

Case Report / Olgu Sunusu**Bilateral Kalkaneal Apofiziti Bulunan Bir Olgunun MRG Bulguları****MRI findings of a Case With Bilateral Calcaneal Apophysitis**Berat Acu¹, Taylan Kara², Safiye Topaloglu Ascı³, Aysegül Altunkas³

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ÖZET

Kalkaneal apofizit (KA), kalkaneal epifizin ossifikasyonu öncesi dönemdeki topuk ağrısının en sık nedenlerinden biridir. Bu sunumda bilateral medial kalkaneal ağrıyla gelen 9 yaşındaki erkek hastada saptanan kalkaneal apofizitin MRG bulgularının vurgulanması amaçlandı. Bilateral topuk ağrısı şikayeti olan 9 yaşında erkek hasta MR görüntüleme amacıyla bölümümüze yönlendirildi. Çekilen bilateral ayak MR'ında her iki aşil tendonu yapışma yeri olan tuber kalkaneide ödemi ve subkondral erozyonu düşündürülen T1 ağırlıklı görüntülerde azalmış sinyal intensitesi, T2 ağırlıklı yağ baskılı görüntülerde ise artmış sinyal intensitesi saptandı. Bu bulgular ışığında tanı olarak bilateral kalkaneal apofizit düşünüldü. Sever hastalığı veya KA aşil tendonunun traksiyonu nedeniyle tekrarlayan mikrotravmaya bağlı olduğu düşünülen kalkaneal apofizin inflamasyonudur. Sıklıkla 8-15 yaşları arasında, büyüme dönemi veya öncesinde gözlenir. Hastaların çoğunda yeni bir spora başlamanın ertesinde görülür. Kızarıklık, şişlik, cilt değişiklikleri gibi lokal anormallikler gözlenmez.

Kalkaneal apofize komşu metafizer bölgede gözlenen kemik erozyonu kalkaneal apofizitin MR bulgusudur. Benzer sinyal değişiklikleri sekonder apofizyel ossifikasyon merkezlerinde de görülebilir.

Anahtar Kelimeler: Kalkaneal apofizit, Sever Hastalığı, manyetik rezonans görüntüleme, MRG

ABSTRACT

Calcaneal apophysitis (CA) is the most common cause of heel pain in patients before the ossification of calcaneal epiphysis. We report magnetic resonance imaging (MRI) findings of a case with bilateral CA. A 9 year-old male patient with bilateral foot pain was referred to our department for MRI. On bilateral foot MRI, bilateral decreased signal intensity on T1-weighted images, increased signal intensity on fat suppressed T2-weighted images that represents edema, subchondral erosions located tuber calcanei, insertion of Achilles tendon were detected. The diagnosis was bilateral calcaneal apophysitis. Sever's disease or CA is an inflammation of the calcaneal apophysis believed to be caused by repetitive microtrauma from the traction of the Achilles tendon on the unossified apophysis. It frequently occurs before or during the peak growth spurt and often shortly after a child begins a new sport or season. It is usually seen among 8-15 age group. Patients typically have no features such as swelling, skin changes, erythema, or other local abnormalities.

Osseous erosion at metaphysis of the neighboring to calcaneal apophysis is the finding of CA on MRI. Similar signal difference may be seen at the secondary apophysial ossification centers.

Key Words: Calcaneal apophysitis, Sever's disease, magnetic resonance imaging, MRI

Introduction

Calcaneal apophysitis (CA) is the most common cause of heel pain in patients before the ossification of calcaneal epiphysis (1,2). CA (also known as Sever's disease) is an overuse syndrome thought to be caused by repetitive micro trauma due to increased traction of the calcaneo-achilles apophysis (3). Calcaneal apophysitis is reported as a self limiting condition (4), usually presenting between the ages of 8–15 years (1,5), but has been observed in children as young as six. The classical case is usually a preadolescent boy with chronic heel pain. Pain is increased with activity. We report magnetic resonance imaging (MRI) findings of a case with bilateral CA.

Case Report

A 9 year-old male patient was presented with bilateral foot pain at the medial calcaneal region. He was referred to our department for bilateral foot MRI exam. On bilateral foot MRI, bilateral decreased signal intensity in T1-weighted images, increased signal intensity in fat suppressed T2-weighted and proton density images that represents edema, subchondral erosions located tuber calcanei, insertion of Achilles tendon were detected. The diagnosis was bilateral CA.

The treatment of the patient was regulated as activity modification and oral parasetamol for three weeks. (Figure 1-4) The patient returned to sport activities after two months.



Figure 1 Sagittal T1 weighted image of right ankle shows diffuse hypointense signal

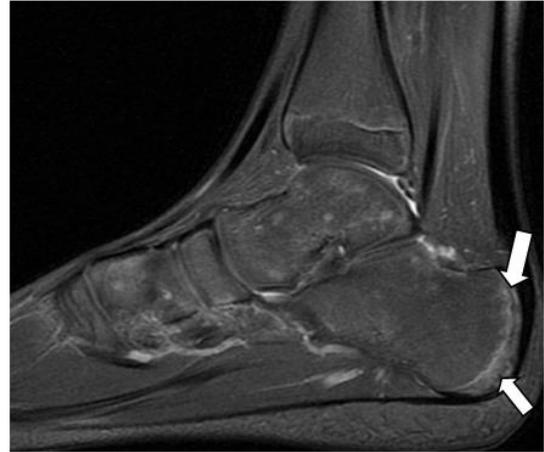


Figure 2 Sagittal fat-suppressed fast spin-echo T2-weighted image of right ankle shows diffuse hypointense signal intensity of the calcaneal epiphysis and milimetric subchondral bone erosions at the tuber calcanei, the insertion of Achilles tendon

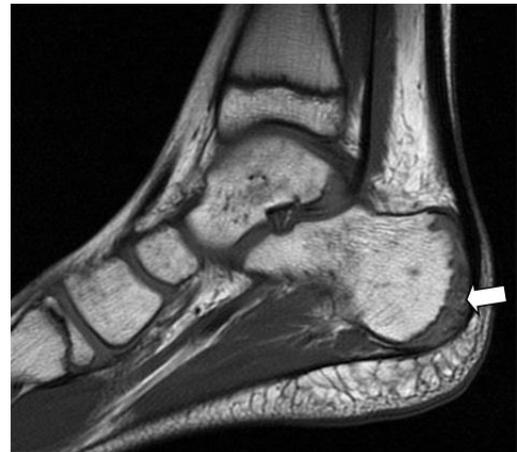


Figure 3 Sagittal T1 weighted image of left ankle shows diffuse hypointense signal intensity



Figure 4 Sagittal fat-suppressed fast spin-echo T2-weighted image of left ankle shows hyperintense signal intensity related to bone marrow edema and subchondral bone erosions at the tuber calcanei, the insertion of Achilles tendon.

Discussion

Sever's disease or CA is a common but frequently undiagnosed source of heel pain in young athletes. It is an inflammation of the calcaneal apophysis believed to be caused by repetitive microtrauma from the traction of the Achilles tendon on the unossified apophysis. The pain related to this inflammation is thought to cease after fusion of the calcaneus (3). However, no studies have yet reported the incidence or prevalence of this condition in the general population. It frequently occurs before or during the peak growth spurt and often shortly after a child begins a new sport or season (1).

It is usually seen among 8-15 age group. Patients typically have no features such as swelling, skin changes, erythema, or other local abnormalities (2). The patient that we report was 9 year old as in the literature age group.

Sever's disease is usually a self limited disease, most of them usually resolves in two weeks to two months after the conservative treatment such as ice application, rest, heel lifts, stretching and strengthening exercises, and nonsteroidal anti-inflammatory drugs in more severe cases (6).

In a child with heel pain, the differential diagnosis may include Achilles tendonitis, retrocalcaneal bursitis, calcaneal stress fractures, calcaneal cysts, osteomyelitis, and plantar fasciitis (7).

Plain radiographs do not reveal characteristic features of Sever disease. Ossification irregularities with sclerosis and fragmentation within the apophysis are normal features of a developing calcaneus. The lateral calcaneal view and axial (Harris) view are taken only when the history is not classic, when the patient has night pain, swelling, exquisite tenderness, or when a diagnosis other than Sever disease is suspected (7). An MRI can show areas of bone edema and hemorrhage, or a bone bruise, within the metaphyseal bone of the calcaneus (5). Our case had same MRI findings like edema, subchondral erosions located tuber calcanei.

Osseous erosion at metaphysis of the neighboring to calcaneal apophysis is the finding of CA on MRI. Similar signal difference may be seen at the secondary apophysial ossification centers.

Secondary ossification center of calcaneus typically appears in girls by age 6, and in boys by age 8 (8).

After the treatment disappearing of metaphysial and apophyseal findings on MRI was reported in the literature (5).

Sever's disease should be kept in mind as a usual diagnosis among the late child-adolescent age.

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