

# The First Reported Case of Coccidioidal Synovitis in the Ankle

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## Introduction and Literature Review

*Coccidioides immitis/posadasii* is a fungal organism that is endemic to areas of the southwest United States, especially Southern Arizona (1,2) (Figure 1). Most commonly it causes coccidioidomycosis, also known as Valley Fever, but in rare instances can become disseminated and cause extra pulmonary symptoms. Reports have described monoarticular coccidioidal synovitis involving the knee, hip, wrist and elbow (3,4,5,6). There have been no written reports, to our knowledge, describing involvement of the foot or ankle. The purpose of this poster is to present the first case of coccidioides infection presenting as isolated synovitis of the ankle, and to bring awareness to this condition.

## Case Presentation

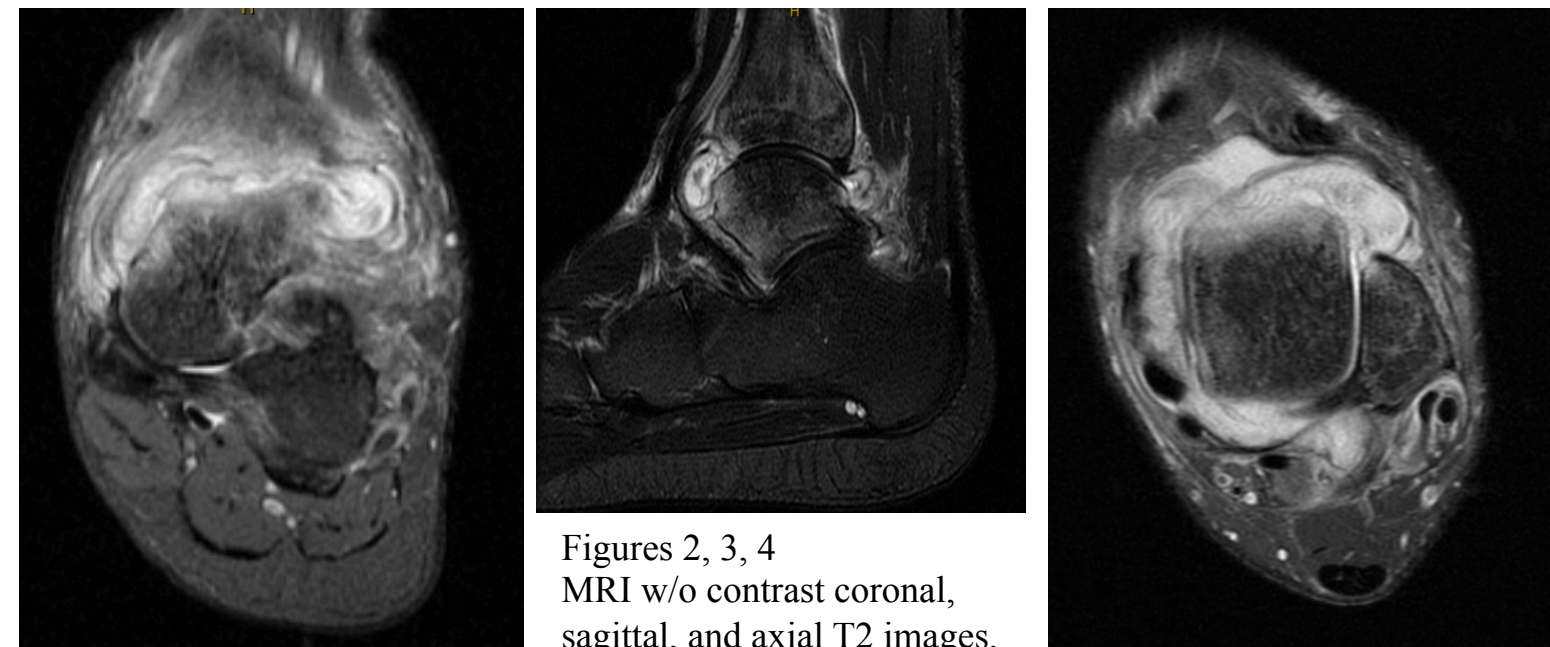
A forty-year-old male with an unremarkable past medical or surgical history presented to clinic with a chief complaint of pain, instability, and stiffness. The pain was located to the anterolateral aspect of the left ankle and onset was 11 months prior. The pain was accompanied by swelling and feelings of instability. The pain had been recalcitrant to anti-inflammatories, ankle bracing and physical therapy. On physical examination, the patient was neurovascularly intact. He had pain to palpation to the anterolateral aspect of the left ankle with edema. Range of motion and muscle strength were normal. Pain was noted with manual muscle strength testing to the peroneal tendons. He had a positive anterior drawer test and negative talar tilt test.

Radiographic examination of the left ankle demonstrated increased soft tissue density at the anterior aspect of the tibiotalar joint. The tibiotalar and subtalar joints were congruent and without obvious evidence of degenerative joint disease. A Magnetic Resonance Imaging (MRI) of the left lower extremity without contrast was performed and remarkable for tibiotalar and subtalar joint effusions with generalized synovitis and thinning of articular cartilage. There was intramedullary marrow edema of the distal tibial plafond, the medial malleolus, medial talar dome, talar neck, lateral calcaneus, and the lateral aspect of the talus adjacent to the posterior facet. Additionally there was tenosynovitis of the peroneal tendons and chronic appearing deficiency of the anterior talofibular ligament (atfl). The MRI findings were consistent with a chronic sprain of the atfl and an inflammatory arthrosis. (Figures 2,3,4)

Given the patient's continued pain, instability, and MRI findings, the patient was consented for left ankle arthroscopic debridement, lateral ligament reconstruction, subtalar joint synovectomy, peroneal tendon tenosynovectomy and excision of soft tissue mass.

## Surgical Procedure

The patient received a popliteal block and general anesthesia. Arthroscopic inspection was performed which revealed extensive synovitic tissue and impingement lesions within the tibiotalar joint. Debridement of this tissue was performed using an arthroscopic 3.5mm shaver. A lateral extensile incision was made which revealed the soft tissue mass to be confined within the subtalar joint, lateral ankle ligament complex and peroneal tendons. Careful dissection was utilized to excise the mass. It measured 4.2 cm x 2.0 cm (Figure 5). A peroneal synovectomy and lateral ankle ligament reconstruction was then performed.



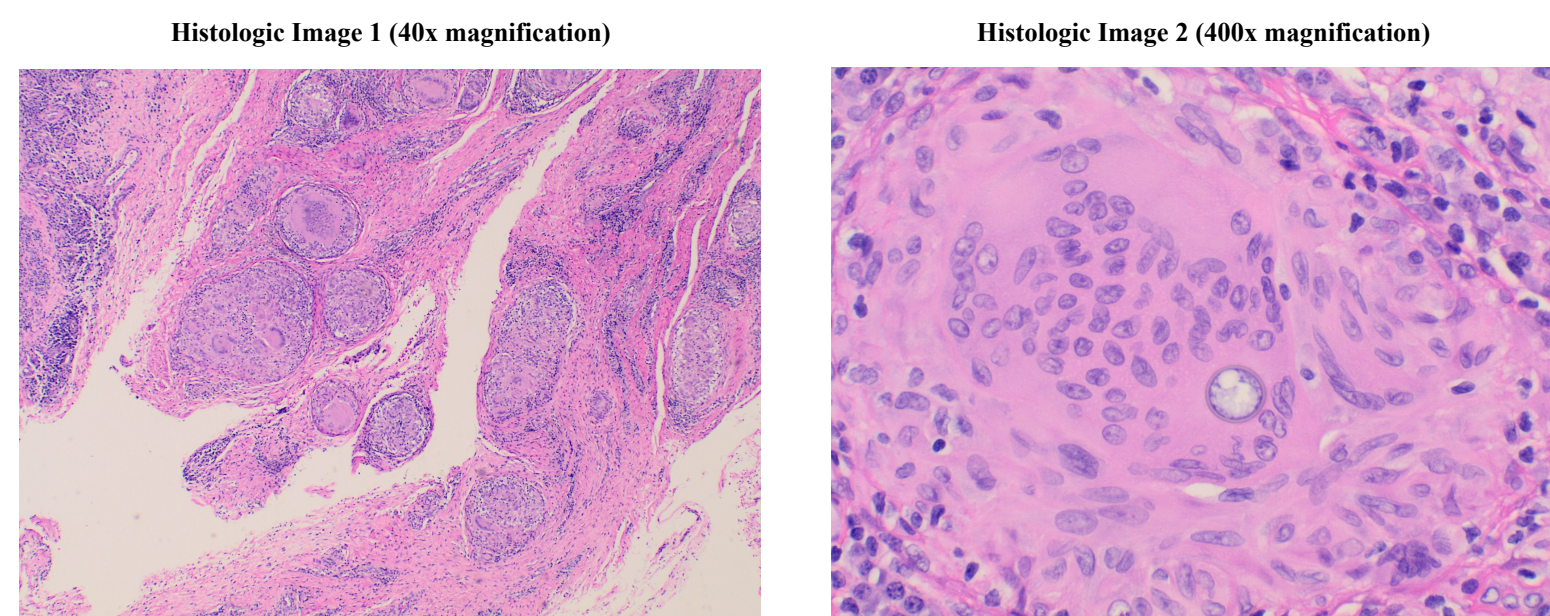
## Histologic Report

**Gross Description:** tan, soft to rubbery tissue sized 4.2 x 2.0 x 1.0 cm

**Microscopic Description:** Section showed granulomatous synovitis with a rare spherule suspicious for *Coccidioides immitis* (image 1). Hematoxylin and eosin stain technique was performed which revealed thick-walled spherules with characteristic internal endospores diagnostic for *Coccidioides immitis* (image 2).

**Additional stains:** Gomori Methenamine-Silver (GMS) stain was not positive for fungal organisms. Acid-fast bacilli (AFB) stain showed no evidence of acid-fast bacilli.

**Diagnosis:** Coccidioidal synovitis



## Discussion

The severity of primary coccidioidal infection is variable, ranging from asymptomatic to mild upper respiratory illness to respiratory failure and dissemination (1). Only 4% of infections result in a pulmonary nodule, and dissemination occurs in 0.5% of infections (1). As we saw in our patient, disseminated coccidioidal infection is not necessarily associated with severe pulmonary infection.

Arthritis is a well-known albeit rare complication of coccidioidomycosis. Skeletal infections as a whole represent 20-50% of the extra pulmonary manifestations (7). Hematogenous inoculation of the synovium leading to primary synovitis is typically (>90%) found only in one joint, and the knee is the most common site (7). It is routinely treated with synovectomy and a course of anti-fungal medications (3).

In this case study, the patient underwent surgical excision which revealed coccidioidal synovitis. The patient was followed closely and he had an uneventful postoperative course. He was referred to a pulmonologist for more definitive treatment of his fungal infection and is now 15 months out from surgery and has not had a recurrence of infection.

In the literature some surgeons have treated the fungal infections themselves with oral/IV antifungal medications (3,4). However in contrast to uncomplicated pneumonia which is often treated without antifungal medications, disseminated infections always require antifungal therapy, for durations ranging from several months to lifelong (8). We felt most comfortable with the patient getting a complete pulmonology examination and the long term antifungal medications managed by a more experienced provider.

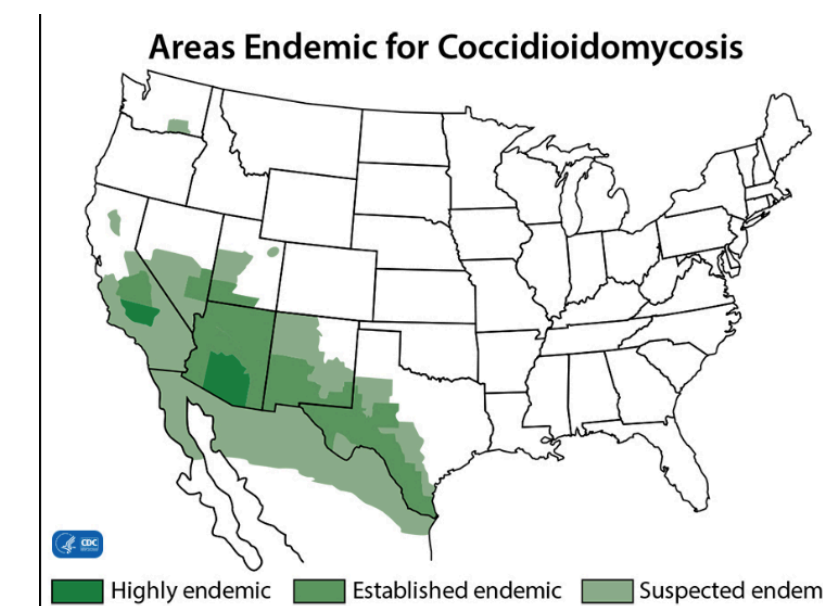


Figure 1: Map of endemic areas of coccidioidomycosis from the CDC, 2019

## Conclusion

There have been an increased number of fungal infections reported in the United States and the geographic boundaries specifically for *Coccidioides immitis/posadasii* is growing. Knowledge of the geographic area where the fungus exist is of great importance for clinical awareness of Valley Fever in those living in or traveling to those area. Clinicians should include *Coccidioides* infection in their list of differential diagnosis for symptomatic monoarticular synovitis, especially in regions of the country with endemic levels of fungal infections. Though this is the first reported case of coccidioidal synovitis in the ankle this may become a more frequent occurrence. We present our treatment plan for one patient with improved pain and no reoccurrence 15 months after procedure.

Figure 5: intra-operative specimen



## References

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