



## Ankle ganglion cyst associated with severe clubfoot in a child: a case report

## Kyste synovial de la cheville associé à un pied bot sévère. A propos d'un cas

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### ABSTRACT

The ganglion cyst is often benign and commonly develops next to the joints without communication with them. The exact etiology of these cysts is unknown, but mechanical stress appears to be involved.

We report a case of 9 months-old boy with a severe left clubfoot treated surgically after failure of the PONSSETI method. When doing a postero-medial release, a ganglion cyst originating from the tibialis anterior tendon sheath, was discovered in front of the medial aspect of the ankle. There were no preoperative clinical manifestation of the cyst.

We believe that consecutive reducing casts and applying large forces on the joints and tendons are responsible for the appearance of this cyst. The congenital etiology of this cyst is still possible.

**Keywords:** ganglion cyst, ankle, clubfoot, child, Ponseti method

### RÉSUMÉ

Le kyste synovial est fréquent et se développe en regard des articulations sans toujours avoir une communication avec elles. L'étiologie exacte de ces kystes est inconnue mais l'effort et les contraintes mécaniques semblent être impliqués.

Nous rapportons un cas d'un nourrisson de 9 mois qui présente un pied bot varus équin gauche sévère traité chirurgicalement après échec de la méthode de Ponseti. La découverte du kyste synovial fut peropératoire sans aucune traduction clinique. L'origine du kyste était la gaine du tendon du jambier antérieur en regard de la face interne de la cheville.

Nous pensons que les plâtres réducteurs successifs de la méthode de Ponseti, en exerçant des forces importantes sur les articulations du pied et de la cheville et les tendons, sont responsables de l'apparition de ce kyste. L'étiologie congénitale de ce kyste reste aussi possible.

**Mots clés:** kyste synovial, cheville, pied bot varus équin, méthode de Ponseti, enfant

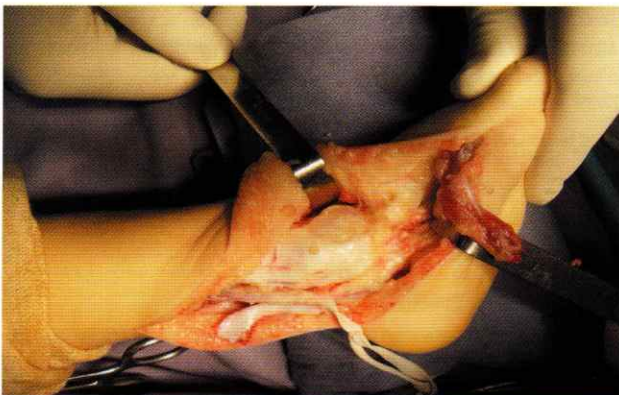
## I. INTRODUCTION

Some joint or periarticular structure may be the site of cystic formations. These cases are rare and there is no real explanation to the genesis. Hip represents a frequent location and there is often traumatic origin.

We present the case of cyst formation of the ankle of a child 9 months old. He was operated after a failure of conservative treatment in clubfoot. To describe a rare entity and suggest an explanation for the presence of cyst formation are the objectives of this article.

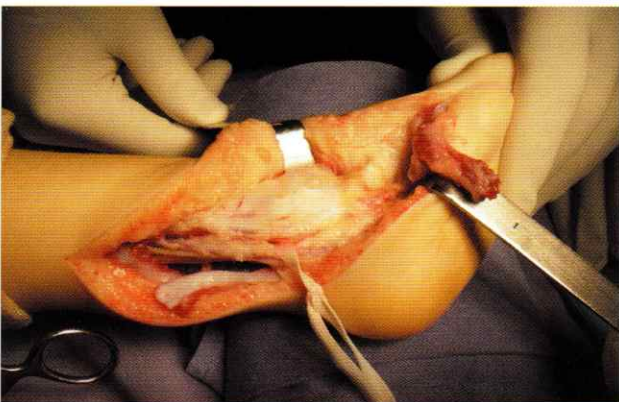
## II. CASE REPORT

It was a boy of 9 months followed since the age of one month for severe left clubfoot. The initial treatment was orthopedic by the Ponseti method. A series of 5 consecutive reducing plasters was applied without improvement; there was no Achille's tendon lengthening. The child underwent surgery at the age of 9 months and postero-medial release was done. At the medial aspect of the ankle, a ganglion cyst originating from the tibialis anterior tendon sheath was discovered. Cystic formation was well-encapsulated with the size of a cherry; it was soft and originating from the tibialis anterior tendon sheath. The content of the cyst was clear and gelatinous (Figures 1, 2). There was no communication with the ankle joint. Microscopic analysis had concluded to a ganglion cyst.



**Figure 1:** Well encapsulated ganglion cyst in front of the tibio-talar joint with clear content

**Figure 1 :** Kyste synovial bien encapsulé en avant de l'articulation tibio-astragaliennne à contenu claire



**Figure 2:** The cyst originating from the tibialis anterior tendon sheath

**Figure 2 :** Le kyste dépendant de la gaine du tendon tibial antérieur

## III. DISCUSSION

Synovial cysts are defined as benign soft tissue tumors that arise from deep serous bursae and cause symptoms by rupturing or by putting pressure on adjacent structures<sup>[1]</sup>. Cyst formation next to the joint is rare and it can have multiple etiologies. These cysts are often discovered incidentally and may be palpable and can reach the size of an egg. Often, there is no joint communication.

The frequent locations are the wrist and the knee. Some cases of cystic formations of the hip have been described in children<sup>[2]</sup>. Ankle is an exceptional location.

LIN et al<sup>[3]</sup> have described a case of hip ganglion cyst associated with developmental dysplasia of the hip (DDH) in a child treated by closed reduction. The cyst was connected to the hip joint capsule. The authors suggested that injuries of the labrum in closed reduction of DDH can generate the appearance of these cysts.

In our case, the ganglion cyst was discovered incidentally and it showed no clinical manifestation. He was in front of the tibio-talar joint, originating from the sheath of the tibialis anterior tendon. The cyst formation did not take any nerve or vascular. The child had a severe clubfoot and there was failure of Ponseti method. This method involves making many corrective plasters, and often a tenotomy of the Achilles tendon when the correction is insufficient<sup>[4]</sup>. This method is traumatic to ankle and foot bones, capsule and tendons. In most of the patients, flattening of the talus happens after this method of treatment. This bone is pressed against the tibial mortise and there is also a stretching of the capsule and tendons. During this method, mechanical stress is so important and the response of the tissue could be the appearance of synovial cyst<sup>[4]</sup>. We find some circumstances in handball and synovial cyst of the wrist and mountaineer with synovial cyst of the hallux<sup>[2]</sup>.

Although the exact cause of synovial cyst in the ankle remains unknown, two mechanisms have been proposed. An effusion in the ankle joint and an inflammatory reaction of the joint capsule may be involved in degenerative joint disease. The second mechanism is a traumatic joint lesion in the ankle<sup>[5]</sup>. We believe that there is also a close correlation between cyst formation and Ponseti method.

## IV. REFERENCES

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