THE CASE OF THE SUDDENLY SWOLLEN KNEE…

MSK Lecture

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31 y/o man with no PMH/PSH…

• Knee “swelled up” overnight
• Not really painful, but feels tight and is difficult to walk
• No trauma or injuries
• No medications
• Drinks 1-2 beers/wk, no tobacco, no IVDU
• Works in construction

DDx of a swollen knee

• Trauma/overuse
• Osteoarthritis
• Septic arthritis
• Gouty arthritis
• Pseudogout
• Hemarthrosis
• Rheumatoid arthritis
• Rheumatic fever
• Ankylosing Spondylitis

• SLE
• Reactive Arthritis
• Lyme Disease
• Colitic arthritis (UC)
• Psoriatic arthritis
• Juvenile rheumatoid arthritis
• Neoplasm
• TB

Workup

• Cell count of joint fluid
  - 2,000-50,000 WBCs: inflammatory
  - > 50,000 WBCs: infection
• Lyme titer
• Rheumatoid Factor
• ANA
• CBC
• CRP
• ESR

• Gram stain of joint fluid
• Culture of joint fluid
• GC/CT
• HIV

Reactive Arthritis

• Sometimes referred to as “Reiter’s Syndrome”
• RF seronegative, HLA-B27 often positive
• Autoimmune reaction to an extra-articular infection
• Also consider undiagnosed HIV infection
• Men > Women
• More common age 20s-40s
• White > Black

Causative agents

• Genitourinary
  - Chlamydia
  - Neisseria Gonorhroeae
• GI
  - Salmonella
  - Shigella
  - Yersinia
  - Campylobacter
  - C. difficile
  - Giarda
• Underlying HIV (via other infections)
“Can’t see, can’t pee, can’t bend my knee”
- Arthritis of larger joints—knee or sacroiliac joint common
- Uveitis or conjunctivitis
- Urethritis or cervicitis
- Enthesitis (achilles, plantar fasciitis, patellofemoral)
- Dactylitis
- Circinate balanitis (20%)
- Keratoderma blennorrhagica
- Mouth ulcers
- GI symptoms

Journalist after dysentery in Africa
- Journalist who presented 2 weeks after dysentery with fever, weight loss, polyarthritis and Dactylitis

Diagnosis
- Clinical diagnosis
- Rule out other causes
- In pts with asymmetric mono or oligo arthritis of lower extremity, if gout, osteoarthritis, traumatic, and septic arthritis ruled out, probability of reactive arthritis is 40%
- Throat, cervical or urethral swab or urine/stool sample to identify causative organisms, but often initial infection has resolved
- CRP, ESR non-specific but usually elevated
- HLA-B27 positive in only 30-85% of cases—poorer prognosis

Course
- Joint and systemic symptoms manifest about 1-4 weeks after initial infection
- Usually a self-limited course of 3-12 months
- 30-50% will develop chronic recurrent arthritis
- 10% of patients will develop cardiac complications like aortic insufficiency/regurgitation or pericarditis
- In one outbreak of Salmonella typhimurium food poisoning among police officers acting as security guards during a papal visit:
  - 1,608 officers involved
  - 432 had acute gastroenteritis
  - 27 developed acute arthritis
  - 9 resolved and 18 had recurrent symptoms or chronic arthritis 5 years later

Treatment
- Treat causative agent, when able
- NSAIDS, steroids
- Immunosuppressant agents (methotrexate or sulfasalazine) for chronic recurrent cases
- Intra-articular corticosteroid injections
- TNF inhibitors and courses of antibiotics may be effective for refractory cases—evidence is still mixed
- Topical steroids for cutaneous manifestations

Board Review Questions
An 83-year-old female presents with pain, swelling, and erythema of her left knee. She first noticed this problem last night before going to bed. She is generally healthy and takes no medications. She has not been sexually active since being widowed 15 years ago and she currently lives with her sister. She states that she developed pain and swelling in her left ankle two years ago that lasted only a couple of days and resolved spontaneously. Blood testing shows a very elevated ESR but a normal RF and uric acid level. Which one of the following is the most likely diagnosis?
A. Gonococcal arthritis
B. Gout
C. Pseudogout
D. Rheumatoid arthritis
E. Rupture of the ACL
C. Pseudogout
Acute monoarthritis in adults is most commonly caused by infection, trauma, or crystal deposition. Gonococcal arthritis is one of the most common causes but is unlikely in this elderly sexually active patient. Non-gonococcal septic arthritis is still a consideration and should be ruled out by aspiration of fluid to be sent for culture. Pseudogout most often affects the elderly, and usually affects the knee, wrist, or ankle. Pseudogout is 1.5 times more frequent in females. In pseudogout joint fluid contains rhomboid shaped weakly positive birefringent calcium pyrophosphate crystals.

#2
A 79-year-old man is admitted to the hospital because of a sudden inability to ambulate. He has a past history of gout. On examination his temperature is 38.2°C and he has bilateral knee effusions. His WBC count is 14,000/mm³ with 82% segs. His serum uric acid level is 8.5 mg/dL (N<6.5). Which of the following would be most appropriate at this point?
A. 24-hour urine collection for uric acid
B. Arthrocentesis
C. Initiation of allopurinol
D. Initiation of antibiotics
E. Initiation of furosemide

B. Arthrocentesis
Polyarticular arthritis often presents with fever, knee, and other joint effusions, and leukocytosis. A 24-hour urine collection is not routine. Especially in cases where a joint effusion is accompanied by fever, diagnostic arthrocentesis should be performed to help guide therapy. Allopurinol should not be initiated during an acute gout attack, but may be started after a patient has recovered. Diuretics increase uric acid levels.

#3
A 60-year-old male presents with an acute onset of pain and swelling in the right big toe. He can recall no mechanism of injury. He has hypertension which is well-controlled on HCTZ. On examination, the area around the base of the toe is reddened, slightly warm, and very tender on palpation. Which one of the following should be avoided in this patient at this time?
A. Allopurinol
B. Colchicine
C. NSAIDS
D. Prednisone
E. Aspiration of the joint

A. Allopurinol
The patient likely has gout. Aspirations should be attempted to get a specific diagnosis. The initial treatment for gout is NSAIDS, colchicine, or corticosteroid injections. Allopurinol should be avoided until the episode of gout is controlled because it may cause temporary worsening.