

ACHILLES TENDON OSSIFICATION

N. JOSHI, E. DIAZ, J. MASSONS

The authors describe the case of a patient who had an ossified Achilles tendon without fracture. Such ossification is uncommon, occurring most often after trauma or surgery.

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

INTRODUCTION

Radiopaque lesions of tendons are quite common in the upper extremities (rotator cuff, elbow, deltoid insertion, wrist), but less common in the lower extremities (quadriceps, adductor magnus, Achilles and peroneal tendons) (5). Achilles tendon ossification is rare. The etiology of ossification may be microtrauma, previous surgery on the tendon or a wide variety of either systemic, metabolic or inflammatory diseases.

We report one case of ossified Achilles tendon without fracture.

CASE REPORT

A 42-year-old female housewife complained of pain on physical effort in her right posterior ankle and heel during the previous 3 months. Physical examination revealed a painful, bony hard mass in her right Achilles tendon. There was a large soft-tissue swelling, without erythema, warmth or local ecchymosis. Dorsal and plantarflexion of the ankle were complete and she could stand on tiptoe. The hematologic, biochemical and hormonal laboratory tests were within normal limits. Anteroposterior and lateral roentgenograms (fig. 1) and magnetic resonance imaging (MRI) (fig. 2) of the right ankle revealed extensive ossification

of the entire Achilles tendon. At the age of 13 years she had had a traumatic rupture of the Achilles tendon which required surgery. She did not report pain in the posterior right ankle until the previous 3 months. As she had minimal symptoms and there was no fracture, surgery was not performed.

DISCUSSION

Ossification of the Achilles tendon has been described infrequently in the literature (1, 2, 3, 4, 5, 6). Nowadays, the most common etiologies are microtrauma, including that from shoe pressure



Fig. 1

Fig. 1. Lateral radiograph showing a large area as ossification involving the Achilles tendon.



Fig. 2

Fig. 2. M.R.I. demonstrating the ossification in the Achilles tendon without fracture.

Department of Orthopedic Surgery and Traumatology,
Hospital of Vall d'Hebrón, Barcelona, Spain.

Correspondence and reprints : N. Joshi.

and abnormal calcaneal shape, and macrotrauma, such as rupture or surgical intervention on the Achilles tendon (4, 6). Ossification of the Achilles tendon has also been described in syphilis, gastrocnemius abscess, osteomyelitis, Wilson's disease, renal failure, Reiter's syndrome and gout (4, 5, 6).

The main factor in the etiopathogenesis of the osseous metaplasia is tissue hypoxia: the poor blood supply causes transformation of the tendon into fibrocartilage where chondrocytes mediate the deposition of calcium, and a bony mass may develop with organized trabecular bone (2, 4, 6).

Radiopaque lesions are classified into 3 types depending on their anatomical situation (5):

— type I. Lesions found at the Achilles tendon insertion or superior pole of the calcaneus.

— type II. Intratendinous radiopacities located at the insertion zone, 1 to 3 cm proximal to the Achilles attachment.

— type III. Intratendinous radiopacities located proximally to the insertion zone, upward to 12 cm.

— type IIIA. Partial tendon ossification.

— type IIIB. Total tendon ossification.

In type III bony changes in the calcaneus are not commonly seen.

The ossified mass is usually asymptomatic and needs no treatment. However fracture of the ossification causes pain (2, 4).

Several techniques have been described for tendon reconstruction (e.g. plantaris tendon graft, fascia lata graft, peroneus brevis tendon and gastrocnemius-soleus (2). It should be stressed that, in any case, it is very difficult to repair the large gap resulting from removal of the ossification. An alternative to total resection is fixation of osseous fragments by a figure of eight wire.

CONCLUSION

Ossification of the Achilles tendon is very unusual. Most cases occur following trauma or surgery. A rare complication of Achilles tendon ossification is fracture of the ossific mass as a result

of acute trauma. Generally the ossified tendon is asymptomatic and requires no treatment. If a fracture is present, surgery must be performed.

The case we report had had a traumatic rupture of the Achilles tendon at the age of 13 years that required surgery. She had a type IIIB lesion of 10 cm which was symptomatic but had no fracture.

REFERENCES

1. Brumbaugh M. L. Tendinitis ossificans traumatica. *J. Bone Joint Surg.*, 1932, 14, 953.
2. Fink R. J., Corn R. C. Fracture of an ossified Achilles tendon. *Clin. Orthop.*, 1982, 169, 148-150.
3. Ghormley J. W. Ossification of the tendon Achilles. *J. Bone Joint Surg.*, 1938, 20, 153-160.
4. Lotke P. A. Ossification of Achilles tendon. Report of seven cases. *J. Bone Joint Surg.*, 1970, 52-A, 157-160.
5. Morris K. L., Giacomelli J. A., Granoff D. Classifications of radiopaque lesions of the tendon Achilles. *J. Foot Surg.*, 1990, 29, 533-542.
6. Suso S., Peidro L., Ramon R. Fracture of an ossification of the tendo calcaneus. *Acta Orthop. Belg.*, 1988, 54, 391-393.

SAMENVATTING

N. JOSHI, E. DIAZ, J. MASSONS. Ossificatie van de Achillespees.

De auteurs rapporteren het geval van een patiënte met een ossificatie van de Achillespees, zonder fractuur. Soortgelijke ossificaties komen zelden voor en worden het meest na trauma of heelkundige ingrepen gezien.

RÉSUMÉ

N. JOSHI, E. DIAZ, J. MASSONS. Ossification du tendon d'Achille.

Les auteurs rapportent le cas d'une patiente qui présentait une ossification étendue du tendon d'Achille sans fracture associée. De telles ossifications sont rares et surviennent le plus souvent après un traumatisme ou un antécédent chirurgical.