Successful Conservative Management in a Patient with a Prevertebral Abscess in the Setting of Multiorgan Infection Caused by MRSA

Sergio Reyes MD, Rishi Chadha MD, Buadi Tandoh MD, Justyna Michalik MD, Farhan Zahid MD

Department of Medicine, St. Vincent’s Medical Center, Bridgeport, CT

Quinnipiac University Frank H. Netter MD School of Medicine

LEARNING OBJECTIVES

- Recognize methicillin-resistant *Staphylococcus aureus* (MRSA) as a possible cause of prevertebral abscess even in patients without clear risk factors such as immunosuppression or intravenous (IV) drug use.
- Understand the importance of serial imaging to assure successful conservative management in patients with small prevertebral abscesses.

CASE PRESENTATION

A 55-year-old woman presented to the emergency department with complaints of pain on the left hand and neck and altered mental status.

HPI: One week prior to presentation the patient starting having intermittent pain on the left hand, both knees and neck associated with dizziness. Three days before presentation she started experiencing confusion and disorientation that progressed to decreased alertness and attention and was only able to say 2-word sentences.

PMH: History of opioid abuse (oxycodone and morphine), fibromyalgia, and chronic back/pelvic pain

Physical Examination: The patient was found to be febrile and tachycardic. Local inflammatory signs were noted over the dorsum of the left hand, left knee, 1st right hallux, and right ankle. Patient was disoriented and unable to follow commands.

Abnormal Pertinent Laboratory data:

- WBC 35,100/μL with 85.3% neutrophils
- K 2.7 mEq/L, HCO₃ 33 mEq/L
- Urinalysis with nitrites (+). Leukocyte esterase (-), WBC 6/HFP, RBC 33/HFP, bacteria few.
- Lactic acid: 2.2 mmol/L
- PT 50.6 seconds, INR 4.3
- CSF: WBC 870/μL, PMN 85%, glucose 25 mg/dL, protein 321 mg/dL.
- Blood culture: MRSA
- Urine Culture: MRSA
- CSF culture: negative

Figure 1. A) Chest x-ray showing a small right pneumothorax, bilateral patchy alveolar opacities, pulmonary nodules, and a large cavity nodule at the right lung base (yellow arrow). B) and C) CT scan of the chest showing a right sided small-moderate pneumothorax (red arrow), multifocal ground glass opacities (yellow arrow), and multiple cavity nodules (green arrows). D) MRI of cervical spine showing a C2-C3 prevertebral abscess and E) follow-up MRI showing the same abscess with decreased size (yellow arrows).

CLINICAL COURSE

- Given the CSF findings consistent with bacterial meningitis, the patient was initially treated with ceftriaxone, vancomycin, ampicillin, and dexamethasone.
- Once blood and urine cultures came back positive with MRSA, the patient was continued on vancomycin only.
- On day 5, blood cultures remained positive for MRSA and patient was found to have septic emboli to lungs and a small right pneumothorax (figure 1; A-B-C). TEE did not show vegetations. Pneumothorax resolved after a pigtail drain was placed.
- Additionally, MRI of the spine showed a C2-C3 prevertebral abscess as well as chronic degenerative changes (figure 1; D-E).
- The patient was also found to have a mild left-hand cellulitis that resolved during the hospital course. Other joints were not infected.
- On day 7, blood cultures cleared, and patient's mental status started to improve.
- Follow-up MRI showed prevertebral abscess with decreased size. On day 15, the patient was discharged to complete antibiotics in a nursing facility.

DISCUSSION

- Our patient had an unusual presentation of invasive MRSA infection given the lack of evident risk factors and source of infection.
- Despite the multiple organs that were compromised and poor prognosis, our patient had microbiological clearance and clinical improvement with antibiotic therapy alone.
- Vancomycin or daptomycin are considered the first-line therapy in MRSA infections. Follow-up blood cultures and source control are also essential in the management of these patients.
- Prevertebral abscess caused by MRSA is a very rare deep neck infection that occurs mainly in children, immunocompromised patients, and intravenous drug abusers.
- Our patient denied IV drug use, there were no track marks and had no known immunological compromise.
- Patients with prevertebral abscesses typically require anterior incision and drainage along with antibiotic therapy. However, in our case this procedure was not performed given the high risk of complications but despite this clinical improvement and follow-up imaging studies revealing a decreased size of the abscess.

CONCLUSION

Conservative management with vancomycin alone should be considered in patients with small prevertebral abscesses and multiorgan infection caused by MRSA. Serial imaging should be considered to assure resolution of abscess.

References: