Outcomes of Triple Arthrodesis for the Treatment of Obese Patients With Stage Two Posterior Tibial Tendon Dysfunction

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 Disclosure Statement

- Gregory Neely and Jeffrey Jockel have no potential conflicts with this presentation.
- James Brodsky serves as a consultant for Integra and receive institutional funding from Synthes.
- Christian Royer serves as a consultant for Arthrex, Integra, and Osteofix.

All author disclosures are in the final AOFAS Program Book.
Background:

- Surgical treatment for patients with flexible posterior tibial tendon dysfunction is peri- or extra-articular.
- The goal of treatment is realignment of the hindfoot and correction of deformity while improving patient pain and function.
  - Concerns exist in treating obese patients as they may have different functional needs and lower activity levels in comparison to non-obese patients.
- Obese individuals may be predisposed to collapse or failure of soft tissue reconstructions.
Our practice has been to treat obese individuals (BMI >30) with stage 2 posterior tibial tendon dysfunction with triple arthrodesis.

This study was performed to investigate if triple arthrodesis provides a reliable, functional, and durable outcome for obese patients with stage 2 posterior tibial tendon dysfunction (PTTD).
Methods:

- A retrospective chart review of two fellowship-trained orthopedic surgeons was performed to identify cases of triple arthrodesis treatment of stage 2 PTTD in obese patients over a 10-year surveillance period from 2001 to 2011.

- Pre-op obesity was determined using body mass index (BMI)
  - obesity designated as a BMI greater than 30.

- Patients were disqualified from study if a history of previous flatfoot surgery or inflammatory arthritis was noted.

- Individuals were evaluated using:
  - AOFAS hindfoot and visual analog pain scores
  - Radiographic comparison of pre- and post-operative AP talonavicular and lateral talo-1st metatarsal angular alignment
  - Chart review of associated procedures at the time of triple arthrodesis
  - Postoperative incidence of adjacent joint degenerative disease
  - Complications and need for subsequent surgical intervention
Results:

- 24 feet in 21 patients treated with triple arthrodesis for stage 2 PTTD were identified.
- Mean follow-up time was 36 months (range 12–137).
- Mean age: 57 years (range 30–77)
  - 9 male and 12 female patients.
- Mean BMI: 36 (range 31–50).
- Mean adjusted postoperative AOFAS hindfoot score was 84 (range 64–100),
- Mean post op VAS pain score was 2.4 (range 0–6).
- Mean pre-operative talonavicular and talo-1st metatarsal angles improved from 55° and 23°, respectively, to 12° and 10° postoperatively.
Results:

- No nonunions were identified.
- 2 patients were concomitantly treated with peroneal tendon debridement and reconstruction. 1 patient had a navicular–cuneiform fusion.
- All patients underwent either Achilles tendon lengthening or a Gastrocnemius Recession.
- 2 surgical complications (8%) occurred.
  - 1 deep infection, requiring operative debridement and antibiotics.
  - 1 foot required a revision calcaneal osteotomy for varus deformity.
- Three cases (13%) required hardware removal.
- Adjacent joint degenerative changes were noted in 6 cases (26%). No subsequent arthrodeses were required for any patient.
Flexible PTTD has been treated effectively with calcaneal osteotomies and soft tissue reconstructions.\textsuperscript{1-7}

Current treatment strategies are effective in younger patients.\textsuperscript{8}

Obesity is a predictor of operative treatment in individuals with this pathology.\textsuperscript{9}

No studies have described the results of triple arthrodesis for treatment of Stage 2 PTTD in obese patients however, it has been advocated in sources including a prominent orthopedic foot and ankle text book.\textsuperscript{10}

We believe this is the first study to specifically report the results of triple arthrodesis for the treatment of obese patients with flexible PTTD.
Conclusions:

- Triple arthrodesis appears to provide a reliable, functional, and durable treatment option for obese patients with stage 2 posterior tibial tendon dysfunction.


