

# Neglected Achilles Tendon Repair

A case study by Peter G. Mangone, MD Blue Ridge Bone and Joint, Asheville, NC

## CASE STUDY: NEGLECTED ACHILLES TENDON REPAIR WITH ORTHADAPT® BIOIMPLANT ONLY REINFORCEMENT

The OrthADAPT® Bioimplant from Synovis Orthopedic & Woundcare, Inc. is a highly organized collagen scaffold that can be used for implantation to reinforce the repair or reconstruction of soft tissues. The collagen scaffold is flexibly crosslinked and sterilized\* using proprietary technologies which make it resistant to premature enzyme degradation, biocompatible and safe. The OrthADAPT® Bioimplant allows for a stronger repair over time and the potential for minimal pain and swelling.

### ABSTRACT

A 37-year-old male smoker underwent surgery for a neglected Achilles tendon rupture. A flexor hallucis longus tendon transfer was completed to compensate for the 6 cm gap. OrthADAPT® Bioimplant was onlaid to augment the primary repair. At one year post-op, despite repeated non-compliance by premature ambulation and failure to attend for prescribed physical therapy, the patient is doing well with excellent return to function.

### PATIENT HISTORY

The patient, a generally healthy male with a history of nicotine use was seen for a left Achilles tendon injury. Two months prior, he recalled feeling a "pop" while playing sports. He experienced significant pain, was unable to push off, and experienced decreasing function over time. Medical treatment was not sought initially. When finally seen by a doctor, he was placed in a CAM boot. The authoring physician subsequently diagnosed him with a left Achilles tendon rupture (Figure 1). The patient had a 5 to 7 cm palpable gap near the watershed region of the Achilles tendon. He had no plantar flexion with the Thompson test but was neurovascularly intact. The patient opted for surgical repair.

### PROCEDURE

The patient was placed under general anesthesia in the supine position, and a tourniquet was used. The reconstruction consisted of a left Achilles tendon repair with lengthening of the gastrocnemius, Flexor Hallucis Longus (FHL) transfer, and application of the OrthADAPT® Bioimplant. An Achilles tendon lengthening via V-Y advancement was performed for adequate reapproximation of the 6 cm gap and reconstruction. (Figure 2)

Next, the FHL was identified and traced distally. The neurovascular bundle was identified and protected. The FHL was then pulled out of the posteromedial aspect and released. The FHL was placed into the calcaneus at the central posterior aspect and secured in the bone tunnel with a tenodesis screw (Figure 3).

The Achilles tendon was held without tension with the foot in full plantar flexion while it was sutured with non-absorbable suture. Absorbable suture was used to reinforce the repair and imbricate the sides of the tissues.



Figure 1. Initial injury

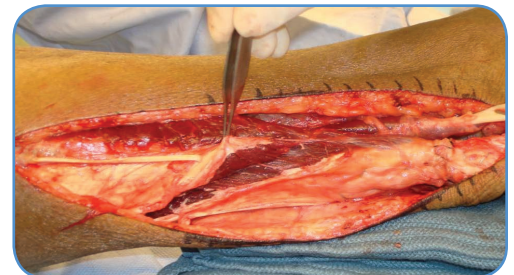


Figure 2. Achilles tendon reapproximation via V-Y advancement



Figure 3. FHL transfer in place

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Finally, the OrthADAPT® Bioimplant was used as a posterior onlay to reinforce and augment the repair. The OrthADAPT® Bioimplant was sutured under tension using 2-0 FiberWire®. The OrthADAPT® Bioimplant covered approximately 80% of the repair site, while keeping the medial anterior aspect of the repair open (Figure 4). Care was taken to slightly over-tighten the repair so the Achilles would not be too far lengthened. The FHL muscle belly was sutured to the tendon to provide direct blood supply to the repair. The wound was thoroughly irrigated with antibiotic solution. The incision was closed in layers, ensuring that the paratenon was closed first, followed by the subcutaneous tissue and then the skin. The patient was placed in a short leg splint with the ankle in gravity equinus.



Figure 4. Final repair with OrthADAPT® Bioimplant Onlay Augmentation

## RESULTS

**1 Week:** Swelling was minimal. It was recommended that the patient remain in the CAM boot with some gentle active range of motion, and no dorsiflexion beyond neutral. The patient was instructed to exert no more than 25% weight on affected limb.

**8 Weeks:** The patient arrived without his CAM boot on, ambulating in a regular shoe. The patient reported some mild discomfort, with mild swelling as expected. The repair was intact and he was able to ambulate with a very minimal antalgic gait. There was no evidence of infection. There was slight hyper-dorsiflexion of the ankle. Physical therapy was recommended for strengthening.

**3 Months:** The patient reported he was doing well and back to work installing insulation. He was still experiencing soreness but felt he was doing much better. He had 4/5 gross motor strength, and still had some calf atrophy. There was mild edema surrounding the distal aspect of the Achilles.

**6 Months:** The patient was still having some pain and localized swelling in the evenings, but was able to do strengthening exercises at home. The patient had 4/5 plantar flexion strength and alignment was appropriate. A repeat course of physical therapy was recommended for swelling resolution and increased strengthening.

### Summary:

- No re-rupture at 20 months, regardless of patient's recurrent non-compliance
- Early ability to ambulate and return to work duties

## DISCUSSION

Considering the complexity of repair, OrthADAPT® Bioimplant from Synovis Orthopedic & Woundcare, Inc. provides an excellent "off-the-shelf" augmentation option. Its thin but strong handling characteristics are ideal for repairs where neighboring tendon transfers occupy much of the repair site. For optimal results, care should be taken to ensure ample vascular supply to the OrthADAPT® Bioimplant, including preservation and restoration of the paratenon. All elements considered, this patient showed a remarkable ability to ambulate early, despite warnings to the contrary. An improved repair construct could be the cause of this clinical outcome.

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# Synovis®

Orthopedic and Woundcare, Inc.

6 Jenner, Suite 150, Irvine, CA 92618 USA  
Phone: 800.650.1816 Fax: 949.502.3245  
www.synovisorthowound.com



Authorized Representative  
in the European Community:  
AR-MED  
Runnymede Malthouse  
Egham TW20 9BD  
United Kingdom



For additional information and/or product support, please contact your local Synovis Orthopedic & Woundcare representative or Customer Service at 1-800-650-1816.

\*Passes USP Sterility Testing. Data on file: Synovis Orthopedic & Woundcare, Inc. Refer to the Synovis Orthopedic & Woundcare, Inc. Instructions for Use for the proper use, precautions, warnings, approved indications and labeling of the OrthADAPT® Bioimplant. CAUTION: Federal law restricts this product to sale by or on the order of a physician. OrthADAPT® Bioimplant is a registered trademark of Synovis Orthopedic & Woundcare, Inc. Fiberwire® is a registered trademark of Arthrex.

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