

## WHITE PAPER SERIES

# Subtalar Fusion w/ Avitus<sup>®</sup> Proximal Tibia Autologous Bone Graft Harvest

Surgery performed by Harvey E. Montijo MD

Fellowship trained orthopaedic surgeon at the Center for Bone & Joint Surgery of the Palm Beaches, FL

## Case Presentation

The following is a case of a 39 year old male patient. The patient had a prior calcaneus fracture that was treated non-operatively. The patient is a prior smoker. Sixteen months from the initial fracture, the patient developed Post-traumatic Osteoarthritis (OA) and was subsequently treated with corticosteroid injections with minimal relief of symptoms. Therefore, the decision was made to proceed with a subtalar fusion.

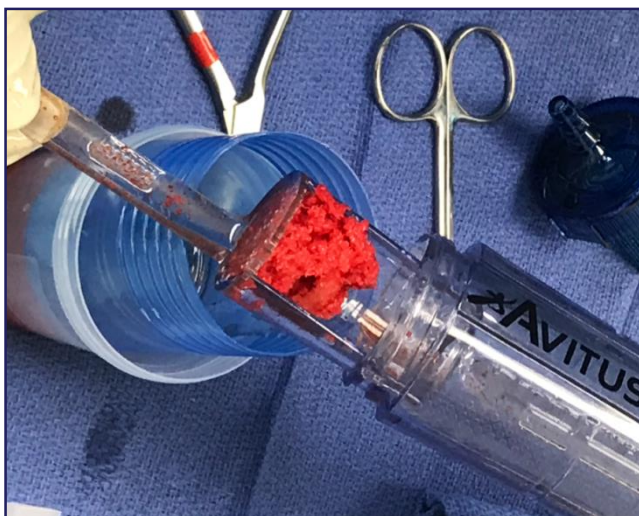
## Operative Technique

A 1.5 cm incision was made at the proximal medial aspect to the tibial tuberosity. Blunt dissection was carried out to the level of periosteum. Periosteum was further elevated prior to cortical entry. The Avitus<sup>®</sup> Pilot Hole Creator was used to perforate the cortex and create a 1 cm cortical window. Next, the Avitus<sup>®</sup> Bone Harvester was inserted. A series of scraping and cutting maneuvers were executed during which the suction powered device rapidly obtained autologous cancellous bone from the metaphyseal space while simultaneously aspirating liquid bone marrow into the handle of the device.

20 CC's of autologous cancellous bone and 15 CC's of bone marrow were harvested in 4 minutes of operative time (EXHIBIT 1). The graft was dense, firm, and enabled structural support.



*EXHIBIT 1 :: 20 CC's of cancellous bone visible in the Avitus<sup>®</sup> Bone Harvester after draining out the 15 CC's of liquid bone marrow. 4 minutes of harvest time.*



*EXHIBIT 2 :: The graft was dense, firm and enabled structural support of the prepared subtalar joint. The cancellous bone slightly elevated the joint after implantation. The 15 CC's of liquid bone marrow aspirated with the Avitus<sup>®</sup> Bone Harvester was added to the site to assist with healing.*

The subtalar joint was packed completely with the collected autologous cancellous bone after preparing the joint. This allowed for elevation of the joint and appropriate alignment of the subtalar fusion. The collected autologous bone marrow was placed with the graft to assist with healing (EXHIBIT 2).

The harvest site was back-filled with gel-foam, irrigated, and closed in layers without complication. Sterile dressing, 4x4's, webroll, and patient were placed into a well-padded splint.

## Operative Cost Savings

No additional bone graft substitutes or synthetics were required or used for this procedure. The use of the Avitus<sup>®</sup> Bone Harvester saved the need for any bone graft substitutes. Hospital was able to offset \$7500 of stem-cell allograft.

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## Post-Operative 12 week follow up

No morbidities were reported or observed at the harvest site. The patient reported minimal pain at 2 weeks at the proximal tibial bone harvest site. At 8 weeks follow up, no pain was reported by the patient. Cancellous bone regeneration can be seen on the 10 week follow up radiograph (EXHIBIT 3). The cortical bone layer heals more slowly than the cancellous bone.

Patients requiring tibial bone graft harvest are recommended to be non-weightbearing for approximately 6-8 weeks.

EXHIBIT 4 displays the pre-operative case presentation contrasted against the 10 week follow up mark showing near complete incorporation of the autologous bone graft harvested with the Avitus<sup>®</sup> system. The joint then fully fused at 12 weeks. Patient was walking in a shoe at 12 weeks with minimal discomfort.

## Conclusion

The Avitus<sup>®</sup> Bone Harvester allows me to avoid using bone graft substitutes, which translates to cost-savings and providing the patient with gold-standard autograft. There is no bone graft better than autologous bone graft. With the minimal morbidity, high yield and efficiency of the system, the Avitus<sup>®</sup> Bone Harvester is a no-brainer.

-Harvey E. Montijo MD  
the Center for Bone & Joint Surgery of the Palm Beaches  
Wellington, FL



EXHIBIT 3 :: Radiograph of the tibial harvest site, 10 weeks post-harvest showing progress of cancellous bone regeneration.

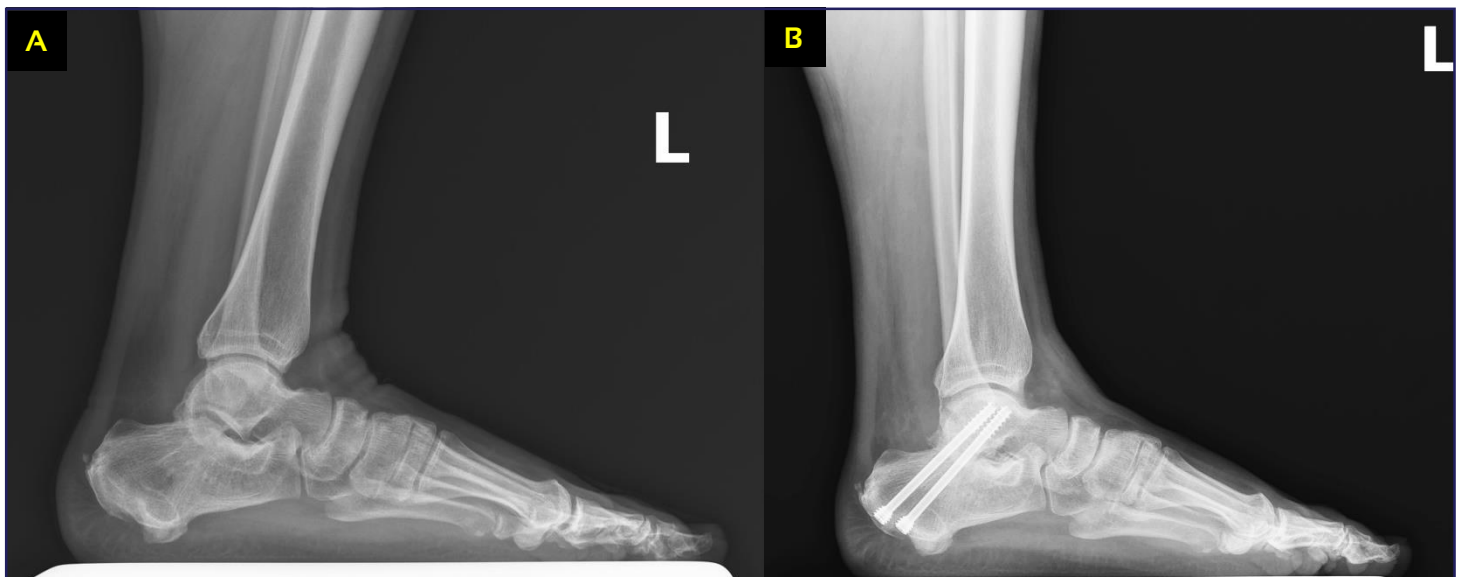


EXHIBIT 4 :: A) Pre-operative radiograph of the Post-traumatic OA presentation B) 10 week post-operative weightbearing radiograph showing near fusion. At 12-weeks fusion was obtained.