

Orthopedic Illnesses in Patients with HIV

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KEYWORDS

• HIV infection • Musculoskeletal disorder • Orthopedic illnesses

HIV infection and the medications used to treat it can cause a wide range of musculoskeletal problems.¹ Patients infected with HIV are susceptible to most of the same types of fractures, dislocations, and other musculoskeletal disorders as patients without HIV. However, there are several musculoskeletal conditions that are specific or unique to the patient infected with HIV.

The advent of antiretroviral therapy (ART) has changed the course of the disease. AIDS was transformed from an invariably fatal condition to a chronic manageable disease in developed countries.^{2,3} This disease shift was accompanied by a corresponding change in the types of musculoskeletal complications that patients infected with HIV may experience. For example, there has been a decrease in opportunistic infections of the bone, and an increase in osteopenia and osteonecrosis.^{4,5}

HIV, the immune response, and medications can be directly toxic to the bones, joints, and muscles. The cellular immune system is compromised and unusual organisms and malignancies can affect the host. Infections tend to present at a more advanced stage because of the underlying immune status of the patients. Certain rheumatologic conditions such as reactive arthritis (formerly Reiter syndrome) also seem to be more common in this patient population. The specific musculoskeletal conditions affecting the patient infected with HIV may be divided into 4 categories: disseminated diseases, bone disorders, joint disease, and myopathies.

DISSEMINATED DISEASES

Neoplastic

Immunosuppression predisposes patients to malignancy. Kaposi sarcoma (KS) and high-grade non-Hodgkin lymphoma (NHL) are prototypical AIDS-defining malignant diseases. A conservative estimate suggested that AIDS increases the risk of KS by

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at least 310 times and NHL by more than 110-fold.⁶ KS is a vascular neoplastic disease that primarily affects the skin, causing cutaneous violaceous nodules or plaques. It can involve a variety of sites including the lymph nodes, lungs, liver, and spleen. Epidemic KS is the most common AIDS-associated cancer in the United States.^{6,7} There are rare reports of KS involvement of bone.⁸ Generally, osseous KS is usually believed to be the result of contiguous invasion from nearby tissues.⁹ KS lesions are not well visualized on plain radiographs. Other modalities such as computed tomography (CT) scan, magnetic resonance imaging (MRI), and nuclear studies are more helpful. The diagnosis should be confirmed with a biopsy of the lesion.

NHL in patients with AIDS tends to be of the aggressive B-cell type that is associated with pronounced immunosuppression. The bone marrow is involved in up 30% of cases.¹⁰ Symptoms are variable and nonspecific. However, lymphoma presentation is often late, and patients present commonly with fever, night sweats, and weight loss. Treatment of neoplastic diseases in HIV patients involves a team approach with an HIV specialist and an oncologist experienced in treating patients with AIDS. Treatment includes ART as well as cytotoxic drugs in NHL and widespread KS.

Infectious

Mycobacteria

Patients infected with HIV are at much higher risk for primary or reactivation of *Mycobacterium tuberculosis* (TB). The global epidemic of HIV resulted in large increases in tuberculosis (TB) rates and TB is the leading cause of death in persons infected with HIV worldwide.¹¹ HIV infection is also the highest risk factor for progression from latent TB to active disease.¹² TB primarily affects the pulmonary system, but in patients infected with HIV extrapulmonary manifestations are common, and may be concurrent with pulmonary TB.^{11,13,14} Tuberculosis has many musculoskeletal manifestations including spondylitis, septic arthritis, osteomyelitis, and bursitis.¹³ Extrapulmonary tuberculosis is believed to be the result of hematogenous dissemination and seeding of remote sites by the mycobacterium. A common site for musculoskeletal tuberculosis is the lower thoracic or the upper lumbar segments of the vertebral column (Pott disease). A case series from Zambia revealed that two-thirds of patients with musculoskeletal TB had spinal involvement (**Table 1**).¹⁵

Untreated tuberculous spondylitis results in progressive inflammation and necrosis of the bone, causing vertebral collapse. Ten percent of these patients can develop neurologic complications.¹ Large paraspinal abscesses are also characteristic of TB. There can also be soft tissue extension leading to psoas muscle involvement.¹

Table 1 Musculoskeletal manifestations of tuberculosis in patients infected with HIV in Zambia (N=188)	
Location	n (%)
Spinal disease	124 (66)
Hip disease	35 (18)
Knee	19 (10)
Other joints	9 (6)
Other bone	2 (1)

Data from Jellis JE. Orthopaedic surgery and HIV disease in Africa. *Int Orthop* 1996;20(4):253–6.

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