IO FiX
IntraOsseous Fixation

Clinical Case Review

Triple Arthrodesis

for Correction of Rigid Pes Planovalgus in a Patient with Osteoporosis

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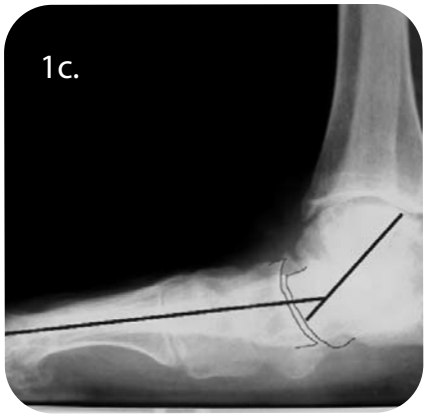
Clinical Presentation

This 72 year old woman with severe, fixed pes planovalgus deformity presented with severe ankle and hindfoot pain. The patient stated that the deformity had been present for many years, but the pain had worsened after a valgus knee alignment was corrected by a total knee replacement. The patient had known osteoporosis and had failed treatment with an AFO type brace which was tried to alleviate her symptoms.

Pre- operative X-Rays demonstrated severe deformity:

(1a): AP image of the ankle showed lateral subluxation of the calcaneus through the subtalar joint and calcaneofibular abutment.
(1b): AP of the foot showed severe abduction of the forefoot through the transverse tarsal joint.
(1c): Lateral radiograph demonstrated collapse of the longitudinal arch through the talonavicular joint.



Surgical Management

The patient underwent a triple arthrodesis with correction of the severe deformity. Osteoporosis made fixation of the fusion site challenging. Calcaneal alignment was corrected from 35 degrees of valgus. An iliac crest allograft was wedged between the neck of the talus and the anterior process of the calcaneus to achieve adequate alignment of the calcaneus during the subtalar joint fusion.

Significant osteoporosis of the navicular body and talar head was appreciated after the preparation of the talonavicular joint (TNJ). An initial attempt to compress the joint with a cannulated lag screw caused the medial cortex of the navicular to break out. Image 2a (AP) illustrates the wide gapping at talonavicular joint after correction of the relationship of the navicular with the talus.

Compression of the TNJ was accomplished with one IO FiX device (2b) despite significant osteoporosis of the navicular. The polyaxial screw option was utilized to allow continued compression of the joint once the head seated in the post.

The IO FiX post placed in the navicular allowed the entire medial half of the navicular to be engaged in the compression, acting both for leverage and the distribution of forces to prevent the cut out of the screw during tightening (2c). A second screw was applied for

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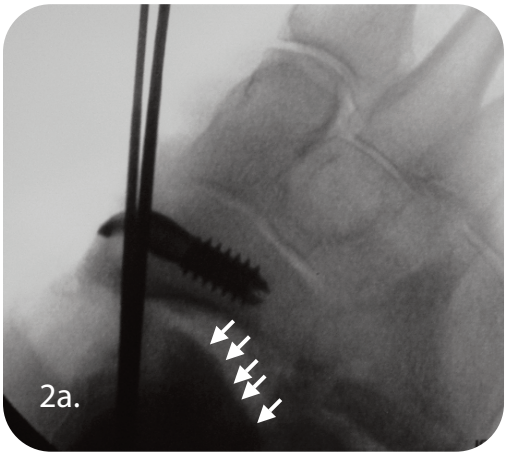
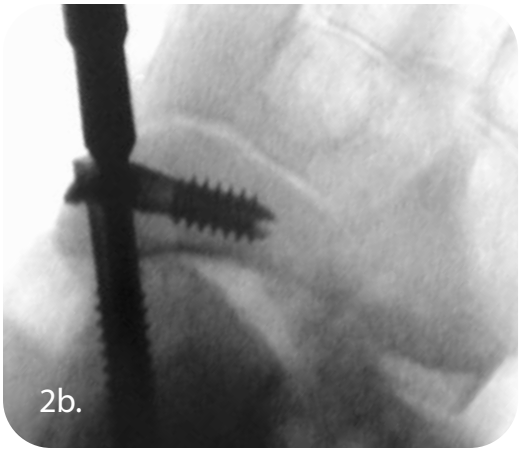
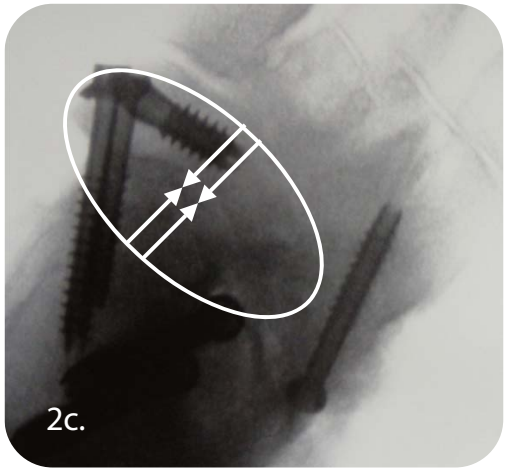
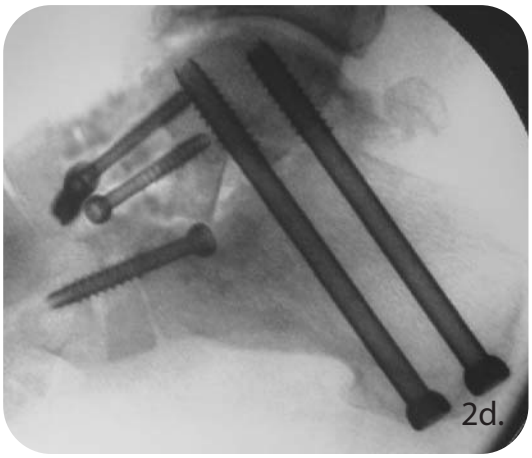
rotational control and stability (2d). The polyaxial screw was then changed for a conical (locking) screw to create a fixed angle device. Rigid fixation would not have been possible in this patient without extending the fusion more distally with a plate construct. An excellent correction was obtained (2d).









Outcome

Despite significant osteoporosis, excellent compression and rigid fixation was achieved at the level of the talonavicular joint with the IO FiX device. The device allowed fixation of the joint without extending the arthrodesis distally when more standard techniques cut out of the navicular bone.

Post-operatively, the patient was made non-weight bearing in a cast for 8 weeks. Once the fusion was healed radiographically, she was allowed to weight bear in a boot walker, and was progressed to normal shoe wear after 12 weeks.

This patient was able to successfully heal the arthrodesis radiographically and clinically at 8 weeks (3a).

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