Orthopedic Illness in Patients with HIV

Article: Review from Emergency Medicine Clinics of NA. Due to the increased use of HAART and increased survival rates, the spectrum of AIDS related musculoskeletal illnesses has changed, with more non-infectious and non-opportunistic complications as well as more medication related adverse effects. HIV, the immune response and HAART meds can be directly toxic to joints, bones and muscles. Infections can present later and at a more advance stage. this paper divides the musculoskeletal conditions into 4 main groups; Disseminated Diseases, Bone Disorders, Joint Disorders and Myopathies

Disseminated diseases

1. Neoplastic: Immunosuppression predisposes patients to malignancy
   a. Karposi's Sarcoma - Most common AIDS -related cancer
      i. AIDS defining malignancy, Risk 310 X non-AIDS
      ii. Vascular neoplasm mostly skin, but also liver, spleen, lymph
      iii. KS rarely invades bone, usually from contiguous tissue
      iv. Not well seen on plain films, consider CT, MRI, biopsy to confirm
   b. Non-Hodgkin's Lymphoma (High Grade) Risk 110 X
      i. Aggressive B-Cell type assoc. with profound immunosupression
      ii. Marrow involved up to 30% of cases
      iii. Presents late, with classic triad of fever, night sweats and weight loss
   c. Treat both KS and Lymphoma with  HAART as well as Cytotoxic drugs

2. Infectious
   a. HIVPts at high risk for primary or reactivated  TB
      i. TB leading cause of AIDS deaths worldwide
      ii. HIV highest risk factor for progression from latent to active TB
      iii. TB mostly affects lungs but increased extra-pulmonary in AIDS
         1. In AIDS, extra-pulmonary manifestations are concurrent
         2. Believed to be due to hematogenous spread
            a. Spondylitis (T9-L3 Vetebrae Pott's disease, Knees)
               i. Untreated: necrosis and vertebral collapse
               ii. neurological complications in 10%, paraspinous abscess
               iii. MRI test of choice
            3. Septic Arthritis ; Hips and Knees
               i. Concurrent Osteomyelitis and soft tissue inf.
               ii. Clinical finding non-specific
               iii. Diagnosed with bone biopsy and + PPD
b. Atypical Mycobacterial Inf. are manifestation of Advanced AIDS
   i. Systemic dissemination occurs with CD4 <100 (hematogenously)
   ii. generally not as pathogenic as TB
   iii. *M. Avium* most common generally
   iv. *M. Kansasii* and *M. Haemophilum* affect MS system most often
      1. Cutaneous nodules and ulcers seen

c. *Bartonella Quintana* and *Hensalae*: Cause Bacillary Angiomatosis
   i. Rickettsial-like bug, causes lymphadenitis in normal host
   ii. In advanced AIDS, skin and viscera involved, looks like KS
   iii. Can cause osteomyelitis, invade lymph, CNS, liver
   iv. More often invades bones that KS
   v. Diagnose with biopsy and treat with ABX

Bone Disorders

3. Osteopenia and osteoporosis:
   a. AIDS patients have lower bone mineral density
      i. causes include both the disease and meds (esp PIs)
      ii. leads to increased fracture risk compared to age-matched controls
         Spine, hip and wrist

4. Osteonecrosis (AKA avascular necrosis): Epiphyseal bone infarctions near joints
   a. Incidence up to 45 X greater in AIDS patients.
      i. Traditional risk factors of steroids, hypertriglyceridemia and ETOH
      ii. HAART, esp. PIs are implicated
      iii. Femoral head most likely location
      iv. MRI of hip recommended for persistent pain or abnormal plain Xray

5. Osteomyelitis:
   a. Occurs from hematogenous spread, contiguous foci or direct inoculation
   b. Acute and chronic forms
   c. *Bartonella* species aside (see above), osteomyelitis is not common
      i. *Salmonella, cryptococcus, nocardia and candida*
      ii. TB (see above) seen in endemic areas: presents afebrile with back pain
   d. Plain films are useful if positive but MRI is more sensitive and specific
   e. Definitive diagnosis is made with bone biopsy and culture
   f. Treatment is long term ABX and sometimes debridement
Joint Disease

6. Septic Arthritis: Relatively uncommon in HIV. Increased risk if IVDA or Hemophilia

   a. Occurs from hematogenous spread, contiguous foci or direct inoculation
      i. \textit{S. aureus} most common in HIV and normal hosts
      ii. TB seen in endemic areas
      iii. \textit{Sporotrichosis} and \textit{Candida} seen in advanced HIV
      iv. \textit{Psuedomonas} seen in IVDA
      v. Polyarticular seen with disseminated GC

   b. Diagnosis
      i. Arthrocentesis. Synovial WBC counts may be low
      ii. Culturing organism may be difficult esp. with atypical organisms
      iii. Synovial biopsies and special stains may be required

   c. Empiric treatment directed at \textit{S. Aureus}

7. Spondyloarthritis: Higher incidence in HIV patients than normal hosts

   a. HLA-B27 Assoc. Reactive Arthritis (Reiter Syndrome) \textit{200 x more common}
      i. Related to \textit{C Jejuni, Chlamydia} and \textit{Shigella} infections
      ii. In HIV classic triad of arthritis, urethritis and conjunctivitis often absent
      iii. Reactive arthritis more debilitating in HIV

   b. Psoriatic Arthritis \textit{40 x more common}
      i. More common in advanced HIV & skin changes more severe than in non-HIV
      ii. Can involve the tendon and fascia
      iii. Treatment is NSAIDs, Sulfasalazine, immunosuppressives and HAART

8. HIV Associated Arthritis: Similar to other viral infections like Hep B

   a. Transient, non-erosive oligoarthritis of the lower extremities lasting < 6 wks
   b. Can occur at any time with HIV, sero-negative, synovial fluid non-inflammatory
   c. Treatment is rest, NSAIDs.
   d. Painful articular syndrome is similar, but more acute & severe and lasts 24 hrs

Myopathies:

9. Polymyositis: Idiopathic inflammation of skeletal muscle

   a. Pts have subacute, progressive proximal muscle weakness and increased CK levels
   b. May be the first sign of HIV infection
   c. Steroids may help.
   d. AZT (or ZDV) a RTI can cause a clinically indistinguishable similar myopathy that resolves after the drug is stopped
   e. HAART may cause Grave’s disease as part of the immune reconstitution syndrome
10. **Pyomyositis: Primary deep muscle abscess** seen more often in HIV, *S. Aureus 90%*

a. Presentation is indolent with local muscle pain and low grade fever, +/- induration
b. Differential includes polymyositis and other inflammatory conditions
c. Presents in quads, gluteals and iliopsoas
d. After 1-3 weeks pain and fever become more prominent, may become septic
e. MRI, CT and US can aid diagnosis, with MRI more sensitive early, pre-abscess
f. **Treatment is drainage and systemic anti-Staph ABX**  

**Summary:**

1. Various M-S manifestations occur in AIDS patients
2. Disease spectrum results from combination of the Virus, patient's immune response and AIDS medications
3. HAART has altered AIDS disease course and shifted M-S manifestations
   a. Fewer opportunistic infections
   b. More osteopenia and osteonecrosis
   c. More disseminated TB, atypical mycobacterial diseases and Bartonella
   d. More non-infectious spondyloarthropathies and myopathies