

Rheumatoid Arthritis

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Underwriting

Quarterly Underwriting Meeting

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Case Study

- 28 Year Old Female Non-Smoker Nurse
- Exam – Diagnosed with RA 2004; Two deliveries 10/06 and 8/10
- 5.7.133; 100/62, 96/62, 92/62
- 2004 – Presented to Rheumatology c/o joint pain and stiffness. She has stiffness about 1to2 hours in the morning and on some days can last all day long. Noticed swelling across her hands, pain in her knees and loss of grip strength. Symptoms began about 1 year ago. Has a strong family history of RA and fibromyalgia. Takes Ibuprofen and Aleve prn.
- Examination - Noted synovitis involving MCP joints both hands. Pain at the extremes of flexion and extension and her elbows. Range of motion in both shoulders significantly limited.
- Impression - Likely inflammatory arthritis., most likely RA.
- Plan – X-rays of hands and feet; given prescription for Methotrexate, given a shot of IM Medrol to give symptomatic relief while waiting for MTX to kick in. Next year plan to start her on Plaquenil and Sulfasalazine. Was advised to follow up for monitoring to include lab work and eye exam.
- Throughout 2004 reported variable symptoms and medication adjustments including Prednisone for exacerbations. Noted to be Seropositive for RA including ^CRP and other inflammatory markers.
- Became pregnant in 2006. Multiple medication adjustments to reduce risk to fetus. RA fairly active through out term.. Successful delivery.
- After delivery and for the next several years, patient was closely monitored, again with multiple medication adjustments to include a TNF inhibitor such as Enbrel, Humira or Remicade. Continue Plaquenil. Throughout this period never noted to have rheumatoid nodules and medications included both DMARDS and BIO-DMARDS/TNF inhibitors.
- 6/07 Hgb – 13.5; Hct 39.9 Osteopenia diagnosed on bone density scan.
- Had another successful delivery 2010.
- Last office visit post delivery bilateral wrist pain, occasionally elbows, shoulders, knees, ankles and feet will swell. Joint pain every day and symptoms are worse in the morning and improve as the day progresses. Managed on Sulfasalazine, Plaquenil, Calcium, Foic acide, Prednisone 10 mg daily and Humira 40 mg subcu every 2 weeks.

Rheumatoid Arthritis

- **Inflammatory process**
- **Autoimmune disease**
- **Systemic**

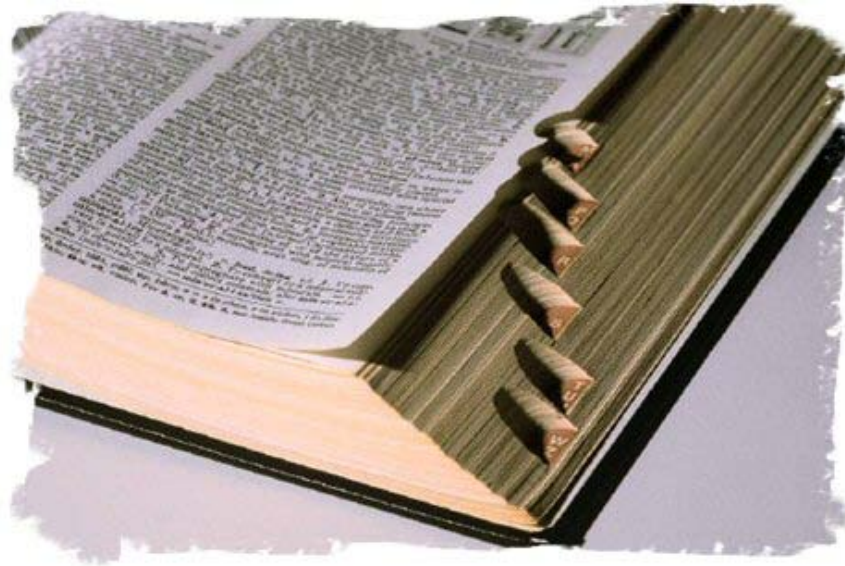
Terminology

Research

- **Cellular roles**
 - CD4 T cells
 - Mononuclear phagocytes
 - Fibroblasts
 - Osteoclasts
 - B Lymphocytes producing autoantibodies/rheumatoid factors
- **Inflammatory mediators**
 - Cytokines
 - Chemokines
 - Tumor Necrosis Factor alpha (TNF-alpha)
 - Interleukin (IL-1, IL-6)
 - Transforming growth factor beta
 - Fibroblast growth factor
 - Platelet

Defined

- **RA is a systemic autoimmune/ inflammatory disease that leads to synovitis, serositis, rheumatoid nodules and vasculitis**



Joint Classifications

- **Anatomical**
- **Biomechanical**
- **Structural**
- **Functional**



Structural

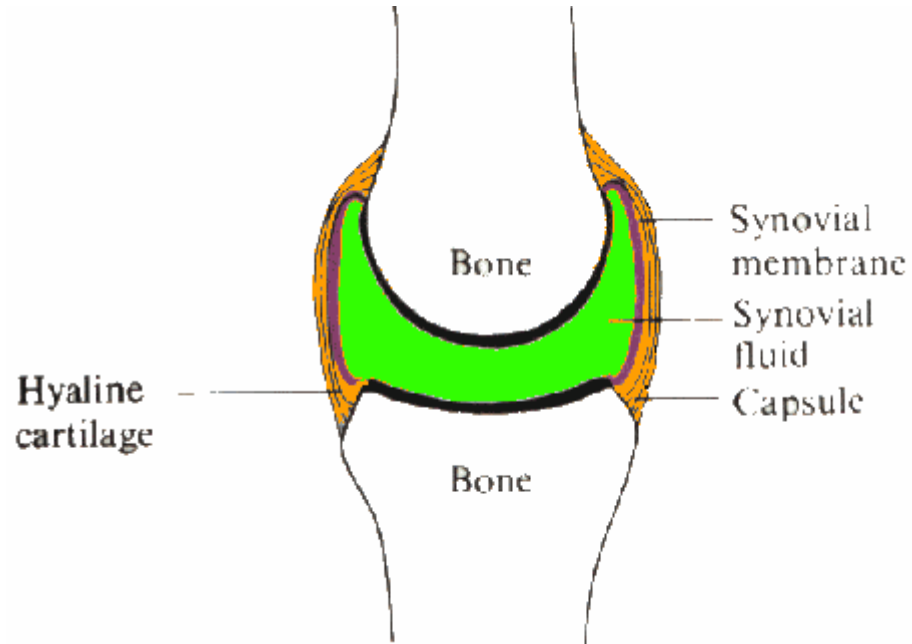
- **Fibrous**
- **Cartilaginous**
- **Synovial**

Biomechanical

- **Simple – monoarticular**
- **Compound – oligoarticular**
- **Complex – polyarticular**

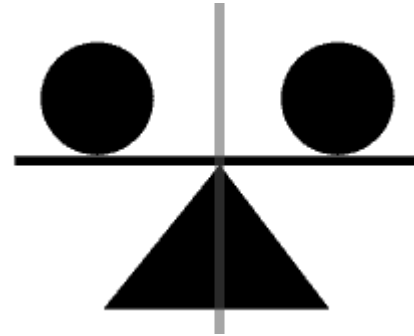
Typical Joint

- **Synovium**
- **Cartilage**
- **Tissues**



Types of Joint Involvement

- **Symmetrical**



- **Asymmetrical**



Sensitivity & Specificity

- **Sensitivity:** % of people *with disease* testing positive (+)
- **Specificity:** % of people *without disease* testing negative (-)
- **4 subgroups:**
 - True Positive (TP)
 - False Positive (FP)
 - True Negative (TN)
 - False Negative (FN)
- **Sensitivity – $TP/TP+FN$**
- **Specificity = $TN/TN+FP$**

Symptoms

- **Pain**
- **Inflammation**
- **Systemic involvement**



Diagnosis

- **Clinical symptoms**
- **Imaging**
- **Labs**
- **Classification criteria by medical consensus**

Imaging

- X-rays
- CT's
- MRI's



Labs



Labs

- **C-reactive Protein (CRP)**
- **Erythrocyte sedimentation rate**
- **Rheumatoid factor**
- **Cyclic Citrullinated Peptide (CCP)**
- **Antinuclear antibody**
- **Synovial fluid**

Disease Criteria

- **In 2010, American College of Rheumatology (ACR) and European League Against Rheumatism (EULAR) established classification criteria system with values between 1 and 10**
- **Every patient with a point total of 6 or higher is unequivocally classified as an RA patient, provided that person has synovitis in at least one joint with no other diagnostic explanation**

Prevalence

- **Gender**
- **Genetic link**
- **Age**

Characteristics

- **Involves peripheral joints**
- **Symmetrical in distribution**
- **Relapsing/remitting or rapidly progressive**
- **Extra-articular manifestations are common**
- **Skin nodules over pressure points are common**

Additional Descriptive Features

- **Temporal pattern**
- **Progressive**
- **Additive**
- **Migratory**
- **Axial**
- **Peripheral**

Associative Links to RA

- **Trauma**
- **Infection**
- **Chemical agents (Agent Orange)**
- **Abnormal metabolism**
- **Inheritance**
- **Immunological factors**

Morbidity

- **Obesity**
- **Occupational hazards**
- **Smoking**
- **45 years of age or older**
- **Female**
- **Prior injuries**
- **Hereditary conditions**

Treatments

- **Analgesics**
- **Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)**
- **Steroids**
- **Disease Modifying Anti-rheumatic Drugs (DMARDs)**
- **Biologic DMARDs**



Other Treatments

- **Antibiotics**
- **Hot/cold packs**
- **Rest of affected joints**
- **Braces or other mobility assistance devices**
- **Lifestyle modification**
- **Occupational therapy**
- **Surgery**
- **Alternative therapies**



Underwriting/Prognosis/Mortality

- **Degree of disability**
- **Effects of treatment**
- **Systemic involvement**
- **Co-morbid conditions**
- **Number and degree of positive serologic test**



Other Forms of Arthritis

- **Osteoarthritis**
- **Osteoporosis**
- **Gouty arthritis**
- **Ankylosing spondylitis**
- **Systemic Lupus Erythematosus (SLE)**
- **Scleroderma**
- **Mixed Connective Tissue Disease (CTD) and undifferentiated CTD**
- **Psoriatic arthritis**

Underwriting Tips

- **Degree of disability**
- **Treatment**
- **Systemic involvement**
- **Co-morbid conditions**
- **Number and degree of positive serologic tests**
- **Medical reports/musculoskeletal questionnaires**
- **Insurance product sought**



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