numerous small skin lesions that often are bilaterally symmetric, with little peripheral neural involvement. Skin lesions can vary from ill-defined macules to discrete nodules and plaques. Patients with lepromatous leprosy exhibit a strong humoral response to the organism coupled with a weak cell-mediated response, leading to a high mycobacterial load or multibacillary form of disease. Many patients present somewhere along this spectrum, categorized as having borderline or indeterminate disease based on the Ridley-Jopling classification system. Although the Ridley-Jopling classification system is still used, WHO recommends classifying patients by the paucibacillary and multibacillary terminology, as this distinction is most important for treatment guidelines.[8]

In countries where the disease is endemic, the diagnosis of Hansen disease usually is made solely on clinical grounds.[1] The classic cutaneous and neural involvement often is all that is needed for diagnosis. Occasionally, skin smears are used to demonstrate the bacilli. However, in countries where the disease is not prevalent, the diagnosis often is delayed by many years until a skin biopsy is performed. The biopsy findings will vary depending on the type of disease in the patient, but a granulomatous infiltrate with bacilli-filled macrophages usually is demonstrated.[9] In our patient, the multiple skin lesions without obvious signs of neural involvement suggested multibacillary disease (Figure 1). A low-power examination of one of the representative lesions revealed a widespread granulomatous response with multiple foamy histiocytes. The Fite stain showed numerous, red-staining acid-fast bacilli alone and in globi (Figure 2). No neural involvement was seen in this specimen.

Hansen disease is curable with proper antimicrobial treatment. Since 1981, WHO has recommended multidrug therapy to treat the disease,[1] which helps to prevent dapsone resistance and greatly reduces the contagiousness of the disease.[8] In fact, most patients are considered to be noninfectious within a week of starting therapy.[1] In the United States, paucibacillary disease usually is treated with a combination of dapsone and rifampin for 1 year; follow-up continues for up to 5 years. Multibacillary disease requires treatment with dapsone, rifampin, and clofazimine for 1 to 2 years, with a 10-year follow-up period. Skin lesions usually resolve within the first year of treatment. Additional surgical treatment may be needed to treat deformities, and physical and occupational therapy can be especially helpful for some patients.[8] Our patient was sent to the Gillis W. Long Hansen's Disease Center where he received a full evaluation and was started on dapsone 100 mg daily, rifampin 600 mg daily, and clofazimine 50 mg daily. He is currently doing well with slow resolution of his lesions.

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