Case Report: Surgical Approach for equinovarus deformity from diabetic foot amputation.

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Disclosure

Author : Sunghwan Byun, DPM; Sangbong Ko, MD; Sangwook Lee, MD; Eric J. Lew, DPM; Homayoon Harati, MD

My disclosure is in the Final AOFAS Program Book.
I have no potential conflicts with this presentation.
Case Report I : Pre-op

M/31
C/C : Left foot anterolateral diabetic foot wound
P/I : Failed Diabetic Custom Made Shoe Gear and
       Total Contact Cast
PMH : Type 1 Diabetes, Right foot Transmetatarsal
       Amputation, Left foot 4th / 5th ray resection
Physical Exam : Ulcer 3.5cm x 3.0cm fibrotic and granular mixed
               Wound bed on plantar – distal – lateral aspect
               of the left foot without active infection.
Case Report I: Pre-op

Physical Exam

- Ankle in relaxed position in 23 degree Inversion from frontal plane with -5 degree plantarflexion on left ankle.
- Dorsiflexion of ankle + 2 degree in knee Extension and +5 degree with Knee Flexion
- When Ankle was in dorsiflexion, left foot was positioned in adduction with varus.
- Flexible Forefoot varus.
Case Report II: Pre-op

M/58
C/C: Left foot extensive diabetic foot infection. After Transmetatarsal amputation, patient developed ulcers on Anterolateral surface of left foot stump.
P/I: Failed Diabetic Custom Made Shoe Gear and Total Contact Cast
PMH: Type 2 Diabetes, Peripheral Vascular Disease, Bypass surgery
Physical Exam: Equinovarus position of left ankle Reducible forefoot. Inverted 20 degree from frontal plane in relaxed position.
Case Report II : Pre-op

Physical Exam
• Ankle in relaxed position in 30 degree Inversion from frontal plane with -10 degree plantarflexion on left ankle.
• Dorsiflexion of ankle 0 degree in knee Extension and +5 degree with Knee Flexion
• When Ankle was in dorsiflexion, left foot was positioned in adduction with varus.
• Flexible Forefoot varus.
Case Report : Inta-op I & II

(a) Equinovarus foot deformity and resultant ulceration to the lateral residuum.
(b) The tibialis anterior (TA) tendon was released at its insertion and identified proximally through a small incision 5 cm above the ankle joint.
(c) TA tendon is pulled through its tendon sheath exiting the proximal incision.
(d) The TA tendon is routed deep to the extensor retinaculum using a tendon passer.
Case Report : Intraop I&II

(a) The transferred tendon is fixated to the cuboid under physiologic tension with the foot and ankle in rectus alignment.

(b) An immediate post-op radiograph demonstrating placement of the suture anchor into the cuboid.
Case Report I : Post-op

Follow up in every week.
No weight Bearing up to 3rd week.
At 3rd week, passive ankle exercise with Dorsiflexion and Eversion
At 4th week, active ankle exercise with red band for Resistance exercise with full weight bearing with CAM Walker
At 8th week, Increase ankle strength with Physical Therapy with Custom Made Diabetic Shoe
Case Report II : Post-op

Follow up in every week.
No weight Bearing up to 3rd week.
At 3rd week, passive ankle exercise with Dorsiflexion and Eversion
At 4th week, active ankle exercise with red band for Resistance exercise with full weight bearing with CAM Walker
At 8th week, Increase ankle strength with Physical Therapy with Custom Made Diabetic Shoe
Discussion

The cases presented highlight the utility of a total tibialis anterior tendon transfer in adjunct with tendo-Achilles lengthening to address equino-adductovarus foot deformity in high risk diabetic patients who undergo complicated transmetatarsal amputations or lateral ray amputation. These procedures can be used for aggressive correction of this deformity. The authors have been performing these procedures in patients that underwent previous proximal TMAs and later developed plantar-lateral lesions due to the resultant equino-adductovarus deformity. They have experienced favorable results without any ulcer recurrences. Surgical principles and technique, and post-operative course are presented. Long term goals of this treatment include improvement of foot and ankle alignment for functional bracing, and preventing ulcer recurrence.
References


