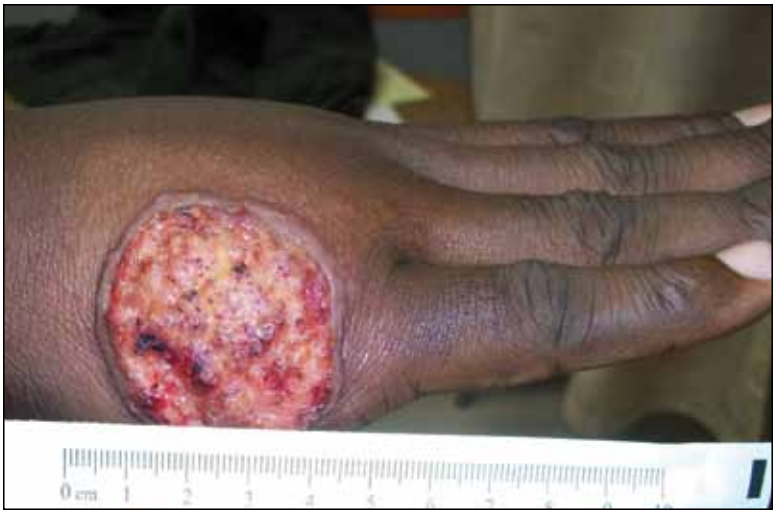
What Is Your Diagnosis?



A 40-year-old man presented with a nonhealing ulcer on the right hand of 2 months' duration. The lesion had started as a pruritic papule while he was visiting Guyana 2 months prior. The area had slowly enlarged with progressive ulceration. He denied any systemic signs including fever, chills, or weight loss, and his medical history was unremarkable. Physical examination revealed a 4-cm fungating ulceration with heaped-up borders on the dorsal aspect of the right hand.

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The authors report no conflict of interest.
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The Diagnosis: New World Cutaneous Leishmaniasis

In addition to the ulceration on the right hand, a 2-cm ulcerated plaque also had developed on the right side of the chin a few days later (Figure 1). A biopsy was obtained from the lesion on the hand. Histopathologic examination revealed granulomatous inflammation with numerous histiocytes containing intracellular organisms (Figure 2). The microorganisms had pale pink nuclei with basophilic kinetoplasts (Figure 3). Tissue culture showed a mixed growth of gram-positive and gram-negative organisms but no predominant organism. Fungal and mycobacterial cultures were negative. A diagnosis of New World cutaneous leishmaniasis (CL) was made due to visualization of intracellular microorganisms containing basophilic kinetoplasts. Polymerase chain reaction on the tissue block confirmed the presence of *Leishmania guyanensis*.

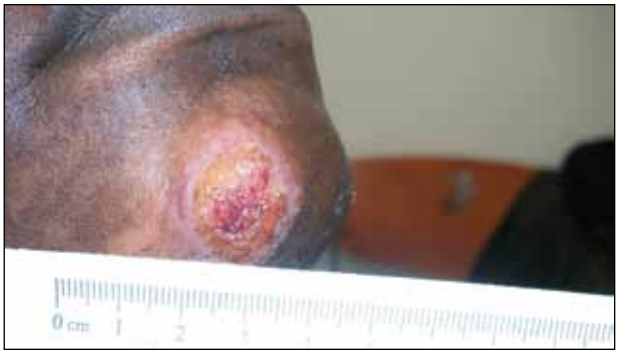

Figure 1. A 2-cm ulcerated plaque on the right side of the chin.

Cutaneous leishmaniasis is caused by protozoa from the *Leishmania* species and is transmitted by the bite of the female sandfly. There are 2 classifications for the disease: Old World and New World. Old World CL is transmitted by the sandfly of the genus *Phlebotomus*, which is endemic in Asia, Africa, the Mediterranean, and the Middle East. New World CL is transmitted by the sandflies of the genus *Lutzomyia*, which are endemic in Mexico, Central America, and South America. There have been occasional cases of autochthonous transmission reported in Texas and Oklahoma,[1] but there has been no known transmission of CL in Australia or the Pacific Islands.[2] Human infection can be transmitted by 21 species of *Leishmania* and can be speciated by designated laboratories such as the US Centers for Disease Control and Prevention (CDC) and the Walter Reed Army Institute of Research (Silver Spring, Maryland) using tissue culture and polymerase chain reaction.[1] The CDC can assist with the collection of specimens and supply of culture medium for cases occurring in the United States. Identification of the species is important because there are associated implications for treatment and prognosis.

There are 3 major forms of leishmaniasis: cutaneous, mucocutaneous, and visceral. Cutaneous leishmaniasis is the most common form. There are approximately 1.5 million new cases of CL each year worldwide,[3] and more than 90% of these cases occur

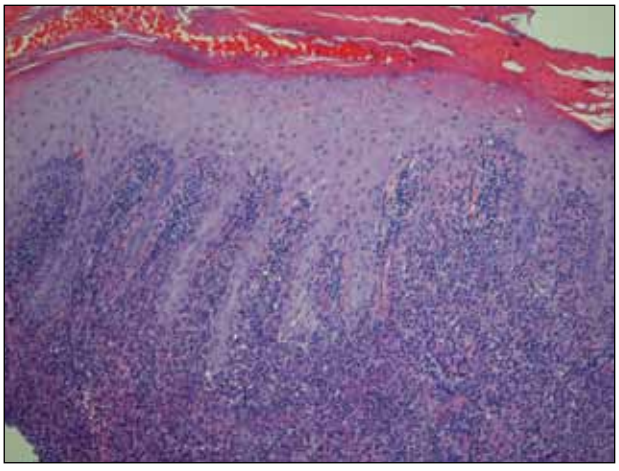

Figure 2. Pseudoepitheliomatous hyperplasia overlying a mixed dermal infiltrate of lymphocytes and numerous histiocytes (H&E, original magnification ×40).

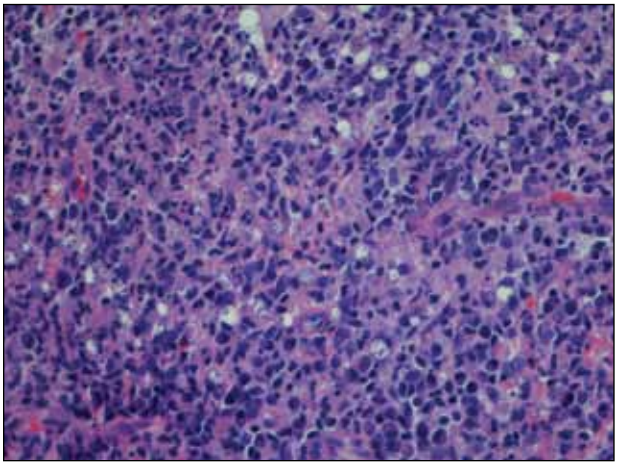

Figure 3. Numerous histiocytes containing intracellular organisms. The microorganisms have pale pink nuclei with basophilic kinetoplasts (H&E, original magnification ×200).

in Afghanistan, Algeria, Iran, Iraq, Saudi Arabia, Syria, Brazil, and Peru.[1] New World CL is caused by 2 species complexes: *Leishmania mexicana* and *Leishmania viannia*, including the subspecies *L guyanensis*, which was seen in our patient.

Cutaneous leishmaniasis usually begins as a small, well-defined papule at the site of the insect bite that then enlarges and becomes a nodule or plaque. Next, the lesion becomes ulcerated with raised borders (Figure 1). The ulcer typically is painless unless there is secondary bacterial or fungal infection.[3,4] The incubation period usually is 2 to 8 weeks and multiple lesions may be present, as seen in our patient.[4]

Old World CL can resolve without treatment, but New World CL is less likely to spontaneously resolve. Additionally, there is a greater risk for spread of the infection to mucous membranes or for systemic dissemination if New World CL is left untreated.[2,5] Patients with multiple lesions (ie, ≥3); large lesions (ie, >2.5 cm); lesions on the face, hands, feet, or joints; and those who are immunocompromised should be treated promptly.[2] Pentavalent antimonials (eg, meglumine antimoniate, sodium stibogluconate) are the treatment of choice for New World CL, except for infections caused by *L guyanensis*. The most common pentavalent antimonial agent used in the United States is sodium stibogluconate and is given at a standard intravenous dose of 20 mg antimony/kg daily for 20 days.[2] The drug is only available through the CDC's Drug Service under an Investigational New Drug protocol.[1]

Intramuscular pentamidine (3 mg/kg daily every other day for 4 doses) is the first-line treatment of CL caused by *L guyanensis* because systemic antimony usually is not effective.[2,6,7] Intralesional injection with pentavalent antimonials usually is not recommended for treatment of New World CL because of the possibility of disseminated disease.[2] Liposomal amphotericin B has mainly been used to treat visceral and mucosal leishmaniasis, but there have been some small studies and case reports that have showed it to be successful in treating CL.[8-10] Larger controlled studies need to be performed. Oral antifungal drugs (eg, fluconazole, ketoconazole, itraconazole) also have been used to treat CL with variable results depending on the *Leishmania* species.[11]

There currently are no vaccines or drugs available to prevent against leishmaniasis. Preventive measures such as avoiding outdoor activities from dusk to dawn when sandflies are the most active, wearing protective clothing, and applying insect repellent that contains DEET (diethyltoluamide) can help reduce a traveler's risk for becoming infected. Mosquito nets also should be treated with permethrin, which acts as an insect repellent, as sandflies are so small that they can penetrate mosquito nets.[1,3,11]

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