55 y/o Korean male presents with chronic bilateral hand and wrist swelling, pain and stiffness. Fatigue and 10lb weight loss.

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Rheumatoid Arthritis
bilateral early pan carpal bone erosions
With joint space narrowing R>L
- Erosive change distal radius
- b/l dorsal subluxation distal ulnar
- Erosive change distal radius
Mild early erosion base 5th MCP
Rheumatoid Arthritis

• Epidemiology
  – More common in females 3:1
  – Onset typically 30-50 years old
  – Annual incidence RA 40 per 100,000 in United States

• Etiology
  – Autoimmune inflammatory arthritis
    • Proliferation macrophages in synovium of joints leading to lymphocyte infiltration
    • Ultimately joint and cartilage destruction in addition to other systemic complications
    • Most commonly small joints of hands (MCPs, PIPs) and feet (MTPs), and wrists
    • Cervical spine (C1-C2), and other large joints (shoulder, knee)
    • Axial skeleton relatively spared
  – Environmental factors and genetic factors likely both play role
    • HLA genes play role most significantly HLA-DRB1 gene
    • Hypothesis possible triggering event such as a viral infection
    • Smoking strong risk factor for development of RA
Rheumatoid Arthritis

- **Presentation**
  - Progressive onset joint pain and swelling with symmetric polyarticular involvement
  - Joint decreased range of motion, redness, and warmth
  - Morning stiffness >1 hour that improves with activity
  - Tenosynovitis and carpal tunnel concomitantly
  - Significant fatigue, fever, anemia chronic disease, weight loss
- **Diagnosis**
  - Positive Rheumatoid factor (RF) and/or positive anti-cyclic citrullinated peptide (anti-CCP)
  - Elevated inflammatory markers ESR and CRP
  - X-ray/Radiographs:
    - Joint space narrowing, bone erosions, joint subluxation particularly ulnar in hand (“ulnar drift”)
    - Erosions typically around margin of the joint
    - Joint deformities including swan neck deformities and boutonniere deformity
Rheumatoid Arthritis

• Differential Diagnosis
  – Psoriatic arthritis, systemic lupus erythematosus, crystalline arthropathy, inflammatory osteoarthritis, septic arthritis

• Management
  – Medical management to lower or achieve remission of inflammatory disease activity to prevent further destruction of joints and improve quality of life
  – Disease-modifying anti-rheumatic drug (DMARD)
    • Initiate as early as possible
    • Common agents include methotrexate, leflunomide, sulfasalazine
    • Biologic agents targeted against specific cytokines in the inflammatory pathway including:
      – Anti-TNF (adalimumab, etanercept, infliximab,
      – Anti-IL-12/23 (Ustekinumab)
      – Anti-IL-6 (tocilizumab)
      – Anti-B cell (rituximab)
  – May use steroids intermittently for acute flares but not for long-term therapy
References

- National Institute for Health and Care Excellence (NICE) guideline on management of rheumatoid arthritis in adults can be found at NICE 2018 Jul:NG100 PDF, summary can be found in BMJ 2018 Aug 3;362:k3015