AHD: Arthritis

Facilitator Guide

Case 1

Pt is a 65-year-old male with a PMHx of DM II, HTN, alcohol use, and obesity who presents with sudden onset knee pain that began the night prior. He has had no recent trauma, viral illness, or new sexual partners. He describes a similar episode two years ago in his 'big toe' that resolved on its own.

Medications: Metformin and HCTZ.
Physical Exam: T 100.5 HR 95 BP 135/70 RR 16 95% on RA
GEN: Mild distress. Obese.
HEENT: Normocephalic. PERRLA.
CV: RRR. No murmurs
LUNGS: CTAB.
MSK: Swelling, erythema, tenderness, and warmth of the right knee. Passive and active ROM intact. No other joint involvement.
SKIN: No rash.

1. **How would you characterize this patient's joint pain?**

2. **What is your differential diagnosis?**

3. **What test(s) would you perform?**

4. **Identify each of the following arthrocentesis samples as either non-inflammatory, inflammatory, or infectious.**

	Diagnosis	Arthrocentesis
A		WBC 95,000, neutrophils 90%
B		WBC 850, neutrophils 20%
C		WBC 20,000, neutrophils 55%

   a. ***Infectious arthritis*: usually WBC>100,000 with >90% PMNs. However, begin to think infectious if WBC >50,000 with neutrophil predominance.**
   b. ***Non-inflammatory arthritis*: WBC <1,000, low neutrophils. Consider OA or other non-inflammatory conditions**
   c. ***Inflammatory arthritis*: WBC >2000 and <50,000. Consider diagnoses of crystalline arthritis (eg gout), RA, seronegative spondyloarthropathy.**

5. **Our patient gets an arthrocentesis of his knee. It appears like sample C from above. Analysis reveals negatively birefringent monosodium urate crystals. How do you treat him? What if our patient has CKD?**

6. **What if the fluid analysis looked like sample A and also showed negatively birefringent monosodium urate crystals? How would that change your management?**

7. **When can you not get a synovial fluid sample? What would you do in this scenario?**

Podagra

8. **How do you counsel the patient to prevent recurrent gouty attacks?**

Case Follow up:

You follow him closely and now he has had two more attacks in the past 6 months involving the first metatarsophalangeal joint and elbow. The patient eats a low-fat diet high in leafy green vegetables and dairy. He has cut down on his alcohol intake. His blood pressure is well controlled on amlodipine which you started in place of the HCTZ. His exam is unremarkable. His renal panel is within normal limits. His uric acid was 7 during the attack and is now 9.5 mg/dL.

9. **What is the next step in optimal management of this patient's gout? What are your pharmacologic options and how do they work? What are the treatment goals?**

Case 2

A 58-year-old Caucasian female presents to clinic with a 4-month history of progressive pain, swelling and stiffness in the "hands, wrists, and feet." Symptoms are worse in the morning and last for 90 minutes. She endorses fatigue but no fevers. Otherwise full ROS are negative, including no vision changes, oral ulcers, rashes, chest pain, or shortness of breath.

Past Medical or Surgical Hx: None
Family & Social Hx: She does not smoke or drink alcohol. 4th grade school teacher.
Medications: Naproxen OTC.
Physical Exam: T 98.6 HR 82 BP 140/80 RR 12 98% on RA
She appears stated age and is in no acute distress. HEENT, cardiac, and lung exam are normal. Musculoskeletal exam reveals warmth over the bilateral MCP and PIP joints associated with moderate soft, boggy swelling and tenderness to palpation. Tenderness is also noted with wrist flexion/extension. No nodules. Skin exam is without rashes.

1. **How would you characterize this patient's joint pain?**

2. **What is your differential diagnosis? Why?**

3. **What tests would you like to order?**

4. **What class of medications would you start for this patient? How do you know if it's effective? What other treatment options are there?**

Case Follow up:

After establishing a diagnosis of RA, you've started methotrexate. The patient now presents to your clinic with bilateral hand paresthesias, neck pain and objective weakness in the upper extremities.

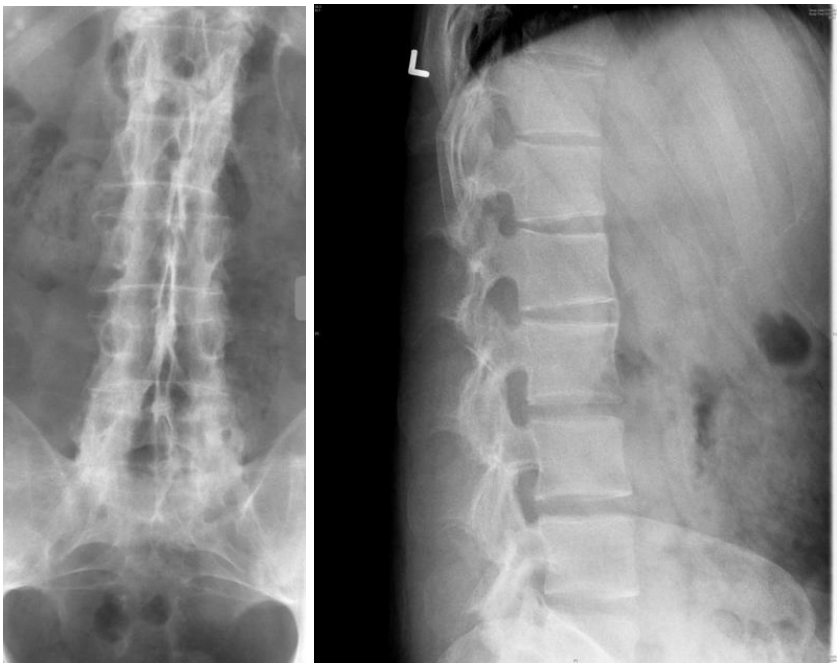
5. **What are you concerned about? What do you do?**

Case 3

A 29-year-old man is evaluated for a 6-year history of pain and stiffness involving the low back and involvement of the "hips." He has had chronic back pain since high school that he attributed to injuries from numerous sports. Now, these symptoms are worse in the morning, last for at least 60 minutes, usually improve with activity, and worsen with rest. Pain is mostly in the lower thoracic region, described as muscle spasms. LBP tends to wake him up at night. Occasionally he will have alternating buttock pain. Naproxen OTC reduces his stiffness but uses them 1-2x per week.

Past Medical or Surgical Hx: None
Family & Social Hx: Brother with psoriasis. Patient works for P&G as a Computer Sciences engineer.
Medications: Naproxen OTC.
ROS: 1 episode of iritis in college that resolved with topical steroid eye drops.
Physical Exam: T 97.5 HR 75 BP 128/70 RR 12 100% on RA
HEENT normal. Skin without lesions. Pulmonary, cardiac, GI & neurologic exam all normal. Musculoskeletal exam reveals normal cervical spine ROM, decreased lumbar spinal mobility without point tenderness in thoracic or lumbar regions. His fingers are 'sausage-like'.

A single AP radiograph of the pelvis shows significant SI symmetric joint space narrowing, and erosive changes with irregularity of the cortex. Lateral radiograph of the spine shows vertebral body squaring and calcification of the anterior longitudinal ligament.



Case courtesy of A.Prof Frank Gaillard, Radiopaedia.org, rID: 3382

Dagger sign: single central radiodense line related to ossification of supraspinous & interspinous ligaments

Bamboo spine: undulating contous of spine caused by bridging syndesmophtes (aka bony growth originating inside a ligament)

1. **How would you characterize this patient's joint pain?**

2. **What is on your differential diagnosis?**

3. **How do you make a diagnosis of a spondyloarthritis?**

4. **What is the treatment?**