Use of PEEK Subtalar Implant to Control Abnormal Hindfoot Motion

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INTRODUCTION

A 56-year-old female presented with bilateral worsening sinus tarsi syndrome and progressive painful bunion deformities (**Figures 1 & 2**). She had attempted many years of shoe gear accommodations, activity modification, various physical therapy modalities, bracing, and topical and oral pain medications without total relief. She had related no prior injuries to the foot and ankle and had suffered a stroke prior without any noted effects to her extremities.

Physical exam revealed a bilateral flexible pes planovalgus deformity with ankle equinus and hallux abductovalgus. The patient exhibited limited ankle dorsiflexion with the knee both flexed and extended, and was tender along the distal Achilles tendon. She had a valgus hindfoot weight bearing, reducible with heel raise, and tenderness over the sinus tarsi with a sharp shooting sensation elicited upon palpation. There was no evidence of tarsal coalition or muscle spasm. There was tenderness at the first metatarsal head eminence, along with painful motion and functional limitation at the first metatarsophalangeal joint. The patient's gait exam displayed overpronation with limited heel contact, medial longitudinal arch collapse, and a slight abductory twist.

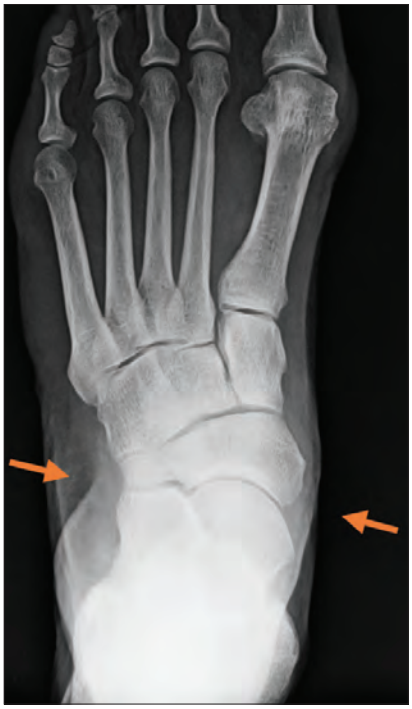

Figure 1. Dorsal pre-op X-ray

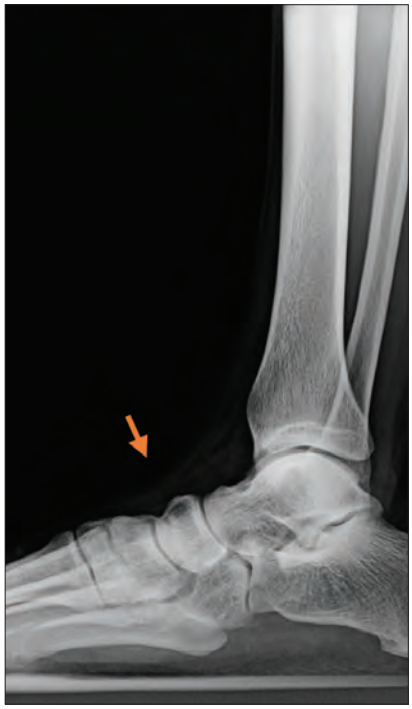

Figure 2. Lateral pre-op X-ray

PROCEDURES

Equinus Correction: While under general anesthesia, the patient was positioned prone, and hemostasis was achieved via a right thigh tourniquet. First, the Achilles contracture was released by means of an open frontal plane Z-plasty tendon lengthening. The incision site was closed, and the patient was turned supine for the remaining procedures.

Subtalar Joint Reduction Using the PEEK In2Bones PitStop® Implant: The area of implantation over the sinus tarsi was located, and a short linear incision was made. The provided radiopaque trial sizers were used to determine the proper implant size, clinically and radiographically (**Figure 3**). Clinically, the excessive eversion was reduced, resulting in a rectus foot upon loading. Radiographically, the talonavicular and calcaneocuboid joints were well aligned with improved navicular covering of the talar head and the implant was noted to be in an excellent position. The trial was then removed, taking care to leave the guidewire in position, and the radiolucent implant was inserted. Using the tantalum X-ray markers, the proper position of the PEEK implant was confirmed radiographically (**Figures 4 & 5**). The incision was then closed using a single horizontal mattress suture.

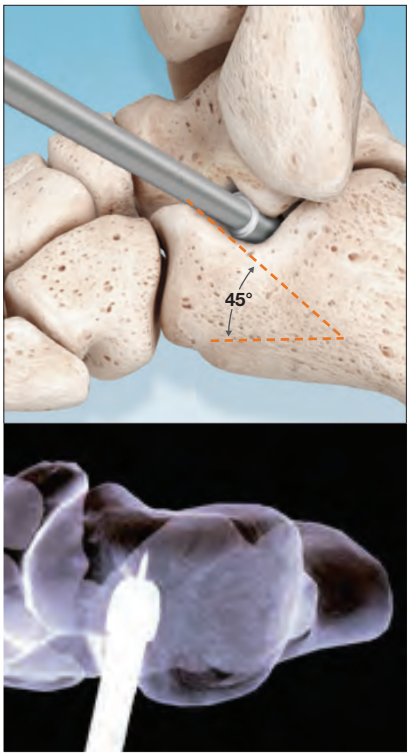

Figure 3. Trialing of In2Bones PitStop Subtalar Implant

Bunionectomy: Through a dorsomedial incision, a bicorrectional Austin bunionectomy was performed to address the hallux valgus deformity.

A sterile dressing was applied, and the patient was placed in a posterior splint.