

# Global Village, International Travel, and Risk of Communicable Disease



Travel and migration may communicate many things, including the risk of infectious diseases. In this issue of *Mayo Clinic Proceedings*, Bezael et al<sup>1</sup> present their retrospective analysis of patients diagnosed with leprosy over a 23-year period at Mayo Clinic in Rochester, Minnesota. Six of the 9 patients were born outside the United States, whereas the remaining 3 were born in the United States.

The Editors of the *Proceedings* highlight this article for its readership because the findings are instructive for the following reasons.<sup>1</sup> First, leprosy is not a disease that is thought of as occurring in patients seen in the American Midwest, yet this diagnosis was made in multiple patients during the study period of this review; this finding is against a backdrop of a disease that is rare in the United States (some 150 new cases diagnosed each year). In contrast, leprosy is a major public health problem globally, even though its global prevalence has declined in recent years because of multidrug therapy programs. Second, all patients in this analysis had one or a number of skin lesions, the spectrum of which included erythematous plaques, skin nodules, and hypopigmented macules and patches; all but one patient had neurologic disease. Leprosy should thus always be considered in patients with skin manifestations and neurologic symptoms, especially those with a relevant travel, exposure, or social history. Third, the patients in this series exhibited either multibacillary lepromatous disease or tuberculoid paucibacillary disease, the former being more commonly observed; these 2 types represent the brackets for the spectrum of subtypes of leprosy. Fourth, most of the patients experienced immunologic reactions during antimicrobial therapy, including type

1 and type 2 reactions, reflecting aberrant cell-mediated immunity (helper T cell type 1) and enhanced humoral immunity (helper T cell type 2), respectively. During these immunologic reactions, antimicrobial multidrug therapy should be continued and the immune reaction treated by prednisone and/or thalidomide. Fifth, on the basis of polymerase chain reaction studies, leprosy in one patient was confirmed as caused by *Mycobacterium lepromatosis*. This species was identified as a cause of leprosy little more than a decade ago, before which *Mycobacterium leprae* was uniformly considered the pathogen that caused the disease.<sup>2</sup> Thus, for a disease considered by some to be the oldest infectious disease in the history of humankind, a new causative species was recognized only recently. Sixth, although it is a slowly progressive disease, leprosy may lead to crippling disfigurement, and thus diagnosis and treatment should be as expeditious as possible. The diagnosis of leprosy is often delayed, in part because of the rarity of the disease in the United States and the low likelihood that it would be considered in the differential diagnosis. To this point, all patients in the present series underwent evaluations in multiple disciplines, a finding that likely reflects the difficulty in arriving at the diagnosis. Interestingly, the time required for diagnosis in the present series of patients was shorter than usually seen nationally, perhaps reflecting, as pointed out by the authors, evaluation at a tertiary medical center that emphasizes teamwork across specialties. Seventh, the cases presented illustrate how in certain instances, infection may reflect zoonotic transmission (armadillo) or the influence of immunosuppression in predisposing patients to the disease.

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This case series brings to mind the adage we are all taught during our medical training regarding the construct of a differential diagnosis following the completion of the history and the physical examination and the perusal of available information: “When you hear hoofbeats, think horses, not zebras.” In the American Midwest, hoofbeats are usually sounded by the galloping of horses. However, zebras, such as leprosy, may need to be considered under certain circumstances as appraised by clues gleaned from the clinical encounter.

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