

What Do You Do With The Achilles if You Have No Fancy Toys?

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KEYWORDS

- Achilles tendon • Flexor hallucis longus • Semitendinosus tendon • Bony anchorage
- Chronic Achilles rupture

KEY POINTS

- Surgical management of Achilles disorders warrants thorough excision of the degenerated tendon and removal of all impinging bone. Resulting defects can be bridged by various methods like tendon mobilization, V-Y advancement, central turn-down, or tendon transfer.
- Although the flexor hallucis longus is the most commonly used tendon for transfer, large defects in cases of chronic Achilles ruptures may be bridged by use of a distant donor tendon, such as the semitendinosus tendon.
- Bony anchorage of a lengthened or transferred tendon into the calcaneus can be done either with suture anchors or with interference screws.
- In developing countries, such costly implants may not always be available or affordable. This necessitates the adoption of innovative ways to anchor tendons into calcaneus.

INTRODUCTION

The surgical management of insertional and noninsertional Achilles disorders are comprised of 2 key steps. Step 1 is the thorough excision of all necrotic and degenerated tendon and removal of all impinging bony prominences.^{1,2} This may result in a tendon defect, which is bridged with various procedures depending upon the size of the defect.¹⁻³ Defects up to 2 cm can easily be bridged by Achilles tendon mobilization and by pulling the tendon down with the help of traction sutures placed

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in the tendon end (picture 5). Defects up to 2 to 5 cm can be bridged by a V-Y advancement or a central turn down procedure. Defects beyond 5 cm require a tendon transfer, which can be local or distant. The flexor hallucis longus tendon is the most commonly used local tendon transfer. Autogenous semitendinosus is also used as a distant transfer for large defects when allografts are not available.⁴

Step 2 is the bony anchorage of a lengthened/augmented original or transferred tendon to calcaneus. Traditionally this is done either with the use of suture anchors or an interference screw.^{5,6} These implants may not be available in developing countries. If available, they may not always be affordable to most of the patients.⁷ This requires the use of innovative ways to carry out bony anchorage of tendon.⁷ The authors describe their innovative techniques to deal with bony anchorage of tendons without the use of expensive implants.

INDICATIONS

All surgically managed noninsertional and insertional Achilles disorders and chronic Achilles rupture cases (6 weeks after injury) requiring either reattachment of a lengthened Achilles tendon to the calcaneus or requiring attachment of transferred tendons like the flexor hallucis longus (FHL) and semitendinosus to the calcaneus are indications for these procedures. For chronic Achilles ruptures, only patients who complain of significant weakness in daily activities are candidates for surgery. The common feature for all these cases is the lack of availability of expensive implants for bony anchorage of tendon.

CONTRAINDICATIONS

Cases with peripheral vascular disease, peripheral neuropathy, and poor soft tissue envelope are contraindications for these procedures.^{2,8} For the chronic Achilles rupture group, patients older than 60 years of age and diabetics are considered as surgical contraindications.⁴

PREOPERATIVE PLANNING

Before surgery, the extent of tendon degeneration is evaluated clinically and radiologically. On radiographs, the presence of an insertional spur and the prominence of a posterosuperior angle of the calcaneus (Haglund deformity) can be diagnosed. Use of ultrasound and MRI also helps in identification of possible extent of tendon degeneration.^{1,3,8} A rough estimate is made about the size of tendon defect to remain at the end of tendon debridement and bone removal. A plan is made to bridge the tendon defect and for bony anchorage of the tendon to calcaneus.

SURGICAL PROCEDURE

Surgical procedures will differ depending upon the clinical situations, like treatment of Achilles disorders with reattachment of original or augmented tendon, with local FHL transfer or with distant semitendinosus transfer.

Bone Tunnel-Assisted Bony Anchorage of Achilles Tendon to Calcaneus (for Defects up to 2 or 2–5 cm)

Position

The patient is positioned prone with both the ankles hanging out of operative table. Both of the lower limbs are prepared and draped (**Fig. 1**). This positioning helps in

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