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Case Report

Ilium Osteochondroma in a Child: A Voluminous Rare Localization

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Abstract

Osteochondroma is a benign bone tumor developing especially in long bone metaphysis in children. It can be involved in hereditary multiple exostoses disease (HME) or an isolated tumor. It rarely develops in spine and pelvis. We report a rare localization of a voluminous osteocnondroma developing from iliac crest in a five-year-old child initially followed for HME. In clinical exam this mass was hard, immobile but not adherent to the overlying skin. No hip joint stiffness was observed.

X ray showed a pedenculated tumor with high-density and clear boundarie developing from ilium lateral fossa. This exam revealed also smaller asymptomatic exostoses in distal femur and proximal tibia. CT scan showed a "cauliflower like" tumor. The child complains from pain while lying in a right side and when wearing trousers. En-bloc excision was performed by direct approach. Histological study confirms diagnosis showing a cartilage cap and abundant cellular hyaline cartilage and chondrocytes. There was no recurrence at two years follow up and the child is regularly seen in outpatient department for the other osteochondroma locations.

Keywords: Osteochondroma, Child, Bone, Tumor, Pelvis

Introduction

Osteochondroma is a benign bone tumor developing especially in long bone metaphysis [1]. It can be involved in hereditary multiple exostosis disease (HME) or isolated location. It rarely develops in pelvis and spine with 5% reported incidence [2]. Two types already described: a pedenculated and a sessile form with a large base bone implantation. This tumor occurs in children and not always symptomatic. Iliac crest localization is extremely rare and only few cases have been reported in adults [4] with specific imaging sign in X- ray and CT scan. When it became symptomatic, surgical resection could be performed.

Case Presentation

We report a case of a five-year-old boy seen first in outpatient department for tenderness swelling of right iliac crest appearing for two years and progressively increasing in size. There was no fever and no recent weight loss. Physical exam showed a five-centimeter hard mass, immobile but not adherent to the overlying skin. No hip joint stiffness was observed (Figure 1). Pelvic X-ray reveals a pedenculated tumor with high-density and clear boundarie developing from ilium lateral fossa. Lower limbs X-ray revealed a smaller asymptomatic exostosis in distal femur and proximal tibia (Figure 2).

Investigations was completed with CT scan that shows a voluminous "cauliflower like" pedenculated tumor arising from the lateral fossa with no sign of malignancy (Figure 3).

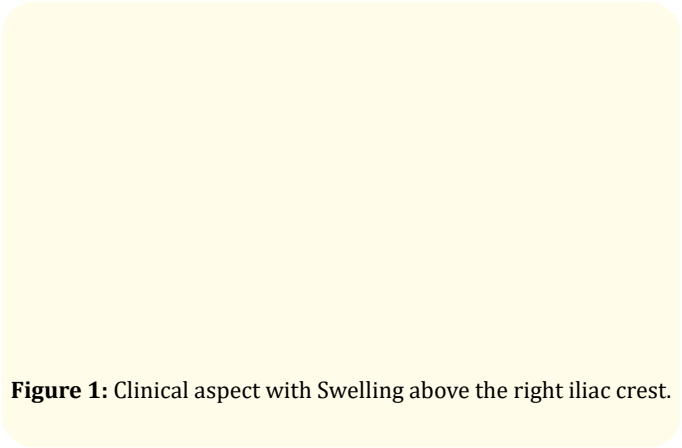

Figure 1: Clinical aspect with Swelling above the right iliac crest.

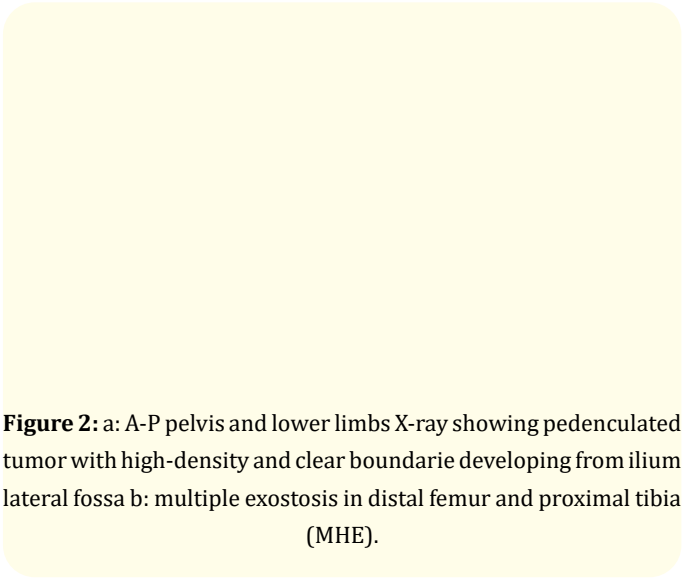

Figure 2: a: A-P pelvis and lower limbs X-ray showing pedenculated tumor with high-density and clear boundarie developing from ilium lateral fossa b: multiple exostosis in distal femur and proximal tibia (MHE).

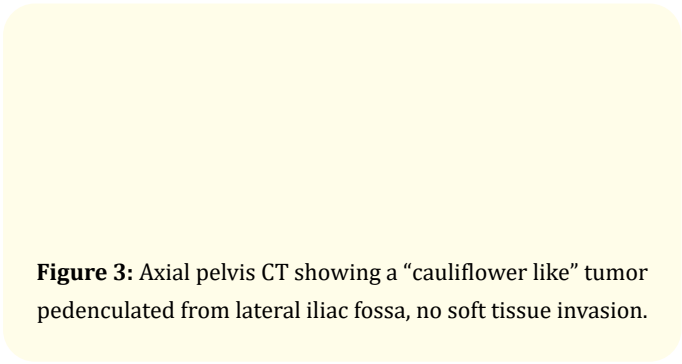

Figure 3: Axial pelvis CT showing a "cauliflower like" tumor pedenculated from lateral iliac fossa, no soft tissue invasion.

Child parents reported discomfort when wearing trousers with mild pain when sleeping in the right side. En-bloc excision was performed by direct approach, extraperiosteal total exposing from a lateral fossa using a bone chisel (Figure 4a-4b). Histological study confirms osteochondroma diagnosis showing a cartilage cap and abundant cellular hyaline cartilage and chondrocytes (Figure 5). Two years following surgery, the child is asymptomatic, no recurrence has been noted. He is regularly seen to control other exostosis location.

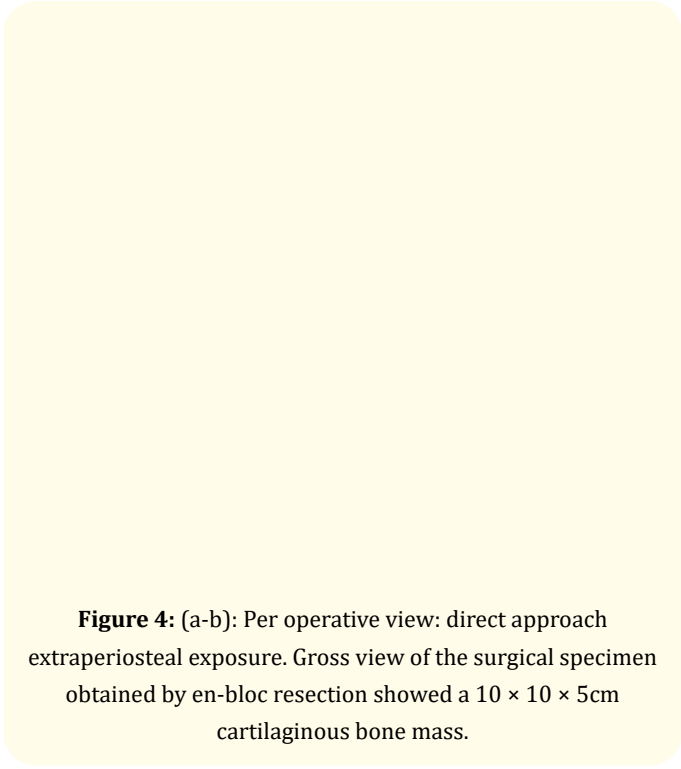

Figure 4: (a-b): Per operative view: direct approach extraperiosteal exposure. Gross view of the surgical specimen obtained by en-bloc resection showed a 10 × 10 × 5cm cartilaginous bone mass.

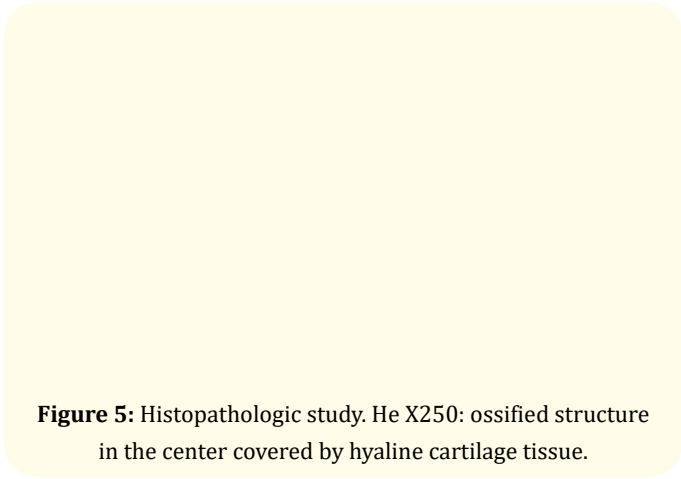

Figure 5: Histopathologic study. He X250: ossified structure in the center covered by hyaline cartilage tissue.

Discussion

Osteochondromas is the most common benign tumor and present 20% of all bone tumors and occurs in long bone metaphysis. Distal femur and proximal tibia are the most involved localization (40%), followed by humerus (10 -20%) [1]. Spine and pelvis osteochondromas present only 5% [4] and major cases reported was in adult population [5-7] with recent literature review publication [3]. Our pediatric cases with this voluminous osteochondroma was related to HME, an autosomal dominant disorder estimated to 1 on 50000 births related to EXT1 or EXT2 genes mutation [8]. This mutation causes disturbance in bone growth around the physes which changes the proliferation direction. Initially, exostoses are usually asymptomatic and discovered accidentally or when complication occurs. These complications are dominated by deformity [3], chronic pain. Neurovascular impingement [9] especially sciatic irritation has been reported in this pelvic location [7] and also pseudoanevrysm formation [10].

Osteochondroma typically presents as a pedicle or sessile bone-like protrusion on imaging. In our case, we found the pedicle connecting the tumor to the ilium with no evidence of aggressive sign or invasion of the surrounding tissue. The cancellous bone and cortical bone are connected to normal bone. The shadow of the cartilage can be seen at the top of the tumor, and irregular calcification and/or ossification can be seen in the middle of the shadow. Microscopic study indicated that the chondrocytes grew actively and did not deteriorate. Malignant transformation occurs in 1% of all osteochondromas not before the third decade [11]. in this suspicious cases MRI can be helpful for evaluating cartilage cap thickness.

In pelvic location, surgical resection is indicated topography when causing deformities or stiffness. In iliac crest it will be indicated when becoming symptomatic, as in our case or in suspicious sings of malignancy in older patient.

Conclusion

Osteochondromas is a common benign bone tumor usually located in long bones. It develops in children and can be related to HME. Pelvic osteochondroma and especially iliac crest localization are rare in children and does not lead to stiffness or deformity. When it became symptomatic, en bloc excision could be indicated and only histological study confirms diagnosis and excludes malignancy in older patients.

Conflict of Interest Statement

None.

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