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

Adam Bartholomeo, MS3
Allan Zhang DO, PGY5
Rheumatoid Arthritis
bilateral early pan carpal bone erosions
With joint space narrowing R>L
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


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

