KSSS 2025
The 42nd International Congress of Korean Society of Spine Surgery
May 21 (Wed) – 23 (Fri), 2025
Lotte Hotel Seoul (Sogong-dong), Korea

Thoracic Spondylitis Caused by Actinomyces: A Rare and Challenging Diagnosis in Spinal Infection

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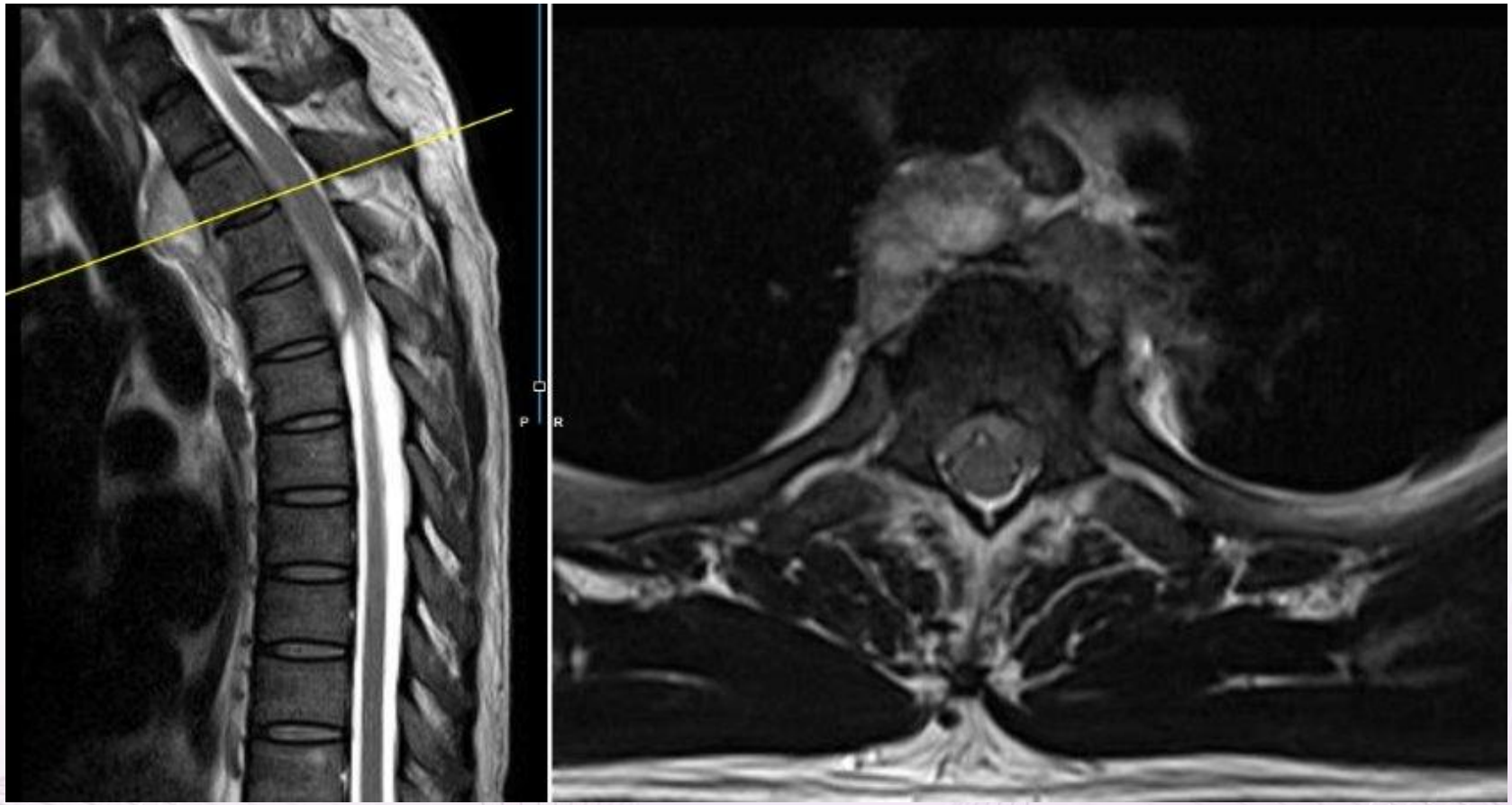
Purpose

- We report a rare case of thoracic spondylitis caused by *Actinomyces* and highlight the diagnostic challenges encountered during treatment.

Materials and Methods

- A 45-year-old male with no known comorbidities presented with a three-week history of progressive upper back pain and bilateral lower limb weakness. He had no known exposure to tuberculosis.
- Neurological examination revealed Frankel Grade D with a sensory level at T2.
- Inflammatory markers were elevated, but blood cultures were negative. Tuberculosis screening, including sputum smear and Mantoux test, was also negative.



- MRI of the whole spine revealed spondylitis involving T3 and T4 vertebrae, with lobulated and septated epidural, prevertebral, and paravertebral collections causing cord compression from T2/3 to T5/6. Notably, vertebral height and disc spaces were preserved.

- Due to neurological deterioration (from Frankel D to C), emergency posterior decompression (T2–T6) and stabilization (C7–T6) were performed. Intraoperatively, purulent discharge and granulation tissue were found overlying the dura.
- Culture of pus and tissue samples remained negative after 72 hours. However, histopathological analysis revealed suppurative granulomatous inflammation with filamentous bacterial colonies consistent with *Actinomyces* species.
- Mycobacterium culture and sensitivity was negative.
- The patient was treated with intravenous penicillin for 12 weeks. Neurological improvement from Frankel C to D was observed two months postoperatively.

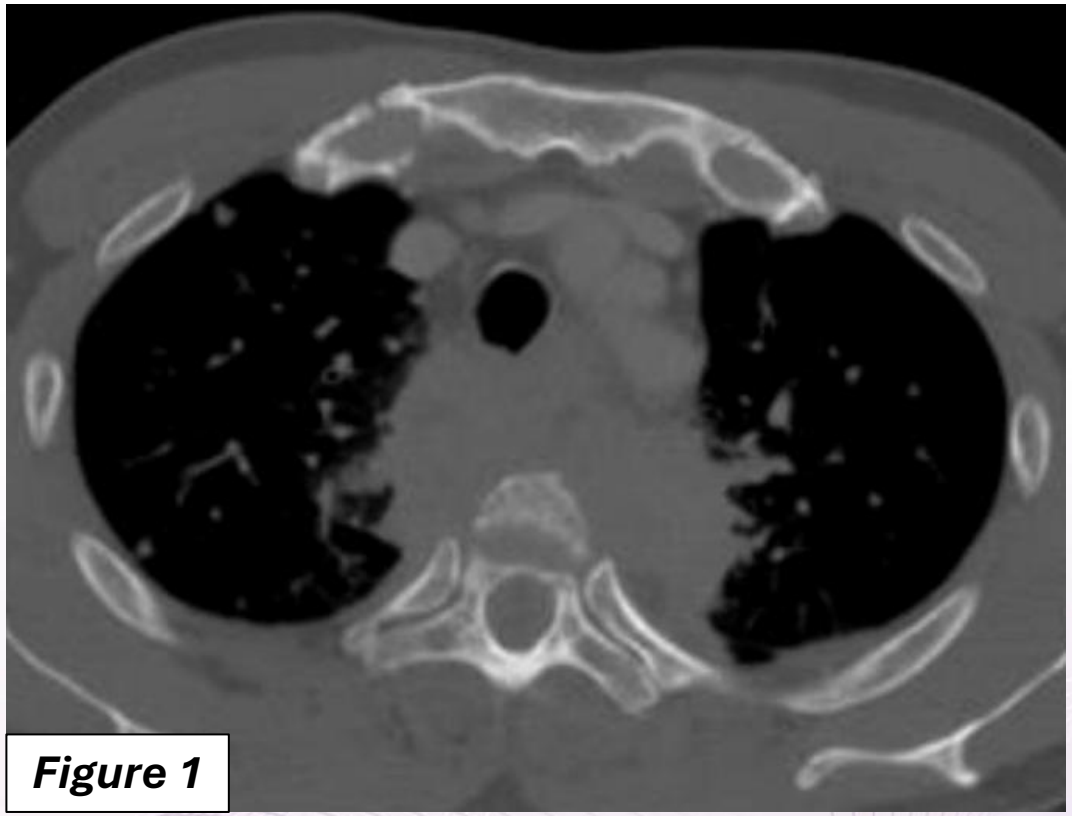


Figure 1

Figure 2

- ***Figure 1*** showing paravertebral collection over T4 vertebra, extending into the lungs and displacing the mediastinal organs anteriorly.
- ***Figure 2*** showing resolution of collection over T4 vertebra after 6 weeks of antibiotic therapy with pedicle screws in-situ and evidence of laminectomy seen.

Results

- *Actinomyces* infection can closely mimic tuberculosis or even malignancy in imaging studies, as evidenced by the presence of multiloculated collections in the paravertebral region. In this case, vertebral body sparing led to further investigation via transesophageal endoscopic biopsy, which helped secure the diagnosis.
- Due to the slow-growing nature of *Actinomyces*, culture incubation typically requires 10 to 21 days. Standard practice of discarding cultures after 72 hours may lead to underdiagnosis and delays in appropriate antimicrobial therapy.

Conclusion

- Although *Actinomyces* is a commensal organism of the oral, gastrointestinal, and vaginal tracts, infections involving the spine are exceedingly rare.
- This rarity may stem from diagnostic difficulties, particularly the need for extended culture incubation.
- Awareness of this requirement is crucial for accurate diagnosis and timely management of *Actinomyces*-related spinal infections.

References

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