


Pott's Disease Mimicking Thyroid Carcinoma With Spinal Metastasis

Allen Young, MD, MPH¹, Sukanta Maitra, MD²,
 Sabrina Ho³, and Robert C. Wang, MD¹

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Common causes of multiple vertebral body lesions include metastatic disease, myeloma, and lymphoproliferative disorders.¹ However, rising immigration from tuberculosis (TB)–endemic regions and increasing prevalence of patients who are immunocompromised may require clinicians to broaden their differential. Pott's disease, or tubercular spondylitis, is a rare presentation of extrapulmonary TB, with 3% to 5% affecting the cervical spinal tract, presenting with neck pain, tetraplegia, sensory deficits, and urinary dysfunction.² We report an extremely rare case of an enlarged thyroid mass and multiple vertebral lesions concerning for metastatic thyroid disease, which was discovered to be tubercular spondylitis on intraoperative pathology and cultures. This report was deemed exempt by the University of Nevada Las Vegas Institutional Review Board.

Case Presentation

We present a case of 54-year-old woman with thyromegaly, back pain, dysphagia, and right arm weakness. She immigrated to the United States from Eritrea in 2011. The thyroid enlarged over 3 months to 5 cm with worsening dysphagia. She denied any voice changes or shortness of breath. Fine-needle aspiration biopsy showed Hurthle cell follicular neoplasm, with normal thyroid-stimulating hormone and free T4 results. Positron emission tomography/computed tomography and magnetic resonance imaging scans found a diffusely enlarged 5 × 4-cm hypermetabolic thyroid mass (standardized uptake value, 10.8) and lytic C7-T1 lesions (standardized uptake value, 11.9) with spinal canal narrowing, concerning for metastatic thyroid carcinoma (**Figure 1**). Palliative chemoradiation was initially considered for assumed diffuse metastatic disease. However, after consultation with the orthopedics department, it was decided that she would benefit from thyroidectomy with

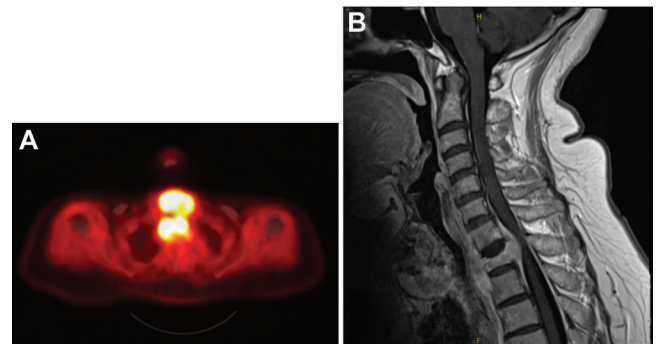


Figure 1. (A) Positron emission tomography shows a hypermetabolic thyroid mass (standardized uptake value, 10.8) and lytic vertebral lesion (standardized uptake value, 11.9). (B) Magnetic resonance imaging shows a thyroid mass with a central lesion causing collapse of T1 vertebra, leading to a “vertebra plana” appearance.

spinal debridement and stabilization, given the mechanical instability of the T1 vertebral body and symptomatic spinal cord impingement.

She underwent total thyroidectomy, partial T1 cervical corpectomy with a trabecular metal cage, and T1-T2 anterior cervical plate/fusion for mechanical anterior cervical support (**Figure 2A**), followed by a staged posterior transpedicular decompression at T1 for circumferential tumor debulking with a posterior C5-T3 stabilization procedure. Intraoperatively, frozen samples of the erosive vertebral body lesions showed inflammation, purulent discharge, and

¹Department of Otolaryngology–Head and Neck Surgery, University of Nevada Las Vegas, Las Vegas, Nevada, USA

²Department of Orthopedic Surgery, University of Nevada Las Vegas, Las Vegas, Nevada, USA

³School of Medicine, University of Nevada Las Vegas, Las Vegas, Nevada, USA

Corresponding Author:

Allen Young, MD, MPH, Department of Otolaryngology–Head and Neck Surgery, University of Nevada Las Vegas, 1701 West Charleston Boulevard Suite 490, Las Vegas, NV 89102, USA.
 Email: AllenYYoung@gmail.com



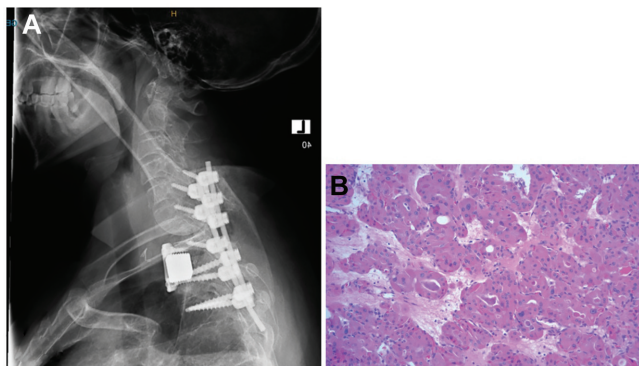


Figure 2. (A) X-ray shows the trabecular metal corpectomy cage and anterior cervical plate for mechanical cervical support and posterior C5-T3 stabilization. (B) Permanent section shows thyroid Hurthle cell adenoma without malignancy, vascular invasion, or cellular atypia.

multinucleated giant cells without evidence of neoplasm. On permanent section, the thyroid mass showed Hurthle cell adenoma without malignancy, vascular invasion, or cellular atypia (**Figure 2B**). Anaerobic, aerobic, acid-fast bacterial, and fungal cultures were taken and tested positive for mycobacterium TB complex on polymerase chain reaction with positive QuantiFERON-TB Gold (QuantiFERON) results, confirming Pott's disease. She was prescribed isoniazid, ethambutol, rifampin, vitamin B6, and pyrazinamide. Postoperative follow-up at 6 months showed resolution of pain, dysphagia, and extremity weakness.

Discussion

Pott's disease is a rare cause of multifocal vertebral lesions in developed countries.² Patients are often misdiagnosed as having metastatic disease, which can lead to delayed diagnosis or even mistreatment. Classic signs include involvement of intervertebral discs or 2 contiguous vertebral bodies and the presence of paravertebral abscesses. In neoplastic spinal disease, disc spaces are usually spared; skip lesions are more common; and paravertebral abscesses are absent.³ Nonspecific hypermetabolic activity on positron emission tomography cannot differentiate among metastasis, myeloma, sarcoidosis, and TB.⁴

Three types of vertebral involvement are seen: paradiskal (most common), anterior, and central lesions.³ Paradiskal lesions present with narrowing of the disc space, either through destruction of subchondral bone and disc herniation or by direct involvement of the disc. Anterior lesions strip the periosteum across multiple vertebral segments, leading to avascularity and anterior scalloping. Central lesions cause vertebral collapse, producing a vertebral plana appearance

with preservation of the disc, which is indistinguishable from lymphoma or metastasis. Our patient presented with a classic central lesion with preservation of disc space and flattened T1 vertebra with paravertebral abscess (**Figure 1B**).

Pott's disease must be suspected in patients from TB-endemic regions who present with spinal lesions. Surgeons need to obtain biopsies of the assumed primary site as well as the suspected metastatic bony lesions before starting oncologic treatment.² If TB was diagnosed earlier in our patient, Pott's disease would need to be confirmed with histologic biopsy with infectious disease consultation for antibiotic regimen. Since her lesions were predominantly anterior based with mechanical instability and spinal cord compression, computed tomography-guided biopsy would be difficult, and a coordinated surgical approach between the orthopedics and otolaryngology departments would be needed for biopsy, debridement, and stabilization. In the setting of TB infections, there is no contraindication for titanium implants, due to a low incidence of biofilm formation.⁵ From an orthopedics and infection disease standpoint, stability of the spine and neurologic preservation take precedence over risk of hardware infection.

Author Contributions

Allen Young, designing the study, analyzing data, drafting the manuscript; **Sukanta Maitra**: drafting and revising the manuscript; **Sabrina Ho**, drafting the manuscript; **Robert C. Wang**, designing the study, revising the manuscript.

Disclosures

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