Unusual aetiology of foot pain in the elderly: A case report & review of literature

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ABSTRACT

The osteochondroma of metatarsal is a rare clinical entity. It generally occurs in the first or second decade of life. The osteochondroma should be investigated to rule out any malignant changes before embarking any surgical intervention. We report an osteochondroma of 5th metatarsal in a 65 years old female as an unusual aetiology of foot pain. We propose the scalloping effect of the osteochondroma on adjacent metatarsal as one of the mechanisms of causing pain in the foot. After ruling out the malignant transformation with the help of MRI, excision of the tumour was done with a curvilinear incision on the dorsum of the foot. There was no recurrence in 1 year follow up. This case report depicts the occurrence of osteochondroma in geriatric patient as an unusual cause of foot pain. The scalloping effect on the adjacent bone and tissues can be the aetiology of the pain.

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1. Introduction

Osteochondroma, the most frequently encountered benign bone tumour, is generally seen in the long bones in the 2nd decade. Foot and ankle tumors comprise around 5.52% of all the bone tumors.¹ True osteochondroma is uncommon in foot and ankle.² They increase in size with age and ceases to grow after skeletal maturity. Typically, the osteochondroma in a foot is not noticed for a long time unless it causes painful symptoms due to various reasons including fracture, bursitis, restriction of joint movement, neurovascular compromise and rarely malignant changes.³ The rapid growth of osteochondroma after skeletal maturity is suspicious of malignant transformation.

In this report, we describe a rare site of osteochondroma of fifth metatarsal in a 65 years old female.

2. Case report

A 65 years old female presented with swelling on her left foot for the past 4 years and pain for the past 3 months. The swelling was insidious in onset, progressively increasing in size and located over the dorsum of the 5th metatarsal in left foot. Patient had aching pain on standing and walking, and difficulty in doing daily

routine activities for the past 3 months. On physical evaluation bony hard swelling was located in 4th web space of the foot in continuity with 5th metatarsal on the dorsum of foot. The swelling was 2 × 1 cm in size, hard in consistency, non-tender with well-defined margins. There was no neurovascular deficit in the foot and no similar swelling anywhere in the body. The movements of the foot, especially supination and pronation, were painful.

Plain radiographs of the foot were suggestive of a large exophytic mass arising from neck and shaft of 5th metatarsal with erosion of shaft of 4th metatarsal (Fig. 1). MRI was done suggestive of a hypo-intense lesion measuring 3 × 2 cm with 1.6 cm of cartilaginous cap without any malignant transformation (Fig. 2). The medullary canal of 5th metatarsal was in continuity with the bony lesion, with intact cortices.

Extra periosteal excision was done using dorsal curvilinear incision in between 4th and 5th metatarsal overlying the swelling. The neurovascular structures and tendons were identified and retracted away from mass to delineate the stalk of the bony swelling. The bony mass was present in continuity with the shaft of the 5th metatarsal protruding in the 4th web-space dorsally (Fig. 3). The mass was excised close to the shaft of the metatarsal. On histopathological examination, the cartilaginous cap consists of hyaline cartilage, with well-differentiated cells separated by an abundant cartilage matrix. The findings were suggestive of typical osteochondroma with no malignant changes. Patient had no recurrence of osteochondroma during 2 year follow up.

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Fig. 1. Radiograph depicting osteochondroma arising from 4th metatarsal with scalloping effect on 5th metatarsal.

Fig. 2. MRI picture depicting osteochondroma with cartilage cap.

3. Discussion

Osteochondroma is considered as a benign chondrogenic lesion derived from aberrant cartilage.⁴ The aberrant cartilage grows till the skeletal maturity and thereafter the growth of osteochondroma also ceases. In this case the age of presentation was 65 years, which is yet not reported in English literature. It is quite unusual in osteochondroma to present at this age. The osteochondroma in the foot is generally innocuous owing to the size of the tumour but

Fig. 3. Intra-operative dorsal osteochondroma.

presents early due to less proportion of soft tissue and subcutaneous tissue in the foot.⁴ The osteochondroma on dorsum of the foot poses few symptoms to the patient apart from the cosmetic problem and wearing footwears.⁵ Whereas osteochondroma on the plantar aspect of the foot presents early with pain and difficulty in walking.⁶ Due to the early presentation of osteochondroma in the foot, the chances of malignant transformation are less, as they are managed early. The diagnostic workup of osteochondroma in foot includes radiographs, CT scan, MRI scan and radionuclide scan to rule out sarcomatous changes.⁷ The bony mass was big enough to cause a pressure effect in the 4th web-space, leading to scalloping effect on the 4th metatarsal. MRI helps to evaluate the cartilaginous cap of the tumour. The thickness of more than 1 cm of the cartilaginous cap and old age of the patient is suspicious of malignant changes, the most common being the chondrosarcoma. In this patient, though the bony swelling was slowly increasing in size over the period of 4 years, we still get an MRI to rule out any sarcomatous changes, owing the age of the patient. Only after ruling out the possibility of sarcomatous changes, excision of the osteochondroma was planned.

There are eight case reports found in the English Literature reporting the osteochondroma in metatarsal bones^{3–10} (Table 1). But none has reported osteochondroma in foot in the geriatric age group.

The presenting symptomatology in the presenting cases have been a plantar pain in four cases^{4–6,10}, deformity in one case⁹, giant dorsal osteochondroma in one case⁸, one was synostosing osteochondroma⁷ whereas there was recurrence³ in one case. We report a case of osteochondroma of 5th metatarsal in a 65 years old female, which presents pain as a chief complaint. All the conventional causes of pain in osteochondroma was ruled out, including fracture, bursitis, neurovascular involvement and malignant changes.¹⁰ We postulate that the origin of the pain might be due to the scalloping effect of the osteochondroma on the surrounding tissue and bone. Due to the pressure and mass effect of the osteochondroma on the surrounding tissue, the soft tissue and ligaments in the 4th web-space were stretched causing painful supination and pronation of the foot.

This case represents the occurrence of osteochondroma in the foot as an unusual aetiology of painful bony swelling in old age. Biopsy can be done in suspicious cases, though it was not done in this case as an MRI does not show any malignant transformation. Overall, complications associated with surgical excision of osteochondroma are low, and lead to substantial long-term comfort after careful excision.

Table 1

Literature on site and treatment of Foot Osteochondroma.

S.NO.	Study	Year	Age (Year)	Site	Treatment
1.	Smithuis TH et al. ³	1965	24	3rd MT	Excision, then recurrence and excision again with 2nd & 4th MT
2.	Chioros et al. ⁴	1987	42	3rd MT	Excision
3.	P.J.A. Molitor et al. ⁵	1997	44	1st MT plantar	Excision
4.	Mohabey A V et al. ⁶	2006	28	Synostosing osteochondroma	Excision
5.	C. Yildirim et al. ⁷	2010	20	5th MT	Excision
6.	S. Dumbre Patil et al. ⁸	2016	13	4th MT	Excision
7.	Jadhav P U et al. ⁹	2016	40	1st MT Plantar	Excision
8.	Rodríguez REI et al. ¹⁰	2018	10	2nd MT	Excision

4. Conclusion

The osteochondroma in the metatarsal is rare but should be kept in mind as a cause of foot pain and swelling even in the geriatric age group. The scalloping effect on the adjacent tissue and bone can be a cause of pain due to osteochondroma, rather than the conventional reasons.

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Declaration of competing interest

None.

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