

Septic Tibiototalcaneal Arthrodesis Secondary to Disseminated Coccidioidomycosis

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Statement of Purpose

Coccidioidomycosis, or Valley Fever, is a common pulmonary fungal infection in the southwest US; however, joint dissemination of the infection is rare. Eradication is difficult and may result in repetitive, acute joint infections, thus impeding standard treatment protocols involving arthrodesis procedures. We present a case of septic arthrodesis of the subtalar and ankle joints, secondary to disseminated Coccidioidomycosis.

Literature Review

Successful septic arthrodeses have been reported on the wrist, knee, and ankle (1, 2, 3, 4, 5, 6, 7, 8). External fixation is recommended in these complicated ankle arthrodesis procedures, as the frame can be removed without a secondary surgery and allows no remaining nidus for infection; it is also a viable option for questionable soft tissue envelopes (9). Fragomen, et al, reported successful fusion in 76 of 91 patients undergoing septic ankle arthrodesis utilizing external fixation for an average of 25 weeks (2). Kovoor, et al, achieved fusion in 19 of 20 patients undergoing ankle and tibiocalcaneal fusion with use of the Ilizarov technique; 17 of these patients had active infection (3). El-Afy showed arthrodesis of 11 of 12 patients undergoing ankle arthrodesis with use of the Ilizarov external fixation; 7 of these cases had active infection (4).

Case Study

A 45-year-old male presented 9/14/16 with 2 month history of erythema, edema, and drainage of the right ankle. He had suffered an ankle sprain with osteochondral defect (OCD) in 2011. Since then, he had undergone multiple ankle surgeries, including arthroscopy and OCD repair. Physical examination revealed a grossly edematous and erythematous ankle joint, with incisions of the anterior and medial ankle performed at an urgent care clinic several days prior. A sinus tract was noted of the anterolateral ankle, with probing to the joint. The patient underwent hospital admission, receiving Vancomycin and Zosyn. Radiographs and MRI revealed severe destructive changes of the ankle and subtalar joints with suspicion of septic arthritis (Figs 1, 2).

Figures 1a and 1b Preop X-rays



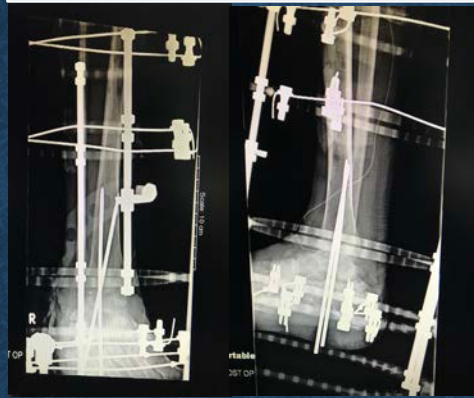
Figures 2a and 2b Frontal and Sagittal T2 MRI



Case Study continued

Incision and drainage was performed of the ankle and subtalar joints, revealing moderate purulence and severe degenerative changes of the articular surfaces. All necrotic tissue was debrided and copiously irrigated. The wounds were packed open and daily wet to dry dressings were performed post-op. Intra-op cultures revealed Coccidioidomycosis immitus. Infectious disease was consulted and Amphotericin B was prescribed with continued Zosyn. Repeat debridement with septic arthrodesis of the ankle and subtalar joints was performed 4 days after the initial I&D. Two Steinman pins were placed across the joints, in addition to the external fixation, which consisted of 2 proximal rings and a foot plate (Figs 3a and 3b).

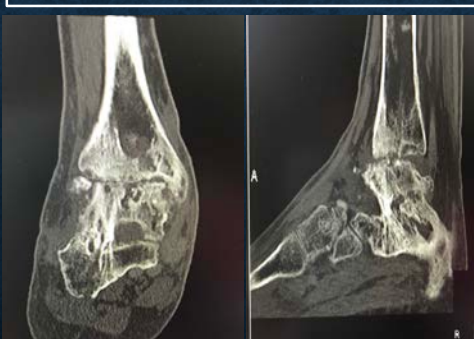
Figures 3a and 3b



Case Study continued

He was discharged with Amphotericin B and oral Fluconazole, as well as a vacuum device for wound healing. He began hyperbaric oxygen therapy 2 weeks after surgery. All fixation was removed approximately 3 months post-op. CT scan performed 4/21/17 revealed osseous union of the subtalar joint and fibrous union of the ankle joint. (Figs 4a and 4b). No motion is noted of the ankle when attempted passively. He ambulates with an AFO and continues to take oral fluconazole, which he will continue for the remainder of his life. Final radiographs were obtained 11/9/17 (Figures 5a and 5b).

Figures 4a and 4b CT



Figures 5a and 5b Final X-rays



Discussion

Coccidioidomycosis is common in the southwest US, particularly California's San Joaquin Valley and Arizona's Maricopa county (9). Most patients infected are asymptomatic or experience mild, flu-like symptoms which resolve after a few weeks. Symptomatic infections typically involve the lungs. Disseminated infection is rare, comprising approximately 1% of all infections (10,11); it may involve the joints, skin, abdomen, or pericardium (9).

Typically, Coccidioidomycosis does not need to be treated unless the pulmonary infection is severe or disseminated infection is present. Patients are commonly treated with anti-fungal medications such as itraconazole 200 mg PO BID or fluconazole 400 mg PO daily, for 3-6 months. They are then evaluated periodically for 1-2 years to ensure the infection is eradicated. Those with severe or disseminated infections may continue treatment for the remainder of their lives. Due to the possibility of continued infection, septic arthrodesis is a viable option to obtain a functional limb while the patient is undergoing continued treatment.

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