

Case Report

Bilateral Chronic Rupture of Achilles Tendon after Cortico-Steroid Injection - A Case Report

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Abstract:

Bilateral chronic rupture of Achilles tendon after cortico steroid injection is rare . Very few Cases of Achilles tendon rupture have been described in the literature after intra / peri tendinous corticosteroid injection . A middle aged man presented with gradually increasing difficulty in climbing stairs and mild pain, swelling in lower posterior part of both legs for two month after cortico steroid injection. We report a case of bilateral chronic rupture of Achilles tendon after cortico steroid injection .

Key Words: Achilles tendon, rupture.

Introduction:

Achilles, the warrior of Homer's Iliad , lends his name to the Achilles Tendon. It is the thickest and strongest tendon of the human body (O'Brien, 1992). 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 brother of prince of Trojan (Shampo & Kyle, 1992). Hippocrates , was the first to record description of Achilles tendon injury (Carden et al, 1987).

Tendon's pathology accounts for approximately half of all sports related injuries, the Achilles tendon being most commonly involved. In United states, Achilles problems accounts for 11% of all injuries i.e. approximately 825,000 injuries every year.

Although rupture of Achilles tendon is relatively common , but bilateral rupture after steroid injection is rare. Prolonged oral administration and repeated peritendinous injection of corticosteroids are associated with Achilles tendon rupture. (Unverferth & Olix, 1973). We present a case of bilateral chronic rupture of Achilles Tendon after cortico- steroid injection.

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Case Report:

A 54 year old male presented with history of gradually increasing difficulty in climbing stairs and mild pain with swelling in lower posterior part of both the legs for two month after injection of cortico steroid. Patient took treatment for long standing pain in the heel region from an Orthopedic surgeon for 6-7months. As there was no response from oral pain killers , the treating doctor gave him injectable steroid.

On clinical examination boggy swelling was seen in the region of Achilles tendon. Palpable gap was felt in the course of Tendon, which was approximately two to six centimeters proximal to the insertion on calcaneum.

High resolution Ultrasonography of both Achilles tendon was performed by high frequency linear probe (7.5 to 10 .0 megahertz) of L3 pro GE colour Doppler machine. Study showed heterogeneous hypo echoic areas within the substance of Achilles tendon four centimeter proximal to it's insertion suggestive of full thickness tear on both the side. The space was filled with fluid and debris. Gentle dorsal / plantar flexion movement of the feet showed discontinuity of movement between the tendon ends.

Discussion :

Hippocrates, was the first to record description of injury of Achilles tendon (Carden et al, 1987). The tendinous portions of the gastrocnemius and soleus muscles together form the Achilles tendon. Normal Achilles tendon consist of mainly type-I collagen, while a ruptured Achilles tendon also contains

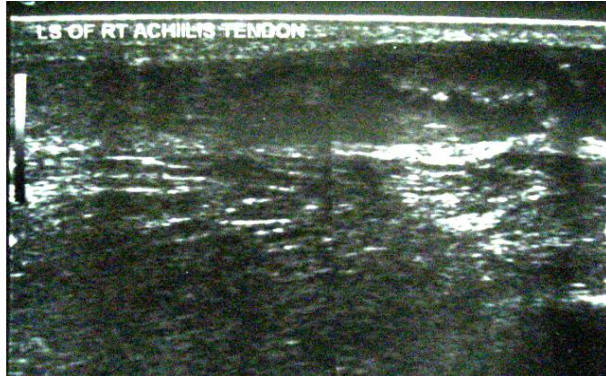


Fig. I: High resolution ultrasound of right Achilles tendon showing intratendinous hypo to anechoic areas.

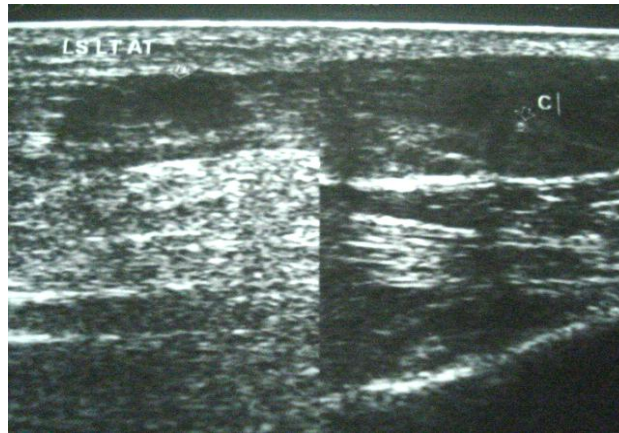


Fig. II: High resolution ultrasound of left Achilles tendon showing intratendinous hypo to anechoic areas with small hyper-echoic foci.

significant amount of type III collagen. It is found that type III collagen is less resistant to tensile forces and may, therefore, predispose the tendon to spontaneous rupture (Coombs et al,1980). The Achilles tendon is poorly vascularized in mid portion (Ker, 1981).

Typically, Achilles tendon rupture occurs in the fourth to fifth decades. Seventy five percent are associated with Racket sport or athletic activity. The second peak of injury occurs in the eighth decades (Eugre, 2005). Spontaneous rupture of Achilles tendon has been associated with inflammatory and autoimmune disorders, genetically determined collagen abnormalities, infectious process and neurological conditions (Maffulli et al,1998). Rupture of Achilles tendon is more common in males with male to female ratio being 1.7: 1.

Although rupture of Achilles tendon is relatively common, but bilateral rupture after steroid injection is rare. Cortico steroids are administered in various diseases and have been widely implicated in tendon ruptures.

Unverferth & Olix (1973) reported rupture of Achilles tendon in five athletes, who had been given injection of cortico steroid in the region of the Achilles tendon for the treatment of tendinopathy. Long term therapy with Orally administered corticosteroid also have been implicated in the etiology of tendon rupture. Four out of twelve patients developed bilateral Achilles tendon injury, who were on long term oral therapy of cortico steroid for the treatment of chronic obstructive small airway disease (Newnham et al,1991).

Patients usually present with history of sudden pain in the affected leg often at the time of the injury. Some patients report an audible snap. Most of them are unable to bear weight and experience weakness or stiffness of the affected ankle. Patient with chronically ruptured Achilles tendon either have history of no trauma or only minor trauma. They first notice the injury because of their inability to complete every day tasks such as climbing stairs (Hattrup & Johnson, 1985). Clinical examination reveal diffuse edema and bruising and unless the swelling is profuse, a palpable gap may be felt along the course of the tendon.

In general rupture of the Achilles tendon does not pose diagnostic problem. There are a number of diagnostic signs and tests, both clinical and radiological, that the examiner may use to aid in the diagnosis.

Plain radiograph of the ankle show loss of normal regular configuration of Kager's triangular space, which is between the superior aspect of the calcaneum and anterior aspect of Achilles tendon (Arner et al, 1959).

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 (Fornage & Rifkin, 1988). The Achilles tendon is composed of longitudinally arranged collagen fibers. So that ultrasound probe should be held at right angle to the tendon to get optimum image of tendon & to avoid anisotropic artifacts. High resolution sonography of ruptured Achilles tendon reveals heterogeneous hypo echoic areas with discontinuity. Spaces are filled with fluid. Ultrasonography also can be used to study the elastic properties of tendon.

Magnetic resonance imaging reveals disruption of the tendon on T1- weighted image and intratendinous generalized increased signal intensity on T2 weighted image (Kabbani & Mayer, 1993).

Treatment options of acute rupture of Achilles tendon are open operative, percutaneous operative or non operative. Nonathletes may be treated non-operatively while operative treatment is the method of choice for athletes.

Conclusion:

Rupture of Achilles tendon is relatively common in male athletes although the bilateral chronic rupture of Achilles tendon after corticosteroid injection is rare. High resolution Ultrasonography of ruptured tendon is highly sensitive and provide real time imaging. Proper clinical examination is also very useful. Magnetic resonance imaging (MRI) is more sensitive than Ultrasonography to detect Tendon rupture. But the high cost and lack of wide availability is the disadvantage of Magnetic resonance imaging .

To conclude , it is very important to have a correct diagnosis of Achilles tendon rupture . Long term use of oral treatment and intra, peritendinous injection of cortico steroid should be avoided.

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