

Reactivation of tuberculosis of the left hip masquerading as bone metastasis: A case report

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Introduction

- Although tuberculosis (TB) is rarely encountered in the Western World, it persists as a significant health concern in multiple developing countries. The WHO estimates that *Mycobacterium tuberculosis* bacilli infects an individual every second.
- TB generally manifests in the lungs, but virtually any organ system can be involved.
- Extrapulmonary TB accounts for 20% of diagnosed cases, with 11% of extrapulmonary TB cases in the United States between 1999 and 2004 reporting to involve the skeletal system. The spine is the most prevalent site of infection (approximately 50% of cases), followed by the hip (10%), knee (10%), foot and ankle (6%) and the pelvis (4-12%).
- This report present the case of an elderly woman with a history of non-small cell lung cancer who presented with a reactivation of TB manifest in lung nodules and a soft-tissue mass in the left hip.

Case Report

- A 62-year old woman from Asia presented to a palliative outpatient radiotherapy clinic in July 2014 with a right lower lobe lesion detected by mammogram. A MRI scan depicted brain lesions and a diffusely abnormal cord signal in keeping with myelitis. Although four lumbar punctures yielded negative results for malignant cells in the cerebrospinal fluid, a lung biopsy confirmed an EGFR-positive adenocarcinoma. The patient was treated with Iressa and underwent a right lower lobectomy.
- A history of lupus informed the diagnosis of an autoimmune disease in the leptomeningeal region and was prescribed steroids.
- In December 2015, the patient reported discomfort of the left thigh. A subsequent left hip ultrasound depicted a multi-lobulated heterogeneous soft tissue mass in the subcutaneous tissues overlying the left greater trochanter. Although physicians thought the mass may be a hematoma or a resolving abscess, the potential size increase of the mass and clinical history of non-small cell lung cancer could not discount the potential diagnosis of a metastatic focus.
- A left hip core biopsy found the lesion to be a poorly differentiated carcinoma, noting the morphology and staining profile of the mass (stained positive for TTF-1) did not match that of the resected lung cancer (stained negative for TTF-1).
- A nuclear medicine bone scan conducted failed to reveal any evidence for skeletal metastases, and a chest/thorax CT revealed no definite evidence of recurrent or metastatic disease in the chest, but visualized enlarging nodularities in the posterior lateral upper lung keeping with an evolving post-infectious/inflammatory granulomatous foci.
- An ultrasound guided biopsy of the left hip was conducted following a second pathologist finding the tissue biopsy to test positive for acid-fast organisms. This finding is suggestive of a reactivation of TB in the hip.
- The patient was placed on a course of anti-TB medication and became supervised by the Public Health and the Infectious Disease Team.

Discussion

- In 2012, there was an incidence of 3.2 new TB cases per 100,000 people in the United States, but disease occurrence has increased among foreign-born individuals.
- While the absolute number of TB cases in the US has declined, the relative proportion of extrapulmonary cases have increased from 15.7% in 1993 to 21% in 2006, especially in patients with compromised immune systems.
- The osseous characteristics of TB can be mistaken for other forms of pathology, resulting in mismanagement.
- A final diagnosis was achieved only after acid-fast *Mycobacterium tuberculosis* was identified from the second biopsy. Osteoarticular TB as pulmonary involvement is limited to only 15-33% of patients. Osteoarticular TB manifestations are paucibacillary lesions and it is difficult to culture acid-fast *Mycobacterium*.
- To treat TB Public Health Agency of Canada recommends that two effective drugs should be used at all times, with at least three drugs recommended for the first 2 months.
- For musculoskeletal TB, it is recommended to extend the drug therapy to 12 to 18 months

Figure 1. Axial CT image through the left hip



CT scan demonstrates a soft tissue mass in the subcutaneous tissues laterally at the level of the lesser trochanter and ischial tuberosity.

Conclusions

A review of the literature yielded 113 case reports and 8 case series in which TB appeared to mimic malignant tumors. Of these publications, only one study discussed a case involving TB of the hip that was initially mistaken as a neoplastic lesion. These cases demonstrate the need of a broad differential diagnosis, as although TB is not prevalent in Canada or the United States, misdiagnosis and treatment could lead to detrimental health outcomes.

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