Department of Internal Medicine
Clinicopathologic Conference

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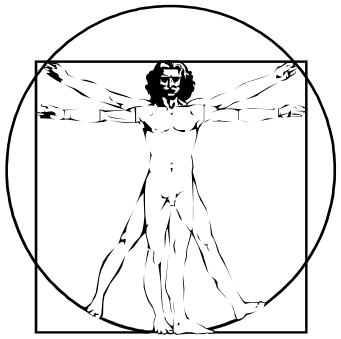
May 9, 2013



Case History

This is a 25 year old female with history of juvenile rheumatoid arthritis, who presents with acute, progressive shortness of breath and myalgias.

Two months prior, patient became acutely short of breath, and was diagnosed with bilateral, extensive pulmonary emboli (PE) on computed tommography. She was without deep vein thrombosis, and transthoracic echo was without right ventricular strain. Patient discharged with warfarin and enoxaparin bridge.

Approximately 10 days after treatment for PE, the patient returned with cough, continued shortness of breath, no fevers, no chills. Contrast CT revealed resolved pulmonary emboli, but interval development of bilateral lower lobe air space disease. She was started on ceftriaxone and discharged with azithromycin and cefuroxime. Patient continued to recover at home for two weeks until she re-presented to the OSH with acute respiratory distress, where she was immediately intubated. A repeat CT scan revealed extensive, bilateral airspace disease, and she was treated with vancomycin and pipercillin-tazobactam. She was supported and extubated one week later to 10 liters high flow oxygen and transferred to VCU Medical Center.

On admission to VCU, CT revealed diffuse air space disease, and over the course of two weeks was treated with IV vancomycin and pipercillin/tazobactam with intermittent diuresis without improvement of clinical or radiologic examination. The pulmonary team was contacted, and bronchoscopy was performed revealing diffuse alveolar hemorrhage. The patient's anticoagulation was stopped and a greenfield filter was placed. Rheumatology was consulted in the interim due to the patient's persistent, diffuse myalgias.

Past Medical History:

- Juvenile rheumatoid arthritis – RF positive as teenager
- Childhood rheumatic fever
- Asthma
- Eczema
- Migraines
- Bilateral pulmonary emboli – two months prior

Past Surgical History:

- Cesarean section x3, Gravida 3, Para 3, no abortions
- Lipoma removal from occiput as child

Family History:

❖ Father with rheumatoid arthritis, mother with diabetes mellitus, type II, renal disease, and cerebrovascular accident related to aneurysm. Children were full term, no known medical conditions

Social History:

- Social alcohol prior to quitting one year prior
- Smoked 0.5ppd for 2 years, quit one year ago
- No illicit drugs
- Around no construction, no birds, no domestic pets, city water, no environmental exposure

Medications:

- Amlodipine 5mg PO Qdaily
- Albuterol Inhaled every 2 hours
- Guaifenisen 600mg Q6hours
- Pipercillin/tazobactam 3.375 Q6hours
- Vancomycin 1.5 gram Q48hours
- Famotidine 20mg PO daily
- Senna and docusate

Allergies:

- tramadol (seizure)
- onion (hives)

Physical Exam

Vital Signs: BP 140/82, HR 62/min, RR 36/min, Temp 37.0 °C, Pox 95% on 10 L High Flow O2, Wt: 91.2 kg, Ht: 157.5 cm

General: Mild distress, alert and conversing

HEENT: Dry mucous membranes w/o ulceration, pink conjunctiva, anicteric sclera. Hair in braids, no alopecia.

Neck: Supple, no carotid bruits, no JVD

Lymph: No cervical, subclavicular, axillary, or inguinal lymphadenopathy palpable

CV: Regular rhythm, constant S1/S2; no murmurs/rubs/gallops appreciated. PMI non-displaced, normal size

Lungs: Full and symmetric excursion, diffuse coarse breath sounds, egophany and tactile fremitus
Abdomen: Soft, nontender, nondistended, normoactive bowel sounds.
MSK/Ext: No sclerodactyly, discoloration, digital ulceration/pits, no skin lesions except for multiple ecchymoses. no joint swelling or tenderness. Mild decreased range of motion, bilateral wrists. Mild pitting edema bilateral lower extremities. Tenderness in upper arms and legs diffusely.
Neuro: CN II-XII intact, alert and orientedx4, 4+/5 muscle strength in UE/LE with DTR 2+ at patella and ankle B/L

Laboratory Data and Imaging

Sodium 144 mmol/L, Potassium 4.7 mmol/L, Chloride 106 mmol/L, Bicarbonate 28 mmol/L, BUN 16 mg/dL, Cr 1.76 mg/dL,
Glucose 110 mg/dL, Calcium 8.7 mg/dL, magnesium 1.9 mg/dL, phosphorous 4.8 mg/dL

AST 73 units/L, ALT 110 units0.1 mg/dL, Albumin 3.4 gm/dL

WBC 12.4 x10^9/L , Hemoglobin 11.1 g/dL, Mean Corpuscular Volume 88.6 fL, Platelets 397 x 10^9/

PT: 20.1, INR: 1.8
CK: 1,206 units/L
Vitamin B12: 1225 pg/mL
LDH: 154 units/L
Lactate: 1.0 mg/dL
HIV 1 & 2 antibodies: Negative
Hep C Ab Negative
Hep B virology Negative

C3 and C4: Normal
ESR 64
CRP 2.7
RF 42
Anti-Jo1 Pending
ANA Negative
dsDNA Negative
anti-smith/RNP Negative
anti-cardiolipin Ab Negative
anti-b2-glycoprotein Negative
Lupus anticoagulant Negative
Anti-SSA Pending
Anti-ccp Negative
Anti-GBM Negative
Cryoglobulins Negative

UA: Pink, Hazy, large blood, 458 RBCs/HPF
Blood cultures: no growth
Urine cultures: no growth

BAL
Gram stain
Resp. cultures: Mixed resp. flora
AFB culture: Negative
Fungal culture: Negative
Legionella culture: Negative
Nocardia culture: Negative
Viral cultures: Negative
36600/mm^3 RBCs, 334/mm^3 WBCs (polys 33%, Lymph 40%)

Multiple BALs were performed in the RML and RLL anterior segment. The returns were progressively more bloody consistent with diffuse alveolar hemorrhage.

Anterior-Posterior Chest Radiograph
Cardiomediastinal silhouette enlarged; underlying cardiomyopathy-pericardial effusion not excluded.
Lung volume diminished. Basilar hypoaeration. Retrocardiac-left left lower lobe consolidation with demonstrable air bronchograms. Parahilar airspace disease vs volume overload. Effusions right greater than left. No pneumothorax.

CT Angiography Chest
No evidence of lobar or segmental pulmonary emboli. The main pulmonary artery is at the upper limits of normal in size. Reflux of the contrast bolus into the IVC is secondary to contrast injection in the power PICC and is not thought to signify right heart dysfunction.The patient's extensive multifocal pneumonia persists, with no significant interval change.Cardiomegaly.

Renal US
No evidence for hydronephrosis or shadowing renal calculus. Small left pleural effusion.

MRI femur
Diffuse patchy edema scattered throughout the musculature of both thighs as described, which is nonspecific but correlates with clinical impression of inflammatory myositis. If biopsy is considered for further evaluation, consider biopsy of the distal right vastus lateralis muscle.