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Case Report

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Recurrent posterior talar osteochondroma in a child managed with medial malleolar osteotomy: a case report

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ABSTRACT

Osteochondromas are the most common benign bone tumours in children and adolescents. They usually arise from the metaphyseal regions of long bones, and hence involvement of the talus is uncommon. Posterior talar osteochondromas in children are extremely rare and may mimic dysplasia epiphysealis hemimelica (Trevor's disease). An 11-year-old girl presented with recurrent pain and swelling over the posteromedial aspect of the left ankle following excision biopsy of a similar lesion from the same site 11 months earlier. Radiographs demonstrated a pedunculated exostosis arising from the posterior talus with cortical and medullary continuity. Magnetic resonance imaging showed a 2.5×1.8 cm lesion with a thin cartilaginous cap and no features suggestive of malignancy. The lesion was excised en bloc through a medial malleolar osteotomy approach. The approach provided excellent exposure of the posterior talus and allowed complete removal of the tumour. Histopathology confirmed osteochondroma. At 24-month follow-up the patient was asymptomatic with full ankle range of motion, radiological union of the osteotomy and no evidence of recurrence. The American Orthopaedic Foot and Ankle Society ankle-hindfoot score was 98/100. Medial malleolar osteotomy provides safe and effective exposure for complete excision of recurrent posterior talar osteochondromas in paediatric patients while preserving ankle function.

Keywords: Osteochondroma, Talus, Medial malleolar osteotomy, Trevor's disease, Posterior ankle tumour

INTRODUCTION

Osteochondromas are the most common benign bone tumours, typically occurring in children and adolescents.[1,2] However, osteochondromas involving the talus are rare because the talus lacks a typical metaphyseal growth plate.[1,2] Posterior talar osteochondromas are especially uncommon, with most reports limited to isolated case reports or small case series.[3,4] In children, these lesions may mimic dysplasia epiphysealis hemimelica (Trevor's disease), a developmental disorder characterized by asymmetric epiphyseal overgrowth.[5]

Posterior talar lesions may present with ankle pain, posterior impingement, or occasionally neurovascular symptoms such as tarsal tunnel syndrome.[3,6] Complete excision of the tumour is important to reduce the risk of recurrence.[6,7] One of the main reasons for incomplete removal is limited surgical access due to the anatomical location of the talus. We report a rare case of recurrent posterior talar osteochondroma in a child successfully managed using a medial malleolar osteotomy approach.

CASE REPORT

An 11-year-old girl from rural Kerala presented with recurrent pain and swelling over the medial malleolus and posterior aspect of her left ankle in November 2023. She had experienced similar symptoms earlier and had undergone excision biopsy of a posterior ankle lesion in December 2022 at another hospital, with histopathology confirming osteochondroma. She remained asymptomatic for approximately ten months before experiencing recurrence of pain and swelling. On examination, there

was a firm, non-tender swelling measuring approximately 3×2 cm over the posteromedial aspect of the ankle. The range of motion of the left ankle was full, although terminal dorsiflexion elicited pain. Neurovascular examination was normal.

Radiological findings

Plain radiographs (anteroposterior and lateral views) demonstrated a pedunculated bony excrescence arising from the posterior talus with clear cortical and medullary continuity (Figure 1 A and B). Magnetic resonance imaging revealed a 2.5×1.8 cm lesion with a thin cartilaginous cap measuring less than 1 cm in thickness. Associated soft-tissue oedema was noted, but there was no evidence of cortical destruction or marrow infiltration (Figure 1 C).

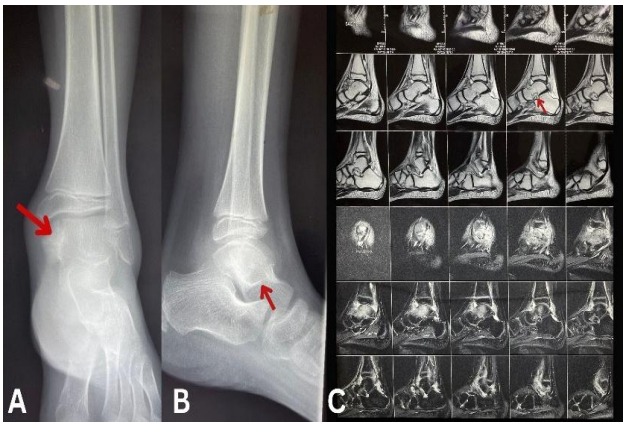

Figure 1: Preoperative imaging of posterior talar osteochondroma. (A) Anteroposterior radiograph of the ankle demonstrating a well-defined bony outgrowth arising from the posterior aspect of the talus (arrow). (B) Lateral radiograph showing a pedunculated osseous projection from the posterior talar process (arrow). (C) Magnetic resonance imaging of the ankle (sagittal sections) revealing a lesion arising from the posterior talus with continuity of the cortical and medullary bone with the parent talus (arrow), consistent with osteochondroma.

The differential diagnoses we considered included recurrent osteochondroma, dysplasia epiphysealis hemimelica (Trevor's disease), fluoride reactive periostitis, and bizarre parosteal osteochondromatous proliferation (Nora's lesion).[7]

Surgical technique

Under general anaesthesia and tourniquet control, an anteromedial approach to the ankle was performed. A longitudinal incision was made extending from the medial malleolus proximally towards the base of the first metatarsal distally. A medial malleolar osteotomy was created approximately 1 cm proximal to the ankle joint line and reflected distally to provide direct exposure of the posterior talar process. This approach allowed clear visualisation of the lesion and facilitated complete excision. The tumour was excised en bloc along with its cartilaginous cap. The medial malleolus was then reduced and stabilised using two 1.6-mm Kirschner wires (Figure 2 A and B).

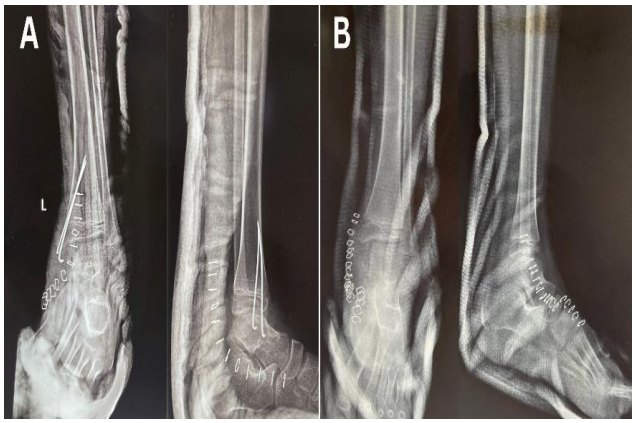

Figure 2: Postoperative radiographs following excision of posterior talar osteochondroma. (A) Immediate postoperative anteroposterior and lateral radiographs of the ankle showing fixation of the medial malleolar osteotomy with Kirschner wires and soft-tissue closure with surgical staples. (B) Early postoperative anteroposterior and lateral radiographs demonstrating maintained ankle alignment and satisfactory postoperative status following lesion excision and osteotomy fixation.

Histopathological examination of the tumour confirmed osteochondroma, showing a hyaline cartilage cap undergoing endochondral ossification. There were no features suggestive of malignant transformation (Figure 3).

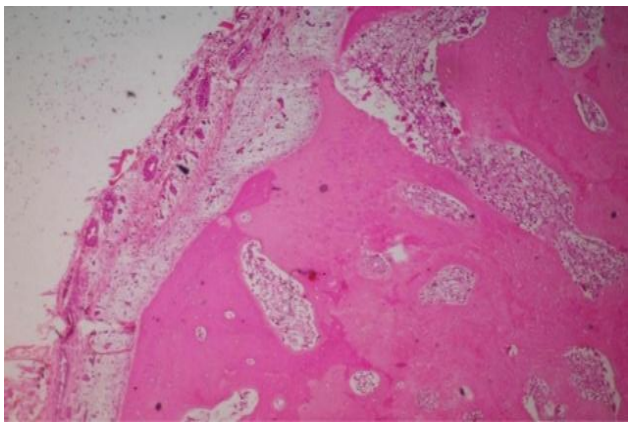

Figure 3: Histopathological features of osteochondroma. Photomicrograph showing a cartilage cap composed of hyaline cartilage with underlying trabecular bone formed by endochondral ossification, consistent with osteochondroma (hematoxylin and eosin stain, ×100).

Postoperative course and follow-up

Immediate postoperative radiographs confirmed complete removal of the tumour and satisfactory alignment of the osteotomy. The Kirschner wires were removed at five months postoperatively, and radiological union was confirmed at six months. At 24-month follow-up (February 2026), the patient was asymptomatic, ambulating comfortably and fully weight-bearing, and demonstrated complete ankle range of motion. Radiographs showed solid union of the medial malleolus, restoration of normal talar morphology, and no evidence of recurrence (Figure 4). Her American orthopaedic foot and ankle society ankle-hindfoot score was 98/100.

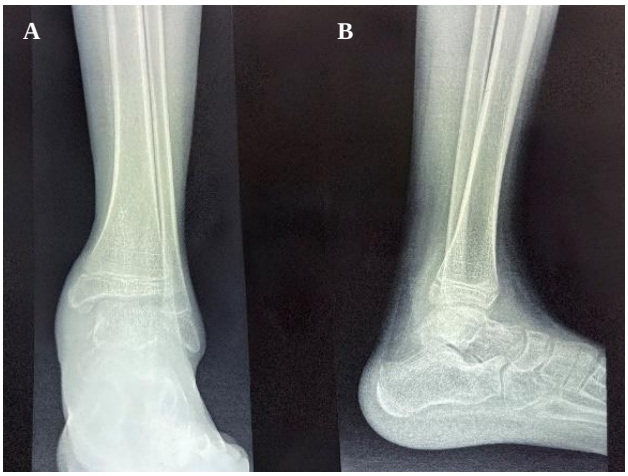

Figure 4 (A and B): Twenty-four-month postoperative radiograph of the left ankle showing complete union of the medial malleolar osteotomy, restoration of normal talar morphology, and no evidence of recurrence.

DISCUSSION

Osteochondroma is the most common benign bone tumour in children; however, involvement of the talus is extremely uncommon because osteochondromas typically arise from the metaphyseal regions of long bones, whereas the talus lacks a typical metaphyseal growth plate.[1] Only a limited number of talar osteochondromas have been reported in the literature.[6,8] Posterior talar osteochondromas are even rarer and have been described mainly in isolated case reports, reflecting the diagnostic and surgical challenges associated with lesions arising in this location.[3,4] Reports of posterior talar osteochondromas in the paediatric population are particularly scarce, and to our knowledge, a case of recurrent posterior talar osteochondroma in a child managed through medial malleolar osteotomy has not been reported previously.

Osteochondromas are frequently asymptomatic and may be discovered incidentally. However, symptoms may occur when the lesion produces mechanical irritation, deformity, or compression of adjacent structures.[1] In the ankle region, lesions arising from the talus may interfere with joint mechanics, cause deformity, or pose a risk to surrounding neurovascular structures, which may necessitate surgical excision.[6]

The intra-articular location of osteochondromas arising from the talus can limit surgical access and visualisation, making complete excision technically demanding. Both open and arthroscopic techniques have been described for the excision of talar osteochondromas, generally with favourable outcomes when complete removal of the lesion is achieved.[3,6] Arthroscopic excision has been reported to be effective in certain cases; however, visualisation may be limited depending on the location and size of the lesion.[3] In contrast, medial malleolar osteotomy provides excellent exposure of the talar dome and posterior talar process, allowing safe en bloc resection of the tumour.

Recurrence of osteochondroma is uncommon and is usually attributed to incomplete excision of the cartilaginous cap.[1] In the present case, recurrence was most likely attributable to incomplete excision during the initial surgery, highlighting the importance of adequate surgical exposure to ensure complete removal of the lesion. Our approach using medial malleolar osteotomy provided excellent exposure of the posterior talus, allowing complete en bloc resection while preserving the distal tibial physis. Compared with other approaches, medial malleolar osteotomy offers improved visualisation and surgical control, particularly in recurrent lesions or when the tumour arises from the posterior talar process.

Differentiating osteochondroma from dysplasia epiphysealis hemimelica (Trevor's disease) is important, as Trevor's disease represents a progressive epiphyseal overgrowth disorder.[5] Radiologically, the presence of cortical and medullary continuity with the parent bone is a characteristic feature of osteochondroma and helps distinguish it from other epiphyseal lesions.[1,7] Histopathological confirmation demonstrating a hyaline cartilage cap with endochondral ossification further supports the diagnosis.[1]

Although limited by its single-patient design, this case highlights the importance of adequate surgical exposure to achieve complete excision of osteochondromas in anatomically constrained regions such as the posterior talus, thereby enabling excellent functional outcomes with minimal risk of recurrence.

CONCLUSION

Recurrent posterior talar osteochondroma in paediatric patients requires complete excision to prevent further recurrence. Medial malleolar osteotomy provides excellent exposure, facilitates en bloc resection, preserves growth potential, and maintains ankle function, resulting in excellent clinical outcomes. This approach should be considered for recurrent or difficult-to-access talar lesions where complete excision is essential for preventing recurrence.

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