Brigham and Women's Hospital
Founding Member, Mass General Brigham

Approach to Joint Pain

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DISCLOSURES

I have no relevant financial relationships with ineligible companies.

OBJECTIVES

Upon completion of this activity, participants will be able to:

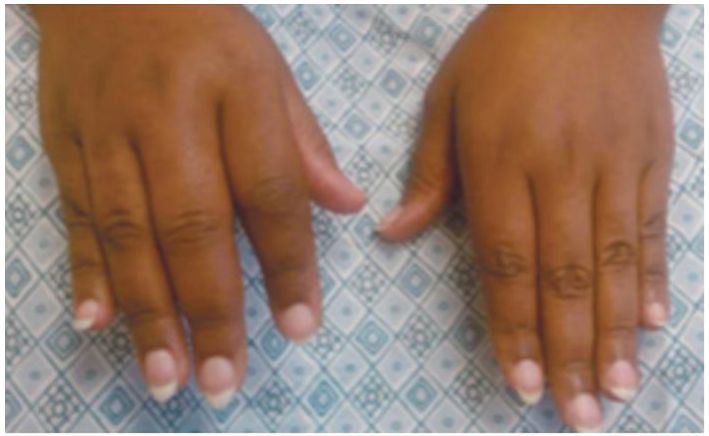
- Identify articular vs periarticular pain
- Distinguish inflammatory vs non-inflammatory joint pain
- Characterize the pattern of joint Involvement
- Review testing
- Recognize red flags requiring urgent referral

Approach to joint pain

- Confirm pain is in the joint
- Recognize the red flags of emergency joint conditions
- Identify inflammatory disease early
- Good history and physical is the starting place
- Imaging and lab testing

Case Presentation

40-year-old woman presents with a 4-month history of pain and swelling in the hands, wrists, and knees. Pain is worse in the morning, lasts for greater than an hour. Pain improves throughout the morning. Wrists, hands and knees are equally affected.



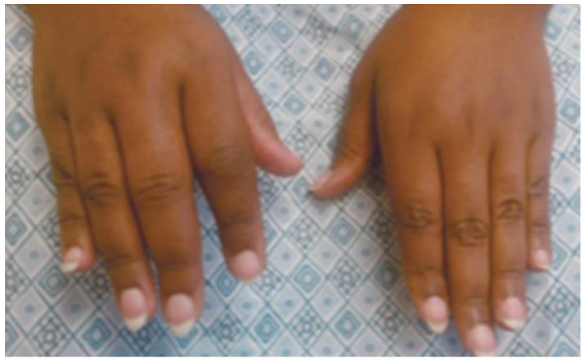
Case Continued

40-year-old woman presents with a 4-month history of pain and swelling in the hands, wrists, and knees. Pain is worse in the morning. Pain is worse when awakening in the morning, lasts for greater than an hour. Pain improves throughout the morning. Wrists, hands and knees are equally affected.
+ Fatigue, hair thinning.

No rash, Raynaud's, dry eyes or dry mouth, oral ulcers, fevers, GI, dyspnea, cough, weight loss.

No recent travel/recent infections
PMH: HTN, no smoking

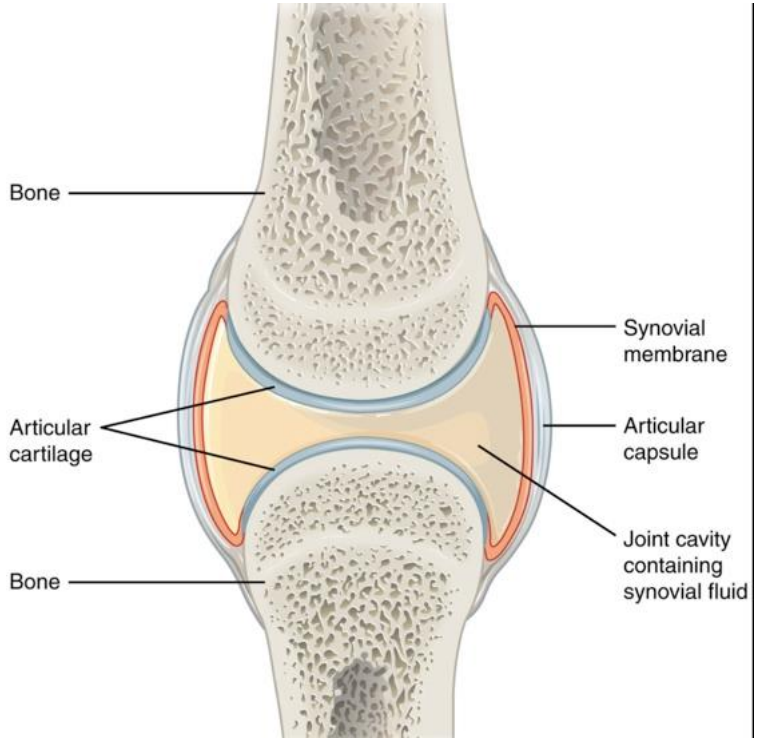
Joint Exam:
Swelling, warmth and **tenderness small and large joints (knees)**



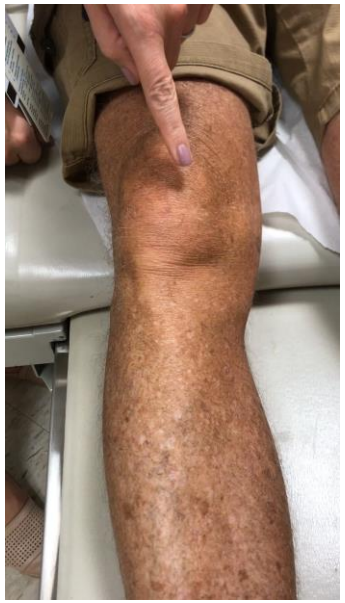
Is it truly joint pain

<u>True Articular Joint Pain:</u>
Pain with passive and active range of motion
Swelling
Stiffness
Reduced range of motion

<u>Periarticular:</u>
Comes from structures surrounding the joint
Tendon/bursa point tenderness
Widespread pain: Fibromyalgia





Examination of the Joints

Time Course

Acute

< 6 weeks

Some examples:

- **Infection**
- Crystal disease
- Trauma
- Reactive arthritis

Chronic

> 6 weeks

Some examples:

- Rheumatoid arthritis
- Psoriatic arthritis
- Ankylosing spondylitis
- Systemic lupus erythematosus
- Polymyalgia rheumatica
- Osteoarthritis

Important Distinction

Inflammatory

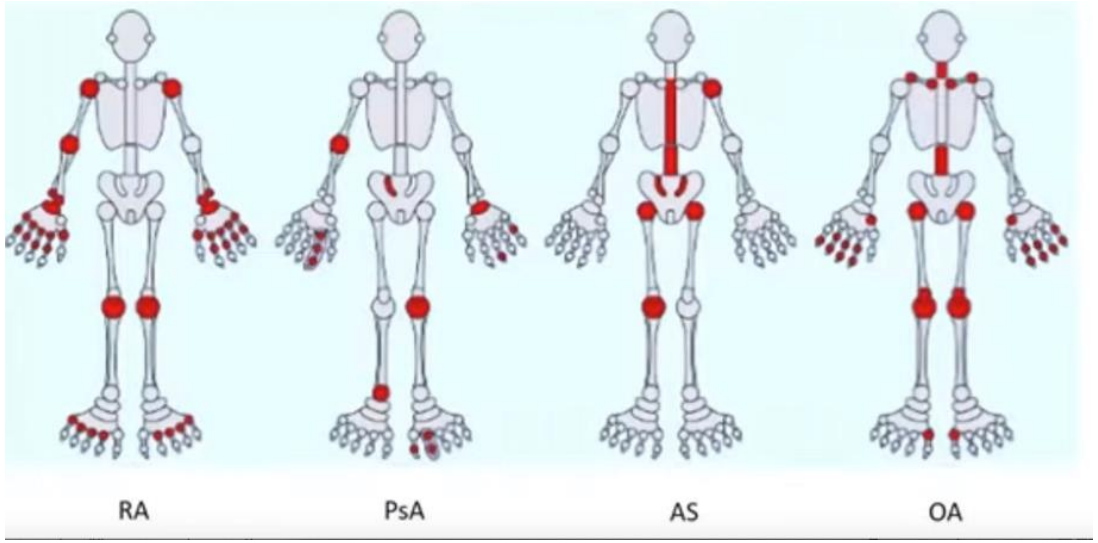
- Morning Stiffness >60min
- Improves with activity
- Swelling, warmth, redness
- Systemic involvement/extra-articular
- Often elevated Erythrocyte sedimentation rate(ESR) and C-reactive protein(CRP)

Non-inflammatory

- Morning Stiffness <30min
- Often worse with activity
- Rare for warmth and redness

Pattern Recognition

- Monoarticular, oligoarticular, polyarticular
- Axial vs non-axial
- Symmetric(RA) vs Asymmetric(PsA)
- Small joint vs large joint



RA Rheumatoid Arthritis

PsA Psoriatic Arthritis

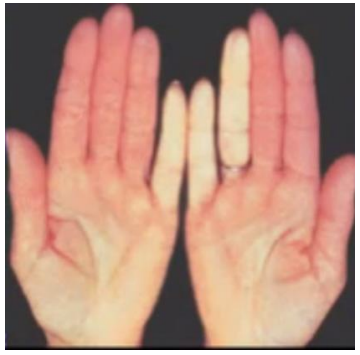
AS Ankylosing Spondylitis

OA Osteoarthritis

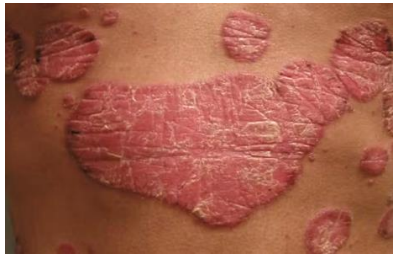
American College of Rheumatology (ACR) Image Bank

ACUTE MONOARTICULAR ARTHRITIS

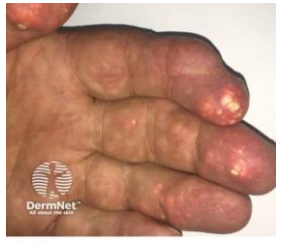
- URGENT SCENARIO
- Rule out septic arthritis

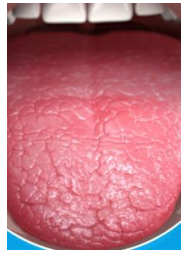


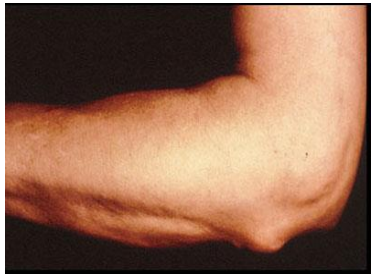
Extra-articular Manifestations



Rash	Eye inflammation	Sicca	Raynaud's	Oral/Genital ulcers	GI/GU infection
Tick exposure	Trauma	Dyspnea	Chest pain	Abdominal Pain	Renal
Hematologic	Alopecia	Carpal tunnel	Weakness	Fever, weight loss, fatigue	Headache







Case Recap

- Articular
- Worse in the morning
- Polyarticular arthritis
- Symmetric
- Peripheral joints
- Small and large joints
- >6 weeks
- Extra-articular

40-year-old woman presents with a 4-month history of pain and swelling in the hands, wrists, and knees. Pain is worse in the morning, lasts for greater than an hour. Pain improves throughout the morning. Wrists, hands and knees are equally affected.

What would you like to order?

Baseline labs:

- CBC, kidney, liver, urinalysis
- Erythrocyte sedimentation rate(ESR) C-reactive protein(CRP)

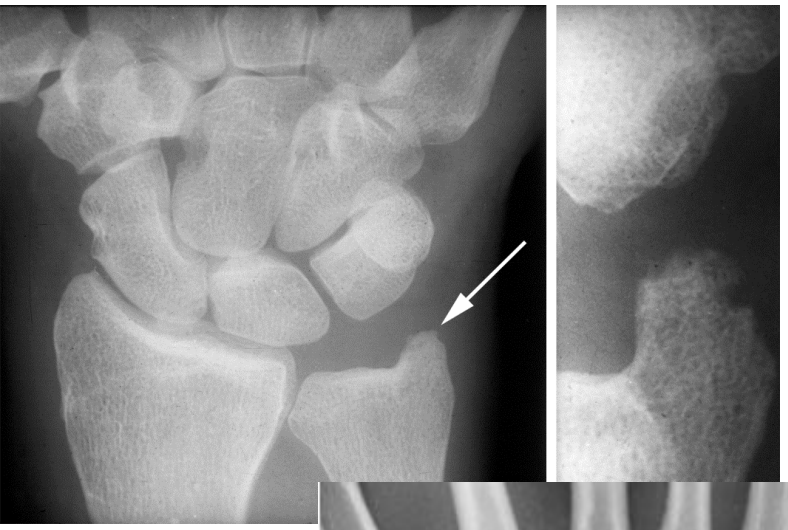
Other labs:

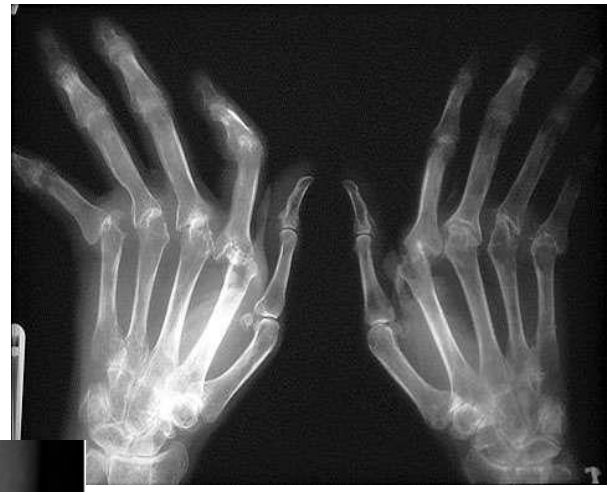
- Rheumatoid factor(RF), anti-cyclic citrullinated peptide antibody(anti-CCP), antinuclear antibody
- Uric acid
- Hepatitis

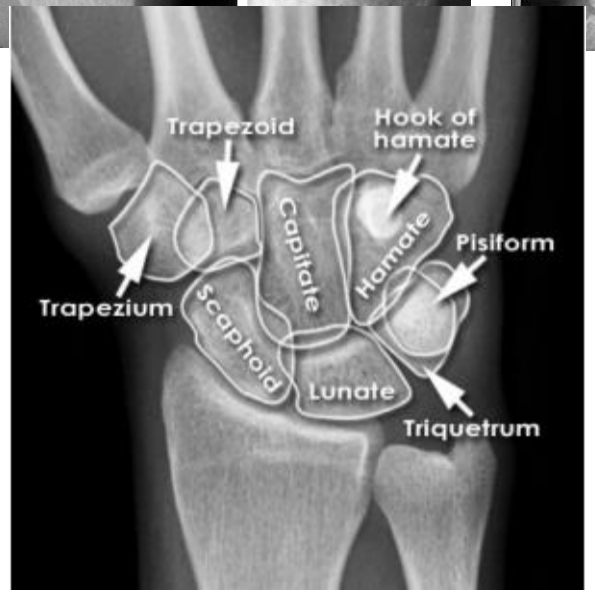
Imaging:

- Radiographs, ultrasound, MRI

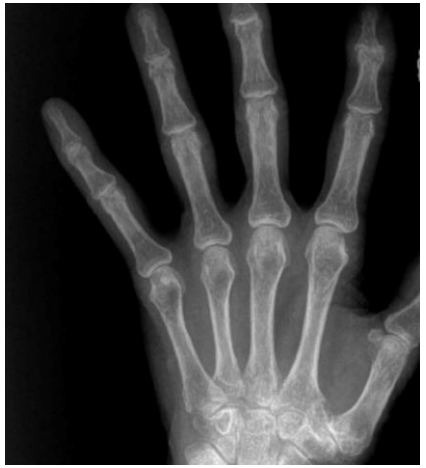
Erosions RA



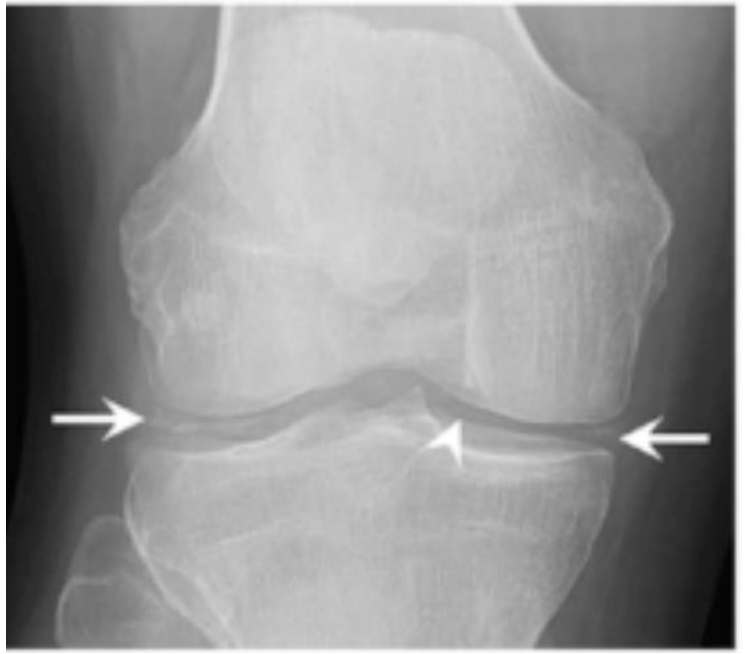




Osteoarthritis

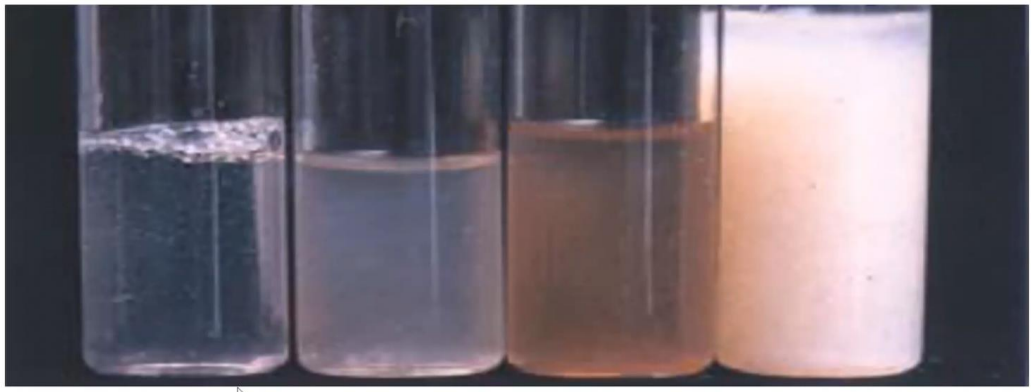


Chondrocalcinosis

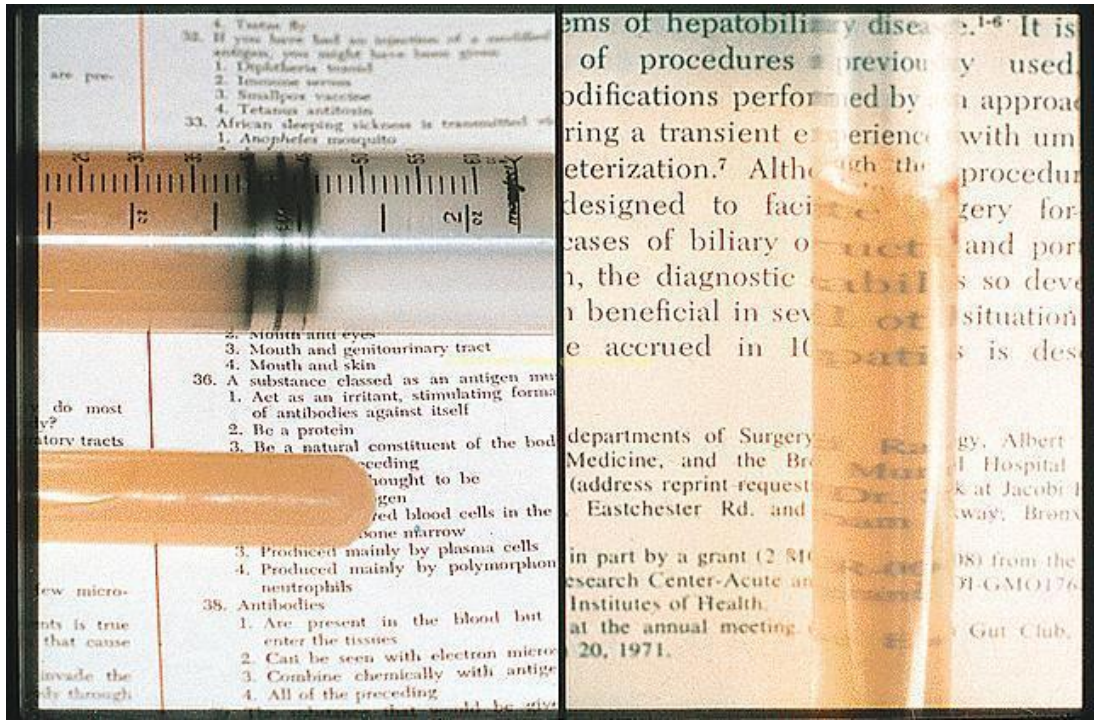


Arthrocentesis

Synovial Fluid



Normal | Osteoarthritis | Inflammatory arthritis | Septic arthritis



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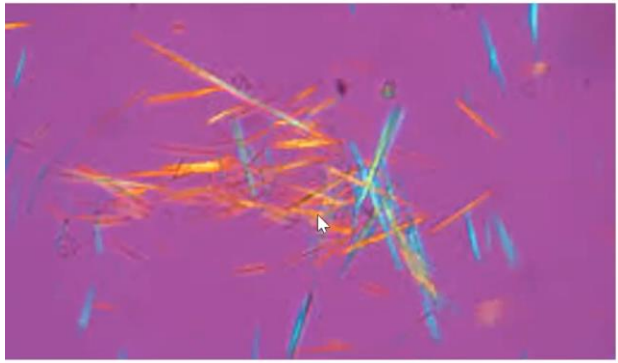
Synovial Fluid Analysis



Arthritis	Cell count	Crystals	Culture
Septic	>50K	no	Usually +
Rheumatoid arthritis	>5,000	no	negative
Gout	>5,000	MSU	negative
Osteoarthritis	<2,000	no	negative

Disease Patterns Based on # of Joints Involved

- **Monoarticular: 1 joint**

  Septic Crystal induced Lyme Trauma Osteoarthritis

- **Oligoarticular:2-4 joints**

  Spondyloarthritis (psoriatic arthritis, reactive arthritis) Crystal induced Rheumatoid arthritis

- **Polyarticular: 5 or greater joints**

  Rheumatoid arthritis Lupus Spondyloarthritis Viral arthritis (parvovirus, hepatitis)

- **Periarticular:**

  Bursitis Tendonitis Enthesitis

Diseases Based on Location of Joints Involved

Small Joints

Rheumatoid Arthritis, Systemic Lupus Erythematosus

DIP PIP CMC HIP Knee:

Osteoarthritis

Diffuse Pain:

Fibromyalgia

Knee/Wrist

Calcium Pyrophosphate deposition disease

Axial

Spondyloarthritis

(psoriatic arthritis,

ankylosing spondylitis)

First Metatarsal phalangeal joint

Gout

Periarticular: Bursitis and Tendonitis

Back to Case

- + RF
- + CCP
- Elevated inflammatory markers
- Refer to Rheumatology to start disease modifying drugs
- Early treatment affects long-term outcomes

Take Home Messages

Good history and physical exam
Is it articular
Duration
Recognizing inflammatory vs non-inflammatory
Pattern recognition
Extra-articular
Integrating history, exam, labs, and imaging
Never miss infection!
Refer to Rheumatology

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