



Case Report

Lung adenocarcinoma presumed to be Pott's disease in a 28-year-old patient: A case report and review of literature

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ABSTRACT

Background: Tuberculous spondylitis (Pott's disease), a common extrapulmonary manifestation of tuberculosis (TB), typically presents with back pain, tenderness, paraparesis/paraplegia, and various constitutional symptoms. Due to radiological similarities between Pott's disease and lung cancer, some lung cancer patients may initially be erroneously diagnosed and treated for TB, allowing for extensive progression of their cancer.

Case Description: A 28-year-old male presented with a chronic dry cough, weight loss, and 2 months of increased back pain accompanied by bilateral lower extremity weakness. Magnetic resonance imaging revealed an epidural collection causing compression of the spinal cord at the T5-T6 level. The initial diagnosis was *Mycobacterium tuberculosis*/Pott's disease. A thoracic T4-T8 decompression fusion was performed; however, pathologic examination of the tissue revealed adenocarcinoma. Postoperatively, after the patient experienced several episodes of acute respiratory distress and a tension pneumothorax, lung imaging confirmed multiple tumor infiltrates along with lung cancer extending into the thoracic vertebrae. Pelvic studies also confirmed the presence of pelvic metastases. The patient passed away 3 weeks following surgery.

Conclusion: In this case report, a 28-year-old male was treated for thoracic Pott's disease that proved to be metastatic lung adenocarcinoma. To avoid such misdiagnoses in the future, physicians should better differentiate spinal TB from other malignancies that may affect the spine. This study underscores the importance of obtaining at least a chest X-ray in any patient with suspected Pott's disease, irrespective of age, to help rule out lung cancer or other pathologies.

Keywords: Lung adenocarcinoma, *Mycobacterium tuberculosis*, Pott's disease, Spine, Thoracic, Vertebra

INTRODUCTION

Tuberculous spondylitis, or tuberculosis (TB) of the spine (Pott's disease), is a common extrapulmonary manifestation of TB.^[4] It presents with back pain, tenderness, and increased neurological deficits including paraparesis/paraplegia accompanied by constitutional symptoms (e.g., fever and fatigue).^[5] The failure to differentiate Pott's disease from tumors/cancer that requires very different treatment can lead to severe and irreversible neurologic sequelae.^[5]

Pott's disease is included among the differential diagnoses for patients presenting with spondylitis, intraspinal or paravertebral abscess, and/or progressive back pain with pulmonary nodules.^[2,4] Lung cancer, one of the deadliest cancers worldwide, is the most common subtype

of nonsmall cell lung cancers (NSCLCs) that may mimic Pott's disease.^[7]

Here, we present a 28-year-old male originally diagnosed with Pott's disease who underwent a T5-T6 decompression with T4-T8 fusion; at surgery, the lesion proved to be an adenocarcinoma of the lung. Further imaging of the thoracic region revealed a moderate left lung effusion accompanied by a lung mass and metastatic lung cancer extending into the T5-T6 vertebrae. Abdominal studies later additionally confirmed metastases to the pelvis. This study underscores the importance of obtaining at least a chest X-ray in a patient with suspected Pott's disease, irrespective of age, to help rule out lung cancer or other tumor or nonneoplastic pathologies.

CASE DESCRIPTION

History and physical examination

A 28-year-old male presented with a chronic dry cough and weight loss of 1-year duration, and 2 months of worsening mid-thoracic back pain accompanied by bilateral lower extremity weakness. Notably, there were no known TB exposure, recent travel, smoking, or history of intravenous drug use. On the initial physical examination, he had bilateral rales and left lower extremity weakness (4/5).

Imaging

Magnetic resonance imaging revealed an epidural collection causing compression of the spinal cord from T5 to T6; this was accompanied by a moderate-sized, left-sided pleural effusion, a left lingular/lower lobe consolidation, and multiple cavitary lesions in the right lung [Figures 1-4]. The patient was initially diagnosed with pulmonary TB/Pott's disease and myelopathy, resulting in the standard TB regimen of rifampin, isoniazid, pyrazinamide, and ethambutol.

Surgical treatment

Surgery included a T5-T6 decompression (e.g., costotransversectomy); the largely ventral mass (e.g., anterior to the cord) was removed. This was followed by open reduction and a posterior T4-T8 fusion.

Pathology

A 1.2 cm × 0.9 cm × 0.6 cm bone tissue fragment from the T6 lamina and 3.0 cm × 2.0 cm × 1.0 cm aggregate from the T6 epidural tissue demonstrated metastatic adenocarcinoma, likely primary from the lung.

Postsurgical course

The patient's postoperative course was complicated by an inability to be weaned off the ventilator; the high oxygen

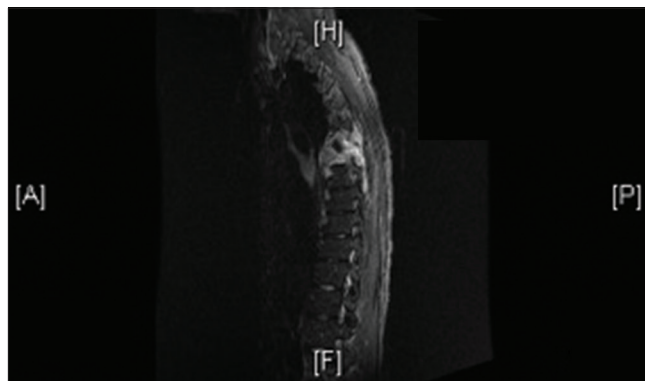


Figure 1: Magnetic resonance imaging revealed an epidural collection causing compression of the spinal cord from T5 to T6.

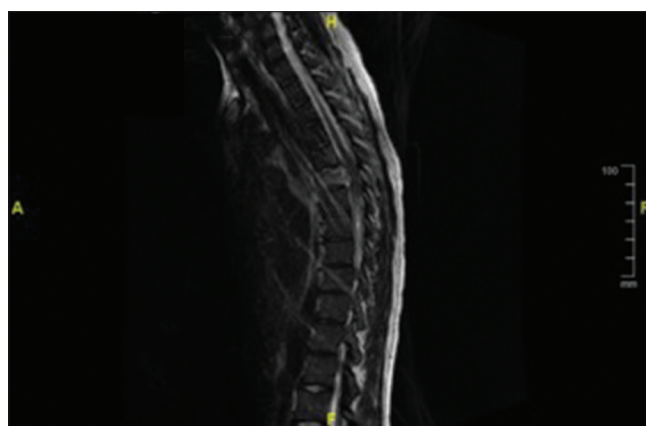


Figure 2: Magnetic resonance imaging revealed an epidural collection causing compression of the spinal cord from T5 to T6.



Figure 3: Magnetic resonance imaging revealed an epidural collection causing compression of the spinal cord from T5 to T6.

requirements were attributed to the left lung disease. A chest radiograph performed the day of surgery demonstrated an enlarging left pleural effusion and a left pneumothorax. There were also patchy right perihilar airspace opacities/scattered nodules, considered infectious/inflammatory [Figure 5].

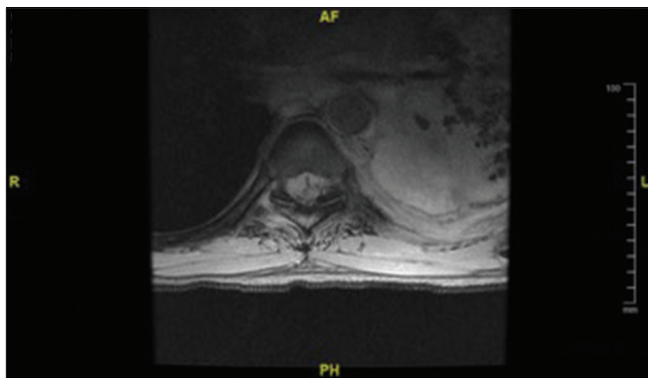


Figure 4: Magnetic resonance imaging demonstrated a moderate-sized, left-sided pleural effusion, and left lingular and lower lobe consolidation.

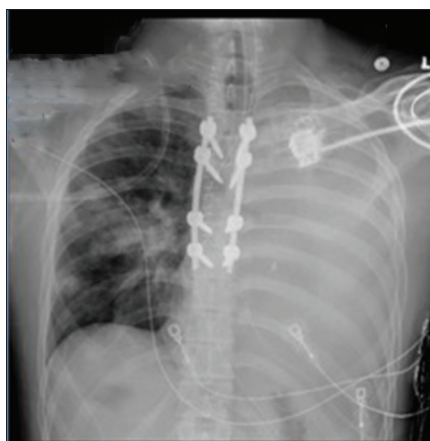


Figure 5: Magnetic resonance imaging revealed that patchy right perihilar airspace opacities were noted with scattered nodules.

The patient subsequently experienced acute hypoxemic respiratory failure, acute respiratory distress syndrome, shock, and cardiac arrest. Of interest, the TB polymerase chain reaction came back negative.

DISCUSSION

The diagnosis of TB, and especially extrapulmonary TB, requires a complete evaluation.^[1] Pott's disease most often affects the lower thoracic and lumbar spine. Patients typically show progressive back pain over several months duration, along with pulmonary nodules (e.g., left upper lobe), night sweats, and weight loss.^[5] These constitutional symptoms, however, are far more common in cases of lung cancer versus TB.^[6]

Radiological similarities with Pott's disease versus lung cancer

Due to radiological similarities, it is possible that lung cancer patients may initially be erroneously diagnosed and treated

for TB rather than lung cancer. This may lead to delays in the diagnosis and appropriate treatment of their lung cancer. Such delays should be avoided to limit extension and/or progression of their cancer; performing X-ray, computed tomography (CT) scan/fiberoptic bronchoscopy may help avoid the failure to differentiate lung opacities due to TB versus lung cancer.^[4,8]

Lung cancer

In patients under 25 years of age, NSCLC is extremely rare (i.e., 0.3/100,000).^[7] The diagnosis of adenocarcinoma of the lung was extremely unlikely in this 28-year-old patient and in younger patients in general. However, in one other case report, a similar 20-year-old male with no history of tobacco use and a comparable overall presentation underwent a chest CT that revealed a right hilar mass with mediastinal lymphadenopathy consistent with diffuse metastatic lung cancer that patient expired 9 months later.^[3]

Treatment options

In this case, had the authors been aware of the underlying diagnosis of lung cancer with multiple metastases, they would not have proceeded with the spinal decompression/fusion surgery (e.g., instead utilization of CT-guided biopsy and appropriate treatment of lung cancer). Spinal surgeons should be cognizant that spinal metastases secondary to lung adenocarcinoma may mimic Pott's disease and should obtain preoperative chest X-rays to rule out other pathologies including lung cancer; in this case, it would have avoided unnecessary spinal surgery.

CONCLUSION

Spinal surgeons should be aware of the shared radiological features for Pott's disease/spinal TB versus other metastatic malignancies (e.g., lung cancer). In this case, a 28-year-old who was misdiagnosed with Pott's disease at the T5-T6 level would not have undergone unnecessary spine surgery (e.g., T4-T8 decompression/fusion) but rather would have been appropriately treated for lung cancer (e.g., stereotactic CT-guided biopsy and chemotherapy/radiation therapy).

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms.

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Conflicts of interest

There are no conflicts of interest.

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