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Case Report

Extra skeletal chondroma a rare presentation in the big toe of a pediatric patient: a case report

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ABSTRACT

Extra-skeletal chondroma is a rare benign tumor of juxta-articular soft tissues rarely seen in pediatric cases. It is formed mainly of hyaline cartilage and presented as a painless swelling. It is not well evident on conventional X-rays radiography. MRI is the preferred diagnostic modality. Surgical excision is the recommended form of treatment for symptomatic cases. We are reporting a case of this rare tumor in the big toe of a child.

Keywords: Chondroma, Extra-skeletal, Excision, Pediatric

INTRODUCTION

Extraskeletal chondroma is a rare benign tumor that is composed predominantly of hyaline cartilage arising from or near soft tissue structures such as tendons and tendon sheaths and is not connected to the periosteum or bone cortex.[1] It comprises about 1.5% of all soft tissue benign tumors.[2] The usual presentation is a solitary swelling predominantly in the hands and feet of the adult population. Other locations are also reported sporadically.[3] The prognosis of this tumor is excellent and malignant transformation is very uncommon. Still, local recurrence is not uncommon.[4] We thought it is of interest to report a rare presentation of an extra-skeletal chondroma in the big toe of a pediatric patient, discussing with it the radiological, morphological and pathological features found.

CASE REPORT

The patient was an 8-year-old boy who is known to have Dicer 1 syndrome and a history of pituitary blastoma at age of 1 year for which he received chemotherapy. His parents became aware of a swelling in his left big toe for 9 months. It started as painless small lump but it gradually increased in size to the extent that caused discomfort due to rubbing with shoes and the adjacent 2nd toe. There was no history of trauma nor any previous similar swelling in the region.

Examination revealed the presence of a 1×1 cm localized rounded mass located in lateral aspect of the tip of the big toe, hard and fixed to deep structures, not tender, and with no thrill, fluctuation, or skin changes (Figure 1).

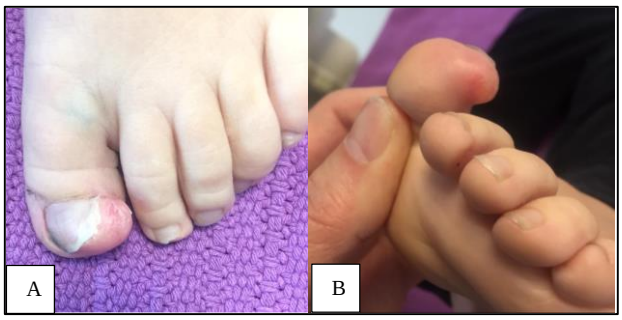

Figure 1 (A and B): 1×1 cm localized rounded mass located in the lateral aspect of the tip of the big toe.

Plain radiographs did not reveal any abnormalities. Phalangeal cortices were preserved without bony destruction or signs of pressure (Figure 2).

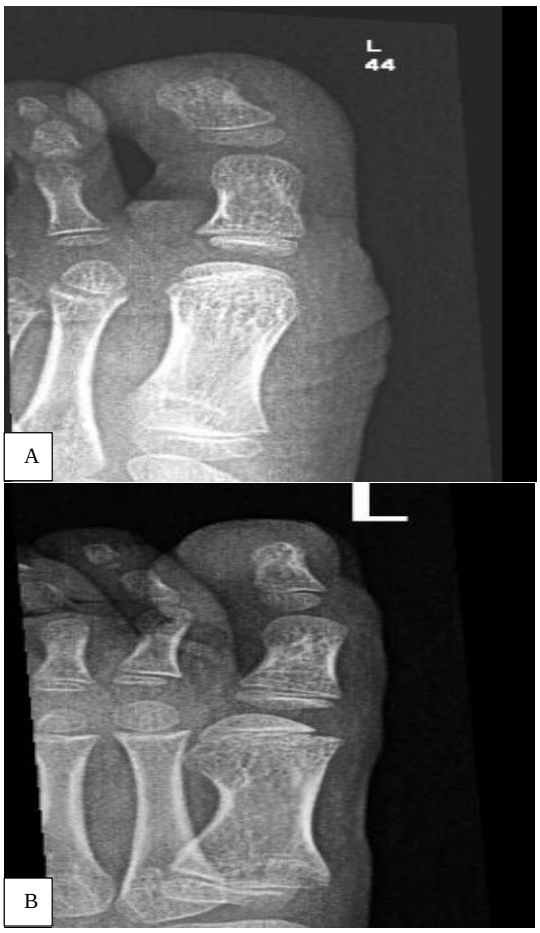

Figure 2 (A and B): Plain X-rays showing no bony abnormality, only soft tissue swelling on lateral side of big toe.

Ultrasonography of the swelling showed a hypo-to isoechoic subcutaneous soft tissue mass that is solid and is located within the anterolateral aspect of the big toe's tip measuring 10×8 mm with no internal vascularity.

Magnetic resonance imaging showed a well-defined soft tissue lesion at the lateral aspect of the tip of the left big toe measuring 10×8 mm in the AP and transverse dimensions which shows low T1 and intermediate-to-high signal in PD and STIR sequences.

There is no evidence of increased signal intensity within adjacent bones, and subchondral abnormalities or focal bone erosions. There is no evidence of joint effusion or synovial hypertrophy.

There was a finding of a small focal dilated venous structure in lateral soft tissue planes of the first metatarsophalangeal joint level resembling focal venous dilatation or malformation (Figure 3).

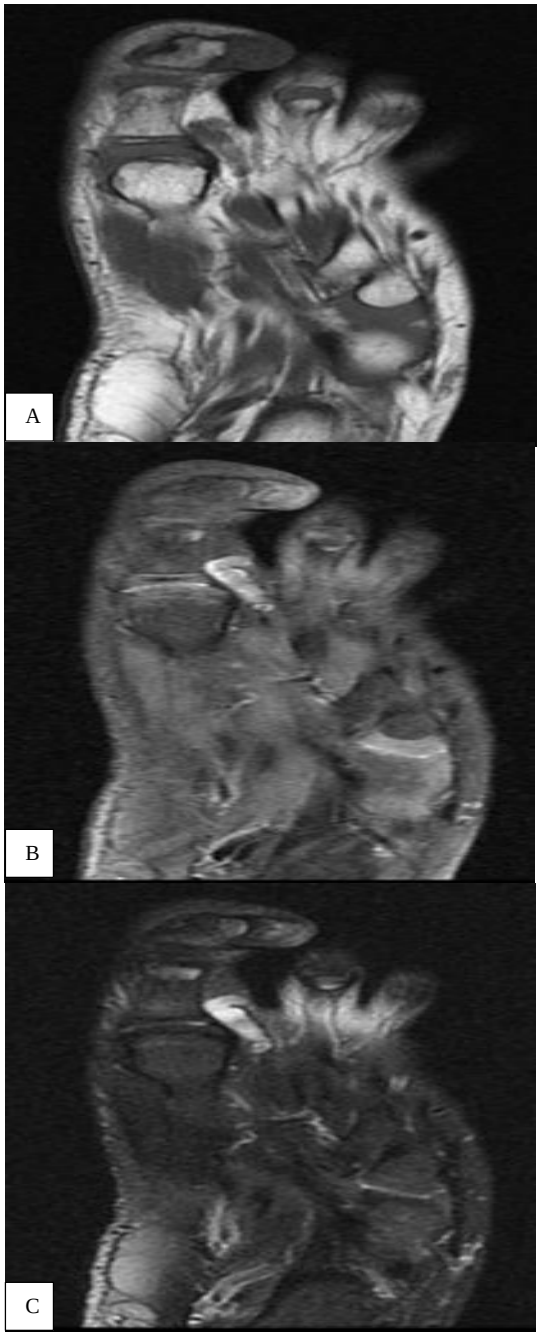

Figure 3 (A-C): MRI sequence images showing the nature of the tumor.

The patient underwent complete surgical excision of the swelling which was found well formed, and not invading or compressing other structures. After excision, hemostasis was maintained and the excess skin was excised to aid in proper closure of the surgical wound. The excised lesion was sent for histopathology lab for evaluation. Histopathological examination revealed a well-delineated un-encapsulated lesion exclusively formed by a chondromyxoid stroma, in which mature-type chondrocytes are present. No atypia or osseous metaplasia was seen. The findings were consistent with extraskeletal chondroma (Figure 4).

The parents were reassured and educated about the natural history of the lesion. The patient followed up in orthopaedic clinic for 2 years after surgery with no complaints, skin changes/ any signs of recurrence (Figure 5).

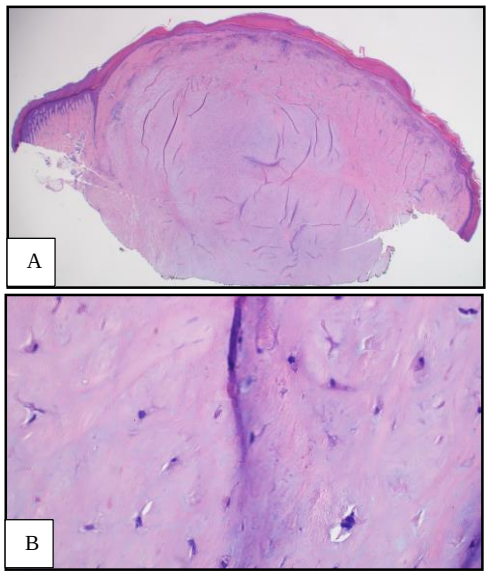

Figure 4 (A and B): Histologic microscopic images of the tumor after excision showing the hyaline cartilage structure.

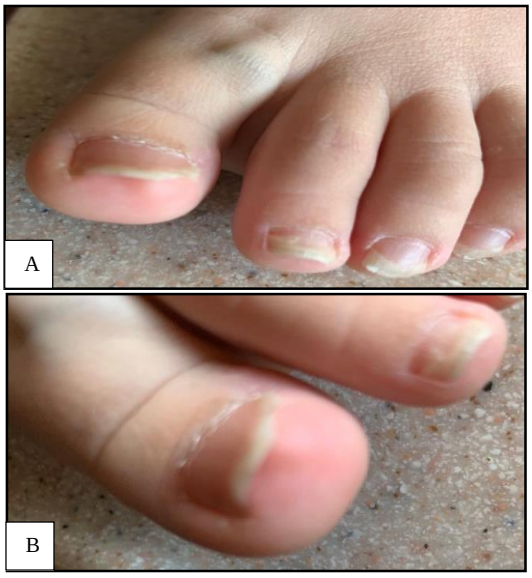

Figure 5 (A and B): Clinical photo of the big toe months after excision of the tumor.

DISCUSSION

Extraskeletal chondroma is a benign slow growing tumor that typically originates most of the time in hands and feet.[3] This tumor typically affects adults between 30 and 60 years of age with no gender difference.

This cartilaginous tumor arises from the soft tissue structures such as tendons, tendon sheaths and articular capsules, but not the bone nor the periosteum.[1] Plain radiographs taken of the child's foot did not show calcifications within or in the region of the lesion although calcification in plain radiographs is found in 33-70% of cases of extraskeletal chondroma in general population and if present, is due to dense central mineralization.[5]

Magnetic resonance imaging of extraskeletal chondromas shows low to intermediate signal intensity on T1 and heterogenous hyperintense signal on T2 resembling the character of cartilaginous structures. MRI is also crucial in excluding involvement of the osseous structures.[6]

The histological pattern was typical of chondroma. The benign nature of the lesion was assured due to the lack of atypia, necrosis or mitosis.[7] The differential diagnosis is broad and includes calcifying aponeurotic fibroma, a benign tumor that occurs in the hands and feet of children and contains cartilaginous foci in a fibromatous background.[7] Extraskeletal chondrosarcoma is a malignant differential which will show atypia, necrosis and mitosis.[8] Myxoid chondrosarcoma and mesenchymal chondro-sarcoma are other chondroid lesions that should be considered and ruled out.[9]

When excising the lesion, it is important to be sure that the mass is completely excised including its capsule, as local recurrence can be as high as 25% in cases where the lesion was incompletely excised despite the benign nature of it.[4] Extraskeletal chondroma is reported in literature in small series of sporadic cases. In 1974, Dahlin and Salvador reported a series of 70 patients and showed the predilection of occurring in the distal parts of the limbs.[1] Cumulatively, the condition is reported in only about 200 cases.[10]

Chung and Enzinger studied 104 patients with extra-skeletal chondroma. The condition was found in the upper limbs in 72% and in the lower limbs in 24% of their cases, 88% of which are located in the feet or ankles.[11] The reported cases with this condition are predominantly between the fourth and sixth decades of age. However, this tumor is sporadically encountered in children and adolescents. Benradi et al reported a case of a 14-year-old boy who underwent a surgical excision of a soft tissue chondroma of the plantar aspect of his foot.[10] Salvatori et al reported a case of an 11-year-old girl who presented with trigger finger due to a mass attached to the flexor digitorum superficialis of her ring finger which was histologically diagnosed as an extraskeletal chondroma.[12]

We have not encountered in the literature an extraskeletal chondroma in a foot of a child as young as 8 years as in this reported case.

CONCLUSION

Extra-skeletal chondroma is a rare benign tumor that could be seen in children. Magnetic resonance imaging is the

diagnostic modality of choice. Surgical excision of symptomatic swelling is the recommended treatment.

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