

## Purpose

Cavus foot deformity is a difficult foot type to correct surgically. Multiple procedures are required to adequately correct the cavus foot type. Adequate assessment of the rearfoot and forefoot pathology should be determined prior to surgical selection. A combination of both rearfoot and forefoot procedures are needed to adequately correct a pathologic cavus foot type.

## Literature Review

Cavus foot deformities can be uni-planar or multi-planar. An isolated sagittal plane deformity might require less reconstructive work than a multi-planar deformity that would require multiple procedures including fusions. The correction of a cavus deformity generally involves tendon lengthening, midfoot and rearfoot osteotomies as well as rearfoot fusions. A determination of the source of the varus deformity needs to be established, whether it is originating in the forefoot or the rearfoot or both. A Coleman block test is routinely performed to determine the source of the deformity. The flexibility and rigid nature of the deformity also needs to be assessed prior to procedure selection (1). In a purely sagittal plane pes cavus deformity, the apex of the forefoot and hindfoot intersect at the naviculocuneiform joints and the cuboid bone. The Cole osteotomy/arthrodesis is an effective procedure to reduce the sagittal plane contracture of the pes cavus foot (2,3). If the pes cavus deformity also occurs in the frontal and transverse planes, commonly forefoot valgus or plantarflexed 1<sup>st</sup> ray and a varus or inverted heel are the accompanying deformities (4). After determining the correct pathology a dorsiflexory wedge osteotomy can be performed at the first metatarsal, or a Dwyer osteotomy can be performed to correct a rearfoot varus deformity (5). In patients with a severe deformity, rigidity, or neurological weakness, a triple arthrodesis is required to provide complete deformity correction with a stable hindfoot (6).



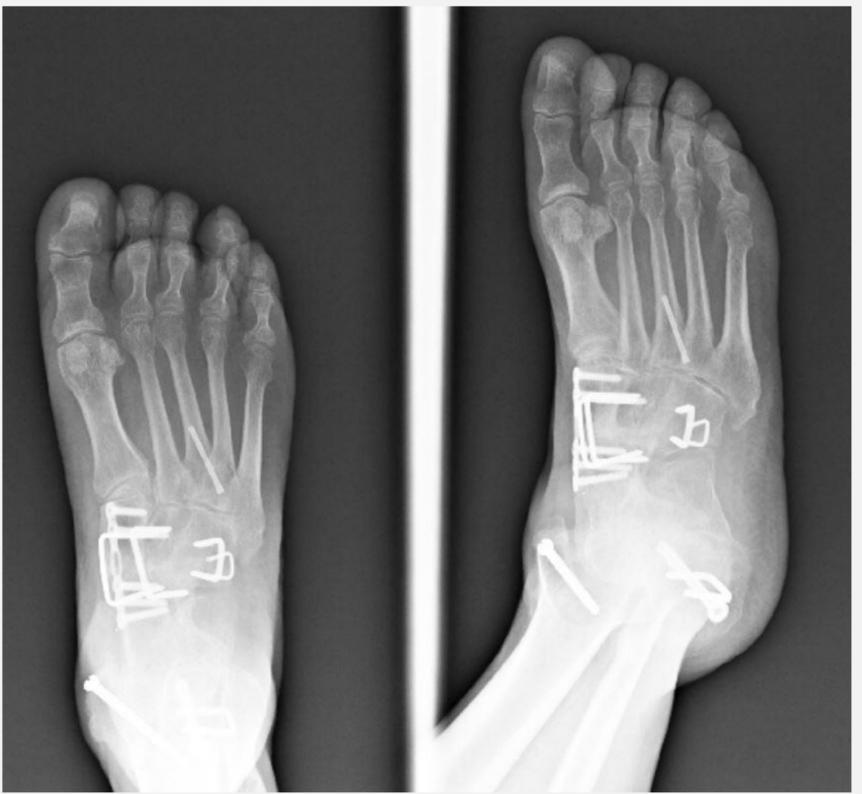
## Procedure

A case study is presented on a 76-year-old male with pain along the lateral column with weightbearing. The patient has a semiflexible cavus foot deformity. On examination, the patient has a gastrocnemius equinus, cavus foot type with an inverted rearfoot. The Coleman block test was performed and the heel was not reduced to vertical. A contribution to this could have been the TNJ fusion that was previously performed attempting to decrease painful osteoarthritis. The patient specifically had pain along the lateral column and no pain in the subtalar or ankle joints. It was decided that the patient would have a gastroc recession to address the equinus deformity. A hardware removal along the medial aspect of the midfoot would be done with a Cole osteotomy to correct the sagittal plane deformity. A Dwyer osteotomy at the calcaneus would be performed to address the rearfoot inversion. By doing the Dwyer osteotomy, this could reduce the amount of compensation that the STJ needs to have to correct the frontal plane deformity and will decrease the progression of OA in possibly two lower extremity joints.



## Results

The patient is 18 months postop and ambulates with no pain along the lateral column or the foot. The patient does not have any increase in pain in the subtalar joint or ankle joint after the surgery. The patient is 76-years-old and expects to have some low grade osteoarthritic pain develop as he ages, but is satisfied with his reconstructive surgery to alleviate his pain and prevent possible complications in the future.



## Analysis/ Discussion

Pes Cavus reconstructive surgery can be successful if an adequate determination of the correct pathology is done. Reconstructive surgery on patients that are older need to be given realistic outcomes with an understanding that a certain level of osteoarthritis is possibly present from their current deformity. Taking this into consideration can improve our procedure selections and ultimately improve our surgical outcomes. This study demonstrates that an aggressive multi-procedure approach to the pes cavus foot type is warranted to have successful long-term results.



## References

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