

Case Study

Bilateral Achilles Tendon Re-attachment with Two-Hole Tendon Anchor System

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Patient History

A 69-year-old female presented with severe bilateral heel pain both with localized edema in the posterior heel and distal Achilles tendon. The patient had difficulty walking and standing, unable to continue activities of daily living. Conservative care of immobilization was prescribed with cast/walking boot, steroid injections, rest, elevation, and ice for two months prior to considering surgical correction. The patient subsequently underwent correction of the left foot following surgery on the right foot.

Physical Examination

Pain on palpation of the distal right Achilles Tendon and posterior heel with prominent bony posterior calcaneus and tendon. No fusiform thickening was noted within the body of the tendon. Mild edema and erythema but without calor streaking or other signs of infection. Pain noted with end dorsiflexion, limited ankle dorsiflexion. No other limitations with range of motion of pedal joints. Antalgic gait noted as well when standing.

Radiographic Examination

Radiographic imaging was utilized with three views of the ankle and two views of the foot. Lateral study noted extensive intratendinous calcification distally and calcification of the tendon at the insertion into the calcaneus leading to a posterior "heel spur" (Fig 1A & 1B). The ankle and foot bones and joints were in proper alignment and were otherwise unremarkable. Ultrasound imaging was utilized showing an intact achilles tendon with extensive tendinosis, calcification and localized edema at the posterior superior heel.

Treatment Plan

Patient was given a series of corticosteroid injections, soft cast and pneumatic walking boot with instructions to rest, ice behind knee, elevate, and drastically reduce activity, for a period of approximately 8 weeks. Prior to surgery, a period of immobilization and reduction of inflammation is essential at the onset of treatment before getting a patient into regular shoes and starting a rehabilitation program. It is the author's experience that starting with physical therapy most often does not improve the patient's condition as quickly and qualitatively as starting as outlined above. The patient improved greatly and was then transitioned to protected weightbearing with a very specific daily stretching, and rehab protocol. Shortly after this transition the patients symptoms quickly returned to pretreatment levels.

Surgical Procedure

A medialized, curvilinear incision was made to the posterior central heel approximately 6 cm at the Achilles tendon insertion. A thick flap was created down to the tendon. The subcutaneous tissues were carefully reflected off of the tendon. After the Achilles tendon was reflected off the calcaneus, the extensive bony prominence at the posterior calcaneus with additional extensive spurring was excised and extensive saucerization of the posterior calcaneus was carefully performed and carefully planed down utilizing osteotomes and a bone rasp.

The gross tendonosis and calcification noted within the distal Achilles tendon was carefully debrided and excised. A great majority of the tendon was still healthy and viable. There was a moderate amount of scar tissue and synovitis noted surrounding the area as well as a retrocalcaneal bursa which showed extensive inflammation, which were carefully debrided and excised.



Fig 1A: Preoperative lateral radiograph right foot noting posterior heel spur.



Fig 1B: Preoperative lateral radiograph left foot noting posterior heel spur.

Attention was turned to anchoring the tendon back to the calcaneus utilizing a BioPro Two-Hole Tendon Anchor. The anchor was placed, re-approximating the Achilles tendon to the posterior calcaneus with the ankle in a plantarflexed position. Intraoperative fluoroscopic imaging was utilized for proper placement of the anchor as to avoid placing too medial or too lateral, which would likely lead to abnormal rubbing in shoes and likely cause new pain. After positioning the anchor over the tendon and calcaneus, a provisional K-wire was placed to hold position. Final alignment was confirmed on fluoroscopy and the anchor was secured with the provided screws. The thick skin flap was then reapproximated and coapted in layers utilizing 3-0, 4-0 vicryl suture and 3-0 nylon for the skin. A postoperative block was infiltrated around the surgical area utilizing 20 mL of 1:1 mix of 0.5% Marcaine plain and 1% lidocaine plain. The tourniquet was deflated and proper hyperemic response was noted to the foot and all digits.

The incision was then covered with xeroform, 4 x 4 gauze and a light application of cast padding, keeping the ankle in a plantarflexed position and placed into a properly padded posterior splint to maintain this position. The patient was transferred to the recovery room with all vital signs stable and vascular status intact to the foot. After short-term postoperative monitoring, the patient was discharged home with both oral and written postoperative instructions.



Fig 2A: Postoperative lateral radiograph right foot with Tendon Anchor System securing Achilles tendon.



Fig 2B: Postoperative lateral radiograph left foot with Tendon Anchor System securing Achilles tendon.

Follow Up

The patient was seen at weeks 1, 2, 6, 12, 26, and 52. Radiographic studies (lateral and axial calcaneal) were performed at week 1, 6, 12 and 26. Patient was instructed to be non weight bearing for a total of 4 weeks (2 weeks in posterior splint, then pneumatic boot for 2 weeks). At 4 weeks the patient was transitioned to protected weightbearing for 2 weeks and then made a gentle transition to shoes around 6 weeks with limited walking and time on her feet, slowly building distance and time up to the 12 weeks. Patient did very well transitioning to weight bearing at 4 weeks and transitioning to shoes with only mild discomfort at this stage. The patient continued to improve wearing supportive shoes and at 12 weeks post op was doing very well without any of her previous pain in the left foot. It was noted that after the 12 week mark, the patient admitted that she had been putting light pressure to her foot at week 3 in a walker due to family issues, now living alone, but related was only for essential activities at home.

The patient noted similar pain in the left foot after getting back walking and back to normal activity at 12 months post op. A similar conservative treatment protocol outlined above was started for the left side. The patient subsequently failed that treatment and opted for the same surgical treatment. She related that she did very well after surgery and was on her feet so soon after therefore she wanted to schedule it after she had her left total knee replaced in the coming months. Approximately 6 months from her total knee replacement, the patient underwent the same procedure in September of the next year, utilizing the same BioPro Two Hole Tendon Anchor.

Discussion

The two Achilles tendon surgeries were approximately 21 months apart, utilizing the same BioPro Tendon Anchor for both surgeries. The patient had excellent recoveries on each side (along with her knee surgery), and now is back to activity levels she has not had in years.

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