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CASE REPORT

DISTAL TIBIA INTEROSSEOUS OSTEOCHONDROMA WITH FIBULA DEFORMITY

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ABSTRACT

Osteochondroma, one of the commonest bone tumors, is a cartilage capped exostosis. It occurs commonly in rapidly growing ends of long bones. It's rare in slowly growing regions of long bones. Osteochondroma present in distal tibial interosseous border causing fibular deformity is very uncommon. Osteochondroma is usually managed conservatively till the age of skeletal maturity, but distal tibial osteochondromas are managed surgically to prevent deformity, impending fibula fracture, ankle pain, syndesmotic injury irrespective of skeletal maturity. It is a case report of an 18-year-old male with gradually increasing, painless mass at the distal leg for 6 years, increasing bowing deformity since 2 years with no functional limitations. Clinical and radiological findings were consistent with distal tibial osteochondroma with deformity of the adjoining fibula. Exostosis was excised successfully leaving a thin deformed distal fibula. The result was painless, stable, and non-progressive residual ankle deformity. Histopathology confirmed the diagnosis with no malignant transformation.

INTRODUCTION

Osteochondroma, the most common benign bone tumor, is a cartilage-capped bony outgrowth.[1,2] Its actual prevalence is still unknown as most osteochondromas are asymptomatic, frequently diagnosed incidentally during radiographic examination. It usually arises in the metaphyseal region like distal femur, proximal tibia, and proximal humerus corresponding to the site of most rapid bone growth. It is rare in slowly growing ends of long bone like foot and ankle regions except in the case of multiple hereditary exostoses.[1-3]

This is a rare case of solitary osteochondroma present in the distal tibial interosseous border causing fibular deformity. Plastic deformation and subsequent pathological fracture of adjoining fibula, syndesmotic problems, and subsequent degenerative changes in ankle joint are some of the possible complications if these osteochondromas are untreated.[2,4,5]

CASE REPORT

An 18-year-old male, a day laborer, presented to us with gradually increasing mass on the lateral aspect of the right distal leg for 6 years. The swelling was painless with no functional limitation. He noticed the bowing deformity of the distal leg for 2 years; however, he was able to manage his activities of daily living. On examination the mass was globular, ill-defined margin, non-tender and bony hard in consistency. Ankle movement was normal with no distal neurovascular deficit. Anteroposterior and lateral radiographs and computed tomography of the leg with ankle revealed well-defined broad-based exostosis at the interosseous margin of distal tibia abutting and deforming the distal fibula (Figure 1 and 2). Clinically there was no growth in other parts of the body. Shoulder and pelvis x rays done as a part of the skeletal survey were normal.

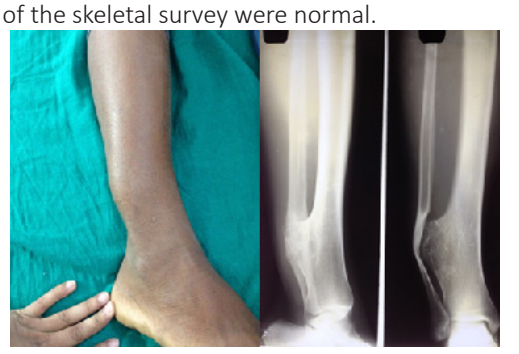

Figure 1: Preoperative clinical picture and radiograph

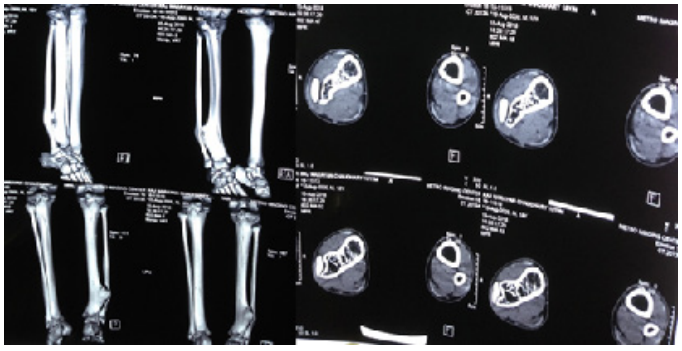

Figure 2: Preoperative computed tomography image

Surgical excision was planned to prevent syndesmotic complications. Complete extra periosteal resection was done through a posterolateral approach. Intraoperatively, sessile, broad-based, cauliflower-like exostosis was excised. Fibula reconstructive osteotomy was not done as deformed fibula had intact cortical shell. Postoperatively the patient was immobilized on a below-knee cast for 1 month followed by gradual mobilization (Figure 3). Weight-bearing was allowed following cast removal.

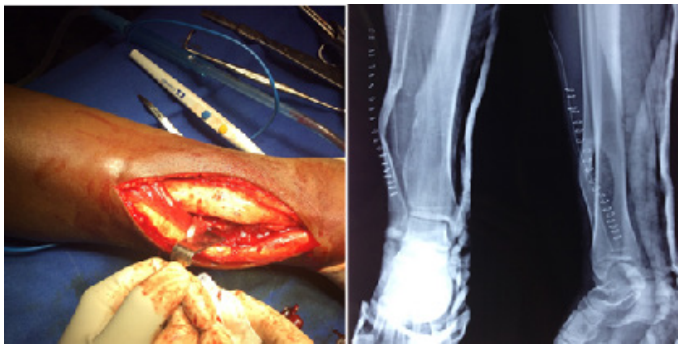

Figure 3: Intraoperative picture and immediate postoperative radiograph

Histology confirmed the osteochondroma with no malignant transformation (Figure 4). At 6 month follow-up, the ankle is painless, stable, non-progressive residual deformity with normal functional recovery.

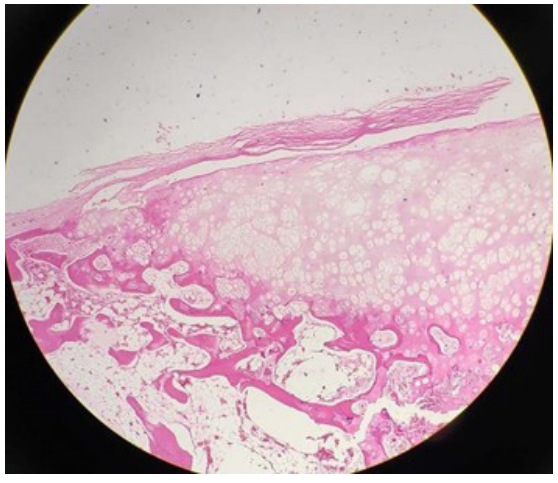

Figure 4: Histopathological picture showing cartilaginous tissue with scattered endochondral ossification and fibrous capsular tissue

DISCUSSION

Osteocartilagenous exostosis is a benign bone tumor composed of spongy bone covered by a cartilaginous cap. It is a developmental disorder presenting often in the second decade of life. 45% of all benign bone tumors are osteochondroma. Rapidly growing long bone metaphysis are commonly affected sites.[1,3] However, osteochondroma in slowly growing ends of long bone like distal tibia is a rare entity except in the case of multiple hereditary exostoses. 90% of osteochondromas present as solitary mass whereas 10% present as multiple hereditary exostoses.[2,5-7]

Osteochondroma usually has a predictable natural course. It slowly increases in size until the age of skeletal maturity, after which growth ceases. If the lesion is symptomatic, location such that it's prone for minor trauma, cosmetic deformity, pressure effect to nearby neurovascular structures and features of malignant transformations are some of the indications for the resection of the osteochondroma. But this resection is delayed until the time of skeletal maturity.[2,5,6,8] They are of two types: pedunculated and sessile. Sessile types are at greater risk of malignant transformation. Overall malignant transformation rate is less than 1%.[1,5-7]

Distal tibial osteochondroma is rare. Osteochondromas of foot and ankle are up to 11.8% of all osteochondroma.[1] It usually occurs at the interosseous border deforming the adjoining fibula. It may be associated with syndesmotic problems, ankle problems, or impending fracture of the deformed fibula.[4] However, distal tibial interosseous osteochondromas are excised even before skeletal maturity to prevent possible deformity, pathological fracture, or disturbed ankle kinematics.[2,3,5,8]

This is a case of distal tibial interosseous exostosis, deforming the adjoining part of the fibula with its impending fracture. Clinically and radiologically, it was diagnosed to be osteochondroma. Extra-periosteal excision was done through a posterolateral approach with preservation of the fibula. Histopathology revealed multiple enchondral ossifications surrounded by hyaline cartilage and confirmed the diagnosis. There are different approaches for this resection: fibula osteotomy approach, anterior and posterolateral approaches. Anterior approach is considered to be relatively safe, but posterolateral approach was done for its relative posterolateral position.[2,6,7,9] Few other case reports show similar radiological, histopathological findings and treatment options.[5,8,10]

Although osteochondroma is a common benign bone tumor, it is rare in the distal tibia. Most of the osteochondromas are managed conservatively until the age of skeletal maturity, those affecting the distal tibia should be treated surgically with excision to prevent the deformity of the ankle, syndesmotic problems, mechanical symptoms and even impending fibula fracture. In our case, there is a satisfactory outcome with full functional recovery, no residual pain, and non-progressive residual deformity.

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