3Rd Year Medical Student Lecture Series

Rheumatology Cases

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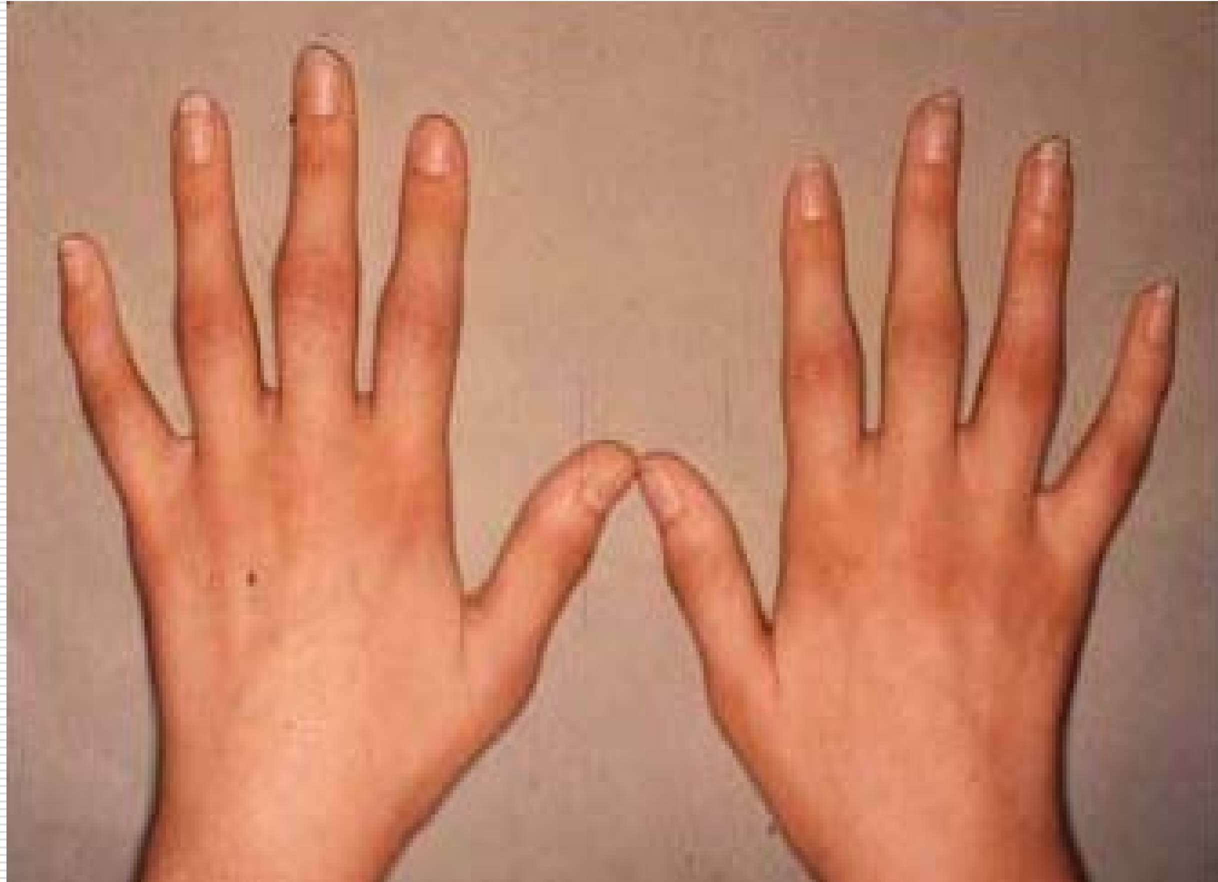
Case Study #1

- 32 yo WF accountant with 6 months of bilat finger and wrist pain and swelling. Morning stiffness involving hands, wrists, elbows and knees over the past 2 months. Describes 5 pounds weight loss, insomnia and fatigue.

Symmetric Inflammatory Involvement of the Hands



What is your differential?

How do you work it up?

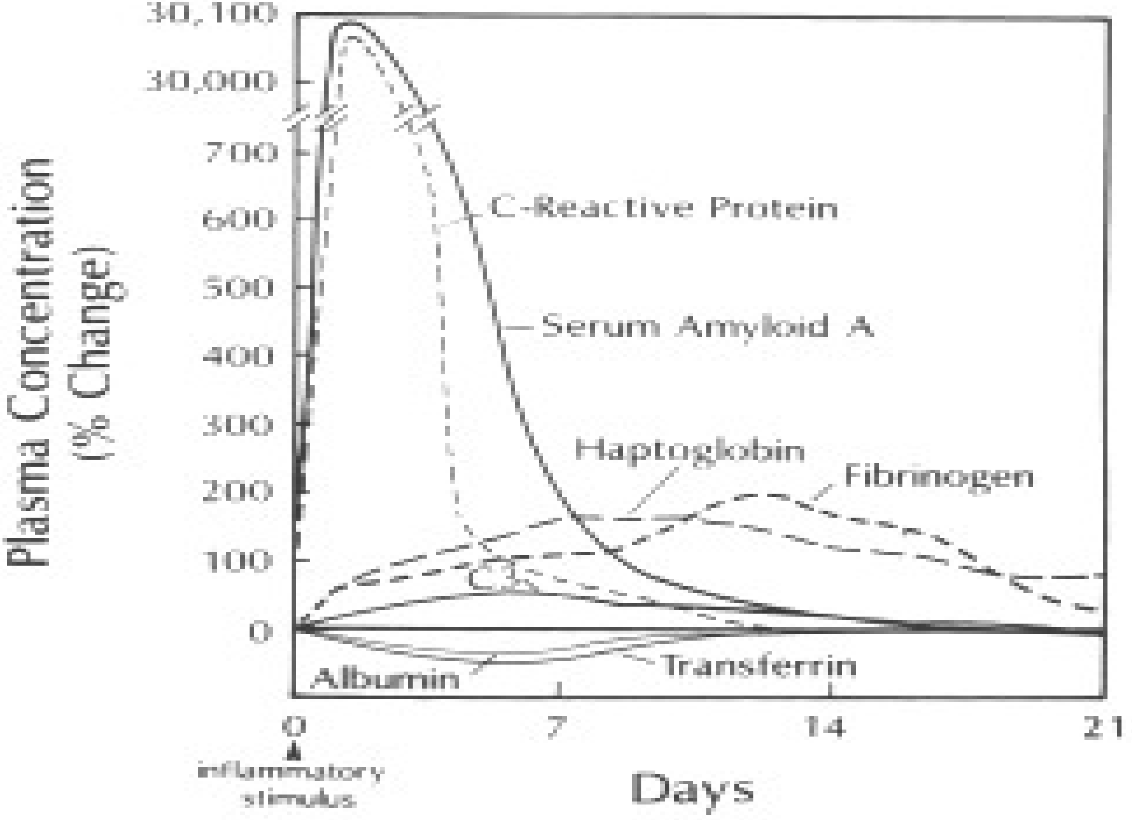
Laboratory and Radiograph Testing

- ESR, CRP, CBC
- RF, anti-CCP, ANA, TSH
- X-rays of hands, wrists, feet?
- Synovial fluid analysis?

Monitoring Inflammation

- **Clinical**: pain, heat, swelling, erythema
- **Histologic:** inflammatory cell infiltration, structure disruption, cell death, others
- **Serologic:** acute phase response markers

Responsiveness of Acute Phase Proteins



C-Reactive Protein (CRP)

- Hepatic pentameric protein
- Evolutionarily conserved
- Major biologic ligands: phospholipids and histones
- Possible function: activate classic complement and modulate phagocytosis

Moderate Elevation	Marked Elevation
myocardial infarct	acute bacterial infect
malignancy	major trauma
mucosal infection	systemic vasculitis
RA and CTDs	

ESR vs C-RP in monitoring Inflammation

	ESR	CRP
Expense	less	more
Available literature	more	less
Affected by age	yes	no
Affected by anemia	yes	no
Response to inflam	slow	rapid
Lab sample	fresh only	fresh or stored

Laboratory and Radiograph Testing

- ESR, CRP, CBC
- RF, anti-CCP, ANA, TSH
- X-rays of hands, wrists, feet?
- Synovial fluid analysis?

Sensitivity and Specificity of anti-Cylic Citrullinated Peptide (anti-CCP) and IgM-RF in Subjects with Rheumatoid Arthritis Compared to Subjects with other Rheumatic and Viral Diseases

	Sensitivity %	Specificity %
Anti-CCP	48	91
IgM-RF	74	80
Anti-CCP or IgM-RF	82	83
Anti-CCP and IgM-RF	40	99.6

Bizzaro N, et al. Clin Chem 47:1089-1093, 2001

Lee DM et al. Ann Rheum Dis 62: 870-887, 2003

Laboratory and Radiograph Testing

- ESR, CRP, CBC
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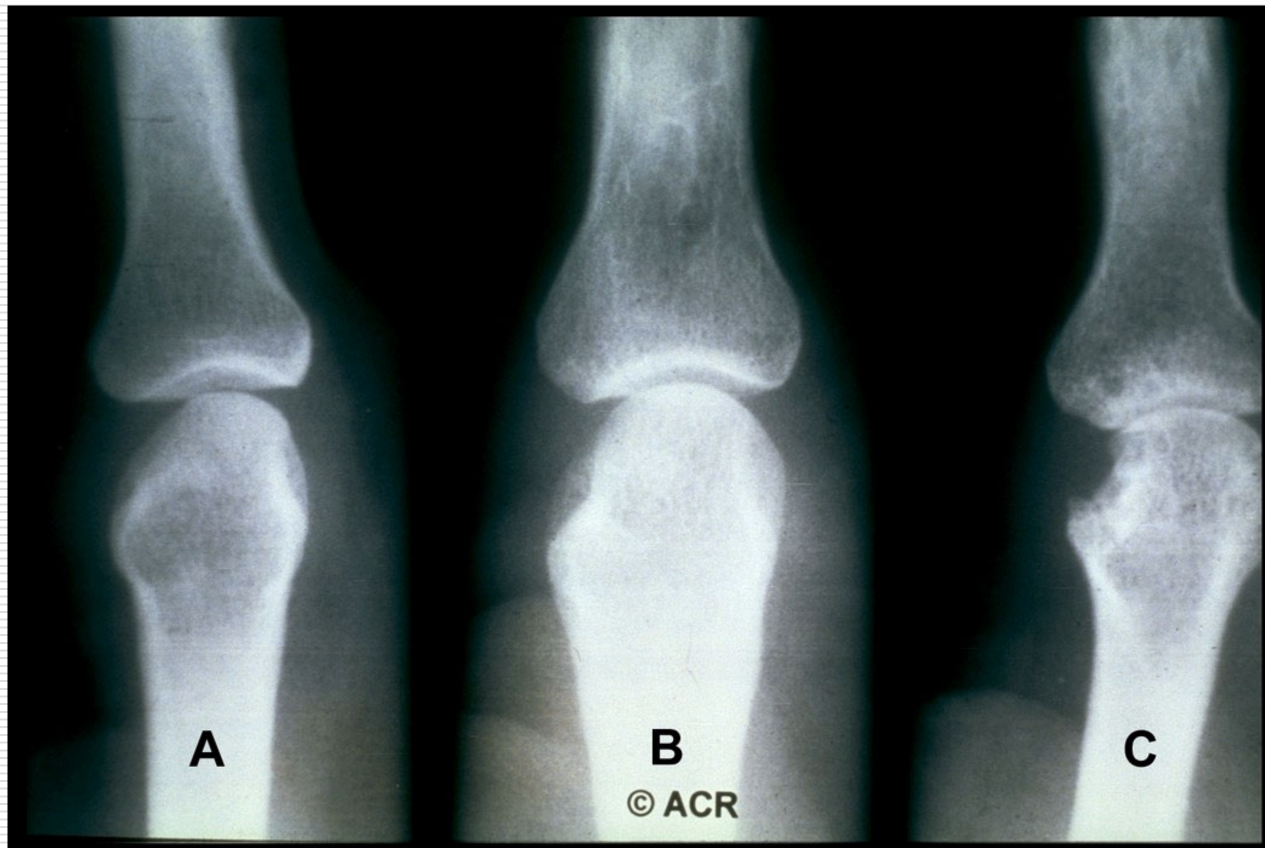
Erosions and Cartilage Loss in RA



Case Study #2

- 78 yo WM presents with new onset bilat shoulder and hip pain, worse in the morning, associated with some fatigue. He has a long history of OA and he takes prn NSAIDs and Tylenol. He reports this is a different type of pain than his OA.

What is your differential?

How do you diagnosis?

- WESR, CRP, x-rays?

Polymyalgia Rheumatica

- Moderately to extremely elevated ESR (>40)
- Almost always older than 50 and usually in their 70's
- Responds to low dose steroids (10 to 15 mg tapered to 7.5 to 5 mg) and requires months of treatment

Polymyalgia rheumatica
Areas of pain
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Case Study #2 Cont.

- The 78yo patient with PMR calls back to the office after 2 months of feeling well with a new complaint. His jaw hurts on the R side when he eats and he wonders if it is a side effect of the Prednisone 5mg.

What is your diagnosis?

How do you make the diagnosis?

Temporal Arteritis

- Temporal pain or sensitivity, jaw claudication, fatigue, low grade fevers
- Elevated ESR
- Treat with high dose steroids until diagnois is confirmed with biopsy
- Is an emergency
- Biopsy temporal arteries later

Case Study #3

- 28 yo WM Emergency Room nurse presents to you with a swollen, red, warm L wrist, he noticed 2 days ago he had a swollen R knee that now is better.

What is your differential?

How do you make your diagnosis?

Joint aspiration

- Cell count with diff
- Gram stain, culture and sensitivity
- Crystals

Joint aspiration

- WBC <200 — Normal
- WBC 200-2000 — Non inflammatory
- WBC 2000-100,000 — Inflammatory, septic, crystal
- WBC >100,000 — Septic, crystal
- Gram stain postive — Septic

Gonococcal Arthritis

- Triad of tenosynovitis, vesiculopustular skin lesions, and polyarthralgias without arthritis
- **OR**
- Purulent arthritis
- Culture skin, joint, pharynx, urethra, cervix, rectum
- Consider complement deficiency in recurrent infections

Bacterial Arthritis

- Diagnosis by aspirate
- Emergency treatment with IV antibiotics and frequent joint drainage
- Workup for source of infection (embolic?)

Crystalline Disease

- Looks just like bacterial and GC
- Diagnosis by aspirate or correct clinical setting
- WBC in joint can be very high, patient can have fever

Gout

- Serum uric acid elevation does not make the diagnosis
- Strong negative bifurigent crystals
- Treatment: Do not start Allopurinol or Probenicid acutely, use nsaids, colchicine, prednisone to calm symptoms

Pseudo gout

- Calcium Pyrophosphate crystals
- Positively bifurigent
- Calcified lines in cartilege on xray
- Acute treatment the same as gout
- Look for causes – hemmochromatosis, hyperparathyroid, etc.

Case Study #4

- 28 yo WF with history of irritable bowel, mitral valve prolapse, endometriosis and pelvic pain presents with complaints of fatigue, weight gain, difficulty sleeping and diffuse muscle and joint aches. PE reveals a WDWN female tender to palpation in several joints and muscles. Joint exam appears normal.

What is your differential?

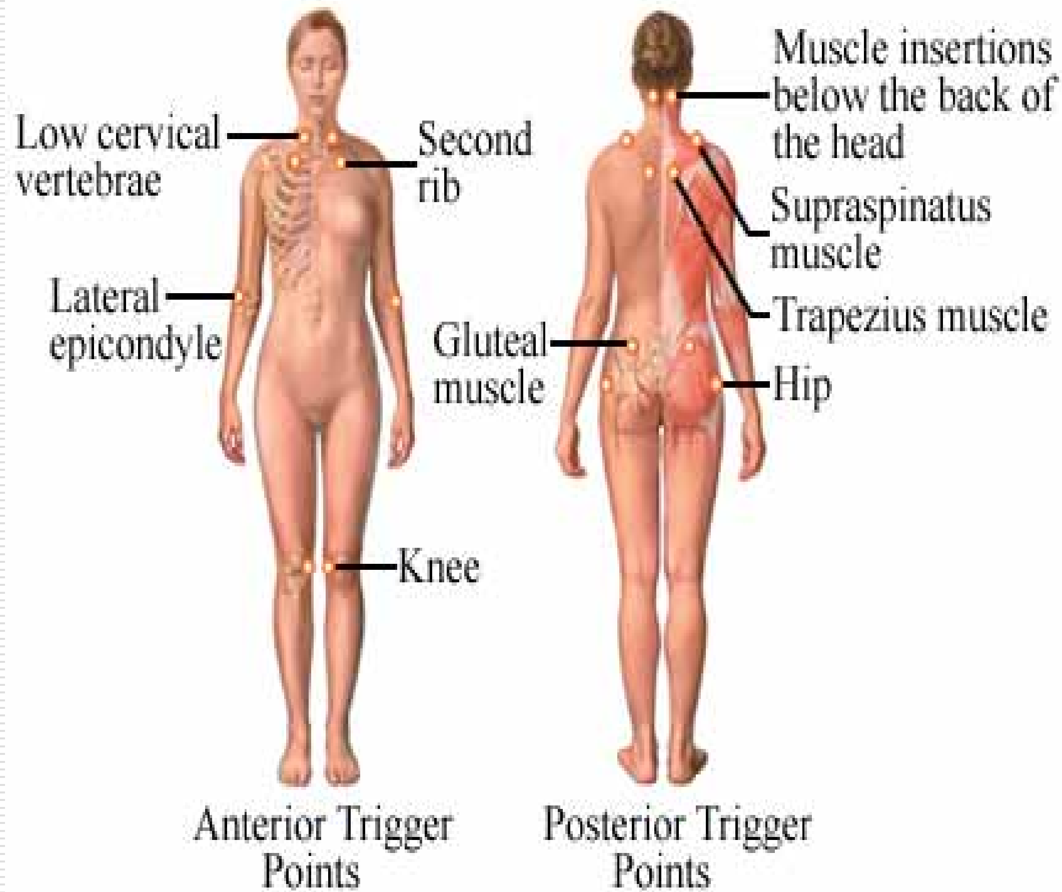
How do you work it up?

- WESR, ?CPK, CRP
- If normal – no further work up is needed
- If elevated
  - Then test for the inflammatory arthridities
  - ANA, RF, anti-CCP, TSH etc.

Diagnosis

- Fibromyalgia Syndrome
  - Trigger points
  - Sleep hygiene ?sleep apnea
  - Address depression ?cymbalta
  - Diet and exercise (low impact)
  - Very difficult to treat
  - Avoid narcotics and polypharmacy

Trigger Points in Fibromyagia



Case Study #5

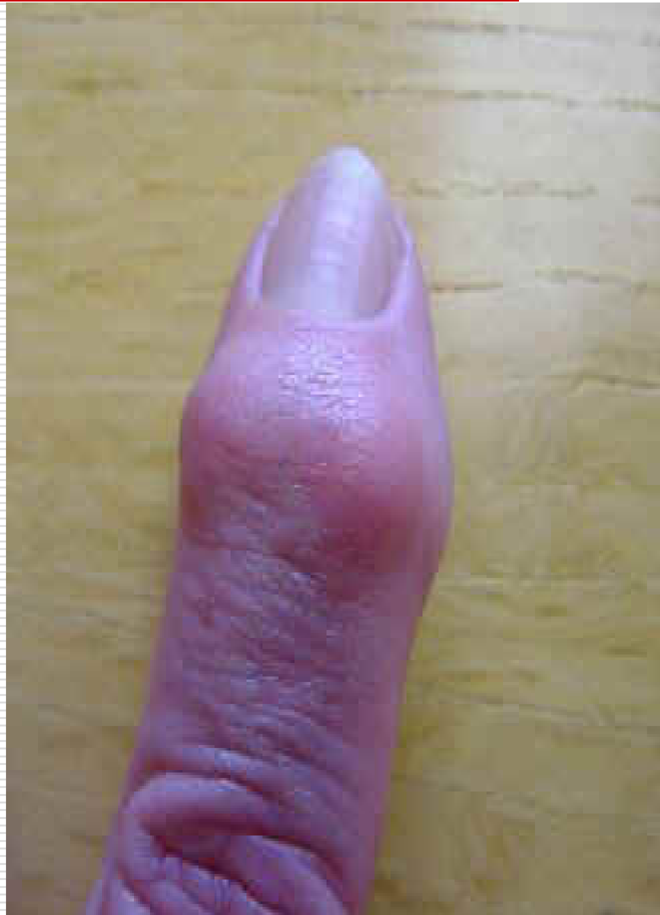
- 48 yo WF presents with L knee pain for several months. She is an avid runner and the pain is limiting her ability to run. Denies any other symptoms. Exam reveals mildly swollen non warm or red knee with crepitus on exam

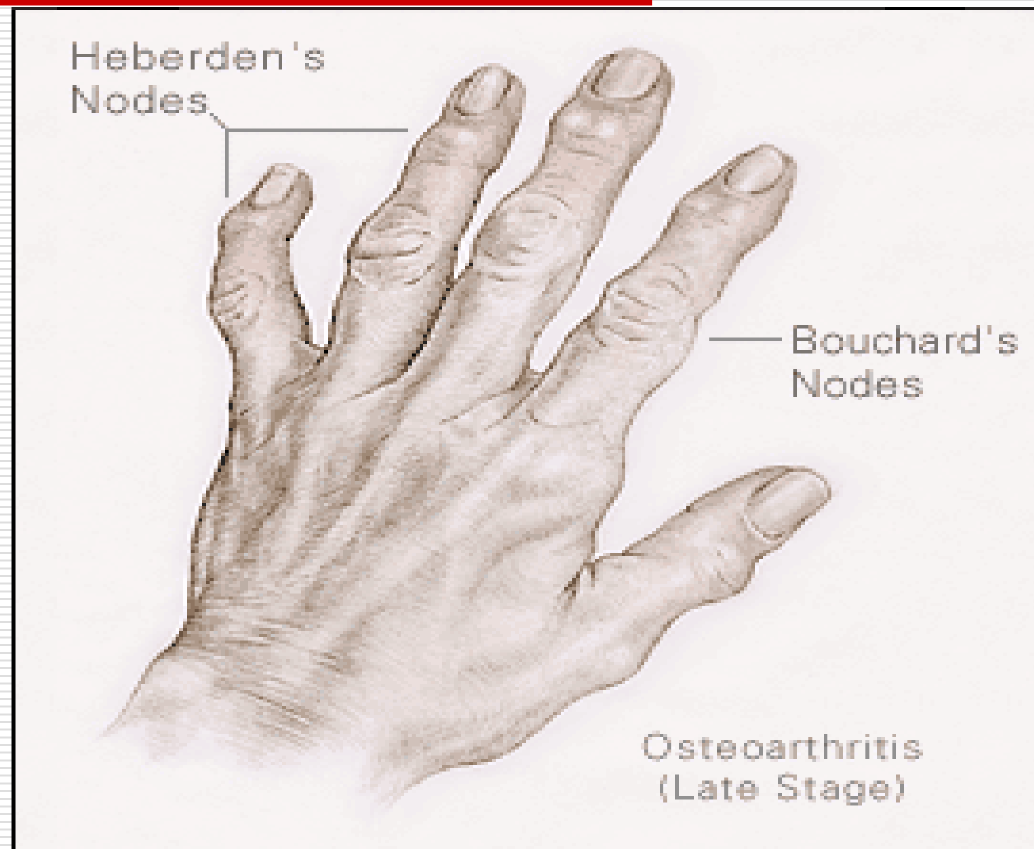
What is your differential?

How do you make the diagnosis?

Osteoarthritis

- Normal WESR
- Xray and exam consistent
- May need MRI
- Treatment is very limited: Tylenol, NSAIDs, physical therapy, Glucosamine chondroitin?, joint replacement or repair or surgery
- Nodal arthritis in women: B hands, hereditary




Heberden's
Nodes
Bouchard's
Nodes
Osteoarthritis
(Late Stage)

Case Study #6

- 28 yoF pediatric resident develops fevers, cough, congestion, and body aches. A few days later she develops bilat hand and wrist swelling, erythema, warmth, and tenderness of her PIPs and DIPs with severe pain and limitation of movement. Presents to you a week later with persistent joint symptoms.

What is your diagnosis?

How do you make the diagnosis?

Parvovirus B-19 Arthritis

- Diagnosis made by IgM antibodies to Parvovirus B-19 Antibodies
- May have positive ANA, RF, dsDNA,etc.
- In the right clinical setting – acute onset during or following a viral URI – think parvovirus
- Usually lasts a few weeks to months
- Non destructive – a very few patients have chronic problems
- Treatment: NSAIDs, pain medication if needed

Rheumatology Pearls

- Arthritis vs. Arthralgias
- WESR, CRP and xrays are key in workup
- Do not pan order rheumatology titers
- Age, pattern of involvement other symptoms are important
- Rule out the emergent things first
- Joint aspiration is very helpful in the diagnosis