Failed Agility™ LP Total Ankle Replacement with Severe >40° Varus Deformity Revision with Prosthesis Conversion and Soft-Tissue Procedures Alone

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recovery noted. Finally, Hanselman et al. [11] presented a case of a 54-year old man involving correction of a 29° varus deformity to 2° varus at 8-months follow-up without peri-articular osteotomy. They employed an INBONE™ II total ankle system with PROPHECY™ computed-tomography-derived patient-specific cutting guides (Wright Medical Technology, Inc., Arlington, TN) and lateral ankle stabilization alone.

The author presents a case involving a failed Agility™ LP total ankle replacement system (DePuy Synthes Joint Reconstruction, Warsaw, IN) with severe > 40° varus ankle deformity that was corrected with explantation and conversion to INBONE™ II total ankle replacement system and soft-tissue release/reconstruction employing percutaneous Achilles tendon lengthening, posterior tibial tendon intramuscular recession lengthening and modified Evans peroneus longus lateral ankle stabilization. Additionally, prophylactic tarsal tunnel release was performed to reduce potential for post-operative nerve compression.

Case Study

A 54-year old man was evaluated in January 2007 by a foot and ankle orthopaedic surgeon at the author's institution for chronic right ankle pain. The ankle pain stemmed from a severe inversion ankle injury in 1975 followed by a series of inversion ankle sprains over the ensuing years that culminated with a severe injury occurring when he slipped on an icy dock at work around 1995 that never healed properly. Subsequent to the last severe inversion injury, he had chronic right ankle pain and instability even on flat ground that precluded him from his desired goals of golfing or walking for exercise. He trialed symptomatic relief measures and structural control with valgus wedged

without incident. The second more superior screw was left to provide fibular support during removal of the tibial tray due to the ballooning osteolysis erosion of the fibula in an attempt to limit fracture at this level.

Next, attention was directed to the previous anterior skin incision that was extended proximally and distally and carried down to the level of extensor retinaculum. During this exposure, the medial branch of the superficial peroneal nerve was freed from surrounding scar tissue. Using the extensor hallucis longus as a landmark, the extensor sheath was incised and the tendon moved laterally allowing visualization of the neurovascular bundle that was mobilized off of the underlying bone and protected laterally. The anterior tibial tendon sheath was never incised and the tendon never exposed. The periosteum was elevated off of the anterior tibia and talus and exposed the ankle joint that was filled with scar tissue. This was resected with a combination of hand instruments. The ankle was contracted into a varus position and the implant components wedged together in this posture as expected from the pre-operative radiographs and clinical examination.

proper coverage/alignment to the talar component. We purposely placed the talar component anteriorly for some posterior stabilization of the foot relative to the ankle and therefore limit anterior subluxation of the talar component relative to the polyethylene insert [20]. Next, with the tibial tray protected for damage, the talus was reamed to accept the anterior pegs and talar stem with care taken to verify proper alignment as verifed on intra-operative C-arm image intensifcation views. T e talar stem and talar dome were then inserted with a layer of antibiotic impregnated polymethylmethcrylate cement added to the anterior ¼ undersurface of the talar component between the small anterior pegs. T e appropriate sized trial polyethylene insert was then placed securely into the joint space and articulation with the tibial tray verifed. T e surgical site was the copiously irrigated with pulse lavage including 3 liters sterile saline impregnated with 50,000 IU Bacitracin solution. T e INBONE™ II prosthesis fnal component specifcs were: tibial top-stem: 16-mm, mid-stem: 16-mm and 18-mm; tibial prosthesis size 4 long; talar sulcus dome size 3; stem length 10-mm; polyethylene sulcus insert size 3+ with 10-mm thickness. T e ankle was then placed through full range of motion and revealed appropriate range of motion in the sagittal plane but inversion instability and development of a jumped facet with inversion movement (Figure 4A). T erefore it was deemed necessary to perform a

Webril Undercast Padding limits contact pressure on the tenuous anterior incision and the Sir Robert Jones dressing affords edema reduction during the postoperative period. A standard post-operative protocol for TAR was employed [24] that includes: hospital admission, 48-hours of intravenous antibiotic therapy with a first generation cephalosporin, strict bed rest protocol with lower extremities elevated above heart level and heels off oaded using pillow cocoon and a semi-Fowler bed positioning protocol. Although anecdotal, supplemental oxygen via nasal cannula during the hospitalization was employed as it may reduce incision and ischemia-related wound healing problems. The patient was maintained on a strict mechanical and pharmacologic thromboembolic prophylaxis protocol until return to full weightbearing and activity was realized at 12-weeks. He then transitioned to full weightbearing and back into a supportive lace-up high-topped boot with fixed angle ankle-foot orthosis employed for 1-year post-operative. An annual surveillance program employed by the author ensued. Although controversial, dental antibiotic prophylaxis