

Tendoachillis Reconstruction - An Innovative Method

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ABSTRACT

Introduction: The Achilles tendon is the most frequently ruptured tendon in the human body. There is no consensus on whether surgical or conservative treatment is the best option. However, surgical treatment has a good recovery rate and lower risk of re-rupture. Present method is used where there is large defect for attachment, no remnants available in distal portion, when avulsed from its calcaneal attachment and in neglected ruptures with large defects.

Case report: In this case report, we describe a novel method of surgical reconstruction of acute rupture of tendo-achilles. All cases treated with our novel method were mobilised with Partial weight bearing at 8 weeks the results were excellent with no cases reporting wound infection, suture gap or failures.

Conclusion: Present technique of surgical repair of acute tendo-achilles rupture is a promising method for future.

Keywords: Acute Tendo-Achilles Rupture, Orthopedic Surgery, Achilles Tendon Injury

INTRODUCTION

The Achilles tendon is the most frequently ruptured tendon in the human body.¹ The risk factors for rupture of the Achilles tendon include fluoroquinolone therapy, steroid therapy, hypercholesterolemia, closet injury, cut injury, cut injury by sharp objects, steroid injection over the tendon while treating retrocalcaneal bursitis, gout, rheumatoid arthritis, long-term dialysis, obesity and renal transplantation.^{2,3} Recovery can be prolonged and sometimes incomplete. Even though the incidence of Achilles tendon ruptures continues to rise, there is no consensus on the best treatment plan.⁴ Opinion is divided between surgical repair and conservative immobilisation in conjunction with functional orthoses.⁵ In this report, we describe a novel way of repairing the ruptured Tendo Achilles.

CASE REPORT

A total of 36 patients presenting with acute tendo-achilles rupture were operated using the following method, of which 27 were males and 9 females, ranging from 25 to 65 years. Under spinal anesthesia and tourniquet control, patient was put in prone position and a longitudinal incision is made from the tip of calcaneum to the level of musculotendinous junction of gastrocnemius muscle. The paratenon was incised. The injured portion of the tendon will hang out with smooth and round edge with the distal portion of the tendon being minimal or absent.

Next, the distal end of the proximal portion of tendon was cut at normal level (Figure 1). The clear cut end was reinforced with non absorbable suture material. The gap between the cut end and calcaneal attachment was estimated and multiplied



Figure-1: Injured tendon end hanging out with no distal portion of tendon. Smooth and round edge portion being clearly cut.



Figure-2: Gap with hole made in calcaneum for tunneling the tendon.



Figure-3: Tendon lengthened by turn down flap and edges made like cigar roll, ready for tunneling

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Figure-4: Tendon pulled through the calcaneal hole and sutured back to itself in adequate tension.

by 3. The tendon was split 1cm above the level of reinforced sutures coronally and raised like a turn down flap. A drill hole was made in the calcaneum depending on coronal tunneling or saggital tunneling (Figure 2).

The drill hole was then widened using drill bits and bone taps. The lengthened tendon edge was made like a cigar roll (Figure 3), pulled through the tunnel and sutured back to the tendon with adequate tension (Figure 4). The paratenon was sutured and closure done in layers.

Post surgery, above knee dorsal slab was applied. Suture removal was done on 13th post operative day. Patient was made to walk without weight bearing from 2nd post operative day. Plaster was changed after 1 month and foot placed in plantigrade for further 1 month, at the end of which POP removal and ankle joint mobilization was done. Partial weight bearing walking with walker support was started at the end of 2nd month.

All cases treated with our novel method were mobilised with Partial weight bearing at 8 weeks the results were excellent with no cases reporting wound infection, suture gap or failures.

DISCUSSION

Both surgical and conservative treatment options are acceptable for acute Tendo-Achilles rupture as there is no consensus on the best treatment modality. Surgical treatment for TA ruptures leads to good recovery and low re-ruptures rates.⁶ In surgical management, a variety of approaches are available; again with no consensus on the best approach. Direct tendon repair as well as augmentation using gastrocnemius or plantaris tendon may be done. However, a large prospective study by Pajala et al found no evidence of benefits between augmented and simple end-to-end repair.⁷ Open repair as well as minimally invasive percutaneous surgery can be performed with reduced infection rates seen in the latter.⁸ However, it is also accompanied with increased rates of sural nerve injury.⁹

Our novel method has the advantages of giving anatomical insertion of Tendo- Achilles into calcaneum even in large defects, preventing tendon transfers and early mobilization of the patient. Early mobilization is known to lead to better patient outcome.^{10,11} The preliminary results from our method were excellent with no complications. However,

we acknowledge that clinical data on long term outcomes is lacking and will be a subject for further research.

CONCLUSION

In conclusion, our technique of surgical repair of acute tendo-achilles rupture is a promising novel method with a high success rate and no complications.

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