

Evaluation and Management of Polyarthritis

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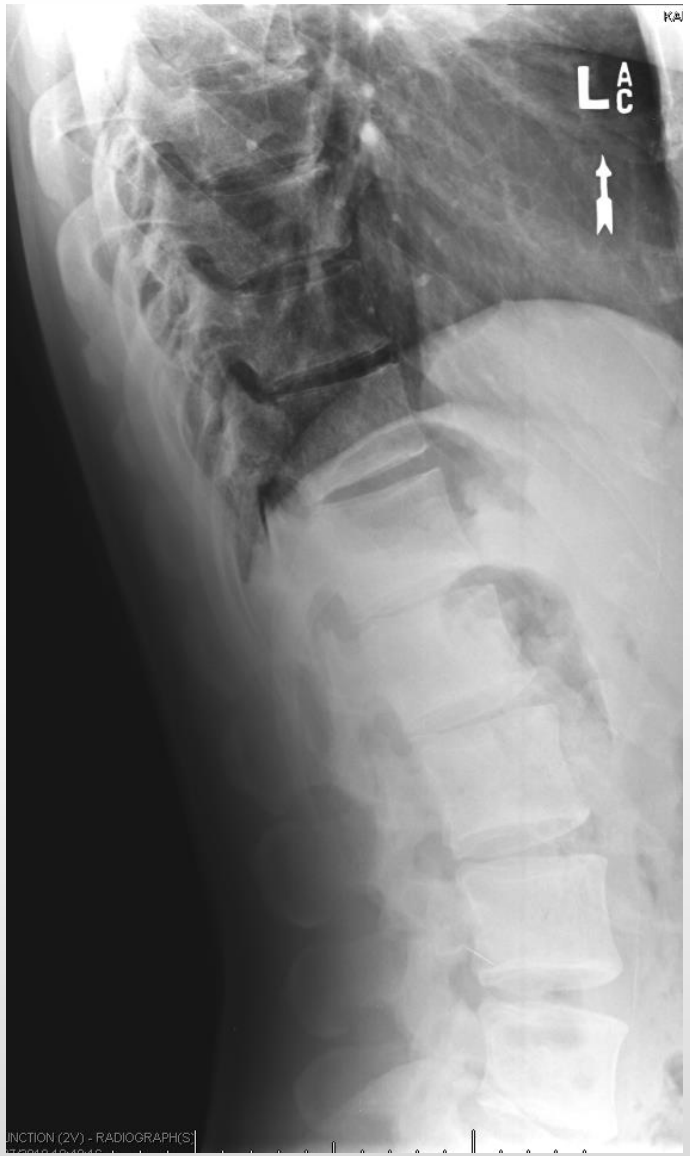
Disclosures

- Clinical Trial Support
  - Fate Therapeutics
  - GSK
  - Sanofi
  - Astra Zeneca

Case 1

- CC: “my back hurts”
- HPI: 29 yo male with 4 mos of bilateral buttock and lower back pain. Dull, achy but can be sharp with coughing, sneezing, bending; radiates to mid thigh; 4 hours am stiffness. Pain improves with hot showers, walking.
- ROS: No ankle pain, eye redness, STD, rash, bloody diarrhea
- SH: No tob/etoh/drugs
- Labs: CBC, CMP normal, ESR: 40 mm/hr (<30 mm/hr)
- Plain films of L spine and pelvis: ‘degenerative changes of sacroiliac joints’




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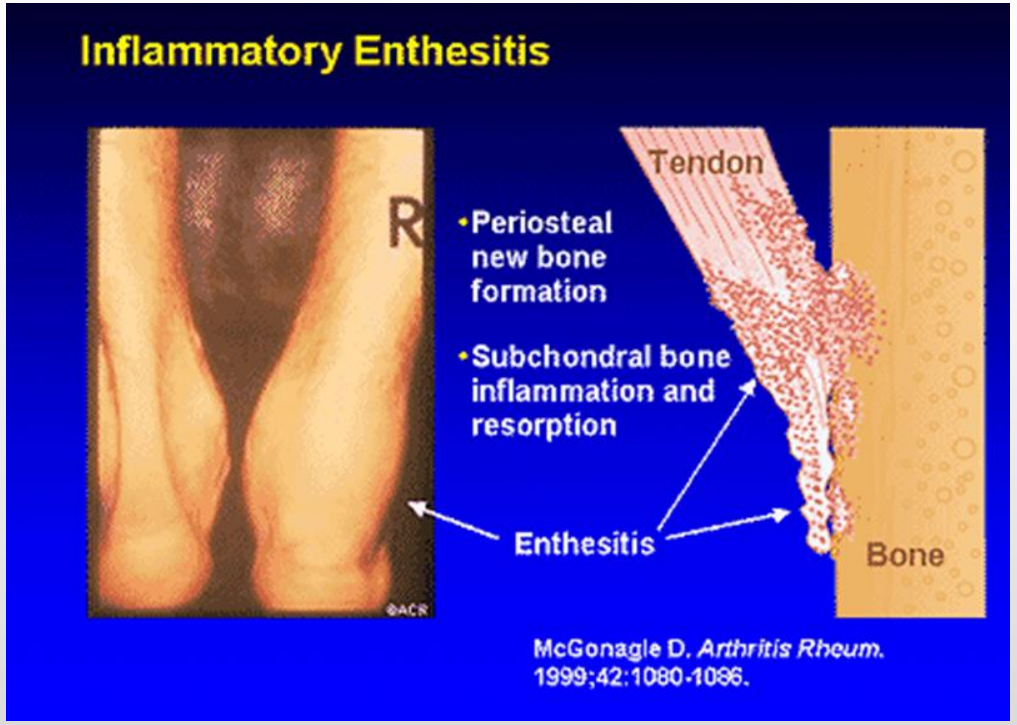


What is the most likely cause of this man’s symptoms?

1. Spondylolisthesis
2. Spondylosis
3. Spondylolysis
4. Scoliosis
5. ✓ Inflammatory back pain

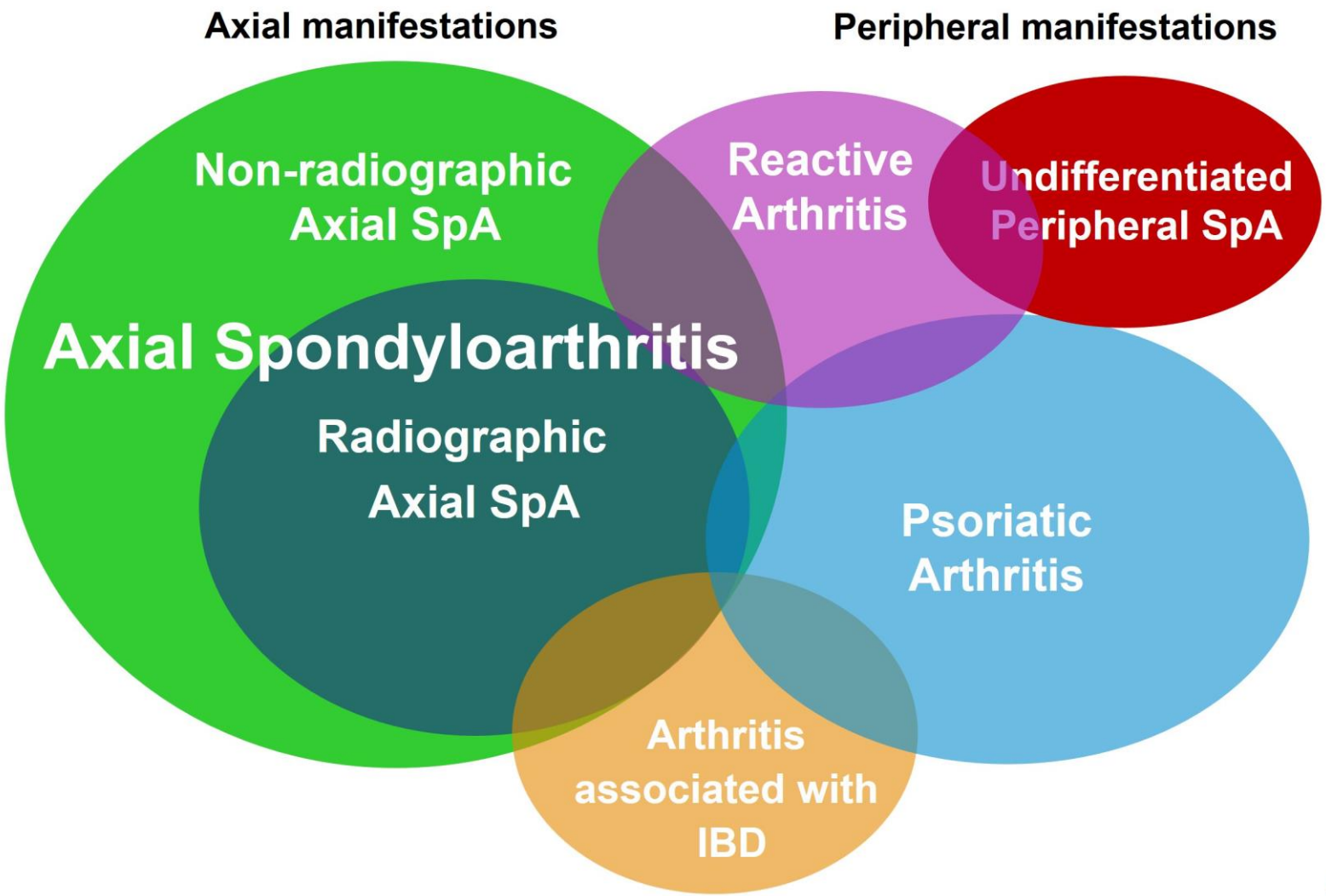
Axial Spondyloarthritis: General Points

- Highly heterogeneous presentation
  - Inflammatory low back pain
  - Sacroileitis
  - Dactylitis
  - Enthesitis



www.medscape.com

Spondyloarthritides (SpA)



Modified from Proft F et al. Ther Adv Musculoskelet Dis 2018;10:129-39

ASAS Inflammatory Back Pain Criteria by Experts (Chronic Back Pain; n=648)

- age at onset < 40 years
- insidious onset
- improvement with exercise
- no improvement with rest
- pain at night (with improvement upon getting up)

Sensitivity: 79.6%; Specificity: 72.4%

Inflammatory back pain present if at least 4 out of 5 parameters are fulfilled.

Sieper J et al. Ann Rheum Dis. 2009;68:784-788

ASAS Classification Criteria for Spondyloarthritis (SpA)

In patients with ≥3 months back pain and age at onset <45 years

Sacroiliitis on imaging plus ≥1 SpA feature

OR

HLA-B27 plus ≥2 other SpA features

SpA features
- inflammatory back pain (IBP)
- arthritis
- enthesitis (heel)
- uveitis
- dactylitis
- psoriasis
- Crohn's/colitis
- good response to NSAIDs
- family history for SpA
- HLA-B27
- elevated CRP

Sensitivity: 79.5%, Specificity: 83.3%; n=975

In patients with peripheral symptoms ONLY

Arthritis or enthesitis or dactylitis

plus

≥1 SpA feature
- uveitis
- psoriasis
- Crohn's/colitis
- preceding infection
- HLA-B27
- sacroiliitis on imaging

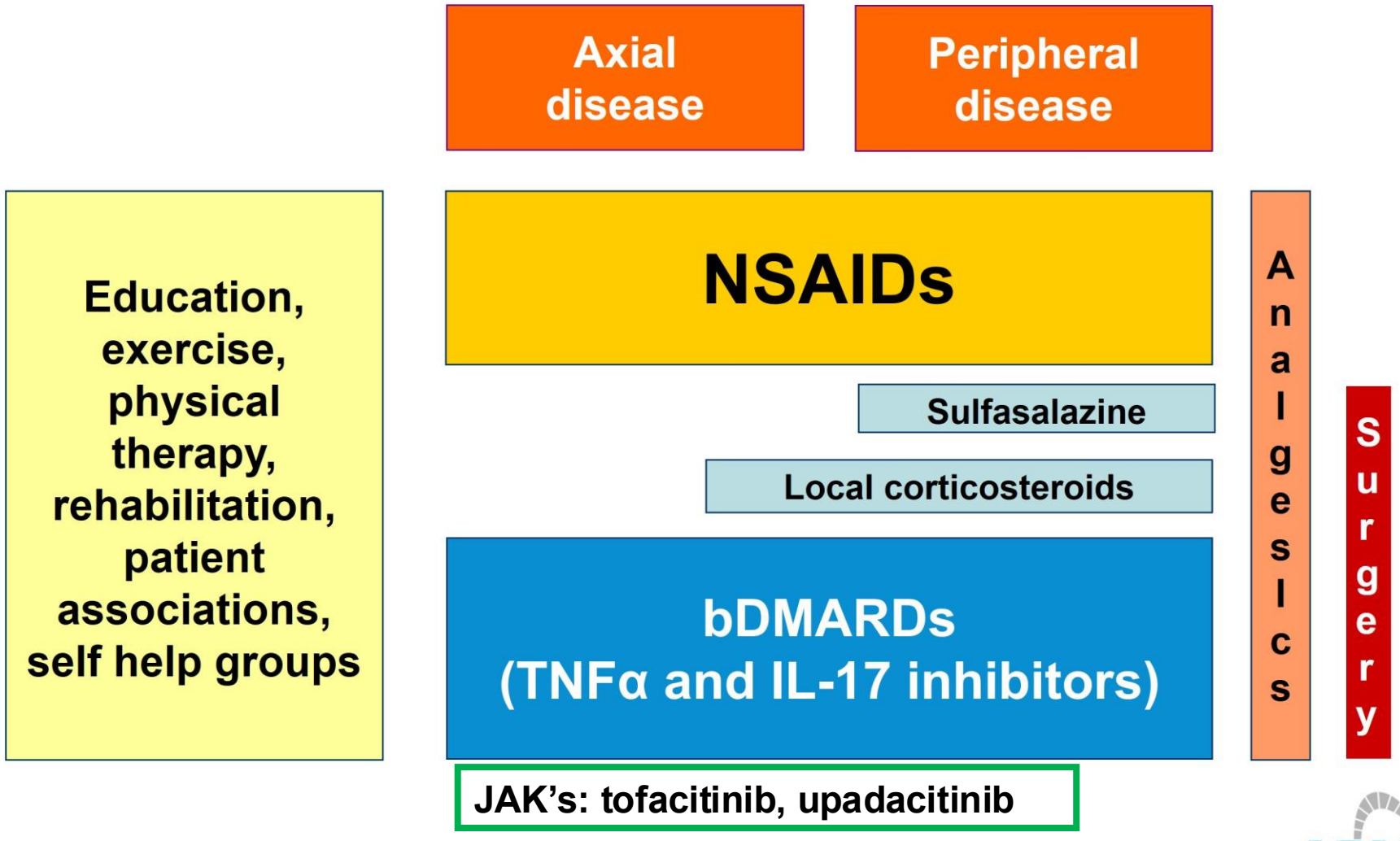
OR

≥2 other SpA features
- arthritis
- enthesitis
- dactylitis
- IBP ever
- family history for SpA

Rudwaleit M et al. Ann Rheum Dis 2011;70:25-31 (with permission)

ASAS

ASAS-EULAR Recommendations for the Management of Axial Spondyloarthritis



van der Heijde D et al. Ann Rheum Dis 2017;76:978-991 (with permission)

Case #2

- CC: finger pain, swelling
- HPI: 84 yo female with known OA complains of chronic aching and swelling of DIPs – gradually over past year; episodes of warmth and tenderness that comes and goes, but no pain in feet, knees or swelling elsewhere.
- PMH: hypertension, DMII, no psoriasis, crohns
- Meds:
  - hydrochlorothiazide 25 mg daily
  - metformin 500 mg bid
- Exam:
  - Moderate heberden and bouchard nodes, moderate mal-alignment, but with no MCP synovitis
  - soft tissue swelling in DIPs of L hand





What is the best explanation for these symptoms?

A. Erosive osteoarthritis
B. Elderly onset gout
C. Calcium pyrophosphate deposition disease
D. Rheumatoid arthritis
E. Amyloid arthritis

Gout



- Common in men >40 yrs but rising in women
  - ↑prevalence (~4%)
    - chronic disease, aging, ↓GFR
    - ↑obesity
    - medications
- Uric acid often deceptively low/normal during attacks (our pt: 11.3 mg/dL), adjusting treatments can precipitate attacks
- Phases:
  - acute
  - chronic tophaceous
  - Inter-critical period

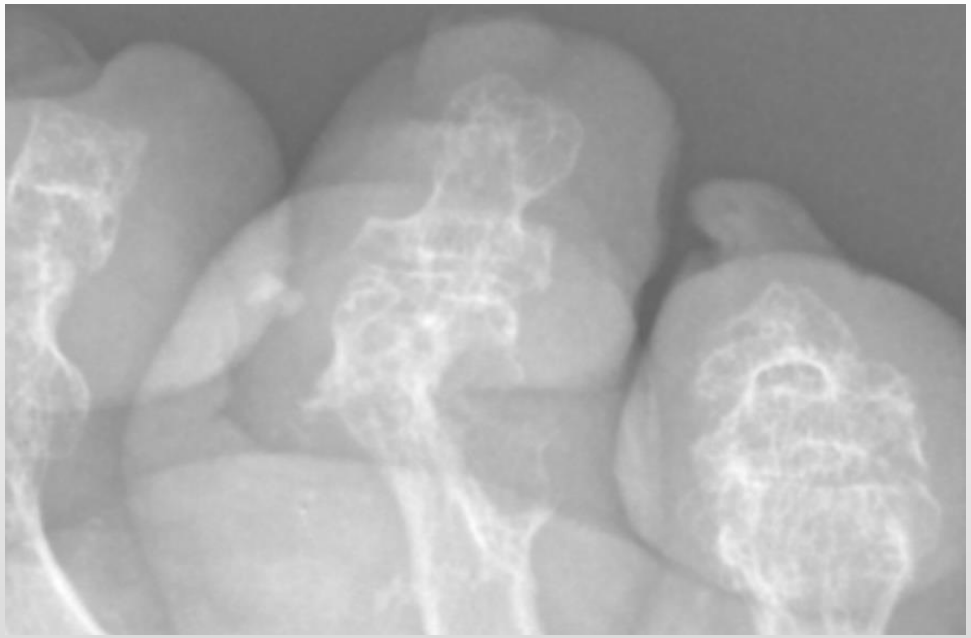




Elderly Onset Gout (EOG)

- subacute/chronic polyarticular hand involvement
- localization of tophi on heberden nodes
- increased female:male ratio
- association with drugs → decrease renal urate excretion (diuretics and low-dose aspirin)





De Leonardis, Elderly-onset gout: a review. Rheum Int. 2007

Treatment Principles

- Terminate the acute attack
  - High dose NSAIDs
  - Corticosteroids (PO or intra-articular with arthrocentesis)
  - Colchicine, if early
    - FDA indication 2009
      - 1.2 mg then 0.6 an hour later then qd-tid
- Treat hyper-uricemia to limit progression
  - Lower serum uric acid
    - Xanthine oxidase inhibitors
      - Allopurinol
      - Febuxostat (2009)
    - Pegloticase (2011)

Gout: Need to know…

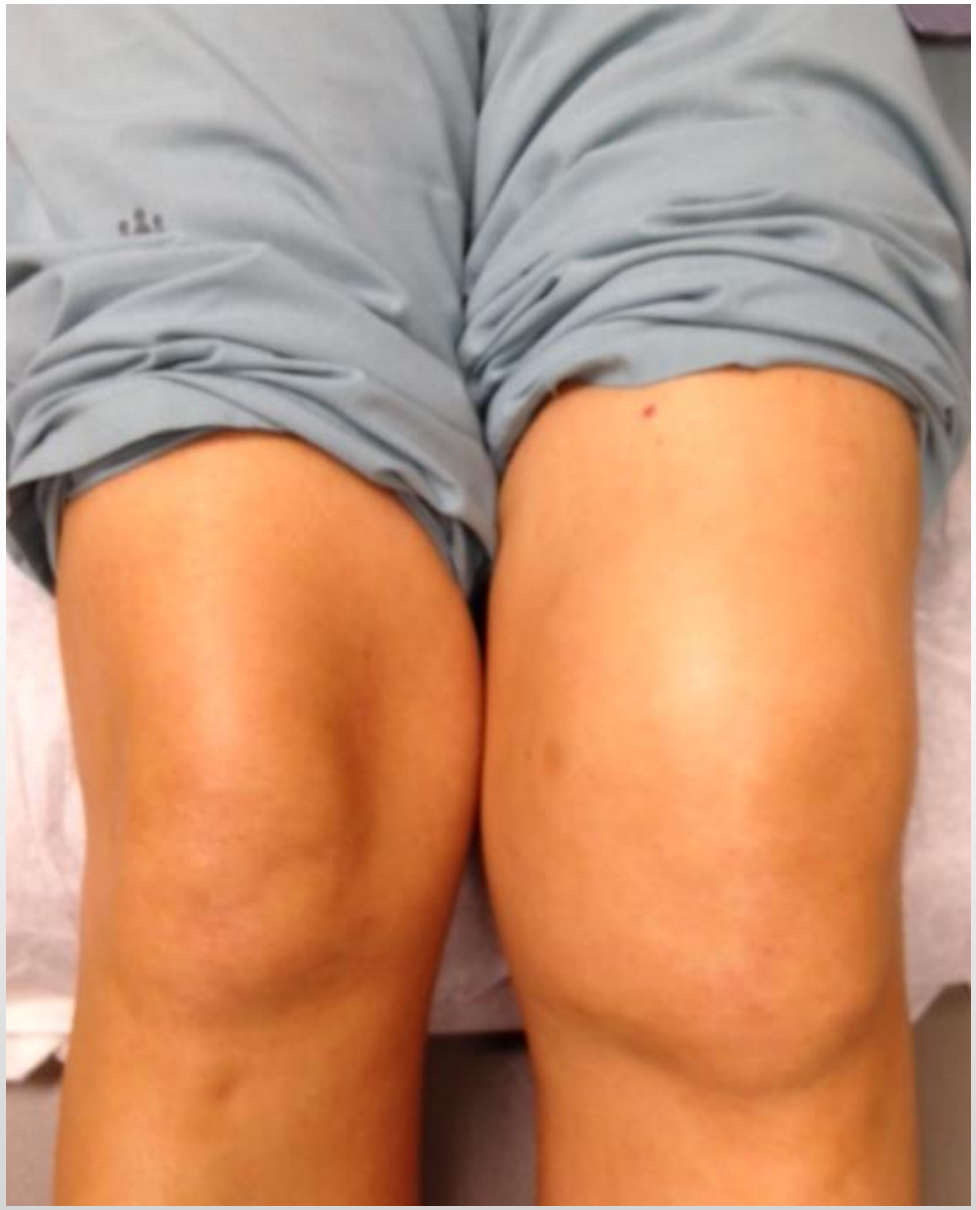
- Gout prevalence is on the rise (acute, chronic, EOG)
- Risk factors are traditional (diet) - and more recently recognized
- Serum uric acid is not always elevated during attacks
- Newer approaches to treatment:
  - Colchicine dosing
  - Start allopurinol in low dose; titrate gradually
  - Febuxostat if allopurinol intolerant, ckd
  - Pegloticase for severe tophaceous gout



Khanna et al. 2012 American College of Rheumatology Guidelines for Management of Gout. Part 1: Systematic Nonpharmacologic and Pharmacologic Therapeutic Approaches to Hyperuricemia. Arthritis Care & Research, 2012

Case #3

- A 74 year old woman presents with 2 days of spontaneous L knee swelling and moderate pain with weight bearing. Symptoms are worsening, though improved with OTC ibuprofen. She reports mild intermittent low grade fevers and occasional chills. No prior episodes.
- PMH:
  - Psoriasis
  - Diabetes mellitus with CKD
- SH:
  - 1 ppd tobacco x 20 yrs
  - Moderate alcohol x yrs



Exam:

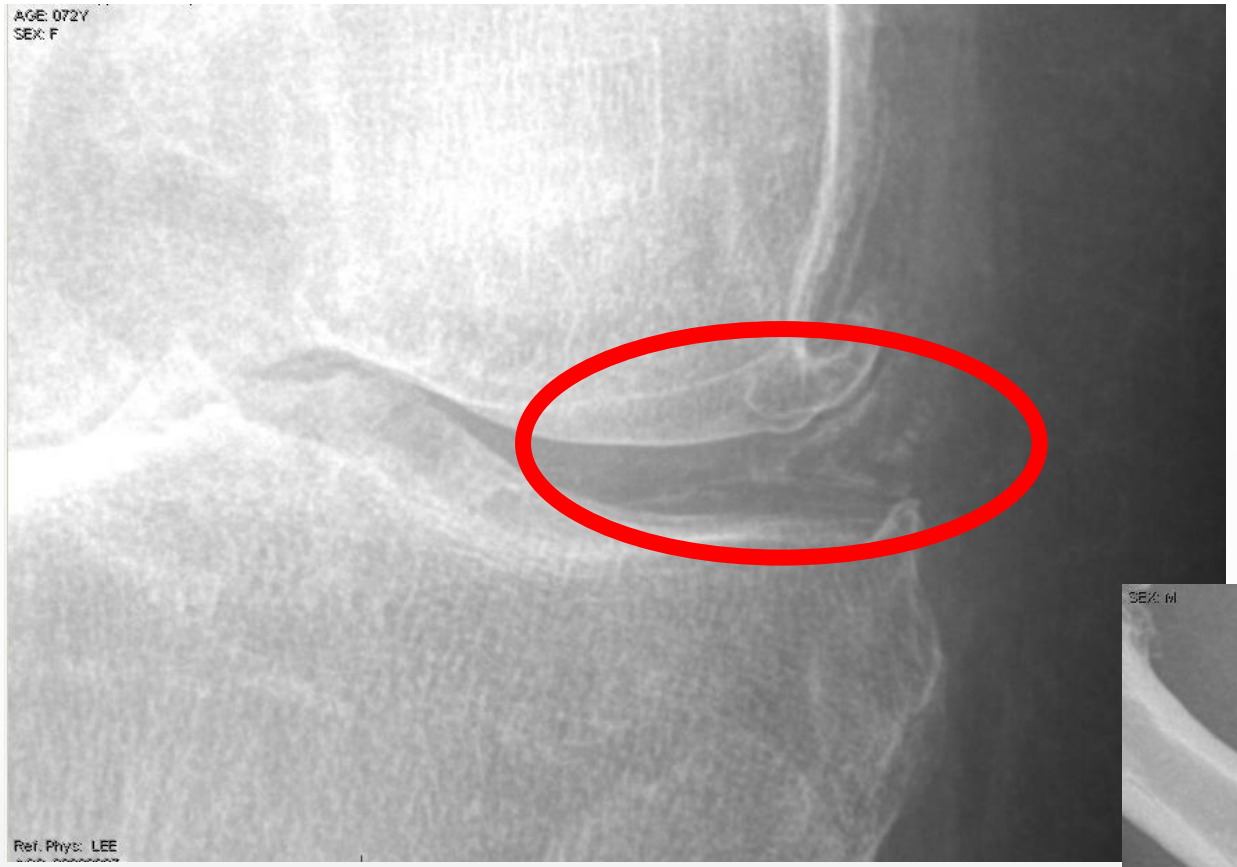
- T: 100.2, rr: 16, hr: 98, bp: 110/70
- Gen: mild distress with L knee exam
- Msk: mod pain elicited with passive ROM testing in all fields; mild erythema and tenderness with moderate effusion in suprapatellar bursa
- WBC: 14K
- CRP: 79.6
- ESR: 64



What is the most likely cause of her swelling?

A. Psoriatic arthritis
B. Gout
C. Osteoarthritis

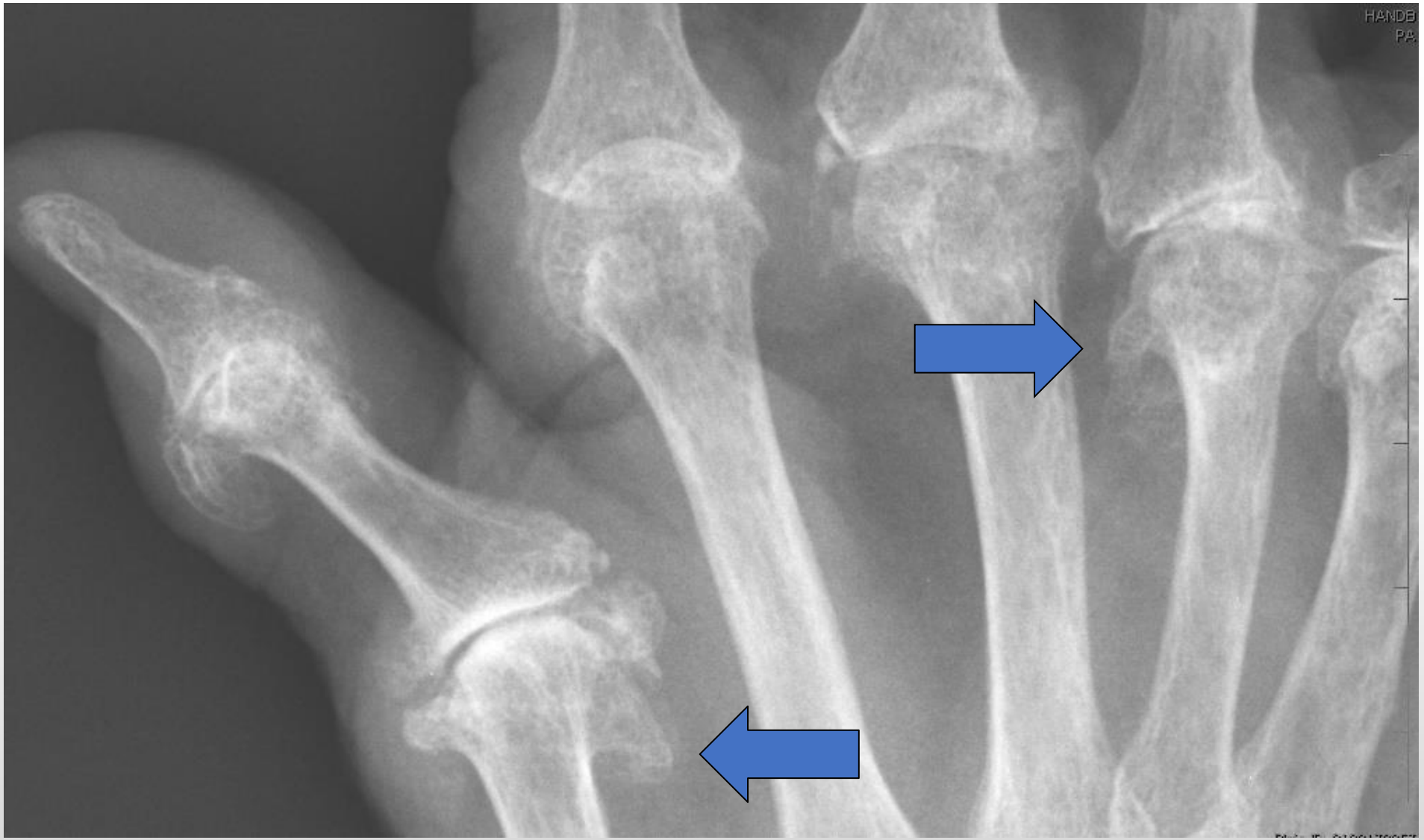
D. Calcium pyrophosphate deposition
E. Polymyalgia rheumatica

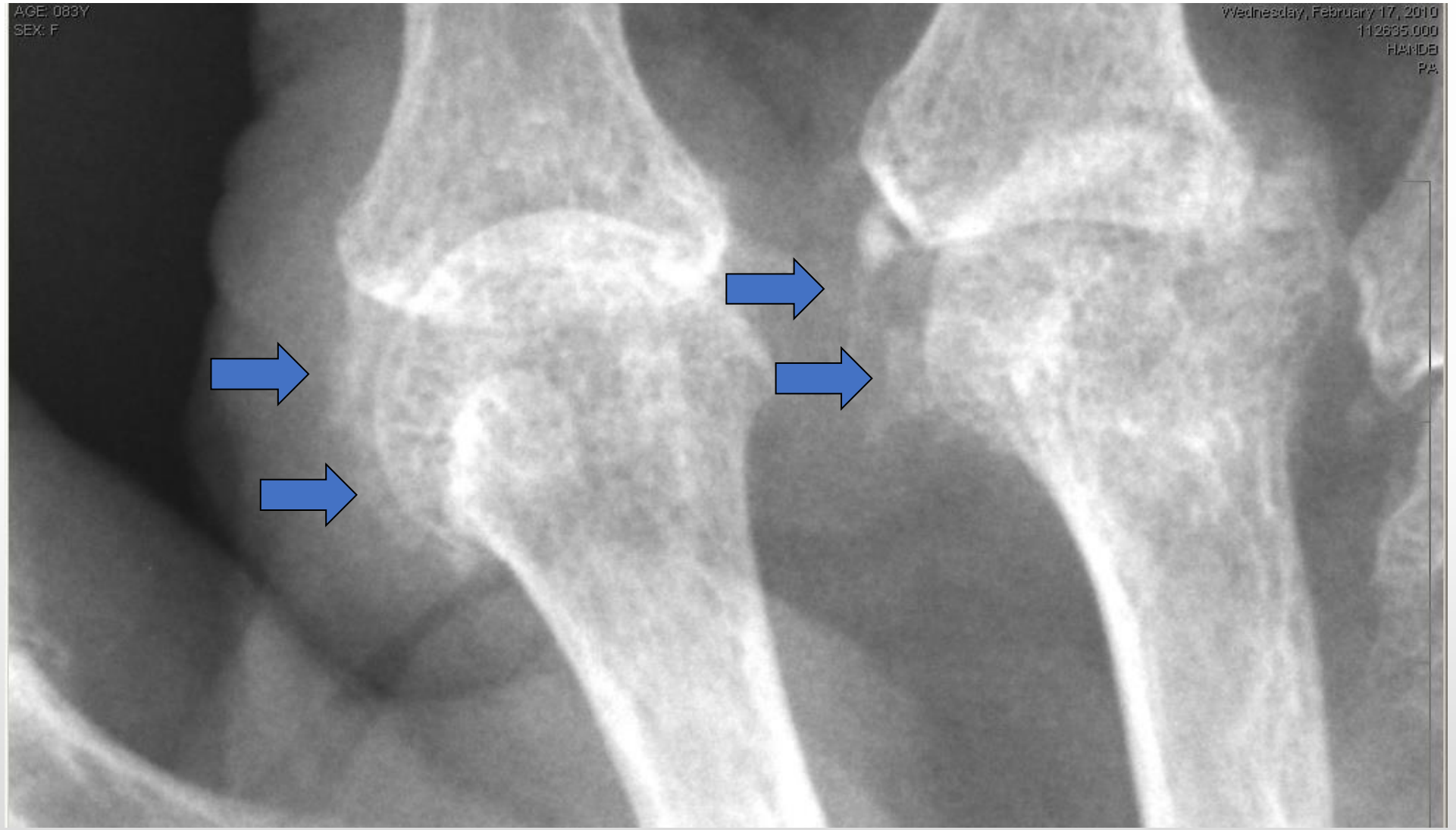




chondrocalcinosis

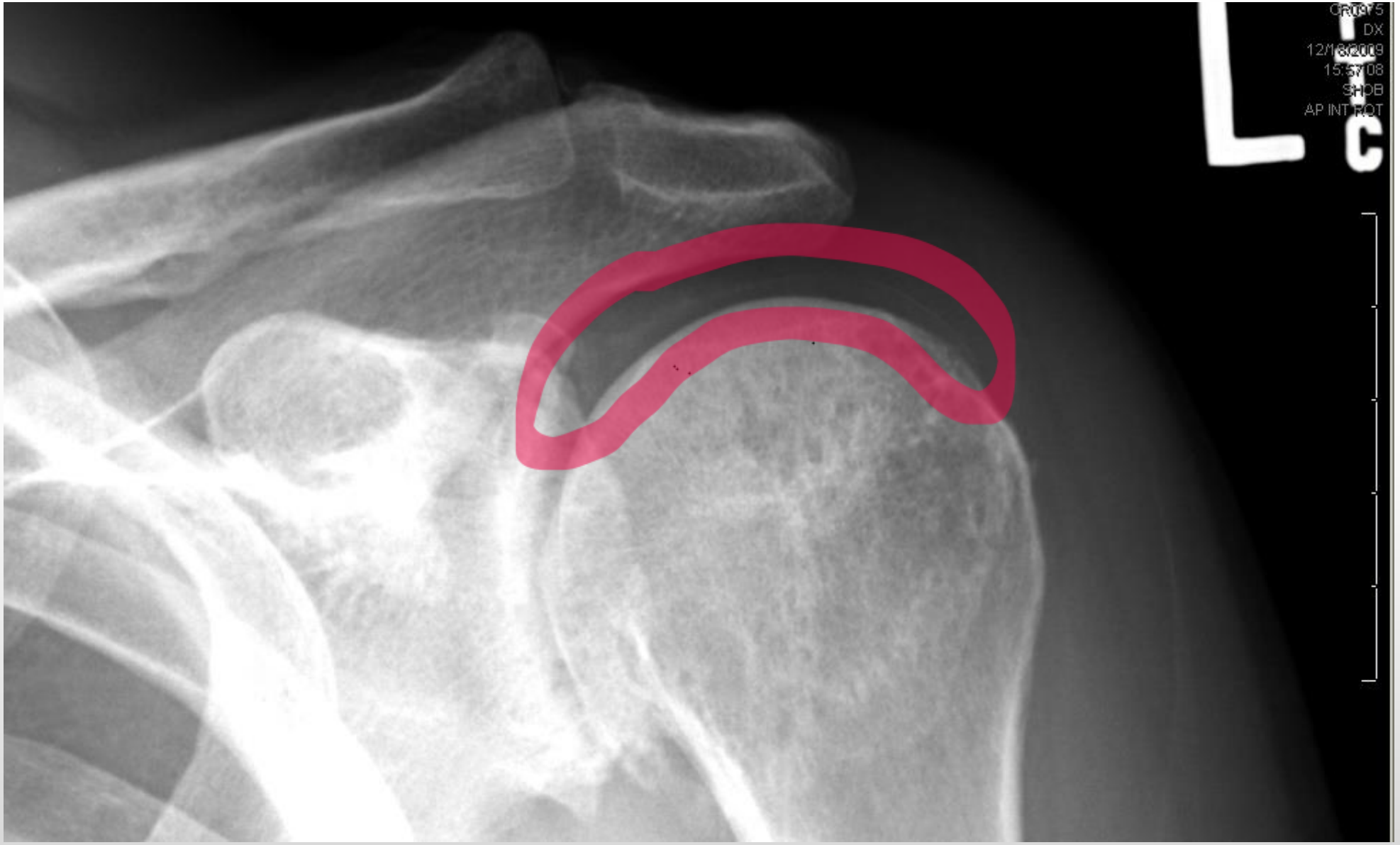

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Metacarpophalangeal osteophytosis and chondrocalcinosis


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Need to know: CPPD

- Common cause of acute inflammatory arthritis; mimics gout, RA, septic and OA
- Variable presentations; prevalence and RF's
  - Aging
  - Endocrinopathies
  - Hemochromatosis
- Recognize chondrocalcinosis on xrays



- Treatments:
  - Acutely:
    - Ice, arthrocentesis and steroid injection
    - NSAIDs or colchicine
  - Long term:
    - Low dose colchicine
    - Methotrexate/hydroxychloroquine

Zhang, et al. EULAR recommendations for calcium pyrophosphate deposition. Part II: Management. Ann Rheum Dis 2011: 571-575

Case 5

- HPI: 32 year man presents with one month of gradually worsening stiffness and aching in fingers that improves with use and OTC ibuprofen. Moderate morning stiffness in low back x 1 hour. Significant limitation in daily function.

- SH: moderate etoh; no drugs/tobacco
- FH: mother with psoriasis
- Labs:
- Exam…….

WBC'S AUTO	4.0 - 11.0 x1000/mcL	5.9
RBC AUTO	4.70 - 6.10 Mill/mcL	**4.59 (L)**
HGB	14.0 - 18.0 g/dL	14.4
HCT AUTO	42.0 - 52.0 %	42.3
MCV	80.0 - 94.0 fL	92.0
MCH	27.0 - 35.0 pg/cell	31.4
MCHC	32.0 - 37.0 g/dL	34.2
RDW, BLOOD	11.5 - 14.5 %	13.4
PLT'S AUTO	130 - 400 x1000/mcL	197
CRP	<=7.4 mg/L	1.4
ESR	0 - 15 mm/Hr	9
ALB	3.3 - 4.8 g/dL	3.9
ALT	<=63 U/L	41





What is the most likely cause of this patient's symptoms?

A. Multicentric reticulohistiocytosis
B. Sarcoid arthritis
C. Osteoarthritis
D. Rheumatoid Arthritis
✓ E. Psoriatic arthritis

Psoriatic Arthritis Domains







- Peripheral arthritis
- Dactylitis/Enthesitis
- Axial disease
- Skin domain
  - Nail disease
- Arthritis mutilans





Taylor, W. Classification criteria for psoriatic arthritis: development of new criteria from a large international study. Arthitis Rheum. 2006 Aug;54(8):2665-73.

Psoriatic Arthritis Treatments

- NSAIDs
- Steroids (topical, IA)
- DMARDs
  - Leflunomide
  - Sulfasalazine
  - Methotrexate
  - Apremilast/Otezla (PDE-4)

- Interleukin inhibitors:
  - Ustekinumab/Stelara (IL-12/23) and **biosimilars**
  - Guselkumab/Tremfya (IL-23)
  - Risankizumab/Skyrizi (IL-23)

  - Secukinumab/Cosentyx (IL-17)
  - Ixekizumab/Taltz (IL-17)
  - Bimekizumab/Bimzelx (IL17A,F)
- T cell costimulation inhibitor:
  - Abatacept/Orencia

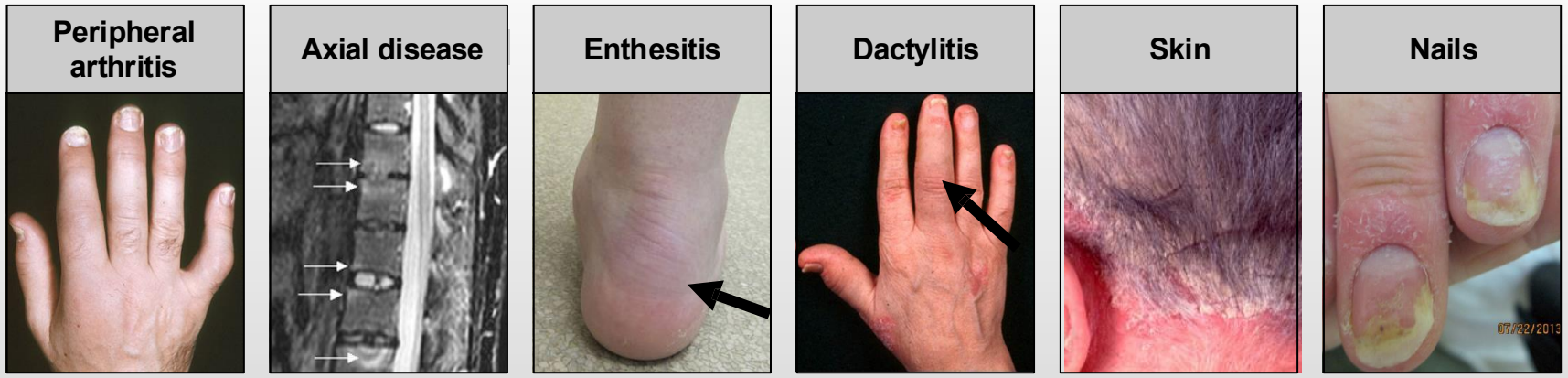
- Tumor necrosis factor inhibitors
  - Etanercept/Enbrel
  - Infliximab/Remicade
  - Adalimumab/Humira
  - Certolizumab/Cimzia
  - Golimumab/Simponi
  - **Biosimilar** infliximab and adalimumab

- JAK's, TYK
  - Tofacitinib/Xeljanz (JAK)
  - Upadacitinib/Rinvoq (JAK)
  - Deucravacitinib/Sotyktu (TYK2)



Case 5: Psoriatic arthritis key points

- Another multi-domain condition
- Recognition and refer
- Newer therapies depending on domains
  - Traditional dmards (skin and mild disease)
  - Biologics (TNF's in severe disease first line)



Singh JA, et al. 2018 ACR/NPF Guideline for the Treatment of Psoriatic Arthritis. Arthritis Rheumatol. 2019; 71 (1) 5-32. Epub 2018 Nov 30.
Coates LC, et al. Arthritis Rheumatol. 2016;68:1060-1071

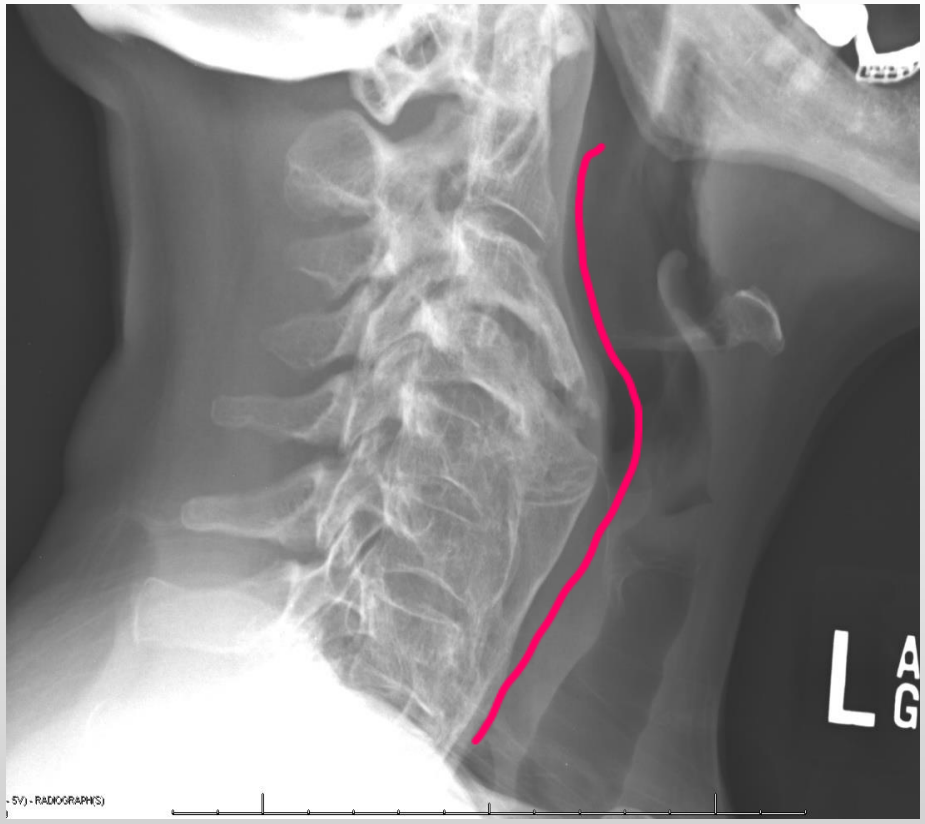
Final Case

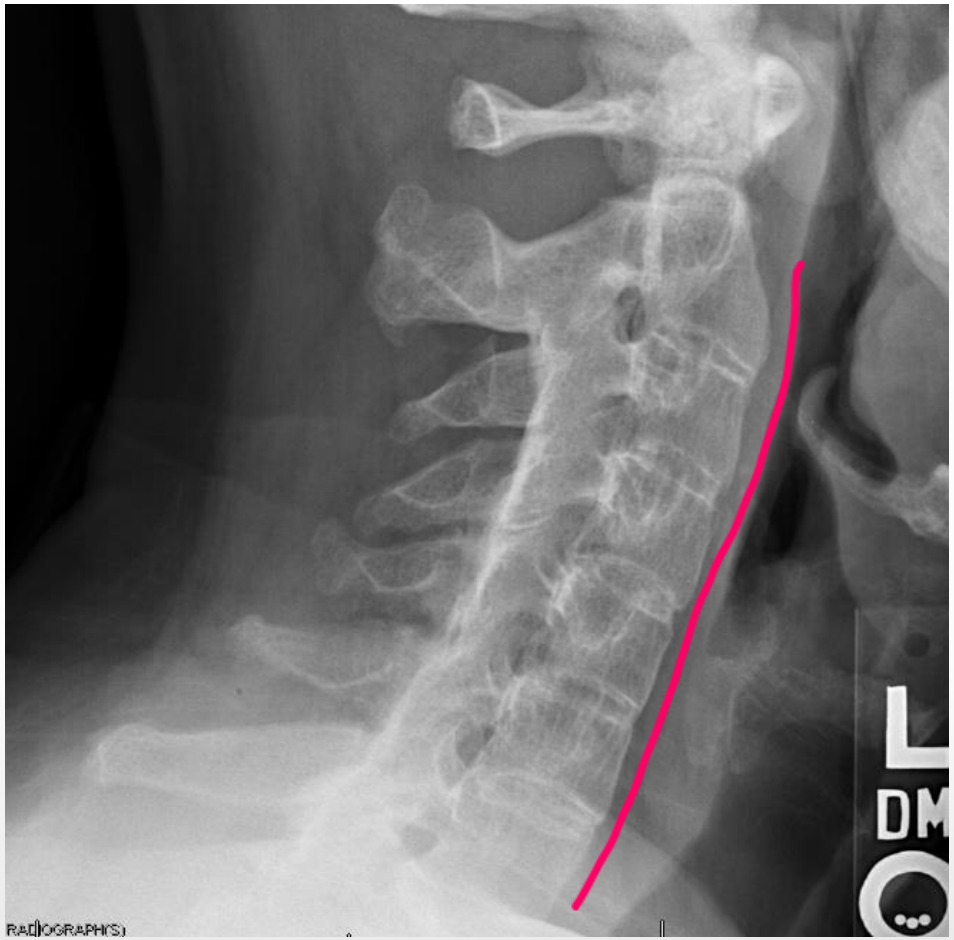
- 64 yo man with longstanding DM presents with 6 months of worsening chronic neck stiffness



Diffuse Idiopathic Skeletal Hyperostosis (DISH) “Candle wax pattern”:

1. presence of continuous ossification/calcification along anterolateral aspects of 4 contiguous vertebrae
2. preservation of disks without degeneration
3. absence of facet joint fusion or sacroiliac erosions/fusion





Axial Spondyloarthritis

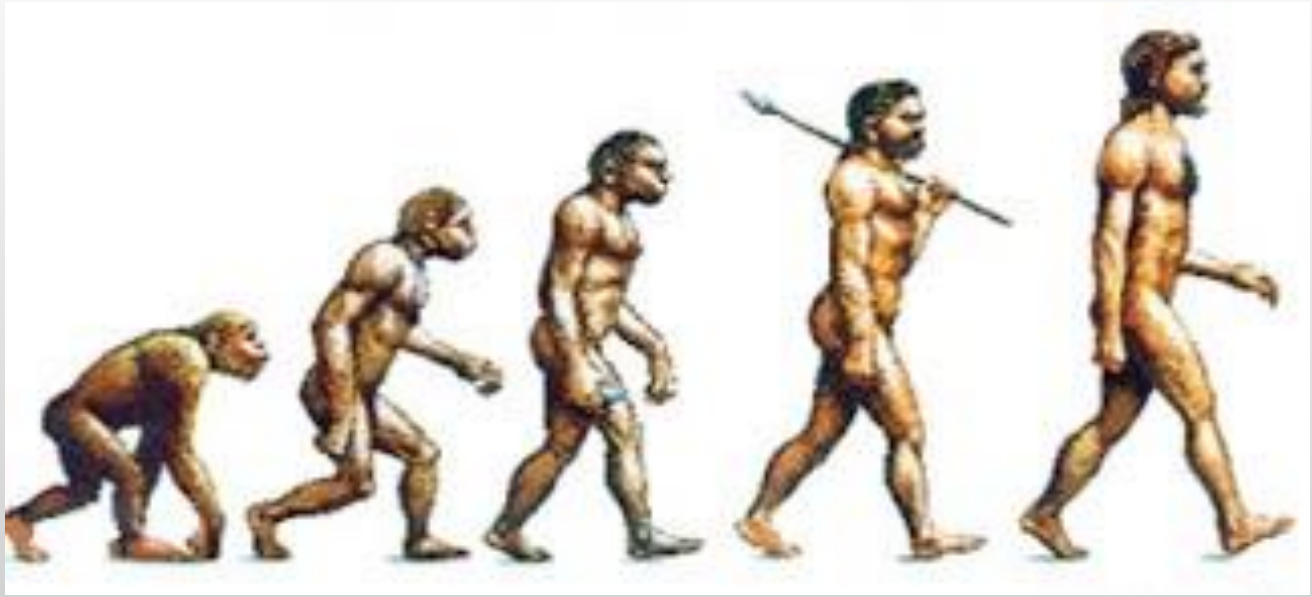
- Marginal syndesmophytes

Diffuse Idiopathic Skeletal Hyperostosis (DISH)

- Commonly mistaken for Spondyloarthritis
- Age of onset >50
- Genetic associations
- Endocrinopathies (DMII, PTH)
- Ossification of ALL, extraspinal ligaments
- No role for immunomodulators
- Analgesia, NSAIDs, PT, surgical options PRN

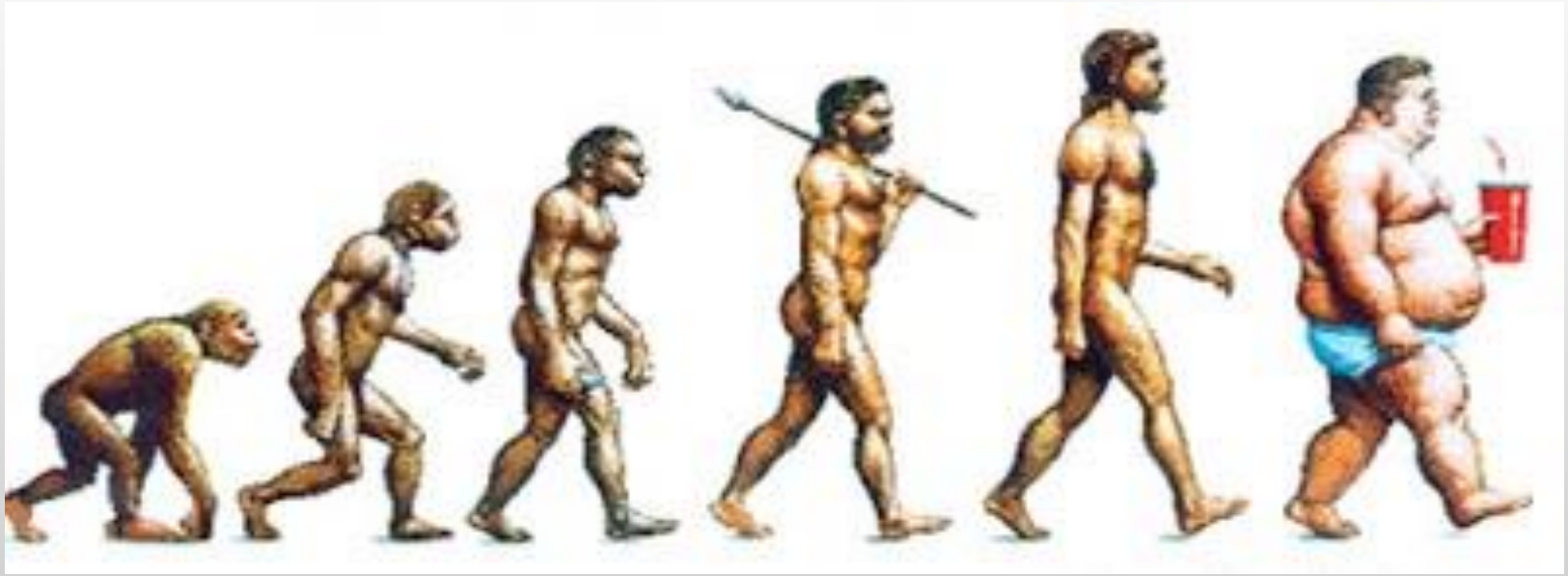
Chakravarty SD, Rheumatic manifestations of endocrine disease. Curr Opin Rheumatol. 2013

OA contributing factors



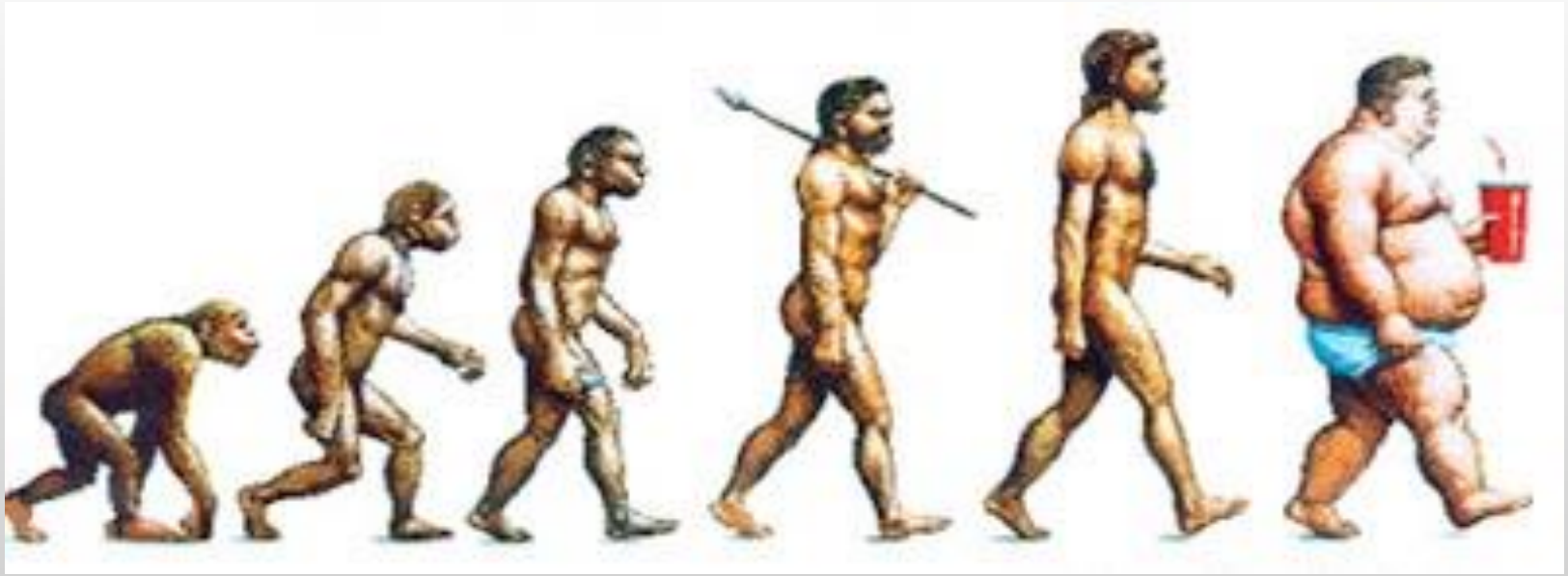
OA contributing factors

- Obesity



OA contributing factors

- Obesity
- Prior trauma and injury
- Menopause: estrogen?
- Family history



OA

- Pathophysiology
  - Periosteal bone remodeling (bone morphogenetic proteins) - subchondral microfractures
  - Cartilage degradation (matrix metalloproteinases)
- Exam: bony enlargement, decreased ROM, peri-articular muscle weakness, crepitus
- Joints distribution:
  - DIPs, PIPs, CMCs
  - Cervical, lumbar spine
  - 1st MTPs, knees, hips
  - NOT shoulders, wrists or MCP's


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OA treatment

- Non-pharmacologic:
  - Wt loss, PT, muscle strengthening, aerobic exercise
  - Education
- Pharmacologic:
  - NSAIDs
  - Analgesia (tylenol, tramadol, opiates)
  - Anti-depressants (nortriptyline, duloxetine)
  - Anti-epileptics (fibromyalgia)
  - GLP-1?
- Injections of steroids or hyaluronic acid or GLP-1?

Summary: evaluation of polyarthritis

- Spondyloarthritis – numerous domains, including LBP
- Elderly onset gout – traditional and even DIP involvement
- CPPD – can appear similar to knee OA, even RA
- Psoriatic arthritis – DIP involvement among other domains
- DISH – a form of axial OA