Surgical Management of Chronic Achilles Tendon Rupture

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INTRODUCTION

The Achilles tendon, also known as the calcaneal tendon, unites 2 calf muscles into a single parallel-fiber dense connective tissue of great tensile strength. With a strength of approximately 50-100 N/mm², the Achilles tendon is the strongest tendon in the body. Despite its strength, the Achilles tendon is one of the most commonly ruptured tendons (1). More than 20% of acute Achilles tendon injuries are misdiagnosed (2). This misdiagnosis often leads to chronic Achilles tendon ruptures, which tend to occur within 4 to 6 weeks after the initial injury (3).

Chronic Achilles tendon ruptures may lead to retraction of the tendon, which results in an inadequate healing process, which will require a method of repair that calls for surgical augmentation. Due to the advantages of elastic strain modulus, reproducibility in technique, and the consistency of results without significant complications, when repairing chronic Achilles tendon ruptures, autografts offer the more reliable and successful method of augmentation when compared to other grafts (4). Ultimately, surgical repair of an Achilles rupture continues to be the gold standard of treatment. Surgical repair has consistently proven to decrease re-rupture rates, which along with the risk of infection are the primary concerns in the first 2 years after surgery (5).

CASE REPORT

On August of 2019, a 55-year-old woman with an unremarkable medical and surgical history presented to the office with chronic pain in the posterior aspect of the right foot and ankle. She had been referred by her primary care physician. The patient reported that the pain began 3 years before, one morning when she got out of bed. The patient said the pain began suddenly and she does not remember any trauma to the area. A magnetic resonance image (MRI) report, brought in by the patient indicated a partial tendo-Achilles rupture with extensive inflammation. Treatment options and their risks and benefits were discussed, and the patient gave consent for surgical correction. Preoperative evaluations were performed and she was taken to surgery.

A 10-centimeter incision was placed on the posterior right ankle along the Achilles tendon. However, after observing the extensive damage present, the incision was lengthened to approximately 15 centimeters. There was significant tenosynovitis present that needed to be debrided (Figure 1). Once the affected area was debrided, the extent of the rupture was better visualized (Figure 2), and it was...
noted that the rupture was almost complete, and fat and synovitic infiltration within the tendon had occurred.

After evaluating the damage present, the tendon was released from the insertion and 6 centimeters of distal Achilles tendon was removed (Figure 3). The affected section was removed, the remaining distal edge was debrided, and the gap was measured in preparation for an aponeurosis autograft (Figure 4). Once measured, the required length of the aponeurosis was incised down to half-way depth (Figure 5) and reflected down (Figure 6).

Once the autograft was flapped down and it was confirmed to have the right length, it was anchored down to the posterior calcaneus using Arthrex Speed Bridge Anchors. In order to reinforce the autograft, the tendon was then grafted with a Matrix HD allograft (Figure 7). The incision site was closed with 3-0 nylon and the patient recovered from anesthesia without incident.

The patient spent 2 days in the hospital and experienced moderate pain at the surgical site. A 24-hour course of intravenous dilaudid and percocet were prescribed. The dilaudid was discontinued after 24 hours, and the percocet
after 48. The patient was then discharged home with a prescription for Tramadol to be taken 2-3 times per day (for 3 days) and a Duloxetine to help control nerve pain and sensitivity in the surgical area. The patient was followed-up in the office at 1 week.

DISCUSSION

Treating chronic tendo-Achilles ruptures can be challenging due to the extensive damage and inflammation that can be present. In this case, because the patient did not remember any trauma, she thought the pain would eventually disappear on its own. The patient also reported that eventually she became worried that a malignancy was present, and that led to further delay in treatment. Once the pain interfered with her daily activities, she sought help with her primary care physician, who ordered an MRI and then referred her to a podiatric surgeon.

After the surgery, most of the pain was localized at the level of the insertion, where the anchors were placed. The sutures stayed in place for 3 weeks without any incidents. The sutures were removed, and the patient was placed in a CAM walker for 2 additional weeks, after which the patient the patient will have 3-6 weeks of physical therapy. It is important to note that the left Achilles tendon is also currently being evaluated due to moderate pain. Tenosynovitis was diagnosed via ultrasound and it will be treated in physical therapy as well. If symptoms do not improve with physical therapy, endoscopic synovitis debridement will be considered.

REFERENCES

Quantum Pathology is pleased to partner with The Podiatry Institute.

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