

Open Curettage with Grafting of Distal Tibia for Treatment of Steroid-Induced Bilateral Multifocal Avascular Osteonecrosis in Systemic Lupus Erythematosus Patient

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Introduction

Corticosteroids are widely used for treatment of various inflammatory diseases because they provide acute immunosuppression. While orthopedic literature abounds with descriptions of avascular osteonecrosis (AVN) in the proximal femur, few reports to the authors' knowledge have described AVN in the lower extremity.

Case Study

A 52-year-old female warehouse worker with systemic lupus erythematosus (SLE) and greater than 30-year history of corticosteroid use presents to the senior author in January 2015 with complaint of burning pain in both ankles. Prior to presenting to podiatry she had been diagnosed with avascular necrosis in bilateral knees at age 36 by an orthopedic surgeon but was told she was "too young" for joint replacements. Past medical history was also significant for COPD related to Alpha1-Antitrypsin deficiency, asthma, prior lupus nephritis, prior cardiac ablations, type 2 diabetes mellitus related to chronic steroid use, gentamicin-induced hearing loss, deep vein thrombosis with pulmonary embolism and numerous allergies. Podiatry ordered MRI bilateral ankles which revealed a 4.1 x 1.1 x 1.7cm infarct in Left distal tibia and 2.7 x 0.9 x 1.2cm infarct in Right distal tibia along with additional infarcts in talus and calcaneus (**Image 1A-D**). Corticosteroids were tapered as low as tolerable, however, permanent cessation is not an option for her lupus condition. At times, the patient has been taking a maximum of 220mg prednisone per day prescribed by different rheumatologists in addition to varying combinations of methotrexate and hydroxychloroquine. Podiatry offered the patient a bone stimulator, topical compound cream, ankle bracing and physical therapy, which failed prior to patient electing to undergo bilateral open curettage and grafting of distal tibial on Right (DOS 1/30/2017) and on Left (DOS 5/30/2017) (**Image 2A-D**). The post-operative course was complicated on the Right by delayed wound healing with MRSA cellulitis that resolved with IV antibiotics. The patient's persistent complaint of painful hardware led to hardware removal on Left (DOS 11/30/2017) and on Right (DOS 1/26/2018) (**Image 3A-D**). Pathology was negative for osteomyelitis, however, prophylactic oral antibiotics were prescribed. Patient relates improved pain since undergoing the open curettage and packing but complains of chronic cold sensations in her feet since having surgery. She continues to use topical compound cream and is enrolled in physical therapy. She is employed in a sedentary position at the warehouse but plans to retire in several years because she is ready to have bilateral knee arthroplasty. MRI bilateral knees (**Image 4A-B**) demonstrate she will lose at least six inches of height in this procedure. At most recent follow up, the lead author performed a complete ACFAS Universal Evaluation Scoring Scale Module 4: Ankle [1] (**Image 5**).

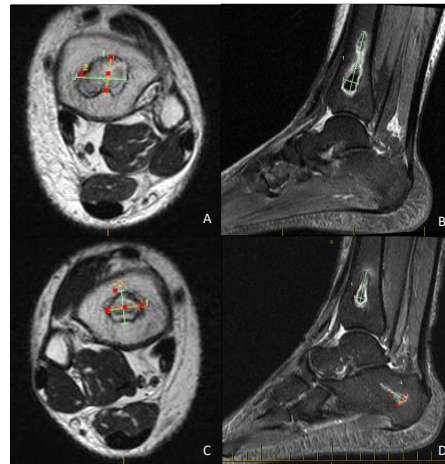


Image 1A-D: Pre-operative T2 MRI images Left ankle (**A,B**) and Right ankle (**C,D**).



Image 2A-D: Post-operative radiographs status post open curettage with grafting of distal tibia approximately 3 months on Left ankle (**A,B**) and seven months on Right ankle (**C,D**).



Image 3A-D: Post-operative radiographs status post hardware removal approximately 12 months on Left ankle (**A,B**) and 10 months on Right ankle (**C,D**).



Image 4A-B: MRI images Right knee (**A**) and Left knee (**B**) taken in November 2018.



Image 5: Clinical photo status post hardware removal approximately 12 months on Left ankle and 10 months on Right ankle.

Discussion

The ACFAS scoring scale yielded +54/100. The surgical outcome of open curettage with grafting of bilateral lower extremities in a SLE patient has not been published to authors' knowledge. Assisting patient in meeting functional demands of weightbearing employment has been complicated.

References

1. Cook JJ, Cook EA, Rosenblum BI, Landman AS, Roukis TS. Validation of the American College of Foot and Ankle Surgeons Scoring Scale. *J Foot Ankle Surg* 50(4):420-9. 2011.