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Para-Articular Osteochondroma of the Knee in a Child: A Case Report

Meryam Ramzi[1*], Nada Assara[1], Zouhir Alami Fellouss[1], Tarik Madhi[1]

[1]Department of Pediatric Traumatology and Orthopedics of Rabat's Children's Hospital

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***Corresponding author:** Meryam Ramzi
Department of Pediatric Traumatology and Orthopedics of Rabat's Children's Hospital

Abstract | **Case Report**

Para-articular osteochondroma is a benign osteoarticular tumor which develops near joints, extremely rare unlike classical osteochondroma.We report a case of para-articular osteochondroma of the right knee localated in the medial condyl of a 13 years old child with history of chronic knee pain and limited knee movement. On clinical examination, a solid palpable mass in the intern joint region was detected. Radiography and MRI of the knee revealed the diagnosis of solitary osteochondroma. The mass was entirely removed through an open approach medial to the petella. Histologic examination showed that the nodules were composed of cartilaginous tissue surrounded by fibrous connective and adipose tissue with multifocal endochondral ossification.

Keywords: Para-articular, osteochondroma, benign, knee, child.

INTRODUCTION

Several different types of lesions composed of bone and cartilage may arise around joints. Osteochondroma accounts for approximately 35% of benign bone tumors [1]. They most commonly occur as a solitary lesion, but approximately 15% of patients present with multiple lesions. While osteochondromas can arise anywhere in the skeleton, the metaphysis of long bones is the preferred site, which usually originates from a developmental defect in the growth plate that results in surrounding of bone tissue by a cartilaginous cup that grows away from the joint and they are exceptionally rare in intra and para-articular joints.

CASE REPORT

A young 13-year-old patient, with no particular pathological history, presented with chronic pain in her left knee that had been evolving for 2 years. This pain was associated with a swelling of the knee and on palpation we found a mass of the internal part of the knee of progressive evolution and responsible for a lameness and deficit of flexion of the knee. This mass was painless and there were no signs of inflammation, collateral circulation or effusion. The X-ray and the MRI had shown the presence of a para-articular tumor of the knee at the expense of the internal condyle associating a peripheral zone of bony appearance and a central zone having the characteristics of cartilage and absence of continuity with the underlying bone, this tumor was responsible for painful limitation of knee flexion (fig 1, 2). A resection of this lesion was performed without difficulty by an internal parapatellar approach and without tendon lesion (fig 3, 4). Histological examination showed the osteo-cartilaginous nature of the lesion without signs of sarcomatous degeneration. The evolution, after 18 months was marked by the absence of recurrence with a clear functional improvement of the knee with flexion extension (0°-100°).

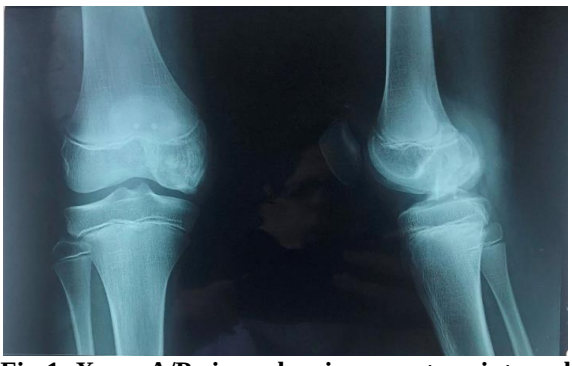

Fig-1: X-ray A/P views showing a postero-internal bony outgrowth of the internal femoral condyl

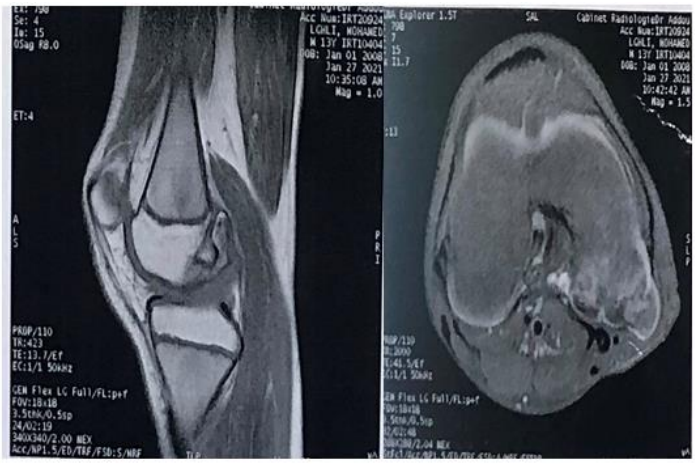

Fig-2: MRI showing a few bone fragments attached to the lateral edge of the internal femoral condyle responsible of a posterointernal bone outgrowth of the distal epiphyseal region associated with changes in the subchondral bone

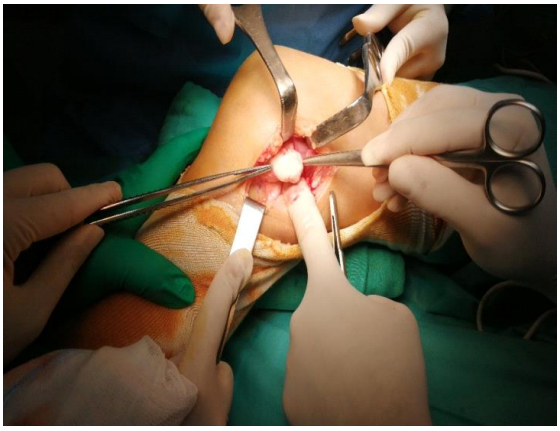

Fig-3: Peroperative image of the exeresis

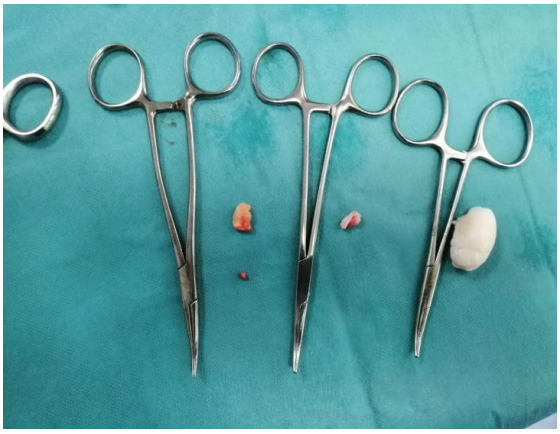

Fig-4: The piece sent to the anatomopathologic study

DISCUSSION

The term para-articular osteochondroma seems to be what best describes all of the morphological characteristics of the lesion. Its etiology is not yet known, but the most accepted hypothesis suggests mesenchymal cell metaplasia secondary to extra-synovial injuries with repeated trauma. In this hypothesis, the osteochondroma would not be a real tumor but rather the result of a simple focal developmental disorder.

However, many studies have shown that osteochondromas are linked to genetic mutations and therefore are real tumors. The clinical presentation related to the increase in size, with pain and limitation of movement, and is generally located at the level of the knee

On radiographs, it presents as a well-defined image, usually infra-patellar with a variable radiodensity which corresponds to the association of the cartilaginous matrix and the mature trabecular bone [2].

The images can leave doubts, and suggest other diagnoses: myositis ossificans, calcinosis, extraarticular osteosarcoma, but especially chondrosarcoma or synovial chondromatosis [1].

The correlation of histological and radiographic features allows the distinction. It presents as a single mass composed of multiple osteocartilaginous nodules. Histologically, each of these is very similar to a conventional osteochondroma, with a peripheral cartilaginous portion, sometimes with cellular atypia, but usually without mitotic images, and a central portion of trabecular bone [1].

Grossly, an osteochondroma has a thin, smooth cartilage cap (typically <2 cm) and an underlying bony stalk [4]. Microscopically, the cartilage cap contains chondrocytes in lacunae. Toward the base of the cap, the cartilage undergoes endochondral ossification to form trabecular bone. It is not unusual to see islands of residual cartilage in the middle of the bony elements within the stalk. The spaces between the bony trabeculae contain either fatty or hematopoietic marrow. Occasionally, degenerative change is present within the cartilage cap, a feature that is not indicative of malignancy.

The extra-synovial origin of a single mass on the one hand, and the absence of any direct continuity with the adjacent bone on the other hand, help to distinguish it from synovial chondromatosis and chondrosarcoma, respectively [3-5].

The treatment of choice seems to be marginal resection, because local recurrence seems extremely rare and no case of malignant degeneration has been described [2, 3].

CONCLUSION

As well as for other tumor lesions, the correlation of clinical, radiographic characteristics and an natomopathological examination is fundamental for the establishment of a correct diagnosis which authorizes appropriate treatment for the situation, and avoids unnecessary interventions.

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