Breaking The Mold:
A case of *Sporothrix schenckii* causing Vertebral Osteomyelitis

Maria Laura Casalegno, MD[1]; Luis Alberto Rubio, MD, MHS[1]
[1]University of California, San Francisco, Division of Infectious Diseases, Department of Medicine

Case Presentation

Chief Concern: Chronic Lower Back Pain

A 60-year-old man with diabetes mellitus and hypertension presented with a chief concern of progressive lower back pain of 1-year duration, unresponsive to analgesics. Review of systems also included fevers, night sweats, weight loss, dry cough, and urinary retention which prompted him to seek further medical care. He denied any focal weakness in his lower extremities or bowel incontinence.

Past Medical History:
- Diabetes Mellitus
- Hypertension

Social History:
- Born in Tonga; currently resides in Sacramento, CA
- Works in construction with frequent brush clearing
- Denies any pets or animal exposures, alcohol use, or injection drug use

Focused Physical Examination:
- VS: Temp 36.9° C, BP 162/93; HR 104 bpm; RR 16 per min
- MSK: Point tenderness over lumbar spine
- Skin: Hyperpigmented painless raised macules over his hands bilaterally
- Neuro: Intact lower extremity strength and rectal tone, no saddle anesthesia

Labs:
- CBC and CMP: Within normal limits
- Hemoglobin A1c: 10.1% (ref range < 5.6%)
- C-reactive protein: 20.5 mg/L (ref range < 3.0 mg/L)
- Beta-D-glucan: 145 pg/mL (ref range < 60 pg/mL)
- HIV Ab/Ag, QuantiFERON Gold assay, and galactomannan: Negative
- MRI lumbar spine (Figure 1):
  - L2-3 discitis/osteomyelitis
  - Ventral epidural soft tissue enhancement resulting in severe canal stenosis
  - Moderate bilateral neural foraminal narrowing at L2-3
  - Abnormal enhancement of ventral nerve roots at L2-3, which may reflect contiguous spread of infection

Diagnostic Procedures:
- L2-4 posterior spinal fusion, L2-3 and L3-4 discectomies, and placement of L2-3 and L3-4 anterior interbody cages
- OR findings: No frank pus was visualized, but bone and disc were noted to be destroyed
- On post-op day 5 tissue cultures grew mold which was later identified as *Sporothrix schenckii* (Figure 2)

Clinical Images

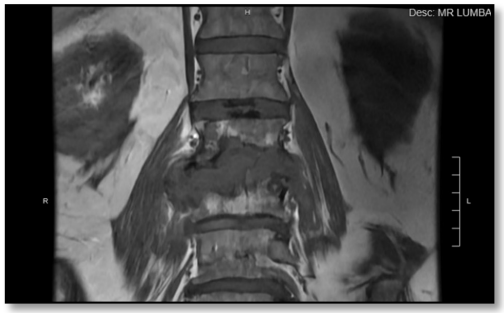

Figure 1: MRI Lumbar Spine. T1-weighted axial views showing destruction of L2-3 disc and vertebral body

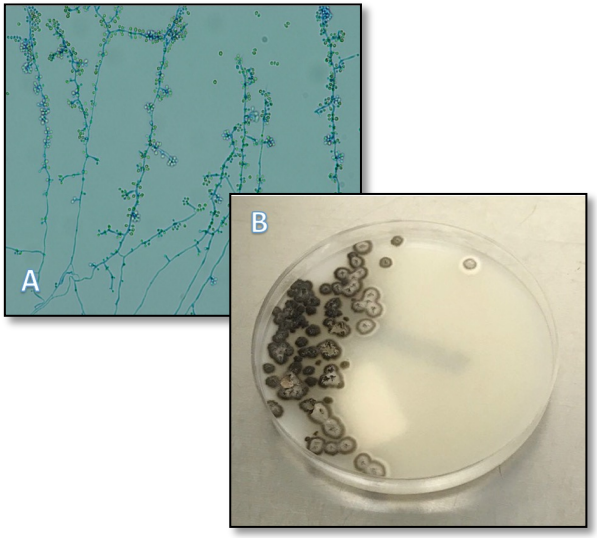

Figure 2: L2-L3 Disc culture. (A) Lactophenol cotton blue stains, 40X; (B) Mold growing on the potato flake agar (PFA) plate from the fungal culture. *Images courtesy of Gail Cunningham*

Case Continuation

Treatment / Follow-up:
The patient was diagnosed with *S. schenckii* vertebral osteomyelitis. Given his report of cough for several weeks, he also underwent a CT chest that did not reveal any pulmonary involvement. He was initiated on itraconazole with improvement in mobility and normalization of CRP. He is planned to receive 12 months of therapy for osteoarticular disease.

Discussion

Fungal vertebral osteomyelitis and discitis are rare entities. The cases described in the literature, worldwide, are often secondary to *Candida*, *Aspergillus*, and *Cryptococcus. Coccidioides immitis*, and *Blastomyces dermatitidis* have also been described in certain geographic distributions [1]. *Sporothrix schenckii* is a rare cause of vertebral osteomyelitis and discitis.

Sporothrix schenckii is a dimorphic fungus with a worldwide distribution. It is found particularly in tropical and subtropical regions [2]. *Sporothrix* spp are usually found in soil, plants, decaying wood, and other organic matter. The transmission of pathogenic species of *Sporothrix* is, most commonly, via skin inoculation, but zoonotic transmission from cats and other mammals, particularly of *Sporothrix brasiliensis*, has been described in the literature [3, 4]. Certain occupations such as construction workers, veterinarians, agriculturalists, are associated with a higher risk of exposure to *Sporothrix* spp [2]. The clinical presentation of sporotrichosis can be classified into cutaneous, lymphocutaneous, and extracutaneous infections (primary pulmonary infections, chronic meningitis, and osteoarticular infections) [5, 6]. While there have been several cases of osteoarticular sporotrichosis described in the literature, spinal osteomyelitis and discitis are extremely rare entities with only one case described in the literature as of 2020 [6].

Risk factors for the development of severe or disseminated sporotrichosis include immunocompromised status, diabetes mellitus, and alcohol use disorder [5, 7]. Triazoles are the first-line agents for most of the clinical presentations of the disease; and amphotericin for severe and disseminated forms of sporotrichosis [8]. Among triazoles, itraconazole has shown the best response rates with 90-100% response rate of cutaneous and lymphocutaneous infections, and 73% of osteoarticular infections [8].

Conclusions

We describe an infrequent case of *Sporothrix schenckii* causing vertebral osteomyelitis and discitis in an immunocompetent patient with poorly controlled diabetes. Sporotrichosis should be considered in cases of vertebral osteomyelitis in patients with epidemiologic and clinical risk factors. Itraconazole remains the treatment of choice for sporotrichosis.

References

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