

# OS TRIGONUM AND SOLEUS TERTIUS ANOMALY

J. BELLEMANS<sup>1</sup>, P. A. REYNDERS-FREDERIX<sup>1</sup>, D. STOFFELEN<sup>1</sup>, P. L. O. BROOS<sup>2</sup>, G. FABRY<sup>1</sup>

**A case of both an os trigonum and a soleus tertius anomaly is presented in a patient with chronic posteromedial ankle pain. A resection of the os trigonum was performed, with complete relief of symptoms. The diagnosis and therapy are discussed, and the literature is reviewed.**

**Keywords :** os trigonum ; soleus tertius anomaly.

**Mots-clés :** os trigone ; troisième soléaire ; atypicité.

## INTRODUCTION

Posteromedial ankle pain can be caused by several pathologies. Osteochondral ankle lesions, retrocalcaneal bursitis, tendinitis, os trigonum impingement, tarsal tunnel syndrome, and an accessory soleus muscle have all been described as possible causes (1, 6). The os trigonum is an accessory bone posterior to the talus, found in 7% of the normal adult population. It can occasionally cause impingement in plantar flexion between the calcaneus and the posterior edge of the tibia (1, 3). An accessory soleus muscle is an unusual anatomic variant that may present as a mass in the distal calf or medial ankle region, and that may become painful, particularly in athletes, due to hypertrophy (5, 7). We describe a case of both an os trigonum and a soleus tertius anomaly, in a patient with chronic posteromedial ankle pain.

## CASE REPORT

A 22-year-old football player in the national division complained of pain over the posteromedial

ankle region for one year. The symptoms started after a period of cast immobilization for a lateral ankle sprain. The pain was aggravated by running and jumping.

Physical examination demonstrated a tender area posterior and distal to the medial malleolus, with a palpable sharp bony prominence in the deep posterior region of the medial malleolus. A mild diffuse swelling of the medial retromalleolar area was noted. Pain could be elicited by forced plantar flexion.

Standard radiographs of the ankle and foot showed the presence of an os trigonum (fig. 1). Stress radiographs were normal. MRI revealed the presence of a soleus tertius anomaly. There was no evidence for osteochondral lesions, ligaments or tendon pathology (fig. 2).

A bone-scan showed a unilateral increased focal uptake posteromedial to the ankle, radiographically correlating with the os trigonum (fig. 3).

We concluded that the symptoms were caused by an os trigonum impingement syndrome, and a resection of the os trigonum was performed (figs. 4 and 5). The soleus tertius muscle was left untouched. Postoperatively an antalgic plaster cast was applied for two weeks. After 2 months the patient was free of symptoms and started his football training again.

<sup>1</sup> Department of Orthopaedic Surgery, K.U. Leuven, B-3212 Pellenberg, Belgium.

<sup>2</sup> Department of Traumatology, K.U. Leuven, B-3000 Gasthuisberg, Belgium.

Correspondence and reprints : P. A. Reynders-Frederix.

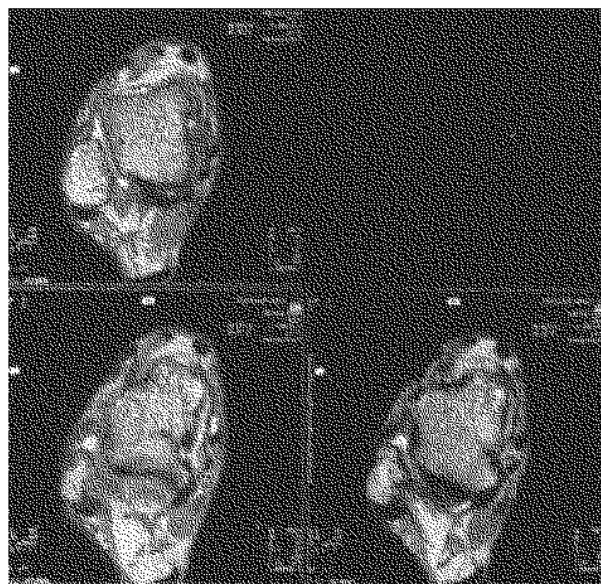


*Fig. 1.* — Xray shows the presence of an os trigonum posterior to the talus.

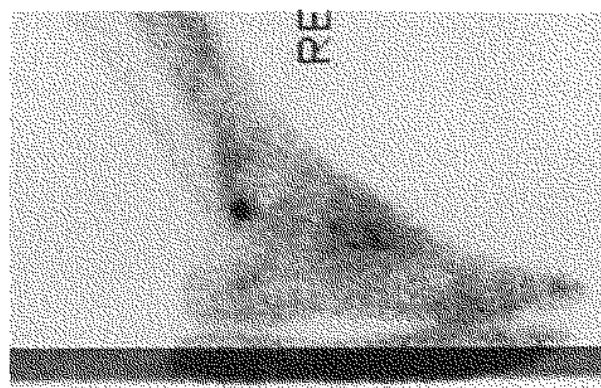
## DISCUSSION

An accessory soleus muscle, as a clinically significant finding, has been infrequently reported in the English literature. Usually it presents as a

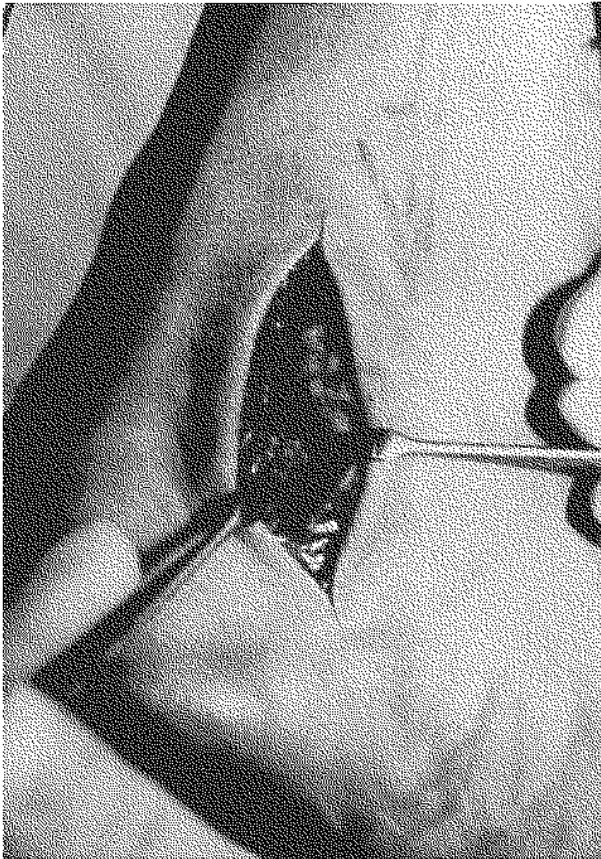
soft tissue tumor on the medial side of the ankle, since in most cases the insertion is at the medial or upper surface of the calcaneus (2, 4, 6, 7). Frequently it is accompanied by pain, especially in athletes, probably due to hypertrophy and local pressure on the surrounding tissues (5). In our case there was indeed a mild soft tissue swelling over the dorsomedial ankle region, but we believe that impingement of an os trigonum was the cause of the pain.



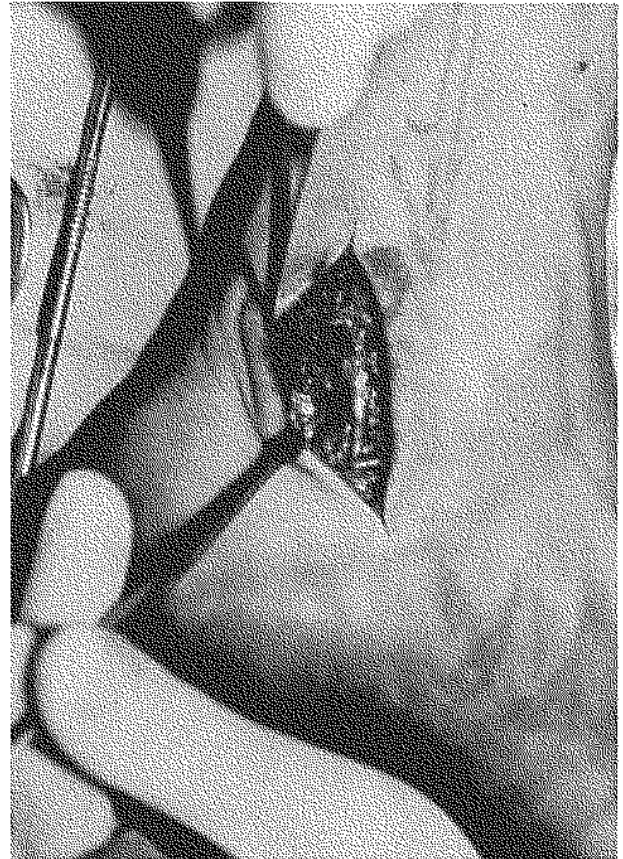
*Fig. 2.* — M.R.I. demonstrates the presence of an accessory soleus muscle medial to the Achilles tendon.



*Fig. 3.* — The bone scan shows increased focal uptake posterior to the ankle, correlating with the os trigonum.



*Fig. 4.* — Intraoperative picture showing the position of the os trigonum in relation to the neurovascular bundle.



*Fig. 5.* — Intraoperative picture showing the position of the os trigonum in relation to the soleus tertius muscle.

An os trigonum is formed by the absence of fusion of the ossification center for the lateral tubercle, which is the bony tubercle lateral to the flexor hallucis longus tendon groove. Normally this ossification center fuses with the main body of the talus between the age of 8 and 11 years (8). Impingement of this os trigonum between the calcaneus and the posterior aspect of the tibia can cause posterior ankle pain. This syndrome has been frequently reported in ballet dancers, because of the plantar hyperflexion in the “en-pointe” position (1).

In our case the patient was successfully treated by excision of the os trigonum. The decision to do this, and not to excise the soleus tertius muscle, was influenced by the bone scan, which showed hypercaptation of the os trigonum.

In conclusion we advise performing a bone scan in patients with chronic posteromedial ankle pain and a soleus tertius anomaly, to exclude os trigonum pathology.

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#### SAMENVATTING

*J. BELLEMANS, P. A. REYNDERS-FREDERIX, D. STOFFELEN, P. L. O. BROOS, G. FABRY. Os trigonum en soleus tertius anomalie.*

De casus van een jonge voetballer met chronische posteromediale enkelpijn wordt voorgesteld. Technische investigaties toonden de aanwezigheid van een os trigonum en een soleus tertius anomalie.

De patiënt werd succesvol behandeld door excisie van het os trigonum.  
Diagnose, behandeling en literatuur worden besproken.

#### RÉSUMÉ

*J. BELLEMANS, P. A. REYNDERS-FREDERIX, D. STOFFELEN, P. L. O. BROOS, G. FABRY. Os trigone et atypicité du troisième soléaire.*

Les auteurs rapportent l'excision du trigone d'un jeune joueur de football présentant une douleur chronique de la cheville localisée à la région postéro-interne. Les investigations techniques ont mis en évidence un os trigone et un troisième soléaire atypique. L'excision du trigone assura une guérison complète. Discussion de diagnostic et de traitement. Revue de la littérature.