

CUBONAVICULAR SYNOSTOSIS  
A CASE REPORT

by E. CASTELLET FELIU

**Tarsal coalition is an entity with a great number of reported variants and with many unsolved questions, from its physiopathology to its treatment. Because of its exceedingly low frequency, we report a case of cubonavicular coalition. The symptoms cleared with conventional analgesic therapy, and no other therapeutic measures were required.**

**Keywords :** tarsal coalition ; cubonavicular synostosis.

**Mots-clés :** coalescence tarsienne ; synostose cuboïdo-scapoïdienne.

RÉSUMÉ

*E. CASTELLET FELIU. Synostose cuboïdo-scapoïdienne. Présentation d'un cas.*

La coalescence tarsienne est une entité qui pose de multiples problèmes, tant du point de vue de la physiopathologie que du traitement. De très nombreux types ont été décrits. Nous présentons, dans cet article, un cas de coalescence cuboïdo-scapoïdienne ; cette synostose est extrêmement rare. Dans le cas présent, la symptomatologie a régressé avec les analgésiques habituels, sans autre traitement.

SAMENVATTING

*E. CASTELLET FELIU. Cubo-scapoïdale synostose. Beschrijving van één geval.*

Er werden meerdere variaties van tarsale coalities gerapporteerd in de literatuur en meerdere vragen in verband met de fysiopathologie of met de behandeling blijven onbeantwoord. Gezien zijn uiterste zeldzaamheid, beschrijven de auteurs één geval van coalitie tussen cuboïd en naviculare tarsi. De klinische tekenen klaarden op na toediening van analgetica en er moest geen beroep gedaan worden op een andere therapie.

INTRODUCTION

A lot has been written on tarsal coalition, but much also remains to be elucidated. The incidence of this anomaly has ranged in several studies from 0.03 to 1% of the normal population (3). Pfitzner (6) first hinted at the possibility that tarsal coalition was the result of the incorporation of an accessory bone. Harris and Beath (5) in 1948 agreed with this hypothesis, but subsequent observations of tarsal coalition in fetuses (4) refuted this theory. Trolle (9) raised in 1948 the possibility of a failure of the segmentation process of the primitive mesenchyme. The current theory, after the observation of certain common aggregations and cases in monozygotic twins, is that a genetic mutation is responsible for the segmentation failure of the primitive mesenchyme.

Many different types of tarsal coalitions have been reported. The three more common types are the talocalcaneal and calcaneonavicular fusions and the talonavicular synostosis. Cuneocuboideal, cuneometatarsal and calcaneocuboideal fusions are rarely observed, and only three cases of cubonavicular coalition appear in the literature. Because of the extremely low frequency of this anomaly we decided to report the following case.

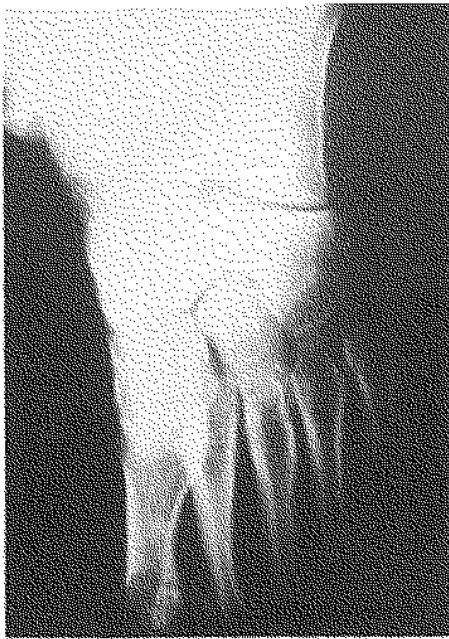
CASE REPORT

This 24-year-old male without significant medical history was seen in the Emergency Room because of spontaneous pain in the dorsum of his left foot. He denied recent trauma to his foot, but recalled

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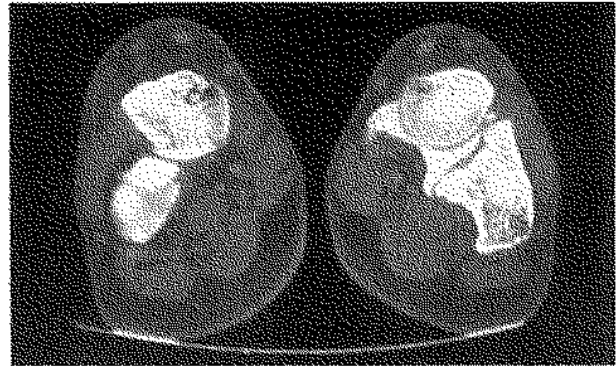
occasional similar episodes of pain for the preceding two years that subsided with common analgesics. This was the first time that he required medical attention for this problem. The pain lacked the features that would indicate mechanical origin. Physical examination of the foot was completely normal with no abnormalities of the plantar stance or peroneal spasm. A radiography of the foot (fig. 1) showed an incomplete coalition between the cuboid and scaphoid bones. Conventional tomograms confirmed the diagnosis and a computed axial tomography (CT) (fig. 2) defined precisely the type and location of the coalition. A technetium scan revealed increased uptake. We do not have a satisfactory explanation for this latter finding.



*Fig. 1.* — Partial cubonavicular coalition.

The pain promptly subsided with rest and the parenteral administration of a nonsteroidal anti-inflammatory drug. Both parents were examined and showed no abnormalities. There were no siblings or children and both maternal and paternal grandparents were dead.

After a followup of 2 years the patient occasionally has moderate pain that does not interfere with his daily activities. He does not practice any sport.



*Fig. 2.* — Partial cubonavicular coalition (CT).

## DISCUSSION

Waugh (10) described in 1957 the first case of cubonavicular coalition. This was a 15-year-old male with bilateral involvement, with a complete fusion in the left foot and partial on the right. There was left peroneal spasm that disappeared with simple maneuvers, and subsequently he was immobilized with a below-knee walking plaster. There was no family history of similar problems. Del Sel (2) described another case with bilateral involvement in a 43-year-old male who sought medical advice because of pain in his left foot that subsided after a few days. There was complete fusion in the left and partial in the right. Rankin (8) published in 1974 a series of 24 women, aged 17 to 22 years, with stiff flatfeet. There was one case of cubonavicular coalition that did not require immobilization or any other active therapeutic measures.

Presently, the diagnosis of this entity is not difficult and the clinical suspicion should lead to performing x-rays, tomograms and CT scans. These will locate the lesion precisely for a possible surgical approach. The origin of the pain has caused much controversy. It is generally thought that symptoms only appear after fusion of the coalition, when the normal biomechanics become altered (3). This usually takes place between 8 and 16 years of age. This hypothesis does not convincingly explain why patients with bilateral lesions, radiologically alike, only have symptoms in one extremity.

We do not have a satisfactory explanation for the increased isotopic uptake in our patient. Perhaps it indicates activity towards a complete coalition, even though after 2 years of followup we have not observed radiographic changes. Unlike the current case, the treatment of tarsal coalition is usually complicated. Conservative measures (rest, infiltration with corticosteroids, immobilization or manipulation under general anesthesia) have been effective in moderate cases. Surgical resection of the coalition has achieved satisfactory results (1, 7). Surgical arthrodesis should be reserved for joints with degenerative changes or nonresectable coalitions. As we already mentioned, these surgical approaches have not been tried in the type of coalition reported here.

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