



# PrePodiatryStudy Case Studies



Rheumatoid Arthritis

# Case

## HPI:

A 45-year-old, obese female states that she has had constant swelling, pain and stiffness in the balls of her feet for months. She walks on her heels and extends her toes to prevent applying pressure. It takes her at least an hour to get out of bed, and is painful for her after remaining inactive for too long. Admits to fatigue. Denies fevers/chills/nausea/vomiting.

What other questions would you like to ask?

# Past Medical History

PMH:

- BMI: 35
- Meds: No Medications
- Allergies: Penicillin
- FH: Mother (osteoarthritis)
- SH: 1 PPD tobacco x 20 years, 1 drinks ETOH a day

What do you want to know next?

# Physical Exam

- Vascular
  - DP/PT palpable pulses
  - +1 edema, left met heads
- Dermatologic
  - Warm, swollen, erythematous MTPJ's (1-5) b/l
  - Mild plantar calluses noted at the 1st MTPJ B/l
  - Hammertoe deformities noted at lesser digits 2-3 b/l
  - Hyperkeratosis noted at plantar lesser met heads b/l
- Neurologic
  - (+) sensation with 10g SWMF
- Musculoskeletal
  - Pain on MTPJ range of motion; limited DF/PF b/l
  - Able to move toes
  - 4/5 Strength right, Guarded left
  - No ankle dislocation noted



# Clinical Image

Read the image.



# Read Me This X-Ray

R



# Imaging

Read the image.





Labs?

# Labs Ordered:

- CBC
- Markers:
  - ESR
  - CRP
  - RF assay
  - ANA assay
  - anti-CCP

What are the normal values in a CBC?

## Lab Results:

High ESR

High CRP

(+) rheumatoid factor

(+) anti-CCP



What would you diagnose the patient with? What are some differentials?



What's your  
plan, Doctor?

# Plan

- What 1st-line medication would you offer?
- What other types of medications could be offered?
- If a patient with RA is having surgery done, then which of their medications MUST be stopped before surgery?
- If a patient has had RA for at least 5 years what type of imaging must be performed? Why?



# Rapid Fire Questions

# Rapid Fire Questions

- How does synovial fluid present like in RA?
- How would you describe Swan Neck deformities?
- What damage in RA causes fibular deviation of the digits?
- What will be increased in RA?
- Late-stage finding of RA
- Gold standard for diagnosis of RA?
- What is manifested as the following triad: RA, neutropenia, splenomegaly
- What is a radiographic finding which could be seen in RA or psoriatic arthritis?
- What is a genetic risk factor for RA?
- Clinical finding of RA in the nails?



# Rapid Fire Questions

- What causes destruction of articular cartilage in RA?
- What types of arthritis are HLA-B27(+)?
- Why are patients with RA more likely to have a slow wound healing time?
- Why are NSAIDs used for the treatment of RA?
- What do NSAIDs inhibit?
- What will happen if an NSAID is given alongside Probenecid?
- What is happening to the joint in patients with RA?
- Dermatological clinical finding often seen at the joints in RA
- Name 1 type of surgical intervention for a patient RA with symptomatic tarsus or ankle

# Rapid Fire Questions

- What will happen if an NSAID is given alongside a corticosteroid?
- What will happen if a NSAID is given alongside lithium?
- Hematologic-related finding in patients with RA?
- What is the mechanism of action for methotrexate?
- What are some conservative treatments that could be offered to a RA patient?
- Where is a Baker's cyst typically found?
- What type of arthritis is seen with "bamboo spine"?
- What type of arthritis is associated with myxoid cysts?
- A patient has a red, hot, swollen right 1st MTPJ. What diagnosis has a Martel's sign on imaging?
- What's the difference between metabolic gout vs renal gout?



# Answers

# Case

HPI:

A 45-year-old, obese female states that she has had constant swelling, pain and stiffness in the balls of her feet for months. She walks on her heels and extends her toes to prevent applying pressure. It takes her at least an hour to get out of bed, and is painful for her after remaining inactive for too long.

What other questions would you like to ask?

- HPI:
  - How much would they rate the pain out of 10? **5/10**
  - Anything make the pain better: **ice pack**. Worse: **inactivity**.
  - Does the pain radiate anywhere else? **No**.
  - Any trauma to the area? **No**
  - Has the patient tried any treatments to help with the pain? **No**.

# Past Medical History

PMH:

- High BMI
- Meds: No Medications
- Allergies: Penicillin
- FH: Mother (osteoarthritis)
- SH: 1 PPD tobacco x 20 years, 1 drinks ETOH a day

What do you want to know next? **Physical Exam findings.**

# Clinical Image



Read the image:

- LEFT:

- severe hallux valgus, at MTPJ
- claw toe deformities, lesser digits
- firm nodule at dorsal 2nd PIPJ

R

# Imaging

## Read the image.

“This is a radiograph of the right foot, DP View, in a skeletally mature patient, showing a large medial eminence at the 1st MTPJ, lateral displacement of the 2-4th metatarsal heads, medial displacement of the 4th proximal phalanx head, erosion on medial and lateral aspect of 5th met head, medial angulation of the 5th proximal phalanx head, and lateral angulation of 4th distal phalanx head. Joint space narrowing PIPJ's 2-4. Increased 1st IMA angle and tibial sesamoid >3 noted. My impression is that there is rheumatoid arthritis.”

Labs:

High ESR → inflammation

High CRP → inflammation

(+) rheumatoid factor → caused by

- Rheumatoid arthritis

- autoimmune disease (SLE, scleroderma, Sjogren's, vasculitis)

(+) anti-CCP → seropositive rheumatoid arthritis



# Diagnosis

- Diagnosis: Rheumatoid Arthritis
- Differentials:
  - Osteoarthritis
  - Psoriatic Arthritis
  - Viral Arthritis
  - Lyme Disease
  - Fibromyalgia
  - Lupus and Scleroderma
  - Gout
  - Reactive Arthritis

# Plan

- What 1st-line medication would you offer?
  - Corticosteroids
- What other types of medications could be offered?
  - DMARD's: Methotrexate, Leflunomide, Sulfasalazine, Hydroxychloroquine
- If a patient with RA is having surgery done, then which of their medications MUST be stopped at least 5 days before surgery?
  - Infliximab (NSAID)
- If a patient has had RA for at least 5 years what type of imaging must be performed? Why?
  - C-spine with flexion/extension lateral view d/t potential atlantoaxial subluxation C1-C2

# Rapid Fire Questions

- How does synovial fluid present like in RA?
  - Cloudy fluid, elevated WBC's
- How would you describe Swan Neck deformities?
  - Extended PIPJ, Flexed DPIJ
- What damage in RA causes fibular deviation of the digits?
  - Medial plantar met head erosive changes → medial collateral ligament weakens → lateral deviation
- What will be increased in RA?
  - RF+, WBC, ESR, CRP
- Late-stage finding of RA
  - Symmetric joint space narrowing

# Rapid Fire Questions

- Gold standard for diagnosis of RA?
  - Gadolinium contrast
- What is manifested as the following triad: RA, neutropenia, splenomegaly
  - Felty's Syndrome
- What is a radiographic finding which could be seen in RA or psoriatic arthritis?
  - Arthritis Mutilans aka "pencil in cup"
- What is a genetic risk factor for RA?
  - HLA-DR4
- Clinical finding of RA in the nails?
  - Splinter hemorrhages

# Rapid Fire Questions

- What causes destruction of articular cartilage in RA?
  - chondrolytic enzymes from pannus
- What types of arthritis are HLA-B27(+)?
  - Psoriatic arthritis
  - Reiter Syndrome
  - Ankylosing Spondylitis
- Why are patients with RA more likely to have a slow wound healing time?
  - The medications used to treat RA (corticosteroids, DMARD's, anti-TNF $\alpha$ ) impact the inflammatory phase of wound healing
- Why are NSAIDs used for the tx of RA?
  - Decrease inflammation at the joint
- What do NSAIDs inhibit?
  - COX-1 and COX-2 pathways

# Rapid Fire Questions

- What will happen if an NSAID is given alongside Probenecid?
  - Higher concentration of NSAID
- What is happening to the joint in patients with RA?
  - The immune system is attacking the joint → inflammation → joint capsule thickening
- Dermatological clinical finding often seen at the joints in RA
  - Rheumatoid nodules
- Name 1 type of surgical intervention for a patient RA with symptomatic tarsus or ankle
  - Synovectomy
  - Arthroplasty
  - Arthrodesis

# Rapid Fire Questions

- What will happen if an NSAID is given alongside methotrexate?
  - Methotrexate will have a lower clearance rate
- What will happen if an NSAID is given alongside a corticosteroid?
  - Higher chance of gastrointestinal bleeding and perforation
- What will happen if a NSAID is given alongside lithium?
  - Lithium will have a lower clearance rate
- Hematologic-related finding in patients with RA?
  - Anemia
- What is the mechanism of action for methotrexate?
  - Inhibits dihydrofolate reductase → impaired DNA synthesis → reduce IL-1 production

# Rapid Fire Questions

- What are some conservative treatments that could be offered to a RA patient?
  - Icing, NSAIDs, orthotics, lace-up brace (hindfoot, ankle pain), steroid injection
- Where is a Baker's cyst typically found?
  - Popliteal fossa
- What type of arthritis is seen with "bamboo spine"
  - Ankylosing spondylitis
- What type of arthritis is associated with myxoid cysts?
  - Osteoarthritis
- A patient has a red, hot, swollen right 1st MTPJ. What diagnosis has a Martel's sign on imaging?
  - Gout
- What's the difference between metabolic gout vs renal gout?
  - Over producer of uric acid (metabolic); under producer (renal)





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Thank You