An Unusual Manifestation of Acquired Syphilis

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Bone involvement is an unusual manifestation of acquired syphilis. We report a case of clinically apparent osteitis of the skull, secondary to acquired syphilis, which was the patient’s presentation of human immunodeficiency virus infection.

Case report. The patient, a 20-year-old black, bisexual man without any significant past medical history, arrived at the hospital with a chief complaint of headache. He had been healthy until 2 months prior to admission, at which time he had noted a lump on his forehead. Approximately 1 month prior to admission, he had noticed a similar nodule on the vertex of his head. Both nodules were painful. He also complained about a nontender mass, located above the left testicle, that he had first noted at approximately the same time that the second nodule had appeared on his head. He denied having fevers, chills, nausea, vomiting, cough, difficulty breathing, arthritis, or rash. The only medications that he had been taking at the time of admission were acetaminophen and ibuprofen, as needed for headache. The patient had no history of undergoing surgery, and he denied drinking alcohol, smoking cigarettes, or abusing injection drugs. He denied having traveled recently, he had lived in New York City for his entire life, and he had no pets.

The patient was a man who appeared to be healthy, and he showed no acute distress. His vital signs were as follows: temperature, 38°C; blood pressure, 120/80 mm Hg; pulse rate, 86 beats/min; respiratory rate, 12 breaths/min; and oxygen saturation, 100% while breathing room air. Of note, examination of the head revealed a raised, firm mass (size, 4 cm × 3 cm) located on the vertex of the skull and a second mass (size, 2 cm × 2 cm) on the forehead. No scleral icterus, thrush, or mucous patches were noted. His neck was supple and was without significant lymphadenopathy. Examination of his genitals revealed a nontender, soft supratesticular mass (size, ~2 cm × 2 cm) located above the left testis. No chancres were noted on the genitals, and no significant inguinal lymphadenopathy was present. The results of the patient’s cardiovascular, pulmonary, abdominal, neurologic, and extremity examinations were all normal, and he had no rashes.

The patient’s laboratory values at the time of admission to the hospital were significant for a WBC count of 4900 cells/mL, with a normal differential and a hemoglobin level of 12.1 g/dL. The patient’s electrolyte, blood urea nitrogen, and creatinine levels, and the results of his liver function tests were all normal. Of note, the total protein level was 11 g/dL, and the serum albumin level was 2.8 g/dL. A chest radiograph done at the time of admission showed normal findings.

At the time of admission, CT of the brain was done without the use of iv contrast; it revealed multiple lytic lesions in the patient’s skull and otherwise normal brain parenchyma (figure 1). The patient was admitted to the hospital.

To further evaluate the skull lesions, MRI of the brain was performed. The MRI scan demonstrated 2 large masses that started in the subcutaneous tissues, penetrated through the cranium into the diploic space, and abutted the dura (figure 2). The brain parenchyma was normal. Infectious and neoplastic conditions were considered, and a diagnostic biopsy was requested. A diagnosis of syphilis was also considered in this case.
young, bisexual man. A quantitative rapid plasma reagin (RPR) test was performed with a titer of 1:128. Because of the patient’s risk factors, an HIV screening test was performed. The patient had a positive result on HIV ELISA and a confirmatory result on Western blot analysis. Pathological examination of a soft tissue biopsy specimen demonstrated a perivascular infiltration with plasma cells and lymphocytes with some necrosis, but without the granuloma formation believed to be consistent with syphilis. A silver stain of the specimen demonstrated no organisms, and fungal and bacterial stains also showed negative results. The bacterial culture yielded Propionibacterium species, a finding that was thought to represent contamination from the skin. A diagnostic lumbar puncture was performed. The CSF glucose level was 43 mg/dL, and the total protein level was 93 mg/dL. The CSF WBC count was 28 cells/mL (67% lymphocytes, 27% monocytes, and 4% neutrophils), and the RBC count was 5 cells/mL. The results of a CSF-Venereal Disease Research Laboratory test were negative. A bone scan demonstrated increased uptake in the skull without any evidence of uptake in the axial skeleton.

The patient was given a diagnosis of syphilitic osteitis and was treated with aqueous penicillin, 4 million units given every 4 h for 21 days. The lesions on the skull resolved soon after the initiation of therapy.

The patient also underwent testicular sonography, which revealed a left supratesticular mass (size, 2 cm × 2 cm) located above the epididymis. The patient had normal levels of α-fetoprotein and human chorionic gonadotropin. The testicular mass decreased in size with therapy, and no biopsy of the mass was performed.

When we treated this HIV-infected patient, we elected to be conservative and administer treatment with high-dose aqueous penicillin for a prolonged time, to ensure adequate penetration of the bone and the CNS. It was believed that the patient also had neurosyphilis, which is a common finding in HIV-infected patients with acquired syphilis and which is potentially serious. The extended period of treatment with iv penicillin (21 days) was prompted by the well-documented rate of failure of conventional neurosyphilis treatments in HIV-infected patients [1]. The lesions of the skull completely resolved after therapy with penicillin.

It is unfortunate that the patient did not receive follow-up in our infectious diseases clinic after discharge, despite outreach attempts. The patient returned to the emergency department with cough and fever 8 months later, and he was given a diagnosis of community-acquired pneumonia. He was admitted to the hospital and was given iv antibiotics. The patient underwent an additional quantitative serum RPR test with a titer of 1:2. The supratesticular mass was no longer present on physical examination and sonography. The patient was discharged and was followed up at our infectious diseases clinic.

Discussion. Bone and joint involvement is well described in cases of congenital syphilis, in which it is almost uniformly found [2], but bone involvement is an unusual manifestation of acquired syphilis. Acquired syphilitic osteitis has been described in only a few case reports in the literature [3–8]. Presentations have varied, but bone pain is routinely found. Lymphadenopathy was also frequently reported. Radiography of the affected bones demonstrated osteolytic lesions. Pathological examination demonstrated a plasma cell and lymphocytic perivascular infiltration of the bone and the surrounding tissue. For all patients in these studies, the results of a quantitative serum RPR test were significantly positive, as was a confirmatory treponemal assay. These case reports were mostly from the pre-HIV era.

The incidence of symptomatic syphilitic osteitis among patients with primary and secondary syphilis is quite rare. In a retrospective review of 854 patients who were given a diagnosis of secondary syphilis, osteitis was found in only 2 of these patients (0.2%) [9].

Reynolds and Wasserman [10] performed the largest case series study of acquired syphilitic osteitis in 1942. They reviewed a series of 10,000 cases of early syphilis from 1919 to 1940, and found 15 cases of destructive bone lesions. They found that 8 of 15 of the patients had involvement of the skull. Other less frequently involved bones included the sternum and, more rarely, the long bones.

Symptomatic bone involvement in association with syphilis is very unusual. The differential diagnosis for lytic bone lesions...
is very extensive, and this case report demonstrates that syphilis is truly the great imitator of other illnesses. We suggest that a diagnosis of syphilis be considered for at-risk patients with lytic bone lesions. In addition, since osteitis is a manifestation of secondary syphilis, a serum RPR test should be sufficient to exclude syphilis as a possibility.

References