

## Case Report

### Rare Case of Bilateral Tendoachilles Rupture after Local Steroid Infiltration

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**Abstract:** The causes for the painful heel around the Achilles tendon are Achilles tendinitis and retrocalcaneal bursitis. The treatment modalities range from simple NSAID's, hot water fomentation, ultrasound phonophoresis, and intralesional steroids to surgery. There is a debate on giving intralesional steroids in and around the Achilles tendon. Most common complication of intralesional corticosteroids injection is rupture of the tendon. Here is a case of bilateral tendoachilles rupture due to intralesional corticosteroid infiltration. A 40 year old female suffering from bilateral retrocalcaneal bursitis since seven years was treated with two doses of intralesional steroid bilaterally around tendoachilles at interval of one month, four and three months prior to rupture. One month back patient had rupture of bilateral tendoachilles. This was confirmed by ultrasound and MRI examination. We treated the rupture using Krackow's technique to repair the tendon. Follow up at one year revealed good functional outcome. Bilateral tendoachilles rupture due to corticosteroid infiltration is very rare. Better to avoid intralesional steroid injections in and around the tendoachilles. MRI and ultrasound are confirmatory. MRI is more sensitive than ultrasound, but due to cost USG is the preferred investigation. Histopathological investigation reveals the tendon end to be degenerated; thereby chronic ruptures should be repaired surgically, which reduces chance of failure and improves functional outcome. Bilateral cases are to be operated in two sittings to avoid complications caused due to prolonged immobilization.

**Key words:** Bilateral tendoachilles rupture, Krackow's technique, MRI, Steroid infiltration, Ultrasound.

#### INTRODUCTION

The causes for the painful heel around the Achilles tendon are Achilles tendinitis and retrocalcaneal bursitis. The treatment modalities range from simple NSAID's, hot water fomentation, ultrasound phonophoresis and intralesional steroids to surgery. There is a debate on giving intralesional steroids in and around the Achilles tendon. Most common complication of intralesional corticosteroids injection is rupture of the tendon. Here is a case of bilateral tendoachilles rupture due to intralesional corticosteroid infiltration.

#### Case Report

A 40yrs female working as a bangle seller, suffering from bilateral heel pain since seven years, was treated with analgesics, physiotherapy and hot water fomentation. Four months back patient was diagnosed to have bilateral retrocalcaneal bursitis and treated with two doses of intralesional corticosteroid (Triamcinalone 40 mg) bilaterally at an interval of one month. Patient was pain free after the injection. One and half month ago while walking on a flat surface, patient felt a sudden snap in right ankle associated with pain and discoloration of skin with swelling behind the ankle. Three days later she had a similar episode in the left side. Since then the patient is unable to squat, stand for a few seconds without support, walk without support and unable to climb stairs.

#### Examination:

On inspection depigmentation was noted proximal to the insertion of tendoachilles (4cm x 4cm). Subcutaneous fat was absent, visible depression proximal to the insertion of tendoachilles (Fig. 1). No tenderness, palpable gap in the continuity of the tendoachilles proximal to its insertion, thickening noted proximal to the gap, firm in consistency (Fig. 2). Dorsiflexion - active 30°, passive 35°. Plantar flexion - active 25° and passive 35°. Thomsons test positive bilaterally (no plantar flexion on squeezing the gastrosoleus muscles, indicates that discontinuity in tendoachilles) (Fig. 3). Obrien's needle test: positive (needle placed 10 cm proximal to the insertion of the tendoachilles does not move on plantar and dorsiflexion) (Fig. 4). Laboratory Investigations revealed patient is suffering from type 2 diabetes mellitus.

X- ray examination of the ankle joint show loss of normal regular configuration of kager's triangular space, which is between the superior aspect of the calcaneum and anterior aspect of tendoachilles (Fig. 5). USG using 12 mega hertz probe showed a heterogeneous hypo echoic area with discontinuity (Fig. 6). MRI confirmed disruption of the tendon on T1weighted and intratendinous generalized increased signal intensity on T2 weighted (Fig. 7).



**Fig.1:** Subcutaneous fat was absent, visible depression proximal to the insertion of tendoachilles



**Fig. 2:** No tenderness, palpable gap in the continuity of the tendoachilles proximal to its insertion, thickening noted proximal to the gap, firm in consistency



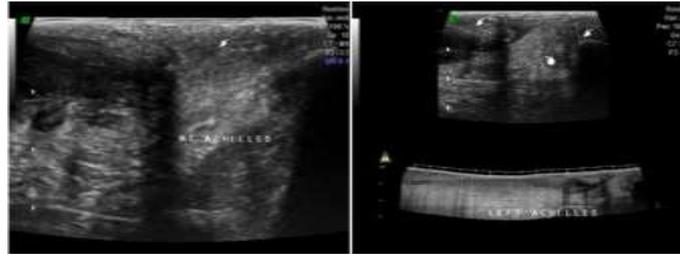
**Fig. 3:** No plantar flexion on squeezing the gastrosoleus muscles, indicates that discontinuity in tendoachilles



**Fig. 4:** Needle placed 10 cm proximal to the insertion of the tendoachilles does not move on plantar and dorsiflexion



**Fig. 5:** ankle joints show loss of normal regular configuration of kager's triangular space, which is between the superior aspect of the calcaneum and anterior aspect of tendoachilles



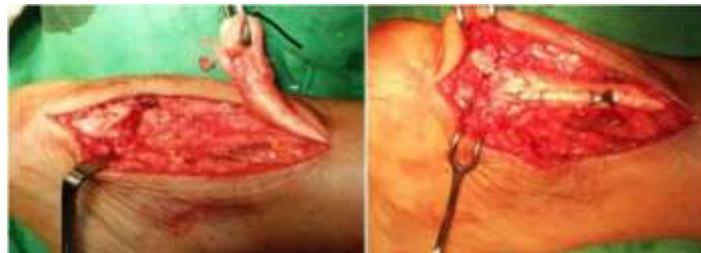
**Fig. 6: USG using 12 mega hertz probe showed a heterogeneous hypo echoic area with discontinuity**



**Fig.7: MRI confirmed disruption of the tendon on T1 weighted and intratendinous generalized increased signal intensity on T2 weighted**

We operated on both the ankles at an interval of 2 months. We used Krackow’s technique with ethibond as the suture material (Fig. 8). Post operatively above knee cast was applied for 2 weeks in equinus, suture removal done on 14th day. Short leg cast for next 2 weeks. At 4-6 weeks, gradually foot is brought to plantigrade position and partial weight bearing started. At 6-8

weeks full weight bearing over plantigrade short leg cast started. At 12 weeks reverse plantigrade ankle stop brace applied to gain full range of motion. Finally patient achieved 90% of the ankle movements at 6 months and patient was able to walk and climb stairs without any discomfort.



**Fig. 8: Krackow’s technique with ethibond as the suture material**

**DISCUSSION**

The first description about the tendoachilles was given by Hippocrates [1]. The name Achilles tendon derived from the warrior of Homer’s Iliad, Achilles. It is the strongest and thickest tendon in the body [2]. Thetis, mother of Achilles made his body invulnerable to physical harm by immersing him in the river Styx after learning of a prophecy that Achilles would die in the battle. However, the heel by which he was held remained untouched by the water and thus Achilles had a vulnerable point and was killed in a war, by a poisoned arrow fired in to his heel by the prince of Trojan [3].

Bilateral Achilles tendon ruptures due to corticosteroid infiltration is rare. Spontaneous rupture most often occurs around 30 - 50 years, non-athletes

and women over the age of 50. Unilateral rupture of the Achilles tendon increases incidence of contralateral tendon rupture by more than 18 times [4]. Spontaneous rupture may be due to congenital abnormal collagen, infection, rheumatism, endocrinal, neurological dysfunction, increasing age causing ischemic changes in Achilles tendon, excessive exercise leading to Achilles tendon degeneration, intralesional/oral steroids, norfloxacin, fluoroquinolones, high temperature and tendon calcification [5].

Normal tendoachilles consist of mainly type-1 collagen, while a ruptured tendoachilles consists of type-3 collagen, which is less resistant to tensile forces and may, therefore, predispose the tendon to spontaneous rupture[6].

Patients will present with a sudden snap followed by difficulty in walking, gradually appearing swelling and discolouration of heel. Swelling at the site is due to internal bleeding which masks the actual discontinuity of tendon. The plantaris tendon and flexor hallucis longus tendon provide sufficient plantar flexion strength so as to compensate for walking [7].

Examination reveals depigmentation of the skin, palpable gap, Thomsons test and Obrien's needle test will be positive.

X ray examination is done to rule out any associated avulsion fractures of the calcaneum and shows loss of normal regular configuration of Kager's triangular space [8].

Real time high resolution Ultrasonography of Achilles tendon is more sensitive than soft tissue radiography. High frequency probes of 7.5 to 10.0 megahertz provide the best resolution due to short focus and give dynamic and panoramic image of the tendon. It reveals heterogeneous hypo echoic areas with discontinuity. Spaces are filled with fluid [9].

Magnetic resonance imaging reveals disruption of the tendon on T1- weighted image and intratendinous generalized increased signal intensity on T2 weighted image [10].

Bilateral chronic tendoachilles rupture can be treated both conservatively and surgically. The disadvantage of conservative treatment is a high rerupture rate. Amendala *et al* reported a rerupture rate of 21% in conservative and 2% in operative cases [11]. Surgical repair of the tendon has different techniques like Krackow's, Lindholm, Lynn and Teuffer. In our case Krackow's technique has been used for the repair of the tendon [12]. Post operatively above knee cast immobilization done for 2 weeks. Suture removal done on the 14th day. Short leg cast with foot in equines is put for next 2 weeks. At 4 weeks, the cast is changed and foot is gradually brought to the plantigrade position, partial weight bearing is started over the next 2 weeks. At 6-8 weeks, short leg cast in plantigrade position is applied and full weight bearing started. At 12 weeks, a reverse 90 degree ankle stop brace is worn until the near normal range of motion is achieved and 80% strength [13]. In our case at 12 months patient has achieved full range of movements at both ankle joints and able to walk and climb stairs comfortably.

## CONCLUSION

Bilateral tendoachilles rupture due to corticosteroid infiltration is very rare. Better to avoid intralesional steroid injections in and around the tendoachilles. MRI and ultrasound are confirmatory. MRI is more sensitive than ultrasound, but due to cost USG is the preferred

investigation. Histopathological investigation reveals the tendon end to be degenerated; thereby chronic ruptures should be repaired surgically, which reduces chance of failure and improves functional outcome. Bilateral cases are to be operated in two sittings to avoid complications caused due to prolonged immobilization.

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