



Pseudarthrosis of a calcaneus fracture: a case report

Kalkaneus kırığında psödoartroz: Olgu sunumu

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Kalkaneus psödoartrozu çok nadirdir. Sol topuğuna baskarken şiddetli ağrı olması ve koltuk değneksiz yürüyememe şikayetiyle başvuran 42 yaşındaki erkek hastada, klinik ve radyolojik incelemeler sonucunda kalkaneus psödoartrozu tanısı kondu. Hastanın sekiz ay önce geçirdiği trafik kazasında açık kalkaneus kırığı olduğu ve alçı tedavisi gördüğü öğrenildi. Cerrahi olarak küretaj, greftleme ve internal tespit yapıldı. Ameliyat sonrası sekizinci aydaki kontrolde kaynama yerinin iyi olduğu ve hastanın günlük aktivitelerini rahatça yapabildiği görüldü. Sadece uzun yol yürüdüğü zaman hafif topuk ağrısından şikayet eden hastada ağrının subtalar eklem kaynaklı olduğu düşünüldü.

Anahtar sözcükler: Kalkaneus/yaralanma/radyografi; kırık fiksasyonu, internal; psödoartroz/etioloji/cerrahi.

Nonunion after a calcaneus fracture is rare. A forty-two-year-old man presented with complaints of extreme left heel pain on weight-bearing, that required him to use crutches. Clinical and radiological studies yielded a diagnosis of calcaneal nonunion. He had a history of an open calcaneal fracture that occurred in a traffic accident eight months before, for which he received cast treatment. He underwent surgical treatment (curettage, bone graft, and internal fixation) for the nonunion of the calcaneus. Eight months after the operation, no problem was observed at the union site, and the patient returned to his normal activity levels. He had a slight heel pain appearing only after walking long distances, which was attributed to the subtalar joint.

Key words: Calcaneus/injuries/radiography; fracture fixation, internal; pseudarthrosis/etiology/surgery

Calcaneus consists of cancellous bone. Calcaneal fracture easily heals with conservative or surgical treatments. Pseudoarthrosis of calcaneus is very rare [1-3]

In this document, a case in whom pseudoarthrosis was observed following conservative treatment of open calcaneus fracture and healing was obtained by surgical procedures was reported.

Case story

A 42 years old male patient admitted to our outpatient clinic due to inability to stand on his left heel. 4 months of long leg casting and 2 months of short leg casting were performed outside the country due to a traffic accident happened 8 months ago. It was

learned that casts were removed 2 months ago. After the removal of the casts patient suffered from severe pain while standing on the heel, walked by crutch without stepping on left foot and could not manage his job. Left heel was palpated as painful and enlarged. Nonunion of multiple calcaneus fracture towards subtalar joint was observed in lateral and axial (Harris) graphy and computerized tomography (figure 1). When personal history was re-investigated, 20 years of smoking habit by 1 box daily was learned.

Surgical treatment was planned and calcaneus and subtalar joint were revealed by posterolateral incision. Fracture reduction and restoration of subtalar joint were decided not to be performed because



Figure 1. (a) Multipl calcaneus fracture through subtalar joint which deforms the Bohler angle and calcaneus pseudoarthrosis were observed in lateral and Harris graphies of calcaneus. (b) Coronal section computerized tomography of calcaneus pseudoarthrosis.

of the fragility of calcaneus. A bony plaque of 2 x 2 cm of size was removed from the lateral wall of calcaneus; fibrous tissue between fracture ends were refreshed by curettage. The space was filled with 30 mL of cancellous chips graft (allograft) and fixation with two U nails was performed after covering the area by formerly removed plaque. Calcaneal bone process was excised which tightened the peroneal tendons at the distal part of the fibula. After closing the wounds, long leg casting was performed. After 3 weeks of long leg, 3 weeks of short leg and 4 weeks of short leg walking castings, sufficient union was obtained at radiography taken without casts. Casts was removed when patient reported that he did not feel pain while standing on left heel. In radiography taken 8th months of treatment, the union was sufficient (figure 2). Patient was able to

walk and work easily. The mild pain occurring after long walks was thought to originate from subtalar joint.

Discussion

We could find only 5 cases of pseudoarthrosis of calcaneus occurred after conservative or surgical treatment of calcaneus fracture,^[1-3] in the literature. Gehr et al^[1] obtained union in two pseudoarthrosis cases occurred after conservative and surgical treatment of calcaneus fracture, one in each group while Thomas and Wilson^[2] obtained union in one pseudoarthrosis case occurred after conservative treatment of calcaneus by performing operation (curettage, grafting and internal fixation). Zwipp et al^[3] reported 2 pseudoarthrosis after operating 157 patients with acute calcaneus fractures, but did not



Figure 2. Union of pseudoarthrosis of calcaneus was being observed at postoperative 8th month in calcaneus lateral and Harris graphies.

mention about the treatment approach. Systemic and local risk factors are thought to play role in development of pseudoarthrosis.^[4] In our patient smoking was the systemic risk factor and open fracture was the local risk factor.

Main principles for acute calcaneus fracture treatment can be listed as follows: Restoration of subtalar and calcaneocubiod joint, restoration of the height and width of calcaneus, decompression of subfibular space and positioning the tubercle at valgus.^[4] Main complaint of our patient was the severe pain due to pseudoarthrosis while standing on the effected foot. Fracture reduction and subtalar joint restoration were not performed because the bone was found to be very fragile during operation of the patient who did not step on his left heel for about 8 months long. Only lateral decompression was performed for peroneal tendons. It is thought that patient could return to his daily activities if calcaneus heals. Patient was told that subtalar arthrodesis

can be performed if disturbing pain is experienced due to subtalar joint in the future. We think that the pain which does not interfere with the daily activities reported in last controls is thought to originate from subtalar joint.

As a result in calcaneus pseudoarthrosis which is a very rare condition, healing can be obtained easily by surgical interventions (curettage, grafting and internal fixation).

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