CASE REPORT

Management Of Acute Traumatic Insertional Achillies Tendon Injury With Suture Anchor Technique: A Case Report

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Abstract

Background: Acute traumatic insertional Achilles tendon injuries are rare and various techniques have been advocated for the treatment. Suture anchor technique has been a promising technique to manage this condition.

Case Presentation: We present a case of 34-year-old male with diagnosis of traumatic cut injury of left Achilles tendon at its insertion site and was managed with initial debridement and repair using suture anchor technique. Patient was rehabilitated as per standard protocol without any complications.

Conclusion: Treatment of insertional Achilles tendon injury is still challenging. Use of suture anchor technique is an effective and promising treatment technique and it facilitates the earlier rehabilitation.

Keywords: Achilles Tendon, Debridement, Suture Anchor Technique

Intoduction

Injuries of Achilles tendon are relatively common in middle-aged population and peak age for Achilles tendon rupture in both men and women is between 30 and 40 years of age. Rupture usually occur 2-6 cm proximal to the insertion of calcaneus and avulsion from the calcaneus is less common.[1] Achilles tendon at the distal end can be either tendon avulsion from the calcaneus or avulsion fractures of calcaneal tuberosity.[2] Avulsion fractures of the posterior superior calcaneus often occur from a forced dorsiflexion injury against an intact gastrocsoleal complex following a low-energy fall or stumble[3].Ambroise Pare described the treatment of ruptured achilles tendon in 1575 by taping and cast application[4]. The tendon–bone junction is slow to heal because of the relative avascularity of the fibrocartilage zone and bone loss at the site of injury. Moreover, the structure and composition of the native direct tendon–bone interface is not reformed during healing, increasing the risk for failure of the tendon attachment[5-6]. Although the frequency of rupture of Achilles tendon is high and there is long history of its treatment, the best mode of treatment is debatable. Operative treatment for Achilles sleeve avulsion is often a better choice [7]. However, the repair of Achilles sleeve avulsion is challenging for surgeons because it leaves very little tissue for direct repair of the Achilles tendon onto its insertion at the calcaneus. Open reduction and screw fixation, usually used to fix large bone fragment, cannot effectively resist the pull-out tension of the triceps surae[8]. Achilles sleeve avulsion fixation has no existing standard operative technique. The current operative technique includes suture anchor technique, trans calcaneal suture, or some combination of both[9]. The use of suture anchor technique can facilitate the repair and early functional rehabilitation with good clinical outcome.

Although good to excellent outcomes have been reported, suture anchor technique has drawbacks such as high-cost, foreign material implantation and infection risk[10].

Case Presentation

34-year-old male, farmer by occupation came to our center

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1 day after he sustained cut injury over his left ankle by a metallic object following which he was unable to bear weight on that limb.

On Examination, 3*1 cm wound was present over posterior aspect of the ankle at the insertion of Achillestendon (Figure 1).After initial debridement, cut ends of the tendon was visible. Gap of 1 finger breadth was noted from the calcaneus. There was weak plantar flexion with positive Thompson squeeze test, Matles test.

X-ray of the ankle showed avulsion of calcaneus at Achilles tendon insertion and USG of the ankle showed distal stump of tendon less than 1 cm.

Patient was kept in prone position after adequate spinal anesthesia. Thorough irrigation of the wound was done with 3 liters of normal saline. Surgical treatment was planned with posteromedial longitudinal incision of 10 cm and was carried through subcutaneous tissues and tendon sheath. Tendon sheath was then reflected so as to expose the tendon proximally. Suture anchor of 5mm was fixed to Achilles tendon insertion site after predrilling with 4 mm guide wire. Proximal ends of the tendon were secured with suture using modified Kessler technique (Figure 2) and two ends were approximated (Figure 2). Paratenon were repaired with vicryl 2-0" and skin was closed with prolene 2-0". Anterior slab was applied with ankle in gravity equinus position for 2 weeks. Post-operative X-ray was sent so as to locate the anchor (Figure 3).

Dressing was advised twice a week and the suture was removed at the end of 2 weeks. Air boot cast was then applied and hence, continued for next 6 weeks. Knee and Hip ROM, incision mobilization exercise were initiated and patient was advised for weight bearing as tolerated with crutch only after 4 weeks along with additional dorsi-flexion stretching exercise, proprioceptive exercise. Boot was weaned off at 8 week and crutches were gradually weaned off. Matles test was performed at the end of 6 weeks which was negative. ROM of ankle at 16th week was 35° plantar flexion and 10° dorsiflexion from neutral position.

Figure 1. Pre-operative clinical image

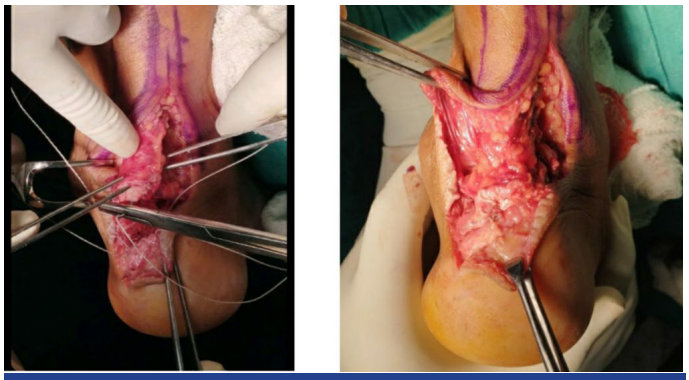

Figure 2: Two ends approximated with suture anchor using modified kessler's method

Discussion

Achilles tendon ruptures occur in the second through eighth decade of life, although the peak incidence is during the third to fifth decade.

Careful history and Physical examination is enough for the diagnosis however, X-ray can demonstrate associated fractures, although they more often show only soft tissue swelling[1]. Ultrasound and MRI can also be a diagnostic tool however, both of them have their advantages and limitations.

Figure 3: Post-operative X-ray

Distal tendon injuries due to insufficient length of the distal tendon stump makesan end to end repair impossible. The suture anchor technique is more accepted by surgeons to achieve a better functional outcome. Techniques like screw fixation, is not effective to resist the pull out tension of the triceps surae. Moreover, the prominent screw head may cause skin impingement. Suture anchor fixation provides a less invasive option relative to the trans calcaneal tunnel technique[10].

Post-operative rehabilitation exercises typically begin 2 to 4 weeks. Post-immobilization therapy consists of exercise progression, including ankle range of motion exercises, resistive and progressive strengthening exercises, isometric exercises, cardiovascular exercises, and balance exercises[16]. In our case, we started the physiotherapy on 14thPostoperative day and removed the anterior slab to be replaced by air boot cast so, that Hip and Knee ROM exercise along with scar mobilization exercise could be started.

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Author's Contribution
KRG carried out the concept and design of the study. KRG and SP collected the data, analyzed and interpreted the data. YNB, SG and KKB revised the manuscript and gave the final approval. All the authors read and approved the final manuscript.

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Consent
As per the international standard, patient's written consent has been taken and preserved by the author(s).

Ethical Approval: Not applicable

Competing Interests
The author(s) have no competing interest for the publication of this case report.

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