

Subungual exostosis of the little toe: MRI features

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Section: Musculoskeletal system

Case Type: Clinical Cases

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Patient: 15 years, male

Clinical History:

A 15 year old boy presented with generalised swelling of right little toe with no prior history of injury.

Imaging Findings:

A 15 year old boy presented with a 3-month history of an enlarging, minimally painful swelling of the tip of right little toe. The swelling was generalised with no clear cut demarcations from the underlying bone and was firm in consistency with minimal tenderness on palpation. The overlying nail was thickened and spoon-shaped. No similar swellings were found elsewhere. Radiography showed bony erosion of the distal phalanx of little toe (figure 1). MRI showed a lesion enveloping the terminal phalanx of the little toe from below and laterally, with further extension of it between the dorsal surface of the bone and the nail. The lesion was low signal on the T1 sequence (figure 2a), high signal on the fat suppressed sequence (figs 2b - d) and there was no enhancement within it following gadolinium administration. No signal void to suggest calcification within the mass was demonstrated. The scan confirmed pressure erosion of the tuft of the distal phalanx. Surgical excision of the lesion was performed and histopathological assessment of the specimen showed it to be consistent with a subungual exostosis with predominant chondroid metaplasia.

Discussion:

Subungual exostosis is a rare osteo-cartilaginous benign tumour arising usually from the distal phalanx of the toes, more commonly from the hallux. Very rarely they can be found in the hands. The term 'exostosis' is a misnomer as there is no continuity with the underlying bone. Females are affected twice as males and the lesions occur mostly during the second decade. The precise cause is not clear, but factors like trauma, chronic infection and local irritation are often implicated. The underlying pathology is the initial growth of fibro-cartilaginous tissue, which later ossifies to a varying degree. It differs from osteochondroma, which is a congenital lesion arising from the metaphysis of the underlying bone. Clinically patients may present with swelling in the distal phalanx, with some degree of tenderness often after an episode of trauma. The position of the lesion is almost always dorso-medial. Possible differential diagnoses for the lesion include osteochondroma, glomus tumour, squamous cell carcinoma and melanoma. Radiologically, the appearances can vary according to the amount of calcification. Generally the outgrowth has features of cancellous bone without a defined cortex. During the pre-ossifying stage the underlying bone can be eroded due to the compression by the tumour. Surgical excision and curettage of the base is the treatment of choice. Rarely recurrences can occur if the base is not excised completely.

Differential Diagnosis List: Subungual exostosis of the little toe

Final Diagnosis: Subungual exostosis of the liitle toe

References:

Sankar B, Ng BY, Hopgood P, Banks AJ. Subungual exostosis following toe nail removal case report. Int J Clin Pract Suppl. 2005 Apr;(147):132-3. (PMID: [15875652](#))

Letts M, Davidson D, Nizalik E. Subungual exostosis: diagnosis and treatment in children. J Trauma. 1998 Feb;44(2):346-9. (PMID: [9498509](#))

Figure 1

a



Description: Plain radiograph of the little toe showing erosive change affecting the distal phalanx.

Origin:

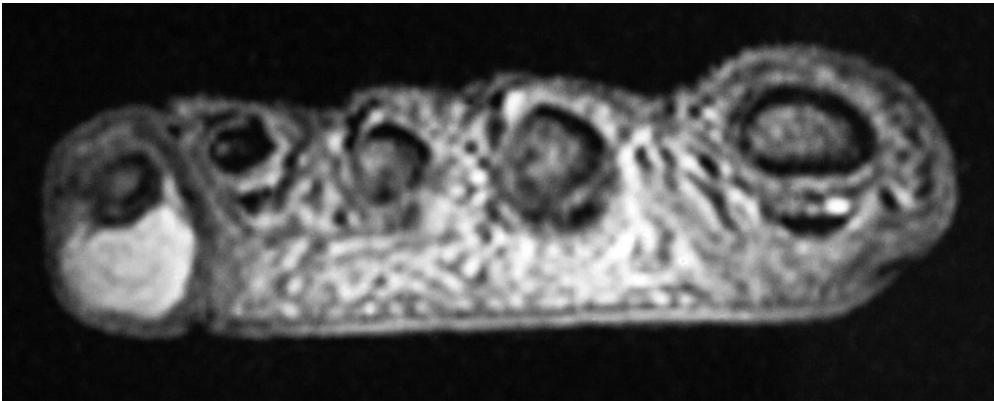
Figure 2

a



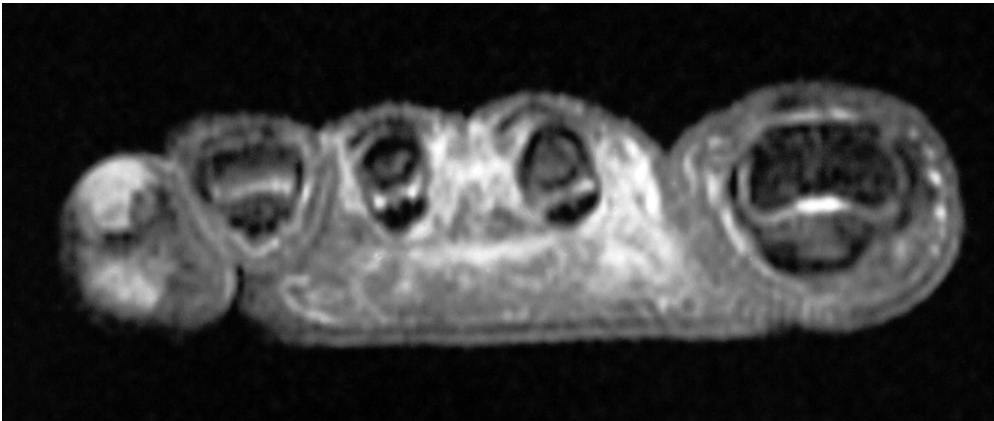
Description: Coronal T1 MRI image shows a homogenously low signal lesion in the soft tissues on the plantar aspect of the distal phalanx of the little toe **Origin:**

b



Description: Coronal proton density fat saturated MRI scan shows the mass to be of homogenous high signal on this sequence **Origin:**

c



Description: Coronal proton density fat saturated MRI scan showing the high signal mass around the distal phalanx extends between the scalloped bone and the nail **Origin:**

d



Description: Axial proton density fat saturated image of the high signal lesion at the tip of the distal phalanx of the little toe **Origin:**