Severe Neck Pain with Fever: Is it Meningitis?

Angela McCormick, MD Resurrection Medical Center, Emergency Medicine Residency Program, Chicago, Illinois

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A 58-year-old male patient presented to the emergency department with complaints of severe neck pain. He admitted to drug use but denied using intravenous (IV) drugs. On exam, he had a fever of 100.7°F, positive Kernig's sign, and normal neurologic exam. The patient was suspected to have bacterial meningitis and was started on IV antibiotics. The next day the patient developed decreased hand grip. Magnetic resonance imaging of the spine the next day showed a soft-tissue mass impinging on the spinal canal. The patient was subsequently taken to the operating room where the epidural abscess was drained. [West J Emerg Med. 2012;13(6):505–506.]

INTRODUCTION

Epidural spinal abscess is a dangerous spinal infection that can lead to compression or ischemia of the spinal cord with devastating neurologic outcomes. Patients often present with back pain and fevers.[1] Up to half of patients may present with no neurologic deficits. *Staphylococcus aureus* is the most common organism identified in epidural abscesses.[2] Patients at high risk for abscess include intravenous (IV) drug users; patients with alcoholism, human immunodeficiency virus, or diabetes; patients on long-term steroids; patients who have had recent bacterial infections; or patients with indwelling catheters.[3] Treatment includes antibiotics and neurosurgical consultation for operative drainage. Early recognition is key. However, only 15% of patients have cervical involvement; thus, these patients are often misdiagnosed in the emergency department (ED).

CASE PRESENTATION

A 58-year-old man presented to the ED after 2 days of body aches and neck pain. He described the neck pain as 10 on a scale of 10 (with 10 being high) and spasm-like with radiation to his upper arms. The patient also admitted to having a chronic nonproductive cough. On review of systems, the patient was found to have urinary frequency, generalized weakness, and abdominal pain. He had also had a 10-lb weight loss in the previous 2 weeks. The patient denied having fevers, chills, trouble breathing, chest pain, headaches, nausea, vomiting, or diarrhea. The patient had been hospitalized the previous week because of exacerbation of his chronic obstructive pulmonary disease (COPD) and underlying pneumonia.

The patient had a medical history pertinent for COPD and had undergone multiple intubations in the past. He was on albuterol and prednisone at home. He denied having any allergies. The patient had undergone 1 hernia surgery in the past. He smoked half a pack of cigarettes per day and used intranasal cocaine and heroin. He denied alcohol use or IV drug use.

On presentation to the ED, the patient was awake, alert, and in no acute distress. Vital signs included a temperature of 100.7°F, heart rate of 116 beats/minute, blood pressure of 135/62 mmHg, respiratory rate of 18 breaths/minute, and oxygen saturation of 98% on room air. The head, eye, ear, nose, and throat exam was negative. The patient had cervical spinal tenderness and a positive Kernig's sign. He also had intermittent wheezes on lung exam. Results of the heart exam were normal. The patient also had right upper quadrant tenderness with a negative Murphy's sign, no guarding, and no peritoneal signs. The neurologic exam was normal for motor, strength, and cranial nerves.

Laboratory results included a white blood cell (WBC) count of 20.1 and sodium levels of 134 mEq/L. Lactate levels were normal. Lumbar puncture showed 634 cells/μL WBCs with 93% neutrophils and 83 red blood cells. Cerebrospinal fluid protein levels were elevated at 366 mg/dL, and glucose was 60 mg/dL. Computed tomographic examination of the brain was negative for any acute process.

Because of the results of the lumbar puncture, the patient

was suspected to have bacterial meningitis. The patient was started on dexamethasone, vancomycin, ampicillin, and rocephin. The infectious disease department was contacted, and the patient was also given cefepime and acyclovir because of his recent hospitalization and drug use.

On admission, the patient continued to spike fevers and have pain in his neck. Blood cultures showed gram-positive cocci in clusters. On neurologic exam, the patient was now found to have decreased strength in his hands and decreased motor function in his bilateral distal extremities. Magnetic resonance imaging (MRI) of the spine showed a left paracentral soft-tissue mass thought to be an epidural abscess that was impinging on the spinal cord and was suggestive of anterior cord compression with focal edema.

The next day, a neurosurgeon performed a C2 to C3 epidural fluid collection and drainage. The patient was then continued on IV antibiotics for 6 weeks. The patient continued to deny IV drug use.

DISCUSSION

A spinal epidural abscess is a collection of pus or granulation tissue in the epidural space. The most common predisposing factors for abscess include diabetes and IV drug use, although there are case reports of patients with cervical spinal abscess and no predisposing factors.[4] Back pain and fever are common physical exam findings. The cervical spine is the least affected area.[5] When treated conservatively with antibiotics alone, patients with an epidural spinal abscess tend to deteriorate.[6] When the diagnosis is made, therefore, prompt surgical referral and operative debridement may lead to better outcomes. The preferred test for diagnosis is MRI with gadolinium.

The patient's physical exam findings on presentation and results of the lumbar puncture pointed to a diagnosis of meningitis. However, results of neurologic testing throughout the patient's hospital stay, combined with his recent hospital stay and therefore possible risk factor for sepsis, led to the diagnosis of cervical spinal abscess.

CONCLUSION

Epidural spinal abscesses are rarely reported in the cervical neck region and are often misdiagnosed as meningitis or another pathological condition. Early recognition is key, followed by appropriate antibiotic coverage and emergent neurosurgical intervention. Diagnosis is made with MRI with gadolinium of the spinal column. In patients presenting with neck pain, fevers, neurologic signs, and risk factors for abscess, prompt diagnosis is important for better outcome.[3]

Address for Correspondence: Angela McCormick, MD, Resurrection Medical Center, Emergency Medicine Residency Program, 7435 W Talcott Ave, Chicago, IL 60631. E-mail: Angela.c.mccormick@gmail.com.

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