What is Rheumatology?

- Medical science devoted to autoimmune diseases, particularly connective tissue disease, and certain musculoskeletal disorders
- "rheuma" – "a substance that flows"
- "rheumatism" – emphasis that arthritis could be a systemic disorder

Rheumatology Classification

(shortened list)

- Systemic connective tissue disease
- Vasculitis
- Seronegative spondyloarthropathies
- Arthritis associated with infection
- Inflammatory Myopathy
- Rheumatic disorders associated with metabolic, endocrine, and hematologic disease
Anatomy of a Joint

Diagnostic Approach
- Articular vs non-articular
- Mechanical vs inflammatory
- Poly- vs oligo- vs monoarticular
- Acute vs chronic
- Localized vs systemic

Inflammatory vs Non-inflammatory
- Erythema
- Warmth
- Pain
- Swelling
- Prolonged stiffness
- Systemic symptoms
- Laboratory abnormalities
- Mechanical pain (worse with activity)
- Improves with rest
- Stiffness after brief periods of rest (not prolonged)
- Absence of systemic signs
Diagnostic Approach

• Articular vs non-articular
• Mechanical vs inflammatory
• Poly- vs oligo- vs monoarticular
• Acute vs chronic
• Localized vs systemic

Differential Diagnosis

• Monoarticular inflammatory
  – trauma, hemarthrosis, spondyloarthropathy
  – Septic arthritis, crystal induced
• Oligoarticular
  – Spondyloarthropathy, crystal induced, infection related
• Polyarticular
  – RA, SLE, crystal induced, infectious

Physical Exam

• Inspection
• Palpation
• Maneuvers
Rheum Diseases You Will Encounter

- Osteoarthritis
- Rheumatoid Arthritis
- Seronegative spondyloarthropathy
- Crystal induced arthritis
- Systemic lupus erythematosus and related connective tissue diseases
- Vasculitis
- Idiopathic Inflammatory Myopathy

OSTEOARTHRITIS

- Most common form of arthritis
- > 50 years of age
- Risk factors: age, obesity, occupation, history of trauma
- Most common sites: hands, feet, knees, hips, AC joints, and facet joints of the cervical and lumbosacral spine
- PAIN (mechanical type), stiffness (< 30 minutes), loss of function are presenting features
- No systemic involvement
- DIP/PIP involvement; spares the wrists (Heberden's/ Bouchard's)
- Non-inflammatory synovial fluid
RHEUMATOID ARTHRITIS

- Chronic (>6 wks), inflammatory
- Female > Male
- AM stiffness lasting at least 1 hr
- Soft tissue swelling in at least 3 joint areas simultaneously
  - Including wrist, MCP, or PIP joint
  - Symmetric
- Swan neck/Boutonniere/ulnar deviation, erosive
- Rheumatoid nodules, extra-articular manifestations
- Positive rheumatoid factor, anti-CCP
Seronegative Spondyloarthropathy

- Seronegative
- Oligoarticular, assymetric
- Chronic, inflammatory
- Sacroiliac involvement
- Enthesopathy
- Spinal involvement (inflammatory)
- HLA B27
Seronegative Spondyloarthropathies

- Ankylosing spondylitis
- IBD associated arthropathy
- Psoriatic arthritis
- Reactive arthritis
- Undifferentiated spondyloarthropathy

Dactylitis (Sausage Toes)

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INFLAMMATORY ARTHRITIS

Ankylosing Spondylitis

ACUTE GOUT
GOUT

- Recurrent, episodic inflammatory arthritis
- Peak of pain: 24 hours; subside in 3-10 days
- 75% of initial attacks in 1st MTP joint (podagra)
- Usually monoarticular, may be polyarticular
- Hyperuricemia may or may not be present
- Predisposing factors and associated conditions: surgery, medications (DIURETICS, low dose aspirin, ciclosporine A), alcohol ingestion, hypertension, renal insufficiency, hyperlipidemia

Gout (diagnosis)

A B C

Gout (podagra)
Tophaceous gout

Pseudogout

Connective Tissue Diseases

- Systemic Lupus Erythematosus
- Sjögren’s Syndrome – Sicca symptoms, +SSA/SSB
- Scleroderma
- Mixed Connective Tissue Disease – features of SLE and Scl, +RNP
- Overlap/ Undifferentiated Connective Tissue Disease
Systemic Lupus Erythematosus

- Malar Rash
- Discoid Rash
- Serositis
- Oral ulcers
- Arthritis
- Photosensitivity

- Blood disorder
- Renal disorder
- ANA*
- Immunologic abnormalities
  - (anti-Smith antibody, anti-double stranded DNA, anti-phospholipid antibodies)
- Neurologic symptoms

Young women, multisystemic disease

SYSTEMIC LUPUS ERYTHEMATOSUS (MALAR RASH)

Discoid Lupus
Scleroderma

- Sclero = thickened, derma = skin
- Systemic: Limited or Diffuse
  - Limited = CREST (calcinosis, Raynaud’s, Esophageal dysmotility, Sclerodactyly, Telangiectasias)
  - Diffuse = scleroderma proximal to MCPs
  - Pulmonary (ILD, pHTN), Renal involvement (renal crisis)
- Localized
-Overlap syndrome
Vasculitis

- Inflammation & necrosis of blood vessel
- Perforation & hemorrhage, thrombosis, ischemia
- Large vessel
  - Takayasu, Giant Cell Arteritis
- Medium vessel
  - Polyarteritis nodosa, Kawasaki’s
- Small
  - Henoch-Schönlein purpura, Wegener’s granulomatosis, Microscopic polyangiitis, Churg-Strauss
  - ANCA – antineutrophil cytoplasmic antibodies*
Giant Cell Arteritis

- Patients >50 y/o
- Cranial symptoms—superficial HA, scalp tenderness, jaw claudication, blindness
- Polymyalgia rheumatica—pain and stiffness of proximal joints
- Fever, systemic symptoms
- Elevated ESR and CRP
- Diagnosis: Biopsy of temporal artery

Idiopathic Inflammatory Myopathy

- Polymyositis
- Dermatomyositis
- Inclusion body myositis
- Proximal muscle weakness
  - (muscle pain not a typical symptom)
- Elevated muscle enzymes: CK, Aldolase, LDH
- Diagnosis: biopsy
- Lung involvement, increased risk for malignancy
Case 1

• 67 y/o man with DM, HTN, hyperlipidemia, h/o arthritis (unclear what kind) and EF of 25%. He came with SOB and signs of CHF. Treated with IV Lasix -> he did well, SOB improved, lungs are now clear

• Pt is ready for discharge but now complains of severe right knee pain

• Examination: his right knee is flexed and looks much bigger than the left; you touch it and it feels warm; you try to move it but patient is in too much pain and you cannot flex or extend it further. Also, you look at the vital signs and the last temperature checked at 6 am showed 37.8 °C

What are your thoughts?

1. Crystal induced arthritis?
2. Infection?
3. Acute trauma?
4. Hemorrhage?

What test needs to be done?

ARTHROCENTESIS OF RIGHT KNEE
Synovial Fluid Analysis

- Cell Count
- Crystal analysis
- Gram Stain and culture

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<td>% PMN</td>
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Case 2

- Scenario: Loyola Rheumatology Clinic
- CC: joint pain
- HPI: 29 y/o law student complains of bilateral hand pain x 6 months. Initially, she attributed the pain to the fact that she was taking too many notes in class. Involved joints: knuckles and right wrist. Taking Aleve OTC with minimal relief at this point. She denies swelling but has trouble to take her engagement ring off. Also with oral ulcers for the last 6 months
- ROS: fatigue, night sweats, weight loss, Raynaud’s phenomenon since her college years; hair thinning; stiffness in the morning; dry eyes
- PE: +2 oral ulcers, malar rash, mild synovitis of right wrist, 2nd and 3rd PIPs bilaterally

Case 3

- Scenario: Hines Arthritis Clinic
- CC: joint pain
- HPI: 29 y/o Hispanic man complains of pain in his joints x 7 years (since he left the military). Involved joints include: right shoulder, right knee, and left ankle. He states that pain is worse when he wakes up. He believes his left ankle has been swollen for years. Despite his joint symptoms, he continues to work out 5 x week. He feels that being active helps with his symptoms.
- ROS: low back pain since his military time; morning stiffness that lasts at least 2 hours
- PE: very mild swelling around his left ankle with decrease ROM in that joint
Case 4

- Scenario: Loyola Gen Med Clinic
- CC: headaches
- HPI: 74 y/o male with 3 weeks headache. Has pain at temporal areas, which are also painful with combing hair. Has had low grade fevers for last 2 weeks and loss of energy. For the last two days, has noticed decreased vision in his right eye.