

Introduction

Worldwide, spinal tuberculosis (Pott's Disease) is a frequent manifestation of extra-pulmonary tuberculosis and should be considered in the assessment of back pain in patients with tuberculosis risk factors.

Case Description

An otherwise healthy 49-year-old woman who **immigrated from Mexico** 16 years prior presented with **subacute** progressive **mid-thoracic back pain, night sweats and weight loss**.

Exam: midline and paraspinal thoracic tenderness without spinal deformity. Neurologic exam intact.

MRI spine (see fig. 3): hyperintensity at T7 and T8 with **anterior and lateral** soft tissue involvement and **sparing of the disc space**.

Labs: negative for various infectious etiologies (see "Laboratory Studies").

CT-guided fine needle biopsy of the paraspinal tissue: chronic inflammation without evidence of granulomas nor malignancy. Microbiologic testing was negative (see "Spinal Biopsy").

Based on the clinical presentation and radiographic findings suggestive of TB, she was initiated on **empiric therapy for spinal tuberculosis** with rifampin, isoniazid, pyrazinamide and ethambutol.

Her clinical status completely normalized 9 months into an anticipated 12-month course of treatment.

Laboratory Studies

Abnormal serum studies

ESR 41 (H), CRP 174 (H)

Negative studies

Fungal cultures (serum)

Bacterial cultures (serum)

HIV 1,2 abs/P24 ag (serum)

Fungal PCR (serum)

Non-TB mycobact. PCR (serum)

Cryptococcal ag (serum)

Histoplasma (urine ag, serum abs, serum ag)

Brucella, total abs (serum)

Negative TB-specific studies

QuantiFERON Gold (serum)

MTB complex by PCR (sputum)

AFB (sputum)

CT-Guided Spinal Biopsy

Paraspinal tissue: Bacterial culture, fungal culture, gram stain, AFB, MTB complex by PCR, broad range PCR (bacterial PCR, non-TB PCR, fungal PCR, MTB complex by PCR) all negative.

Pathology: Fibrovascular tissue with mild chronic inflammation. Negative for malignancy. No granulomas present. AFB stain negative for acid fast bacilli. Multiple levels examined.



Figure 2: CT during biopsy showing needle approaching paraspinal soft tissue mass.

TB Test Characteristics

Test	Sens.	(-) Predictive value	(-) Likelihood ratio
MTB complex by PCR	~97%	~85%	~0.03
QuantiFERON Gold	~80%	~79%	~0.20
PPD	~70%	~70%	~0.42

Figure 1: Test characteristics for active TB, as compared to gold standard of AFB culture. Note: T-Spot and QuantiFERON Gold Plus tests (not included) have slightly higher sensitivity but data is limited.

Imaging



Figure 3: MRI spine showing hyperintensity at T7/T8 with disc-space sparing.

Discussion

Origin from a TB-endemic area, subacute constitutional symptoms, and atypical radiological findings increased the pre-test probability of spinal TB.

Open biopsy for tissue would have been more sensitive but morbid.

Response to therapy served as the ultimate diagnostic test.

Learning Points

- Radiographic findings characteristic of spinal TB: involvement of paraspinal soft tissue, ligaments, and bone with sparing of the disc space (distinct from a typical bacterial infection)
- TB testing characteristics dependent on population, specimen, and disease involvement
- Sensitivity of microbiologic, histologic and PCR analysis from fine needle biopsy in general ranges from 60-90%.
- Diagnosis of spinal TB can be supported by typical radiographic findings and response to therapy. Treatment may be warranted even in the absence of confirmatory microbiologic and histologic data in the correct patient.

References

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