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Synovial Chondromatosis of the Ankle in a Child

O. Jbara[1*], D. Laoudiyi[1], K. Chbani[1], S. Salam[1]

[1]Service de Radiologie Pédiatrique, Hôpital Abderrahim Harouchi, CHU Ibn Rochd, 1, Rue des Hôpitaux, Casablanca, Morocco

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***Corresponding author:** O. Jbara
Service de Radiologie Pédiatrique, Hôpital Abderrahim Harouchi, CHU Ibn Rochd, 1, Rue des Hôpitaux, Casablanca, Morocco

Abstract **Case Report**

Synovial chondromatosis is a cartilaginous metaplasia of the residual stroma of the synovial tissue of the joint. Its main characteristic is the formation of cartilaginous nodules in the synovium and in the joint space (loose bodies). It usually appears between the ages of 30 and 50 and is rare in children. It presents as a monoarticular lesion affecting large joints such as the knee, hip and elbow, and rarely the ankle. The main symptoms are pain, swelling and limited mobility in the affected joints. Diagnosis is based on X-rays, CT scans and magnetic resonance imaging. In this case report, we describe a pediatric patient with synovial chondromatosis of the ankle. We discuss the imaging features on radiography, CT and MRI, followed by a brief review of the literature.

Keywords: synovial chondromatosis, ankle, Child.

INTRODUCTION

Synovial chondromatosis is a rare benign disease characterized by the formation of intra-articular cartilaginous nodules in the synovial membrane of a joint. These nodules become loose bodies in the joint, and may calcify and proliferate. The etiology of synovial chondromatosis is unknown. Synovial chondromatosis occurs most often in men between the ages of 30 and 40. It usually affects the large joints, namely the knee and hip, and less frequently the small joints. Patients often present with pain, swelling and limited mobility. Imaging of synovial chondromatosis is specific. Synovial chondromatosis of the ankle joint in children is an extremely rare form. We present here a case of synovial chondromatosis of the ankle treated surgically.

OBSERVATION

A male patient, 5 years and 6 months old, who presented for 40 days with pain and swelling of the medial aspect of the left ankle. Physical examination revealed mild tenderness with swelling of the anterolateral aspect of the ankle joint.

No ankle instability with no vascular or neurologic abnormalities of the ankle. Biological workup was essentially normal.

Standard radiographs of the ankle showed multiple foreign bodies, roughly rounded, well-limited, calcified, and retrotalic, 1 to 2 cm in size. The CT scan showed multiple rounded retrotal bone formations.

As there was no history of direct ankle trauma or systemic inflammatory disease, primary synovial chondromatosis was strongly suspected.

The patient underwent arthrotomy, several foreign bodies were visualized and removed with synovial tissue and sent for histopathology.

After surgery, the patient was allowed to perform partial weight-bearing for 2 weeks. Histopathology revealed nodules of osteocartilaginous tissue with stroma consisting of cellular fibroblastic tissue. A few shards were covered with synovial tissue. There was no evidence of infection or malignancy in the specimen, and this was consistent with the development of synovial chondromatosis.

At 1-year follow-up, the patient was pain-free with full range of motion of the ankle joint and returned to his previous daily activity levels.

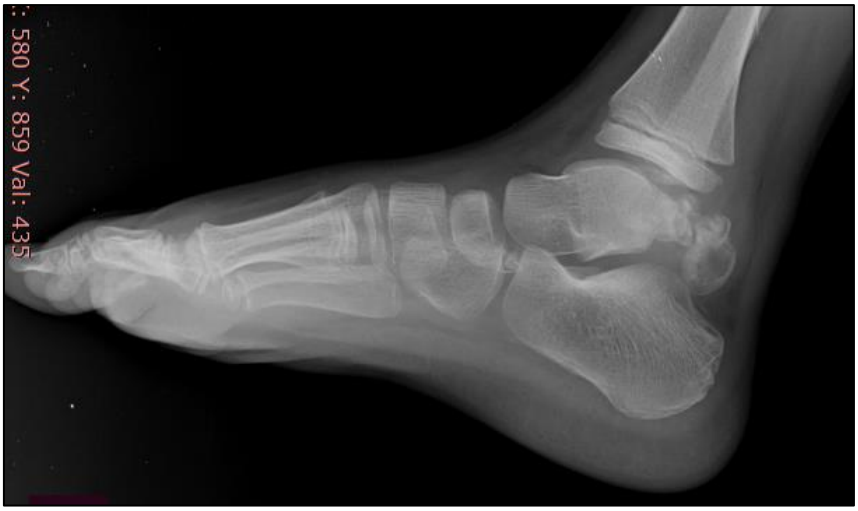

Figure 1: Lateral view: Multiple radiopaque loose bodies projected on the posterior side of the talus

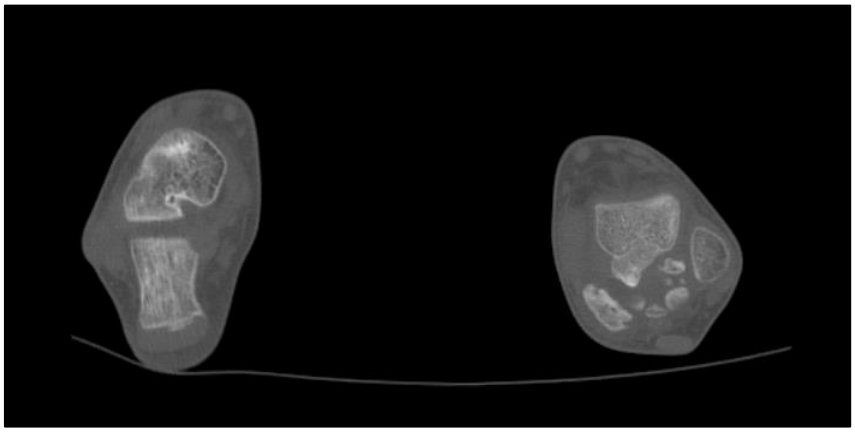

Figure 2: Axial CT: multiple ossifications with the typical central fat attenuation on the medial side of the left ankle, posterior and medially to the talus

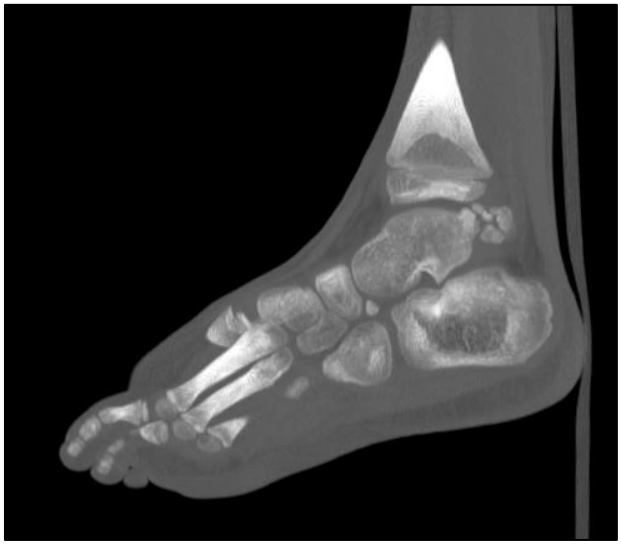

Figure 3: Sagittal CT MIP reconstruction: multiple posterior ossifications of the left ankle

DISCUSSION

Synovial chondromatosis is a rare benign synovial lesion characterized by multiple intra- and extra-articular osteochondral loose bodies [1, 8]. The involvement is usually monoarticular, with the large joints being the most frequently affected. The knee is affected in 60-70% of cases, followed by the shoulder, elbow and hip [9]. Synovial chondromatosis of the foot and ankle is a very rare disease.

The literature review revealed a limited number of reported cases involving the foot and ankle [10, 11]. It is generally accepted that the exact cause of synovial chondromatosis is unknown.

Clinically, patients with synovial chondromatosis present with pain, swelling, stiffness, and/or mass, and most patients have a long clinical history before an accurate diagnosis can be made [12].

Because of the possibility of malignant degeneration, there has been recent interest in diagnosing these cases. The relative risk of malignant transformation in primary chondromatosis was 5% [13] in DEVIS et Al study.

Imaging plays a crucial role in the diagnosis of synovial chondromatosis, with calcifications present in 70-95% of cases. Several smooth, rounded calcifications of different sizes can be seen in the joint capsule [14].

However, radiographs only reveal increased soft tissue density around the affected joint [7]. Therefore, magnetic resonance imaging is particularly useful in cases where calcifications or sclerosis cannot be visualized by standard radiography [6].

The goals of treatment for synovial chondromatosis are to remove foreign bodies, improve painful symptoms, restore joint mobility, and limit the progression of osteoarthritis [7].

The treatment of choice is arthroscopic surgical resection. Our patient underwent arthrotomy, and several foreign bodies were observed and removed with synovial tissue and sent for histopathology. No recurrence at the 1-year follow-up.

CONCLUSION

We report a case of diffuse primary synovial chondromatosis of the ankle in a child with pathognomonic clinical and radiological signs. Patients should be informed that synovial chondromatosis may recur and follow-up is necessary. Malignant degeneration is extremely rare but has been documented.

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