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A case of syphilitic osteitis in a patient with HIV infection

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Summary

Osteitis is an under-recognized clinical manifestation of early syphilis, especially in patients with HIV. We report here a case of syphilitic osteitis of the skull and review its clinical presentation, diagnosis, and management.

Keywords

syphilis; HIV; osteitis

Introduction

Osteitis (i.e., inflammation of bone) is a clinical manifestation of early syphilis that is often under-recognized, and there are sparse data on how to evaluate and manage this manifestation. There has been a recent increase in the number of osteitis cases reported in HIV-infected persons with early syphilis, raising the possibility that early syphilis infection may be more aggressive in a subset of HIV-infected persons. We present a case of syphilitic osteitis of the skull in an HIV-infected man, review the clinical evaluation and management, and discuss the growing body of literature of syphilitic osteitis in HIV-infected persons.

Case Report

A 41-year-old HIV-infected Caucasian man (last CD4 count 790 cells/μL; viral load 30 copies/mL) who has sex with men (MSM) presented to his primary care provider (PCP) for evaluation of a tender, raised area on the top of his skull of 4 weeks duration. The patient was previously diagnosed with HIV in 1995. He also reported a throbbing retro-orbital headache of 8 weeks duration that radiated around his head and was associated with photophobia. Review of systems was notable for a history of an erythematous, non-pruritic rash on his palms, arms and chest that occurred around the same time his headaches began. The patient reported unprotected anal intercourse with multiple partners in the past year. His medications were emtricitabine, tenofovir, and efavirenz. A penicillin allergy was noted in

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his medical record. The patient resided in a state with a high prevalence of syphilis and denied any recent travel. He denied tobacco, alcohol, or illicit drug use.

On physical examination vital signs were normal, the patient was afebrile and in no acute distress. There was an enlarged immobile, spongy mass on his skull apex that was tender to palpation, as well as a smaller lesion in the right parietal region. The neck was supple with posterior cervical lymphadenopathy. Pupils were equal and reactive to light with normal accommodation. Neurological examination was normal. No rashes were seen and his genital examination was unremarkable. The remainder of the examination was also normal.

Rapid plasma reagin test (RPR) was reactive at a titer of 1:128 (one year prior annual RPR was nonreactive). Head magnetic resonance imaging (MRI) revealed a midline vertex ring-enhancing lesion concerning for infection or tumor. Therapy with doxycycline 200 mg orally twice daily was started by his PCP and the patient was referred to our medical center for neurosurgical consultation and lumbar puncture.

At the time of transfer, following 7 days of doxycycline, the headache had resolved and the apical skull lesion had decreased in size and tenderness (figure 1). A head CT scan revealed multifocal lytic calvarial lesions concerning for osteomyelitis or malignancy (figure 2). No parenchymal brain lesions were seen. Lumbar puncture was performed and spinal fluid studies revealed: glucose 57 mg/dL (serum glucose 114), protein 47 mg/dL, white blood cell 3 mm³, red blood cell 2 mm³, and a negative VDRL. Following more detailed history, which revealed receipt of beta-lactam antibiotics in the past, the patient was treated with intravenous aqueous penicillin G for 14 days followed by intramuscular benzathine penicillin G weekly for 3 weeks. On follow-up 3 weeks later, he reported complete resolution of his headache and almost complete resolution of his skull lesions.

Discussion

Bony manifestations of syphilis are not uncommon and often manifest as gummatous disease or periostitis in tertiary syphilis, as well as osteitis in congenital syphilis.¹ However, it was once thought that osteitis occurring during early acquired syphilis was a very rare manifestation. This was supported by a large case series by Wasserman and Reynolds in 1942, finding osteitis in 15 of 10,000 patients, and another large case series in 1989 with only 2 cases among 854 patients with syphilis.^{2,3} However, there has recently been an increase in the number of osteitis cases reported, especially in patients with HIV. In the past 2 years alone, there have been at least 4 case reports in the literature. A common theme in all of these cases was secondary syphilis being diagnosed as osteitic lesions in MSM patients with well controlled HIV infection.^{4,5,6,7} Some have hypothesized that HIV-infected patients may present with more aggressive and often rarely described manifestations of syphilis.⁸ In one such case report, it was suggested that syphilitic osteitis may be more aggressive in HIV-infected patients due to impaired cell-mediated immunity, with authors noting a very large number of spirochetes seen in their patient's bone biopsies.⁹ Radiographic evaluation appears to have aided in the diagnosis of osteitis, but even with MRI, nonspecific findings that could be read as malignancy are described.¹⁰ Interestingly, osteitis might be a more common manifestation of early syphilis than currently believed and this is supported by a

study in which 11 patients who were diagnosed with early syphilis all had signs on scintigraphy suggestive of reactive focal osteitis.¹¹ The utilization of bone scan in one case of a patient with HIV presenting with only frontal headache, not only showed lesions in the skull, but also in the long bones.⁶ Assuming that radiologic evaluation is not done in patients who do not present with complaints, such as headache or bone pain, osteitis in early syphilis may go undiagnosed. Our case further adds to the growing literature of osteitis presenting in early syphilis in a patient with HIV. In our case, the patient was initially treated with doxycycline based on a penicillin allergy history in his medical record, which was later determined after the patient interview to be incorrect and he was subsequently given penicillin. There was a previous case report of syphilitic osteitis treated successfully with 6 weeks of doxycycline. In most of the case studies mentioned above, patients were treated with at least 3 doses of intramuscular benzathine penicillin weekly or with 14–21 days of IV benzyl-penicillin.⁶ This case report supports the growing literature of syphilitic osteitis in patients with HIV. More importantly, it further emphasizes the need for more extensive consideration of universal treatment guidelines for this clinical manifestation of syphilis.

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Figure 1.
Clinical image of skull apex deformity

Figure 2.
CT head without contrast showing multiple osteitic lesions in the calvarium