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Osteochondromas around the ankle: Report of a case and literature review☆

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ABSTRACT

INTRODUCTION: An osteochondroma or exostosis is a benign bone tumour consisting of a bony outgrowth covered by a cartilage cap that occurs commonly in the metaphysis of long bones, mainly the distal femur, proximal tibia and proximal humerus.
PRESENTATION OF CASE: We describe an unusual case of a distal tibia osteochondroma affecting the lateral malleolus of a young girl.
DISCUSSION: Most osteochondromas are asymptomatic and seen incidentally during radiographic examination. Osteochondromas are rarely localized in the foot and ankle.
CONCLUSION: Although most of the osteochondromas in children should be treated conservatively until skeletal maturity, those affecting the distal tibia or fibula should be treated with surgical excision in order to prevent ankle deformity, syndesmotic lesions or even fracture due to the expanding nature of this benign tumour.

1. Introduction

An osteochondroma or exostosis is a benign bone tumour consisting of a bony outgrowth covered by a cartilage cap that occurs commonly in the metaphysis of long bones (distal femur, proximal tibia, proximal humerus) and pelvis.[1] Most osteochondromas are asymptomatic and seen incidentally during radiographic examination. Osteochondromas are rarely localized in the foot and ankle, except in cases of Multiple Hereditary Exostoses. We describe an unusual case of a distal tibia osteochondroma affecting the lateral malleolus of a young girl.

2. Presentation of case

A thirteen-year-old female came to us with a palpable lump in her right ankle. On physical examination, there was mild restriction of motion of the ankle and a regular swelling over the anterolateral aspect of the ankle, hard in consistency, painless and without neurovascular impairment. There was no ankle instability and the examination of the syndesmosis was normal.

An X-ray was performed showing a well-defined exostosis arising from the distal aspect of the tibia, causing pressure erosion and impending fracture of the distal fibula. The CT scan clearly depicted the lesion and the erosion of the fibula (Figs. 1 and 2). The initial diagnosis was osteochondroma of the distal tibia. We performed a thorough physical examination of the patient's limbs in order to rule out another exostoses.

Due to the risk of having a fibula fracture we decide to perform a surgical excision of the lesion. The patient underwent simple removal through an anterior approach; it was not necessary to perform a fibular osteotomy. Intraoperative, we found a sessile exostosis with a broad base resembling a cauliflower, eroding the fibula, which was quite thin (Fig. 3), but we could preserve it during the removal of the tumour. The histopathology exam showed an osteochondroma with a 1.2 cm thick cap of benign hyaline cartilage. After the operation the patient was put in a below knee non weight bearing plaster cast for 6 weeks with a gradual transition to partial full weight bearing cam-walker.

At six months after the operation, the patient had complete recovery with full range of motion and no residual pain.

3. Discussion

Osteochondroma or osteocartilagenous exostosis is a benign surface lesion of bone consisting of a bony outgrowth covered by a cartilage cap. It is considered the most common benign bone

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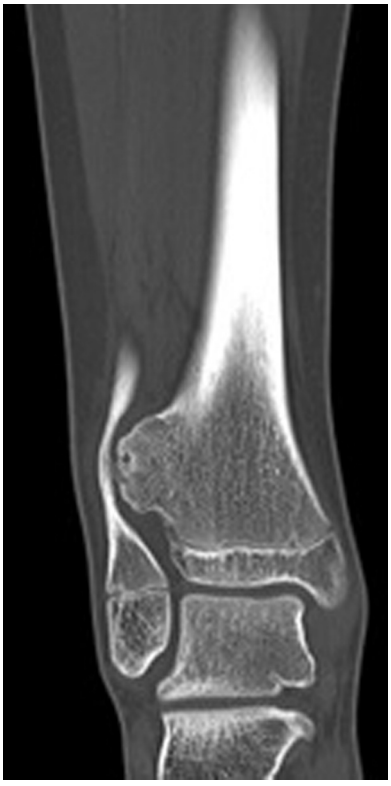

Fig. 1. CT scan image showing the exostosis producing erosion and impending fibula fracture.

tumour, although the true incidence is unknown because most of the lesions are asymptomatic and never identified. Incidentally discovered osteochondromas in asymptomatic patients are managed with observation. The patient should be informed of the rare possibility of malignant change (<1%) and should return for evaluation if the lesion becomes larger or painful.[3,4] The main symptoms are related to its size and location: irritation of nearby structures, bursitis due to chronic friction or stalk fracture secondary to traumatisms.[5] Resection is indicated for patients with a symptomatic lesion secondary to irritation of the surrounding soft tissue, for a lesion in a location that is subjected to minor trauma, for a lesion causing a cosmetic deformity or potential damage to surrounding joints or neurovascular structures, and for a lesion that has characteristics of malignant transformation.[6–10] If possible, resection of an osteochondroma in a child should be postponed until skeletal maturity because the cartilage cap will become smaller and will be farther from the growth Plate 6.

Osteochondromas around the ankle are very uncommon except in cases of Multiple Hereditary Exostoses.[7] If they affect the ankle, they are mainly found arising from the interosseous border, deforming distal tibia and fibula and occurring prior to physeal fusion, as have been reported by Wani et al.,[12]. Plastic deformation of tibia and fibula, mechanical blocking of joint motion, syndesmotic problems (synostosis or diastasis), varus or valgus deformities of the ankle and subsequent degenerative changes in the ankle joint are some of the documented complications in the neglected cases,[10,11,13] so most of the authors prefer a surgical resection for osteochondromas in this location.[10–13]

Surgical treatment of osteochondromas consists of simple removal; Mirra reiterated the importance of complete resection of the cartilaginous cap to prevent recurrence.[4] Anterior, posterior and trans-fibular approach has been described in the literature.[11] The anterior approach used in this case is associated with the least amount of postoperative morbidity, as have been used by Wani et al.,[12]. There is still little information of the natural evolution after treatment of osteochondromas arising from the distal aspect of either the tibia or the fibula.[10,13]

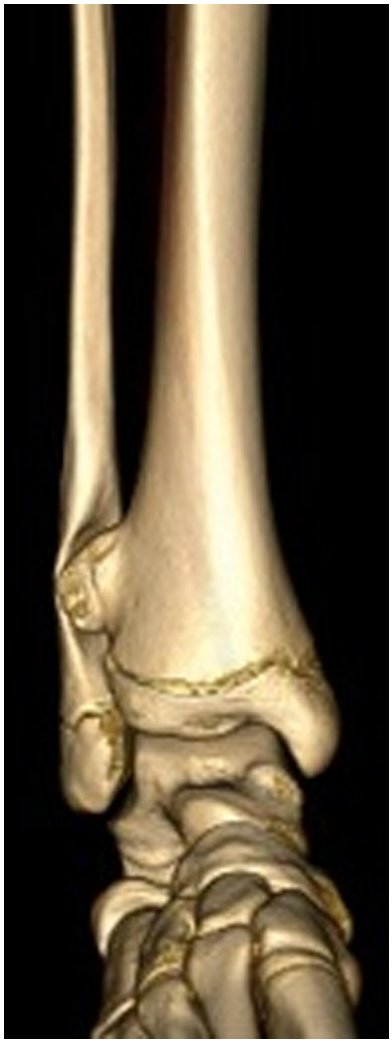

Fig. 2. 3D image demonstrating the lesion.

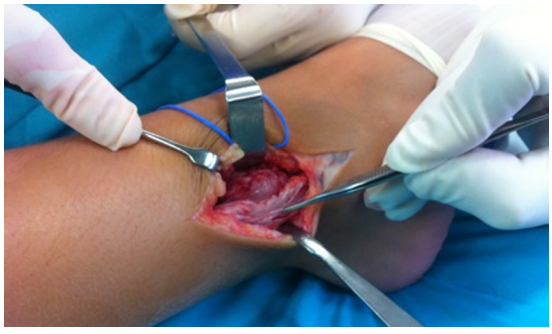

Fig. 3. Intraoperative findings: anterior approach showing osteochondroma producing erosion of the fibula.

4. Conclusion

Although most of the osteochondromas in children should be treated conservatively until skeletal maturity, those affecting the distal tibia or fibula should be treated with surgical excision in order

to prevent ankle deformity, syndesmotic lesions or even fracture due to the expanding nature of this benign tumour.

Conflict of interest statement

None.

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None.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

All authors have made substantial contributions to the publication of this case report.

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