

Case study: Use of EasyFuse® Staple in LapiCotton Arthrodesis to address medial column instability as a concomitant procedure to Inbone® II TAR

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Patient overview

- The patient is an active 75-year-old male that is 6'3 and 240lbs (BMI 30) with a history of well-controlled hypertension who has had 6 years of progressive symptoms related to right > left bilateral valgus ankle arthritis and midfoot collapse.
- He previously tried activity modifications, NSAIDs, orthotics, bracing, and injections, all with diminishing relief. He was referred to the surgeon for consideration for total ankle replacement (TAR) and necessary foot correction, starting on the more symptomatic, right side.

Operative treatment plan

- On standing, he has neutral proximal alignment through knees and bilateral ankle valgus deformities with some collapse through the midfeet.
- His gastrocnemius contractures are present, and he is tender to palpation along the ankle and 1st tarsometatarsal (TMT) joints primarily. His neurovascularly are intact and no prior incisions.
 - Preoperative foot and ankle weight-bearing radiographs and selected standing CT cuts are shown in **Figure 1**.
- The surgical plan was for an Inbone II TAR, gastrocnemius recession, and a plantar flexion first TMT joint arthrodesis ('LapiCotton') done with an allograft bone block (**Figure 2**).
- The 1st TMT joint arthrodesis construct was fixated with a headless compression screw along with a 4-prong, EasyFuse nitinol compression staple (size 30mm × 20mm). The medial malleolus was reinforced with a prophylactic headless screw, as this area of bone is typically stress-shielded from the chronic ankle valgus malalignment.

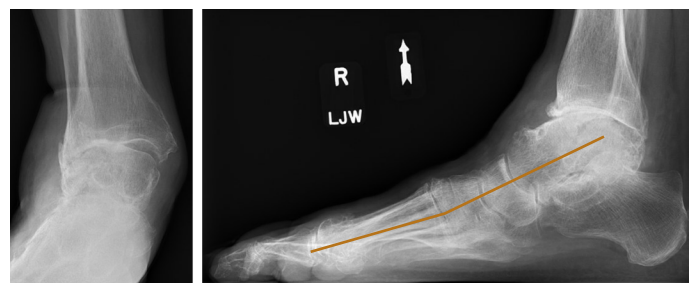


Figure 1a

Figure 1b

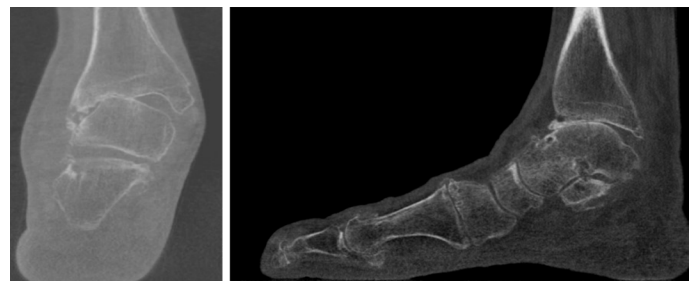


Figure 1c

Figure 1d

Figure 1. Preoperative weightbearing AP (**a**) and lateral radiographs demonstrating incongruent valgus ankle deformity with midfoot collapse through 1st TMT joint. The orange line outlines the lateral Meary's angle of collapse (**b**). Selected preoperative standing ankle coronal (**c**) and foot sagittal cuts further showing the extent of ankle valgus deformity with erosion into the lateral tibial plafond and degenerative collapse at the 1st TMT joint. (**d**)

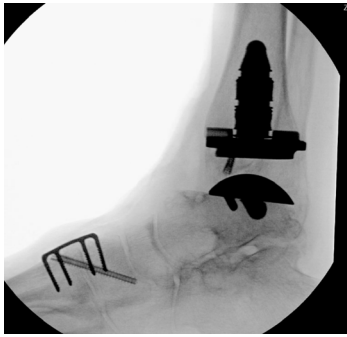


Figure 2a



Figure 2b



Figure 3a

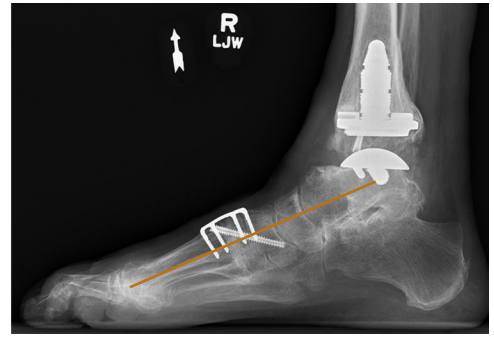


Figure 3b



Figure 3c

Figure 2. Lateral ankle **(a)** and AP foot intraoperative fluoroscopic views demonstrating final appearance of Inbone II TAR with LapiCotton procedure using allograft wedge at 1st TMT joint to help realign and stabilize the medial column. **(b)** Fixation for the 1st TMT joint arthrodesis is a 4-prong EasyFuse staple (size 30mm × 20mm) and headless compression screw.

Post-operative course

- The patient was maintained touchdown weight bearing × 4 weeks in a splint and then a short leg cast.
- He was then transitioned to a cam boot and allowed weight bearing as tolerable at 4 weeks.
- He was able to get back into supportive shoes around 2 months postoperatively and increase to normal activity beyond that.
- The patient's LapiCotton procedure was utilized to both treat his arthritic 1st TMT joint pain and to restore alignment and stability to the medial column, which would further support the longevity of his TAR, which had substantial preoperative valgus deformity.
- At his 1-year postoperative **(Figure 3)** he is looking forward to having his left side corrected in similar fashion.

Figure 3. One-year postoperative weightbearing mortise ankle **(a)**, lateral foot **(b)**, and AP foot radiographs showing well-positioned TAR and healed LapiCotton procedure, with allograft nicely incorporated into the bordering, native bone at the 1st TMT joint. **(c)** The orange line **(b)** demonstrates restoration of medial column alignment with improved Meary's line/angle.

Additional highlights

- This patient has healed his LapiCotton reliably with the use of a 4-prong EasyFuse staple, which has several sizing options to allow for adequate bridging of the bone block arthrodesis site, and continuous compression which can allow for quicker healing.
- The EasyFuse staples sit properly over this region and as such, can result in less hardware pain in this area. These staples are stout and offer continuous compression through nitinol technology, which allowed for mobilizing this patient quickly, even despite an extensive Inbone II TAR procedure and foot correction.
- The surgeon found the EasyFuse staples to be a satisfactory fixation choice, particularly since they offer the above benefits, along with ease of use and minimization of operative time, which is critical when doing multiple procedures with advanced deformity correction.
- The surgeon found similar uses for EasyFuse staples for arthrodeses involving the naviculocuneiform (NC), talonavicular (TN), and other TMT joints, along with osteotomies, oftentimes used as my sole form of fixation.

Brief summary of important product information

Indications for use

The EasyFuse dynamic compression system is intended to be used for fracture fixation, osteotomy fixation, and joint arthrodesis of the foot and ankle.

Contraindications

General surgical contraindications

- Infection;
- Physiologically or psychologically inadequate patient;
- Irreparable tendon system;
- Possibility for conservative treatment;
- Growing patients with open epiphyses;
- Patients with high levels of activity.

Contraindications specific to EasyFuse Dynamic Compression System

None

Warning

For safe and effective use of this implant system, the surgeon should be familiar with the recommended surgical procedure for this device. In every case, accepted surgical practices should be followed in post-operative care. The patient should be made aware of the limitations of the implant and that physical activity has been implicated in premature failure of similar devices. Patient sensitivity to implant materials should be considered and assessed prior to surgery. Do not modify implants.

Dr. Schweitzer is a paid-consultant of Stryker. The opinions expressed by Dr. Schweitzer are those of Dr. Schweitzer and not necessarily those of Stryker. Individual experiences may vary.

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