A case of cervical radiculopathy due to tuberculosis cervical lymphadenitis

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Cervical tuberculosis lymphadenitis (CTL), classically known as scrofula, presents as a progressive unilateral neck swelling over weeks to months. In the United States, extrapulmonary tuberculosis (EPTB), principally lymphadenitis, comprises approximately 10% of tuberculosis cases, and unlike pulmonary tuberculosis, has not been declining in prevalence.¹ It is most prevalent among foreign-born individuals from Southeast Asia and India, and occurs most frequently in the cervical region.² Despite the close proximity of cervical lymph nodes to exiting nerve roots, clinical radiculopathies are rare. This is particularly interesting considering the infection causes mass effect in the posterior cervical triangle, crowding an area traversed by many nerves arising from the cervical region.³ It is possible that subtle radicular symptoms are more common but unrecognized, and that our case represents a more dramatic example along a spectrum of disease.

Case

A 61-year-old man with no relevant medical history who recently immigrated to the United States from Southeast Asia presented to the emergency room with a tender and erythematous neck mass that had been slowly enlarging over 3 months. He also reported concomitant weight loss, occasional night sweats, and right shoulder pain with weakness. He was admitted for further workup. CT imaging of the neck revealed a large right cervical neck abscess with extension into the C4–C5 neural foramen (figure). Chest imaging did not reveal evidence of pulmonary tuberculosis. An initial fine needle aspirate (FNA) was positive for *Mycobacterium tuberculosis* by PCR, and he was started on a course of isoniazid, rifampin, ethambutol, pyrazinamide, and pyridoxine. His initial culture confirmed the diagnosis of *M tuberculosis*.

Neurology was consulted due to the imaging findings with associated painful right shoulder weakness. On examination, the patient had isolated right deltoid weakness (grade 4/5 power) with mild atrophy. His pain was not strictly localized to the neck mass, but extended in a radicular fashion from the right medial scapula to the upper arm in a C5 dermatomal distribution. Upper extremity reflexes were normal and symmetric. There was no scapular winging, additional weakness, or sensory deficit. The remainder of his neurologic examination was normal. He was followed as an outpatient while receiving treatment, and over several weeks he regained full strength of his right deltoid while the neck mass decreased in size and his pain improved. Electrodiagnostic testing was not pursued given the clarity of his diagnosis and clinical improvement.

Practical Implications

Tuberculous lymphadenitis, particularly in the cervical region, is a common manifestation of extrapulmonary tuberculosis and should be considered in the differential diagnosis of neck masses, especially in immigrants or household contacts of immigrants from high-burden countries.

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Figure CT of the neck performed with and without contrast with a complex peripherally enhancing fluid collection in the posterior soft tissues on the right side of the neck

(A) C6 vertebral level. (B) C5 vertebral level. (C) C4/5 vertebral level, with an arrow indicating where the fluid collection extends into the right neural foramen and epidural space. (D) C4 vertebral level.

DISCUSSION

CTL may be associated with a number of findings including enlarging neck mass with or without localized pain, abscess formation, and less commonly a draining sinus or systemic symptoms such as fever and weight loss.⁴ Our patient displayed many of these presenting characteristics, but uniquely developed abscess extension into the epidural space directly surrounding the C5 nerve root, leading to radicular pain and weakness of the right deltoid.

Lymphadenitis has many potential causes. Diagnosis of tuberculosis lymphadenitis requires a positive culture, which is time-consuming, so a multimodal approach beginning with acquiring an FNA is often necessary.⁵ Beyond culture and smear of the aspirate, PCR is rapid and can increase sensitivity.⁶ Imaging is also invaluable in differentiating neck masses, which most frequently shows involvement of the posterior triangle in cases of CTL, and less frequently the supraclavicular cervical fossa.³

In the absence of drug resistance, a 6-month treatment course is recommended, which includes isoniazid, rifampin, ethambutol, and pyrazinamide for 2 months followed by isoniazid and rifampin for an additional 4 months. This is based on a meta-analysis comparing 6- and 9-month regimens in patients with nonresistant tuberculous lymphadenitis in which there was no significant difference in relapse rates.⁷

Conservative approaches to EPTB treatment favoring medical management over surgical intervention have gained momentum as an increasing number of studies have revealed a great diversity of presentations for which nonsurgical management is appropriate. Our patient had extension of a cervical abscess into the epidural space surrounding the C5 nerve root and vertebral artery without radiographic evidence of compression of either structure. Given these findings and his clinical stability, a conservative approach was favored. It is important to exercise caution in cases with epidural involvement, as epidural abscess formation can have an

unpredictable course and lead to cord compression, though this is typically associated with spinal tuberculosis. In our case, a conservative approach was effective for treating the infection and reversing the neurologic deficit.

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