

A Unique Case of Disseminated Vertebral Coccidioidomycosis

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BACKGROUND AND PURPOSE

Commonly known as Valley Fever, coccidioidomycosis is a fungal infection that is primarily found in the Southwestern United States. It is caused by two clinically indistinguishable species, *Coccidioides posadasii* and *Coccidioides immitis*. Inhalation of aerosolized spores typically results in a primary pulmonary infection, which can present similarly to community acquired pneumonia, though many cases remain asymptomatic. Disseminated infections are found in around 1% of documented cases. Manifestations of extrapulmonary coccidioidomycosis can be difficult to identify and diagnose due to a lack of specific symptoms. This is important to recognize, as delays in diagnosis can be devastating and result in the need for aggressive treatment modalities.

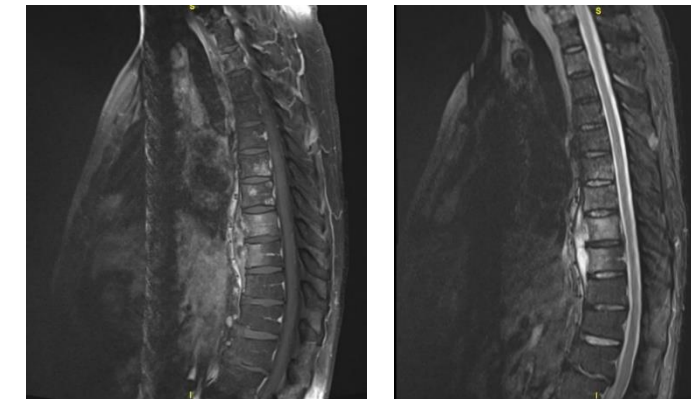
DESCRIPTION & METHODOLOGY

A 57-year-old male with no significant past medical history presented to the emergency department for progressive lumbar back pain with radiation down his bilateral lower extremities for two months. He also reported recent weight loss of greater than 10lbs but denied respiratory symptoms or alarm symptoms such as fevers, paresthesias, saddle anesthesia, incontinence or weakness. He lived in Arizona 2.5 years prior to the onset of symptoms and denied recent travel. Throughout his hospitalization, he remained afebrile and neurologically intact, though he continued to suffer from intractable lower back pain. After further imaging and an extensive infectious work up, he was diagnosed with disseminated coccidioidomycosis. Initial treatment was with fluconazole, which was then transitioned to itraconazole for enhanced skeletal penetration. Fortunately, he has not required surgical debridement or had any progression of neurologic symptoms. He currently remains under surveillance on antifungal therapy with regular follow up.

RESULTS

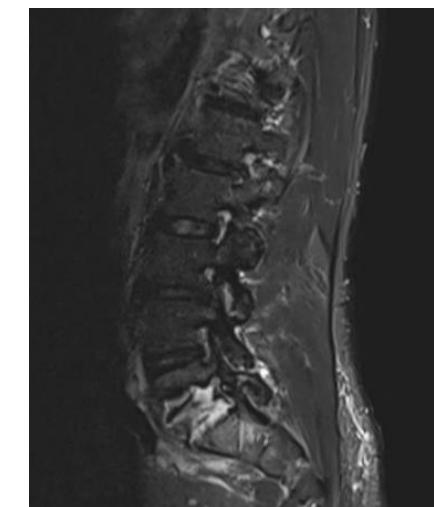
Initial laboratory studies were significant for thrombocytosis and elevated inflammatory markers. MRI of the cervical, lumbar, and thoracic spine revealed erosive changes to L5 with adjacent bone marrow edema and ring of enhancement extending to the superior endplate of S1, as well as a prevertebral fluid collection extending from the inferior aspect of T7 through the upper aspect of T10 with associated inflammatory changes to T6-T9. Notably, the findings were concerning for a granulomatous infection due to the characteristic disc space sparing behavior of the lesions. Subsequently, he underwent a CT guided biopsy of L5-S1. Concomitant infectious work up was obtained, including extensive coccidioidomycosis diagnostic testing. Serologic coccidioidomycosis EIA revealed positive IgG and negative IgM antibodies. Immunodiffusion and complement fixation were also positive. Ultimately, fungal cultures of the lumbar spine aspirate grew *Coccidioides posadasii/immitis*, confirming the suspected diagnosis. Follow up imaging 6 weeks later revealed no new infectious sites and improvement in the prevertebral fluid collection, though there was questionable worsening in the lumbar spine. Due to a lack of progression in clinical symptoms, the course of treatment remains unchanged.

FIGURE 1 & 2



MRI demonstrating thoracic prevertebral fluid collection with associated bone marrow edema and inflammatory changes in the vertebral bodies.

FIGURE 3



MRI with abnormal STIR signal involving the S1 superior endplate with associated ring of enhancement involving the L5 inferior endplate and S1 superior endplate.

DISCUSSION

This case exemplifies the often asymptomatic and unrecognized course of initial pulmonary infection, while highlighting the indolent yet progressive nature of hematogenous dissemination in untreated patients. Serologic testing and imaging aided in obtaining an accurate diagnosis promptly. It is particularly important to recognize vertebral infections early to prevent progression. Initial treatment is with antifungal agents, including Azoles or Amphotericin B, though surgical debridement may be a necessary adjunct in advanced cases. There is ongoing debate as to whether pharmacologic management alone is effective in spinal infections, which requires further investigation. It is recommended that patients remain on systemic therapy until complement fixation titer is negative, which can be for years when there is skeletal involvement.