Middle-Aged Man With Severe Upper Back and Neck Pain

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For 4 weeks, a 49-year-old man has had progressively worsening pain between his scapulae and in the lower part of his neck. The pain is now severe, and he takes high doses of acetaminophen and NSAIDs for relief. In the past several days, he has also had paresthesias and weakness in his arms and he has noted pain on swallowing.

HISTORY
About 6 weeks earlier, an abscess in his right thumb was drained and a 1-week course of trimethoprim/sulfamethoxazole was prescribed. Thereafter, the back pain syndrome developed. The patient has also had subjective fevers and a 25-lb weight loss. He works as a dishwasher in a restaurant and was previously healthy. He drinks alcohol occasionally but does not use illicit drugs.

PHYSICAL EXAMINATION
The patient is very uncomfortable because of the pain in his upper back and neck. Temperature is 36.6°C (98°F). Mouth and pharynx are normal. Exquisite tenderness to tap percussion and motion is noted in the region of C5 through T6. He has paresis of both arms and hands, including the fingers.

LABORATORY AND IMAGING RESULTS
Hemogram is normal; the white blood cell count is 6500/µL. Radiographs of the cervical spine and back reveal discitis and probable osteomyelitis in C6-7 with kyphotic angulation deformity, facet destruction, and widening of the spinous process.

CORRECT ANSWER: C

This patient exhibits a constellation of findings that indicate not only vertebral osteomyelitis, but also significant complications. His clinical story is highly typical. Most cases of vertebral osteomyelitis are secondary complications of infection elsewhere and, indeed, he had a previous significant soft tissue infection of his thumb. He has the cardinal manifestation of vertebral osteomyelitis—back pain, which is found in 86% of cases across the literature.1 His pain is in the thoracic and neck region, which is not as common as lumbar pain but is still frequently seen: lumbar, 58% of cases; thoracic, 30%; and cervical, 11%.1

The lack of fever and the absence of leukocytosis (choice D) are not strong negatives for the presence of vertebral osteomyelitis. Fever and leukocytosis are encountered in only about half of proven cases. The presence of these findings is not sensitive for infection; thus, choice D is incorrect.

THE TAKE-HOME MESSAGE:
Because the C-reactive protein level is highly sensitive (98% to 100%) for the presence of active infection, these levels are the preferred marker for monitoring the response to therapy in patients with vertebral osteomyelitis.

The traditional inflammatory markers of erythrocyte sedimentation rate and, to an even greater degree, C-reactive protein level are much more sensitive (98% to 100%) for the presence of infection.
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(in the appropriate clinical scenario). Once the diagnosis is made, C-reactive protein levels are an excellent and preferred marker for monitoring the response to therapy in patients with vertebral osteomyelitis. Choice C is thus correct.

In this patient, the plain radiographic findings were quite typical of vertebral osteomyelitis; they showed contiguous discitis with bone destruction in the lower cervical vertebrae. Indeed, plain radiography is useful initially to exclude other diagnoses (eg, tumor, fracture), but overall it is not very sensitive for osteomyelitis. Currently, MRI is the preferred imaging technique for vertebral infection. MRI is more sensitive than CT (choice B) for early detection of infection, and it is particularly useful in patients with neurological impairment (such as this man) because it can accurately demonstrate the presence and extent of a spinal epidural abscess. Therefore, on the basis of general principles (sensitivity) and specifics of this case (neurological findings suggestive of epidural abscess), CT is not the optimal imaging study here.

Finally, choice A relates to the role of surgery in osteomyelitis. Certainly, a biopsy for culture is required if blood cultures are negative yet imaging results suggest vertebral osteomyelitis. However, a positive culture obviates the need for surgical biopsy, and blood cultures are positive in more than half (58%) of cases; thus, choice A is not correct.

This patient, however, very likely will require surgery—not for diagnosis but for therapy. He has neurological impairment as well as odynophagia; both findings strongly suggest an abscess. In such cases, drainage of the abscess—either by CT-guided catheter or by open surgery—is indicated. In contrast, uncomplicated acute hematogenous osteomyelitis can be curatively treated with antibiotics alone in the vast majority of cases.

Outcome of this case. Blood cultures were positive for *Staphylococcus aureus*. An MRI scan confirmed the presence of vertebral osteomyelitis; it showed a prevertebral abscess collection that extended from C2 through C7. There was kyphosis and subsequent narrowing of the central canal at the C5 level.

The patient underwent an open drainage procedure and was placed in a halo brace. Antibiotic therapy with vancomycin and piperacillin/tazobactam was initiated. After several weeks of therapy, the pain diminished and his C-reactive protein levels decreased.

References:


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