RHEUMATOLOGY QUESTIONS

Ewa Olech, MD
Rheumatology Division
A 52-year-old man is evaluated in the emergency department for a 2-week history of progressive fever and malaise with gradual onset of shortness of breath, pleuritic chest pain, myalgia, arthralgia, and rash. He reports no cough. He has a 15-year history of rheumatoid arthritis, which is well controlled with methotrexate and etanercept; his last flare was 1 year ago. Other medications are naproxen and folic acid.

On physical examination, temperature is 39.0 °C (102.2 °F), blood pressure is 148/94 mm Hg, pulse rate is 90/min, and respiration rate is 22/min. Cardiac examination is normal. Pulmonary examination reveals a left pleural friction rub. There is synovial thickening of the wrists and metacarpophalangeal and proximal interphalangeal joints bilaterally as well as small bilateral knee effusions. A nonblanching purpuric rash is noted over the distal lower extremities.
### Laboratory Studies

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin</td>
<td>9.8 g/dL (98 g/L)</td>
</tr>
<tr>
<td>Leukocyte count</td>
<td>2600/µL (2.6 × 10^9/L)</td>
</tr>
<tr>
<td>Platelet count</td>
<td>128,000/µL (128 × 10^9/L)</td>
</tr>
<tr>
<td>Erythrocyte sedimentation rate</td>
<td>86 mm/h</td>
</tr>
<tr>
<td>Urinalysis</td>
<td>1+ protein; 2-5 erythrocytes/hpf; 5-10 leukocytes/hpf</td>
</tr>
</tbody>
</table>

Chest radiograph reveals blunted costophrenic angles bilaterally without infiltrate.
Blood and urine culture results are pending.
Which of the following is the most appropriate diagnostic test to perform next?

A. Antinuclear antibody and anti–double-stranded DNA antibody assay
B. Bone marrow aspiration and biopsy
C. CT of the chest, abdomen, and pelvis
D. Rheumatoid factor and anti–cyclic citrullinated peptide antibody assay
Which of the following is the most appropriate diagnostic test to perform next?

A. **Antinuclear antibody and anti–double-stranded DNA antibody assay**
B. Bone marrow aspiration and biopsy
C. CT of the chest, abdomen, and pelvis
D. Rheumatoid factor and anti–cyclic citrullinated peptide antibody assay
Question 2

• A 52-year-old man is evaluated for a 5-year history of gradually progressive left knee pain. He has 20 minutes of morning stiffness, which returns after prolonged inactivity. He has minimal to no pain at rest. He reports no clicking or locking of the knee. Over the past several months, the pain has limited his ambulation to no more than a few blocks.

• On physical examination, vital signs are normal. BMI is 25. The left knee has a small effusion and some fullness at the back of the knee; the knee is not erythematous or warm. Range of motion of the knee elicits crepitus. There is medial joint line tenderness to palpation, bony hypertrophy, and a moderate varus deformity. There is no evidence of joint instability on stress testing.

• Radiographs of the knee reveal bone-on-bone joint-space loss and numerous osteophytes.
Which of the following is the most appropriate next diagnostic step for this patient?

A. CT of the knee
B. Joint aspiration
C. MRI of the knee
D. No diagnostic testing
Which of the following is the most appropriate next diagnostic step for this patient?

A. CT of the knee
B. Joint aspiration
C. MRI of the knee
D. No diagnostic testing
Question 3

- A 35-year-old woman is evaluated in the emergency department for diffuse dull chest and midepigastric discomfort, weakness, and vomiting that began in the early morning and has progressively worsened throughout the day. At age 14 years, she was diagnosed with lupus nephritis and was treated with high-dose corticosteroids for several years. Since then, she has had intermittent flares of arthritis, rash, alopecia, and pleuropericarditis. She also has hypertension. Medications are hydroxychloroquine, azathioprine, prednisone, and enalapril.

- On physical examination, temperature is 37.0 °C (98.6 °F), blood pressure is 146/94 mm Hg, pulse rate is 104/min, and respiration rate is 20/min. Cardiac examination reveals tachycardia and an S4. The lungs are clear to auscultation. The abdomen is nontender.

- Laboratory test results are pending.
Which of the following is the most appropriate initial diagnostic test?

A. CT angiography of the abdomen
B. CT pulmonary angiography
C. Electrocardiography
D. Right upper quadrant ultrasonography
Which of the following is the most appropriate initial diagnostic test?

A. CT angiography of the abdomen
B. CT pulmonary angiography
C. Electrocardiography
D. Right upper quadrant ultrasonography
Question 4

• A 32-year-old man is evaluated in the emergency department for a 2-week history of progressive pain and swelling of both ankles. He also has low-grade fever and a painful red left eye with photophobia of 2 days' duration. The patient has no other pertinent personal or family medical history. He takes no medications.

• On physical examination, temperature is 38.2 °C (100.7 °F), blood pressure is 128/26 mm Hg, pulse rate is 96/min, and respiration rate is 14/min. BMI is 26. There is ocular injection around the left iris. Slit lamp examination reveals anterior uveitis. The abdomen is nontender. Genital examination is normal. A few tender, erythematous nodules measuring 1 to 3 cm are found on the anterior legs. Swelling of the right knee is present. There is swelling, tenderness, and warmth of the ankles and feet involving the joints and periarticular tissues.
Which of the following is the most appropriate diagnostic test to perform next?

A. ANCA assay
B. Chest radiography
C. Colonoscopy
D. Urine polymerase chain reaction for Neisseria gonorrhoeae
Which of the following is the most appropriate diagnostic test to perform next?

A. ANCA assay
B. Chest radiography
C. Colonoscopy
D. Urine polymerase chain reaction for Neisseria gonorrhoeae
Sarcoidosis  Young woman with acute onset of erythema nodosum and no respiratory complaints. Left: The chest radiograph shows bilateral hilar adenopathy (Stage I). Right: A follow-up chest radiograph on no therapy is normal. Courtesy of Talmadge E King Jr, MD.
A 42-year-old woman is evaluated for a 2-month history of fatigue, tingling in the fingers of both hands, and pain radiating into the hands and forearms. She also has difficulty opening bottles. The tingling symptoms occasionally are alleviated when she shakes her hands in the morning, but she typically has 2 to 3 hours of morning stiffness in her wrists and fingers. She takes no medications.

On physical examination, vital signs are normal. BMI is 21. Soft-tissue swelling and tenderness is palpable at the wrists and metacarpophalangeal joints bilaterally. She has sensory loss over the palmar surface of the first three digits and weakness of abduction and opposition of the thumbs bilaterally. The Phalen maneuver produces pain at the wrists and tingling in the hands.

Results from electrodiagnostic studies are consistent with bilateral median neuropathies of the wrist.
Which of the following is the most likely cause of this patient's neuropathy?

A. Osteoarthritis  
B. Overuse injury  
C. Polymyalgia rheumatica  
D. Rheumatoid arthritis
Which of the following is the most likely cause of this patient's neuropathy?

A. Osteoarthritis
B. Overuse injury
C. Polymyalgia rheumatica
D. Rheumatoid arthritis