Rheumatology Inpatient Urgencies: A Case Based Approach

Scott Vogelgesang, MD  
Division of Immunology; Rheumatology and Allergy  
University of Iowa

Outline

• Case-based discussion of issues facing hospitalized patients who have rheumatologic diseases
• 5 cases
• Meant to be interactive - Discussion will be helpful
• ~ 30 slides so time to talk
56 year old man admitted with joint swelling (ankle, knee) and pain.

3 days prior to admission developed severe pain and swelling in right ankle and knee. Left ankle and left knee became swollen and painful over the next 24 hours; The pain is severe (10/10) and worsened with any range of motion. He is admitted for pain control and management of a severe rheumatoid arthritis flare

**PMH:** Rheumatoid Arthritis (diagnosed 2005; RF+, CCP+, treated in past with hydroxychloroquine, sulfasalazine, methotrexate, leflunomide, adalimumab), Osteopenia, Diabetes (type II), Coronary Artery Disease, BPH, Osteoarthritis, Hyperlipidemia

**Social Hx:** Occupation: Technician; Ex-smoker, No alcohol, no IV drugs, Married

**Medications:** Prednisone 5 mg BID, ASA, atorvastatin, finasteride, insulin, nitroglycerin, minocycline

**Exam:** t37.8 p122 bp 122/69 rr 16; warmth/swelling of both knees (L > R) with severely limited range of motion; some ankle tenderness with motion; rest neg

---

**Case 1**

- WBC 16.0, Hgb 13.5, MCV 84, PLT 282
- Creatinine 1.5, BUN 42, CO2 21
- ALT 15, ALP 90, Tbili 0.6
- X-rays of the hands – joint space narrowing at left 3rd MCP with small lucency which may be a cyst versus nonspecific erosion. Right 2nd MCP with possible small cysts. Otherwise no erosions

- Diagnosis of current episode?
- Therapy?
Case 1

- Differential Diagnosis – inflammatory polyarthritis
  - Rheumatoid arthritis flare (unusual given that hands and feet are not inflamed)
  - Polyarticular gout
  - Polyarticular CPPD
  - Septic arthritis (unlikely)
  - Left knee aspirated.....

Diagnosis:
1. Acute CPP arthritis
2. Quiet/Stable Rheumatoid Arthritis

Therapy: prednisone 20 mg daily x 5, 10 mg x 5 then back to 5 mg

Take home points

- We are taught Occam’s razor but remember Hickam’s dictum – Patients can have as many diseases as they please (especially when the immune system is involved).
- The clinical pattern (knees and ankles; not hands and feet) didn’t fit rheumatoid arthritis – arthrocentesis supported the clinical impression.
Take home points

- We are taught Occam’s razor but remember Hickam’s dictum – Patients can have as many diseases as they please (especially when the immune system is involved).

- The clinical pattern (knees and ankles; not hands and feet) didn’t fit rheumatoid arthritis – arthrocentesis supported the clinical impression.

Questions?

Case 2

73 yo woman has shoulder pain for 3 months and getting worse; admitted for pain control; no precipitating event; can’t sleep; hates to move her shoulders – difficult to dress; AM stiffness x 1 hour

ROS: (-) fever, chest pain, shortness of breath, headache, jaw pain, scalp tenderness, changes in vision, swollen joints

FSHx: Family Hx (-); ETOH (-); Tob (-)

Meds: ASA

PE: Vitals normal; Very uncomfortable in bed; Very limited bilateral shoulder ROM; rest (-);

Labs: CBC NL; Chemistry NL; ESR 17

What is her Dx?

What next...?
Case 2

Prednisone 15 mg/day started with 100% resolution within 12 hours
Oh yeah, her CRP returned 2.3 mg/dl (NL < 0.5)
Presumed PMR (no GCA)
  • < 5% have NL ESR

Take home points

• Rheumatology laboratory tests lie and mislead.
• The role of the laboratory test is to support a clinical impression...
  • In this case, the clinical scenario consistent with PMR
  • Laboratory test was inconsistent
• Beware the “Arthritis Panel” (ANA, Rheumatoid Factor, CCP antibody, ESR, CRP and Serum Uric Acid)
  • Likely that one test will be positive by chance alone
  • Do not order the “Arthritis Panel”
Take home points

• Rheumatology laboratory tests lie and mislead.
• The role of the laboratory test is to support a clinical impression...
  • In this case, the clinical scenario consistent with PMR
  • Laboratory test was inconsistent
• Beware the “Arthritis Panel” (ANA, Rheumatoid Factor, CCP antibody, ESR, CRP and Serum Uric Acid)
  • Likely that one test will be positive by chance alone
  • Do not order the “Arthritis Panel”

Questions?

Case 3

76 year old man admitted with 5 weeks of fever;

5 weeks prior to admission, he developed fever (to 38.9), chills, cough, night sweats, fatigue/weakness and loss of appetite. He has lost 5 kg in the previous 7 months.

**PMH:** COPD, CAD, CHF, ASPVD (previous aortofemoral bypass surgery), DM type 2, BPH, Transitional cell CA bladder

**Meds:** sitagliptin, metformin, lisinopril, atorvastatin, atenolol, clopidogrel, finasteride, dutasteride, terazosin, allopurinol, citalopram, folate, ipratropium-albuterol nebulized

Retired construction worker; no ETOH, previous smoker –stopped 10 yrs ago

**Exam:** 139.9, bp 110/82, p86, r20. 93% O2 saturation room air, 97% on 2L; abdominal distension with tenderness in the RUQ; crackles both lung bases with occ wheezes, trace ankle edema, rest negative.

WBC 3500 (76% PMN, 8% bands, 14% lymph)
Hgb 12.3, MCV 86, Plts 138,000
ESR 3, CRP 7.7 mg/dl
Creatinine 1.2 mg/dl,
Total Protein 4.4, albumin 2.8, calcium 8.0, ALP 364, ALT 61
Lactate 3.5
LDH 235
CXR – patchy opacity in R mid-zone; diffuse reticular opacities in lung bases
Blood, urine cultures obtained.

What does he have? (DDX?)

ESR > 100 mm/hr (or FUO)

Complete history, physical exam and basic laboratory tests (CBC, Chemistries, Urine, CXR) with follow up of any abnormalities
Back to the case...

Quantiferon TB-gold negative
ANCA negative
ANA negative
RF negative
SPEP: no monoclonal protein; IgG 447 (614-1295), IgM 41 (53-334), IgA 86 (69-309)
CT Chest: Diffuse ground-glass opacities in both lungs, more confluent in lower lobes with small pleural effusions.
Trans-thoracic echocardiogram – no endocarditis
Cultures: negative
Diagnosis?

Mycobacterium bovis infection presumed secondary to intravesicular BCG therapy for transitional cell CA.

Take Home Points

- Basics are important – History, Physical Exam, Basic laboratory test
- After the basics, the common diagnoses in the differential allow a relatively small number of hypotheses to be tested.
- Even after years, some patients are unable to be given a clear diagnosis; some (sadly) require autopsy to provide a diagnosis
- Be careful with empiric treatment
  - Treating a patient with high-dose steroids who has unrecognized lymphoma could make therapy harder and worsen the prognosis
  - Treating a patient with high-dose steroids who has unrecognized infection (e.g. endocarditis) could lead to a bad outcome
Take Home Points

• **Basics are important** – History, Physical Exam, Basic laboratory test
• After the basics, the common diagnoses in the differential allow a relatively small number of hypotheses to be tested.
• Even after years, some patients are unable to be given a clear diagnosis; some (sadly) require autopsy to provide a diagnosis
• Be careful with empiric treatment
  - Treating a patient with high-dose steroids who has unrecognized lymphoma could make therapy harder and worsen the prognosis
  - Treating a patient with high-dose steroids who has unrecognized infection (e.g. endocarditis) could lead to a bad outcome

Questions?

---

Case 4

19 yo woman seen in the ER/ETC with joint pain and fever

• Started 11 days ago with sore throat and fatigue.
• 7 days ago, nasal congestion, oral ulcers and cervical adenopathy developed
• 1 day ago, developed nausea, vomiting, shaking chills and abdominal pain
• Today – pain in right elbow and left ankle and diffuse myalgias

**PMH:** Acne, Allergic rhinitis

**SHx:** College student; Tob: None; ETOH: "social"

**Meds:** OCP

**PE:**

• 38.6 105 120/84, appears ill
• R elbow swollen/painful
• Tenderness over L Achilles tendon
• Rest normal

**WBC 22**  Hgb 10.5  MCV 88  Plts 247;  Creat 0.9;  ALT 38,  ALP 72;  ESR 36;  CRP 5.1 mg/dl

What next?
Right elbow arthrocentesis:

- 48,000 WBC (85% PMNs)
- No crystals seen
- Cultures sent – ultimately negative
- Blood cultures obtained – ultimately negative
- Cervical cultures grew Neisseria gonorrhea
- Treated with IV ceftriaxone (1g daily) and doxycycline 100 mg BID – markedly improved within 36 hours
- Discharged home on oral cefixime + doxycycline

Infectious Arthritis

- Medical emergency
- Crystals don’t rule-out infection
- Staphylococcus most common organism
- Neisseria in young sexually active patients
  - Migratory polyarthralgias: peaks within a few days
  - Monoarticular arthritis (80% by the time recognized as septic arthritis)
- Tenosynovitis (wrists, fingers, ankles, toes) in 67%
- Look for the rash
Infectious Arthritis

Empiric therapy *(guided by gram stain, demographics and underlying illnesses)*

- **Gram Stain (+)**
  - GPC with low MRSA: Cefazolin
  - GPC with High MRSA: Vancomycin
  - GNC: Ceftriaxone
  - GNR: Cefepime or Pip/Tazo
- **No Organisms**
  - Low MRSA – Cefazolin
  - MRSA high – Vanc + (Cefepime or Pip/Tazo)

Take Home Points

Infectious Arthritis = Medical Emergency
Aspiration: most important initial step

Most common:
- Knee most commonly affected joint
- Staphylococcus – most common organism
- Gonococcal infection:
  - Migratory polyarthralgias
  - Tenosynovitis
  - Young, sexually active pt
  - Look for the rash

Questions?
Case 5

- 63 yo woman is admitted with community acquired pneumonia
  - Fever to 39
  - Productive cough for the past week that is worsening
  - Shortness of breath
- PMH: Rheumatoid Arthritis, Coronary Artery Disease
- Medications: Adalimumab 40 mg SQ every 2 weeks (last 10 days ago), Methotrexate 20 mg po weekly, hydroxychloroquine 300 mg daily, aspirin 81 mg daily, Metoprolol 50 mg BID
- Exam: ill-appearing, pulse, blood pressure normal; O2 sat 90% on @L; Crackles right lower lobe, Chronic swelling of her MCPs, PIPs, wrists with ulnar deviation and MCP subluxation
- Blood cultures obtained and antibiotics started.

What should be done with her Rheumatoid Arthritis Medications?

- Little data or evidence-based guidelines
- Generally hold medications (DMARDs and Biologics) during periods of acute infection (for 1-2 weeks)
- Usually like to have the antibiotics completed before restarting the DMARDs and Biologics
- Half life of hydroxychloroquine is very long and it’s immunosuppressive properties are not strong – most of us would continue the hydroxychloroquine (as long as patient can take medications orally)
- Consider using low –dose (i.e. 5 mg) prednisone if joints become more active.
- Adjust these recommendations depending on the severity of the infection and/or the arthritis
By the way....

- Perioperative Management of DMARDs and Biologics (Most recent guidance)
  - etanercept: hold 2 weeks
  - adalimumab: hold 3 weeks
  - infliximab: hold 6 weeks
  - golimumab: hold 6 weeks
  - certolizumab: hold 6 weeks
  - tocilizumab SQ: hold 3 weeks
  - tocilizumab IV: hold 4 weeks
  - abatacept SQ: hold 2 weeks
  - abatacept IV: hold 4 weeks
  - rituximab: no recommendation to hold


Take Home Points

- The role of the laboratory test is to support a clinical impression
- The Basics are important – History, Physical Exam, Basic labs
- Patients with immunologic diseases may violate Occam’s razor
- In FUO, knowing the differential allows a relatively small number of hypotheses to be tested.
- Infectious Arthritis is a Medical Emergency
  - Aspiration: most important initial step
  - Staphylococcus – most common organism
  - Gonococcal infection:
    - Young, sexually active pt
    - Look for the rash
- Generally hold medications (DMARDs and Biologics) during periods of acute infection (for 2-2 weeks)