FRACTURE OF THE OSSIFIED ACHILLES TENDON

M. C. AKSOY, A. SURAT

The authors report a fracture of an ossified Achilles tendon in a 44-year-old male patient who was admitted to the hospital after a minor injury with pain on the posterior aspect of his left calf. Examination disclosed a fracture of the ossified Achilles tendon. Plain roentgenogram and MRI confirmed Achilles tendon ossification and fracture at the distal one-third of the tendon. Surgical treatment with excision of the ossified mass and reconstruction with an Achilles tendon flap was performed. After two years, the patient has quite good function, and MRI shows healing of the tendon.

Keywords : Achilles tendon ; ossification ; fracture.
Mots-clés : tendon d'Achille ; ossification ; fracture.

INTRODUCTION

Rupture of the Achilles tendon is a commonly encountered lesion, but fracture of an ossified Achilles tendon is a rare entity (3, 5, 7). Treatment of the fractured ossified tendon can be conservative or surgical (2, 4). We report an ossified Achilles tendon fracture, treated with surgical excision of the ossified mass and reconstruction of the tendon with a proximal Achilles tendon rotation flap.

CASE REPORT

The patient, a 44-year-old male, was climbing stairs when he felt a sudden pain in his left calf which made him unable to walk. Because of this pain he was admitted to the emergency department. There was a history of a deep laceration at the posterior aspect of his left calf 35 years earlier. Examination of the posterior aspect of the left calf revealed a tender, hard mass in the substance of the Achilles tendon. A gap was palpated 4 cm proximal to the insertion of the tendon. The Thompson squeeze test was positive, and the patient was unable to actively plantarflex his left ankle. Physical examination of the right Achilles tendon was normal.

A plain roentgenogram of his left calf showed ossification of the Achilles tendon and fracture in the distal part. The length of the ossification was about 7 cm. A plain roentgenogram of the right leg was normal.

The ossification in the substance of the Achilles tendon and the fracture of the ossified mass were also evident on the magnetic resonance imaging (MIR) (fig. 1).

The patient was admitted for surgical treatment. The ossified mass of the Achilles tendon was excised and a flap was prepared from the proximal mid-part of the tendon ; the flap was then inverted and sutured to the distal part of the tendon with nonabsorbable (ethibond) suture (fig. 2, 3, 4).

The limb was immobilized in a long-leg plaster cast, which was removed after 6 weeks, when active ankle motion was instituted, and the patient was instructed to use a splint in 10° plantar flexion for another 6 weeks and to walk with the support of a cane. After 12 weeks, he was able to walk comfortably without any restriction.

After two years he is now walking comfortably and is able to put weight on his leg ; he has 20° of plantar flexion and full dorsiflexion. Repeat

Hacettepe University, Medical Faculty, Department of Orthopedics and Traumatology, Ankara, Turkey.

Correspondence and reprints : M. C. Aksoy, Güvenlik cad. Çiftevler sok. bener ap. no : 12/7 Asagi Ayranci 06540 Ankara, Turkey.

Fig. 1. — Preoperative MRI of the patient.

MRI, obtained after two years, showed complete healing of the tendon at the site of the flap (fig. 5).

DISCUSSION

Ossification of the Achilles tendon has been reported as a rare entity, whereas calcific tendinitis due to calcium pyrophosphate dihydrate crystal or hydroxyapatite crystal deposition is well known (5). Ossification of the Achilles tendon may occur in the body of the tendon or at its insertion into the calcaneum, producing a firm, non-tender mass (5). There is a history of trauma or previous surgery in more than half the reported cases (5, 8). This is also true for our patient who had experienced a deep laceration 35 years previously. The etiology has been attributed to various other conditions, such as syphilis, osteomyelitis of the calcaneum or a gastrocnemius abscess (5). The

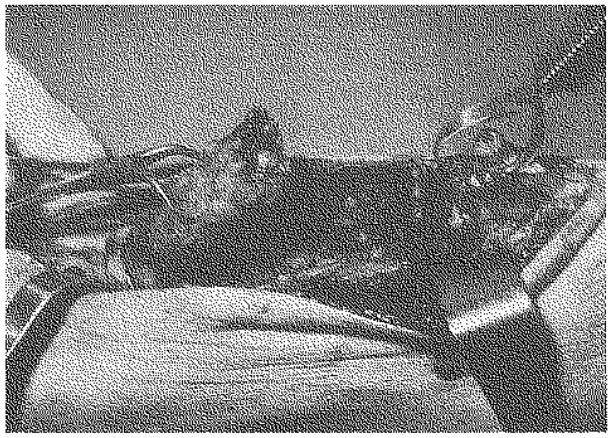

Fig. 2. — Appearance of the fracture ossified Achilles tendon intraoperatively.

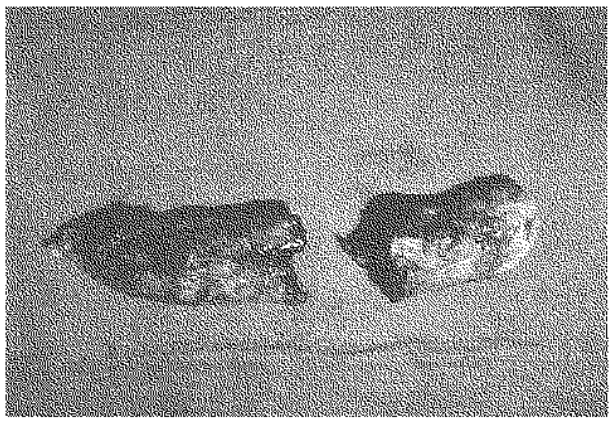

Fig. 3. — Appearance of the ossified mass.

Fig. 4. — Appearance of the Achilles tendon after reconstruction.

Fig. 5. — MRI obtained two years after the operation.

ossification mass is usually asymptomatic and does not require any treatment (5). In our case, the patient was free of symptoms until he had this fracture. Any significant symptom developing in the asymptomatic mass should arouse suspicion of a recent fracture.

Conservative treatment has been advocated following rupture of the Achilles tendon because similar results are obtained with conservative or surgical treatment methods when the range of motion, strength and functional level are assessed (4). Several authors still prefer surgical repair because of lower rerupture rate and better restoration of triceps strength and also because the risk of infection following surgical repair, despite historical opinions to the contrary, can in fact be kept very low (2). We believe that treatment of the fracture of the ossified Achilles tendon should be evaluated in the same manner. Conservative methods for treatment of fracture of the ossified Achilles tendon with immobilization in a plaster cast have been reported by Goyal *et al.* (1) in a case report, but his patient was older and less active compared to ours. In addition to that kind of conservative treatment, internal fixation of the fractured mass has also been reported as an option (6). However in both situations (fixation of the fractured mass and conservative treatment), because of the presence of the ossification mass in the substance of the tendon it may not be easy to obtain osseous union and the risk of refracture may be high. In addition, the presence of internal fixation material at this location may also cause severe complications. Another option was also suggested by Suso *et al.* for Achilles tendon fracture without complete rupture of the tendon (7). They advocate reconstruction of the tendon with Bosworth's technique (7). However, in our case we found complete fracture of the ossification mass with a large gap between the fragments. For this reason we preferred surgical excision of the ossification mass and reconstruction of the tendon with an Achilles tendon flap.

After two years, the patient is pain-free, has good ankle motion and does not have any functional restriction. MRI demonstrated healing at the flap site two years after treatment. We advocate that Achilles tendon fracture in patients with high demand on the limb should be treated surgically by excision of the ossified mass and reconstruction of the tendon. Our experience with this treatment has given good results.

REFERENCES

1. Goyal S., Vadhva M. Fracture of ossified Achilles tendon. Arch. Orthop. Trauma Surg., 1997, 116, 312-314.
2. Inglis A., Sculco T. Surgical repair of the tendo Achilles. Clin. Orthop., 1981, 156, 160-169.
3. Joshi N. Achilles tendon ossification. Acta Orthop. Belg., 1994, 60, 432-433.
4. Lea R. B., Smith L. Nonsurgical treatment of the tendo Achilles rupture. J. Bone Joint Surg., 1972, 54-A, 1398-1407.
5. Lotke P. A. Ossification of the tendo Achilles. Report of seven cases. J. Bone Joint Surg., 1970, 52-A, 157-160.
6. Mady F. Symmetrical bone formation in the Achilles tendon. Magy Traumatol. Ortop. Plasztikai Seb., 1993, 36, 373-375, (English abstract).

7. Suso S., Peidro L., Ramon R. Fracture of an ossification of the tendo calcaneus. Acta Orthop. Belg., 1988, 54, 391-393.
8. Yu J. S., Witte D., Resnick D., Pogue W. Ossification of the Achilles tendon : Imaging abnormalities in 12 patients. Skeletal Radiol., 1994, 23, 127-131.

SAMENVATTING

M. C. AKSOY, A. SURAT. Fractuur van de geossifieerde achillespees.

De auteurs beschrijven een fractuur van de geossifieerde achillespees bij een 44-jarige oude man.
Hij werd gezien op de spoedgevallen met pijn in de kuit na een miniem trauma.
Het onderzoek toonde een fractuur aan van de geossifieerde achillespees.
Dit werd bevestigd door radiografie en NMR.
De behandeling bestond uit excisie van de geossifieerde massa en reconstructie van de achillespees met een flap.
Na 2 jaar heeft de patiënt een behoorlijk goede functie en toont het NMR-onderzoek een heling van deze pees aan.

RÉSUMÉ

M. C. AKSOY, A. SURAT. Fracture d'un tendon d'Achille ossifié.

Les auteurs rapportent un cas de fracture d'un tendon d'Achille ossifié chez un homme de 44 ans qui avait été hospitalisé après un traumatisme mineur, se plaignant de douleur à la face postérieure du mollet. L'examen a révélé une fracture du tendon d'Achille ossifié.
Les radiographies et l'IRM ont confirmé l'ossification du tendon d'Achille, ainsi que l'existence d'une fracture au tiers distal du tendon. La lésion a été traitée chirurgicalement par excision de la masse ossifiée et reconstruction par un lambeau de rotation du tendon d'Achille. Deux ans plus tard, le résultat fonctionnel est bon et l'IRM montre une bonne cicatrisation du tendon.