Supramalleolar Osteotomy

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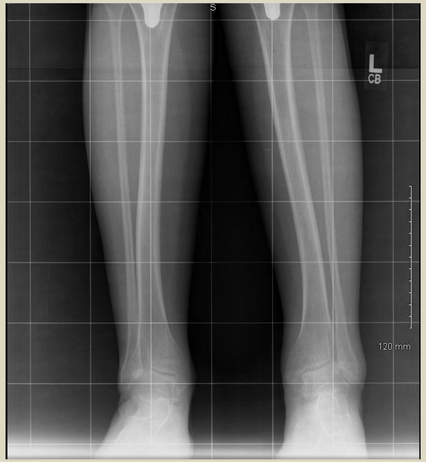
Purpose

Ankle pain can be caused by multiple deformities. Ankle pain secondary to tibial uni-planar deformities can be corrected by a closing wedge osteotomy.

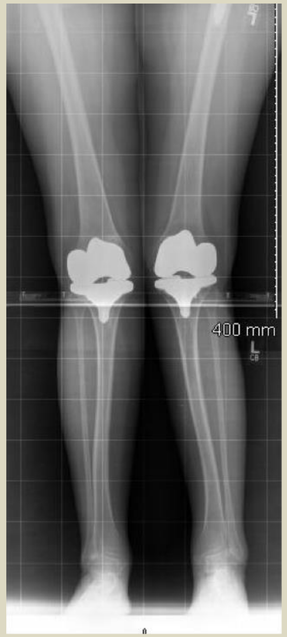


Literature Review

Realignment osteotomy of the distal tibia is a valuable surgical procedure for the treatment of distal tibial mal-alignment resulting from post-traumatic mal-union, physeal disturbances, congenital and metabolic diseases, and degenerative arthritis (1,2). Malposition of the distal tibiofibular complex can have significant functional and biomechanical consequences (3,4). Every deformity has a geometric center that defines the apex of the deformity. This apex is referred to as, the center of rotation of angulation (CORA), and serves as an important reference point in osteotomy planning (5).

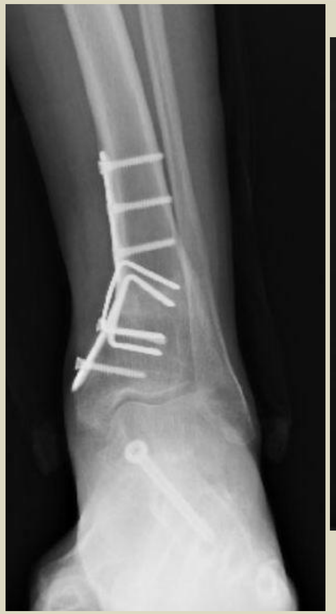
Case Study

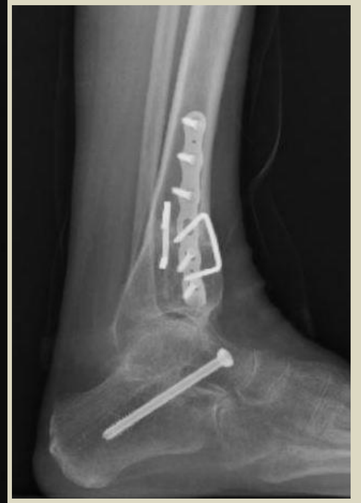
A case study is presented on a 57-year-old female with long term ankle pain bilaterally. The patient has exhausted conservative treatment. Long leg x-rays were taken, and showed a uni-planar tibial valgus deformity. The patient underwent a supramalleolar closing wedge osteotomy at the tibial metaphysis to correct the deformity and decrease abnormal stress on the ankle joint. The patient previously had bilateral knee replacements and subtalar joint arthrodesis at an outside facility to decrease the pain from the influence of the ankle deformity. The patient was corrected for what we presume is the primary etiology of the destructive arthritic disease in the proximal and distal joints. Close observation of the subtalar joint position needed to be considered, so that, after the tibial correction the subtalar joint was not in an inverted position. Due to the earlier subtalar joint arthrodesis, the amount of tibial correction was calculated with the underlying subtalar joint position.



Results

The patient is 18 months postop with no complications and a significant decrease in ankle pain. The patients physical activity has increased and her pain in surrounding lower extremity joints has reduced.





Analysis/ Discussion

This case study demonstrates that after a detailed lower extremity exam to determine ankle pathology, a simple supramalleolar tibial osteotomy can alleviate ankle pain. This case study suggests the idea that if the patient would have had the tibial correction earlier in life, she possibly could have avoided or postponed knee replacements and a subtalar joint arthrodesis. By correcting the tibial deformity, the patient can now have more favorable results with a total ankle replacement if needed.

References

1. Takakura Y, Tanaka Y, Kumai T. Low tibial osteotomy for osteoarthritis of the ankle: results of a new operation in 18 patients. *J Bone Joint Surg Br* 1995;77:50-54.
2. Abraham E, Lubicky JP, Songer MN. Supramalleolar osteotomy for ankle valgus in myelomeningocele. *J Pediatr Orthop* 1996;16:774-781.
3. Tarr RR, Resnick CT, Wagner, KS. Changes in tibiotalar joint contact areas following experimentally induced tibial angular deformities. *Clin Orthop* 1985;199:72-80.
4. Ting AJ, Tarr RR, Sarmiento A. The role of subtalar motion and ankle contact pressure changes from angular deformities of the tibia. *Foot Ankle* 1987;7:290-299.
5. Best A, Daniels TR. Supramalleolar tibial osteotomy secured with the Puddu plate. *Orthopedics* 2006;29(6):537-540.