Mystery Case: Spinal tuberculosis masquerading lung malignancy

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A 32-year-old woman presented with backache of 4 months' duration. She also complained of cough, anorexia, and some weight loss. She had a local tenderness at T6–T7 vertebrae. CNS was normal. A chest X-ray revealed a left lower lobe lung lesion (figure, A). CT thorax and MRI dorsal spine revealed left lung consolidation, pleural collection, T6 vertebral wedge collapse, and paravertebral collection (figure, B–E). Differential diagnoses included spinal tuberculosis (Pott disease) vs metastasis.¹ Pleural biopsy revealed a tuberculous granulomatous lesion (figure, F). She was given antituberculosis drugs. After 1 month, remarkable pain relief was noted.

Author contributions

Ravindra Kumar Garg: concept, drafting manuscript, revision, analysis. Manan Mayur Mehta: drafting manuscript, revision, analysis. Riddhi Jaiswal: concept, drafting manuscript, revision, analysis. Hardeep Singh Malhotra: concept, drafting manuscript, analysis. Imran Rizvi: drafting manuscript, revision, analysis. Shweta Pandey: drafting manuscript, revision, analysis.

Figure Chest X-ray shows a lung lesion, neuroimaging suggests spinal tuberculosis (Pott disease), and pleural biopsy confirms tuberculosis

(A) Chest X-ray shows left lower lung opacity. (B, C) CT thorax shows a centrilobular nodule (tree in bud appearance). (C–E) MRI shows collapse of T6 and T7 vertebrae with paravertebral collection. (F) Pleural biopsy shows tuberculous granuloma with multinucleated giant cells, epithelioid cell, and caseation. Acid-fast bacilli staining was negative. Magnification is $\times 400$.

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Disclosure

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Mystery Case responses

The Mystery Case series was initiated by the *Neurology*[®] Resident & Fellow Section to develop the clinical reasoning skills of trainees. Residency programs, medical student preceptors, and individuals were invited to use this Mystery Case as an educational tool. Responses to multiple choice questions formulated using this case were solicited through a group email sent to the American Academy of Neurology Consortium of Neurology Residents and Fellows and through social media. We received 230 responses. The majority of respondents (63%) had just been in practice for 1–4 years; 55% were residents or fellows while 31% were faculty/board-certified physicians; the remainder were medical students or advanced practice providers. A total of 91% resided outside the United States. A wide range of practice settings was represented.

When presented with a brief clinical vignette about this patient (described in our online case as having recently immigrated from India and presenting with backache, cough, anorexia, weight loss, and local tenderness at T6/7 on examination), and asked what 2 investigations they would order, 72% of respondents appropriately selected MRI thoracic spine. Recognizing the importance of investigating the respiratory complaints, 30% also selected CT chest while 36% selected chest X-ray; both are appropriate choices although

CT chest would be more definitive. Upon then being presented the CT chest and MRI T-spine, 81% correctly identified the T6 vertebral wedge collapse and 70% identified the left lung consolidation. Forty-four percent also correctly identified the T6 paravertebral collection. Thirty-one percent also identified a left pleural collection. Twenty percent incorrectly reported a T6 cord signal change.

Upon then being asked to select their top 2 differential diagnoses, the 2 most popular and correct choices were Pott disease (72%) and metastasis (57%). Other favored choices included osteosarcoma (17%), which can metastasize to the lungs but more typically with multiple smaller nodules rather than with a single lung consolidation,¹ and Paget disease (8%), a condition involving cellular remodeling and bony deformity.² Respondents were then presented with the patient's pleural biopsy result and asked for their final diagnosis; interestingly this resulted in fewer people selecting the correct answer of Pott disease (58%), with the remainder spread across different options including metastasis (9%). However, the biopsy shows a tuberculous granuloma with multinucleated giant cells, in keeping with Pott disease.

Tuberculosis continues to be an important worldwide public health problem, including in North America and Europe, especially among deprived socioeconomic groups, older or immunocompromised patients, drug-resistant cases, as well as immigrant and indigenous (North American) populations.³ The spine is the most frequent location of musculoskeletal tuberculosis.

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