

Spontaneous Rupture of the Tendoachilles in a Patient of Rheumatoid Arthritis: A Case Report

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Abstract

We present here a case of spontaneous rupture of left tendon Achilles in a 28 years old female patient suffering from rheumatoid arthritis not on steroid treatment. We repaired the same using an end to bone repair by means of a pullout suture. Post op immobilization for 3 weeks in an above knee plaster and gradual weight bearing after 3 weeks of immobilization resulted in subjective improvement in functional capacity of the patient. Further improvement in function was seen in the subsequent monthly follow up examinations which extended for another 12 months.

Level of Clinical Evidence: 4

Keywords: Pull out suture; Rheumatoid arthritis; Spontaneous rupture of Tendoachilles

Abbreviations: ESR: Erythrocyte Sedimentation Rate; CRP: C-Reactive Protein titre; RA: Rheumatoid Arthritis

Introduction

Achilles tendon is the amalgamation of the gastric anemia's and sole us muscle in the posterior compartment of the leg. Despite being the strongest tendon in the body it is vulnerable to spontaneous rupture due to overload and local pathology [1]. Spontaneous tears account for about 1% of all Achilles tendon ruptures, are much less common less common than traumatic tears, and much more likely to be associated with disease [2]. Angiographic and micro-angiographic examination reveals a paucity of vasculature in the segment of tendon between 2 and 6cms proximal to the insertion that is why this area is susceptible to tendinosis and rupture [3]. We report this case in view of its rarity in occurrence and our modified approach in operating the ruptured tendon.

Case Report

A 28 year female, a known case of Rheumatoid Arthritis, on alternative medical therapy and not on steroids, presented to the out- patient department with pain and swelling of right ankle posteriorly since one month and was associated with a limp. Physical examination revealed swelling at the site of attachment often do Achilles posteriorly with a palpable effect in the continuity of Tendoachilles at the junction of the tendon and bone. Thompson test was positive indicating a full thickness Tendoachilles rupture from its attachment. The patient was

unable to stand on toes. The O'Brien needle test, done with the patient prone, with a hypodermic needle was found to be positive (Figure 1).

Lab investigations showed a high Erythrocyte Sedimentation Rate (ESR) of 48mm at end of first hour. A positive C-Reactive Protein titre (CRP) and a high RA (Rheumatoid Arthritis) factor titer, was noted. The other routine investigations showed no abnormality. Radiographs of the ankle showed no significant abnormality.

Ultrasonography of the right ankle showed a discontinuity of the ligament with hypo-echoic area between the two ends and fluid around the tendon.

The surgery was carried out with the patient in the prone position using inflatable tourniquet with the pressure kept at 320mm of mercury. Regional anesthesia in the form of spinal anesthesia was administered. A curvilinear incision was marked over the line of attachment of tendoachilles. Skin and subcutaneous tissue were incised with careful retraction over postero-medial side. The paratenon sheath was split longitudinally. A complete tear of the tendo-achilles at its junction with the calcaneum was visualized. The proximal ruptured end showed a bulbous enlargement with myxomatous tissue. Similar tissue was noted associated with fluid at the site of rupture. The ends of both the fragments were freshened. The

proximal fragment was well mobilized and the gap between the proximal and the distal fragment was about 2cm. Due to this tear being chronic the direct apposition of the ends was not feasible. End to bone repair was possible as there was adequate length of the proximal fragment after mobilization and hence not end on transfer was needed to augment there pair. Drill holes were made in the calcaneum bone and the proximal end of the tear was sutured with the calcaneum using no 2 ethibond by means of a pullout suture. The stability of the repair was checked and confirmed on table. Surrounding myxedematous tissue and the hypertrophied paratenon sheath was sent for histopathological examination. Skin and subcutaneous tissue were closed over layers (Figures 2-5).

Postoperatively an above knee plaster of pariss lab was put with ankle in mild equinus and the knee in 20 degrees of flexion. The same protective splintage with ankle in equines and the knee in 20 degrees of flexion was continued for two weeks. The incision site was found to be healthy without any complications associated with wound healing and sutures were removed at this point after two weeks.

Patient was followed up for a period of 14 months from October 2013 to December 2014. Primary follow up was done every week to look for wound conditions. After wound healing and suture removal at 2 weeks, next follow up was done at 3rd week and gradual weight bearing and ankle mobilization was started [4] (Figure 6).

Supervised physiotherapy was given at our centre for 3 weeks at an outpatient basis. At the end of 6 weeks patient was able to walk with full weight bearing with support and after another 2 weeks without support.



Figure 1: Swelling at the site of rupture.



Figure 2: Shows the proximal end of the tear showing bulbous enlargement.



Figure 3: Shows the myxedematous degenerated tissue of the proximal end of tear.



Figure 4: Drill holes made in calcaneum for pull out sutures. Proximal end mobilized with ethibond.



Figure 5: Procedure of end to bone repair completed.



Figure 6: Wound just before stitch removal at 2 weeks shows complete healing.

After that patient has been a regular follow up at our institute every month till date.

There were no complication related or wound healing or wound gaping or re-rupture or failure of the procedure which may usually be encountered (Figures 7-9).

Discussion

The effects of rheumatoid synovitis on joints are a complex function of the intensity of the underlying disease, its chronicity, and the stress put on individual joints by the patient. The Achilles tendon is a major structural component and kinetic force in the foot and ankle. Rheumatoid nodules develop in this collagenous structure, and spontaneous rupture of the tendon has been reported when diffuse granulomatous inflammation is present [4].

Rupture of Achilles tendon may occur without an antecedent symptoms. Rupture is associated with acute onset of pain over Achilles tendon, loss of plantar flexion power. Examination of

a standing patient may reveal subtle to massive swelling along the posterior leg. In prone position Thompson testis performed by squeezing the calf and found to be positive by looking for the absence of foot plantar flexion. Palpation may itself reveal a defect and patient is not able to perform single heel rise test on the affected extremity [3].

A chronic rupture of the Achilles tendon causes difficulty with and impairment of ankle plantar flexion. The tendons sheath often becomes thickened and adherent to the retracted ends of the tendon, and there is minimal repair tissue in the gap [4,5].

Chronic Achilles tendon ruptures normally present as a result of a misdiagnosed, neglected, or unrecognized acute rupture. Subsequently, routine daily tasks such as walking uphill or climbing stairs become difficult.

Real-time, high-resolution ultrasonography is inexpensive, rapid and dynamic. When the Achilles tendon is ruptured, ultrasonography shows tendon discontinuity with decreased or increased echogenicity, depending on the chronicity of the rupture [6].

Complete tears are easily identified on Magnetic Resonance Imaging, but diagnosis is usually obvious on clinical examination as well. MRI is not required for the routine evaluation of Achilles tendon ruptures [3].

Management of chronic Achilles tendon ruptures is challenging. The ends of the tendon are frequently retracted and have an atrophic appearance [6].

Neglected Achilles tendon ruptures, although uncommon, are debilitating injuries. The optimal management is surgical. Many different techniques can be used to repair or reconstruct the rupture, including tendo-Achilles advancement or flap reconstruction; local tendon transfer; and autologous, autograft, or synthetic implantation [7].

In our case according to Meyersons [8] classification the defect was a type 1 defect, which is usually managed by end to end repair and posterior compartment fasciotomy [8].

We mobilized the proximal fragment and found the distance between the proximal and distal fragment was about 2cm. End to bone repair using pullout suture was done as end to end repair was not possible as the distal fragment was frayed. The technique of pullout suture with or without graft has been described in literature [6].

Early functional treatment protocols, when compared with postoperative immobilization, led to more excellent rated subjective responses and no difference in re rupture rate [9]. Our patient was managed postoperatively with 3 weeks of above knee plaster with ankle in plantar flexion and non-weight bearing. Gradual weight bearing with anterior splint with limitation of ankle dorsi-flexion was started after 3 weeks with subjective improvement in function noted.

And to summarise, spontaneous ruptures of tendons is not an uncommon finding in patients with Rheumatoid Arthritis taking steroids but not in patients who are not on steroids. Amongst them, rupture of Tendoachilles is very uncommon. One has to



Figure 7: Follow up pictures at 14 weeks.



Figure 8: Follow up pictures at 14 weeks.



Figure 9: Follow up at 18 weeks.

maintain a high level of suspicion while treating patients of Rheumatoid Arthritis with respect to tendinopathies and tendon ruptures. Complete ruptures of Tendo Achilles require repair or reconstruction based on the severity and duration of the tear. Early mobilisatiion of ankle and graduated weight bearing has shown to give good subjective results.

We publish this case due to the rarity in occurrence of this condition and the modified method of our operative approach.

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