PERCUTANEOUS ACHILLES TENDON REPAIR WITH THE DRESDEN TECHNIQUE UTILIZING F0ERSTER SLOTTED CLAMP

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Introduction

The Achilles tendon is the most ruptured tendon in the human body, withan estimated incidence of 6 to 37 per 100,000 people and it happens more frequently in the male population. The current evidence has suggested that multiple risk factors are related to Achilles tendon rupture, including poor tendon vascularity, tendon degeneration, corticosteroid use, fluoroquinolone use and prior rupture on the contralateral side. Imaging studies have little role in diagnosing an acute rupture (reserved for uncertain clinical diagnosis). Although the ruptured tendon can be treated with surgical and nonsurgical therapies, no consensus has yet been reached regarding the optimal treatment protocol. Surgical treatment has been shown to provide earlier return to work and slightly stronger plantar flexion strength. Surgical options include open, minimally invasive, and percutaneous repair of the tendon. Minimally invasive surgery with percutaneous repair of the tendon with an early rehabilitation protocol appears to be the best treatment strategy.

Purpose

This video shows the surgical technique used to perform percutaneous Achilles tendon repair with the Dresden technique utilizing Foerster slotted clamp in patients with acute Achilles tendon ruptures. It also presents the results obtained during follow-up of our patients with this treatment and the published outcomes on this topic.

Methods

The video shows the step-by-step surgical technique for performing the percutaneous Achilles tendon repair with the Dresden technique utilizing Foerster slotted clamp in a schematic presentation, as well as the percutaneous repair of the Achilles tendon with this technique both in the cadaveric laboratory (also showing the anatomical relationship of the Achilles tendon with the sural nerve) and in patients and the results obtained in our patients at the end of the follow-up. The procedure was performed with the patient in the supine position, a 3 centimeter (cm) long incision was made 3 to 4 cm proximal to the rupture site; the Foerster slotted clamp was positioned on both sides of the distal stump of the Achilles tendon, two sutures were passed percutaneously through the distal end of the Achilles tendon and through the distal end of both retrievers. The instrument was then pulled proximally through the skin incision, retrieving the sutures, and then, the threads were sutured to the proximal stump and tied by keeping the foot in forced plantar flexion. Postoperatively, a walking boot with a 3 cm heel fit was used on both sides, and crutch support was permitted 72 hours after surgery. After seven weeks the boot was removed, and 1.5 cm heel lift was added to the patient's own shoe.

Results

In total, 11 patients with acute Achilles tendon rupture were treated with percutaneous Achilles tendon repair with the technique described. The mean age of the patients was 40.5 years (range, 32 to 51 years; Standard Deviation [SD] ± 6.7 years). Mean time since injury was 7.5 days (range, 7 to 16 days; SD ± 0.5). The mean follow-up was 8,27 months (range, 6 to 12 months; SD ± 2.13). The mean Visual Analog Pain Score (VAS pain) at the end of the follow-up was 9 (range, 8 to 10, SD ± 0.79 and the mean of Achilles tendon Total Rupture Score (ATRS) was 93.6 (range, 80 to 100; SD ± 7.71). One patient reported a burning sensation in the heel at the end of follow-up.

Conclusion

The Percutaneous Achilles tendon repair is an easy surgical technique to realize, preserves the biology of the tendon, allows for proper healing and early rehabilitation, and it does not require the use of expensive materials.