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Research Article

CHONDROBLASTOMA OF PROXIMAL PHALLANX OF LEFT THIRD TOE-DIAGNOSED BY FNAC

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ABSTRACT

Chondroblastoma is an uncommon primary bone tumor, mainly found in the epiphyses of long bone. We report a case of chondroblastoma of proximal phalanx of 3rd toe, which was clinically diagnosed as Enchondroma. It appears to be unique in terms of anatomic localization(small bones of foot) and its diagnosis by FNAC which is rare and challenging.

INTRODUCTION

Chondroblastoma also called Codman's tumor is a rare benign cartilagenous neoplasm that arises from immature chondroblast. It accounts upto 1% of all bone tumors and characteristically arises from epiphysis of long bone particularily the humerus, tibia and femur[1]. It can follow an aggressive course invading the joint space, adjacent bones and rarely metastasizes [2]. Children and young adults of 10-20 yrs and are most commonly affected, males are affected more compared to females[3,4]. The purpose of reporting this case is the fact that phalanx of 3rd toe is the rarest site of occurrence of Chondroblastoma.

CASE REPORT

15 year old male with chief complaints of pain in the proximal phalanx of the left 3rd toe since one year. The pain was insidious in onset and was worsening since past 3 months. Patient did not have history of trauma or infection in that site. On examination there was tenderness and mild swelling of the phalanx of the left 3rd toe and was unable to bear weight on that foot. Radiologic picture reveals a sclerotic eccentric lesion in the proximal phalanx of the left 3rd toe which was clinically diagnosed as Enchondroma[fig 1]. FNAC revealed cells in clusters and singles having distinct outline and reniform grooved nuclei along with osteoclastic giant cells dispersed over chondroid matrix and fine chicken-wire calcification[fig 2a,2b,2c].

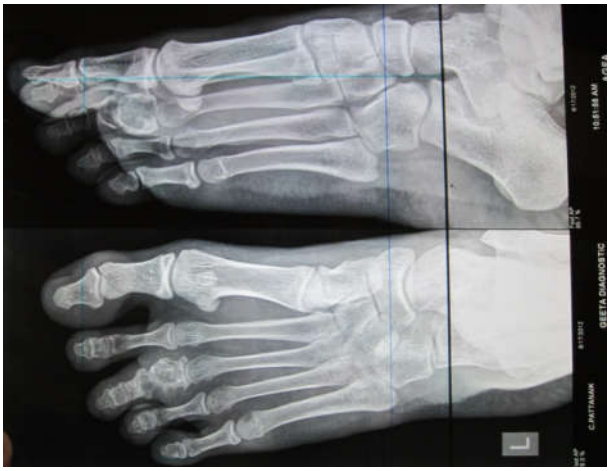

Fig-1 X-Ray Showing Sclerotic Eccentric Lesion In Proximal Phalanx of Left Third toe

Bone currettings were done and sample was sent for histopathological study, which showed mixture of mononuclear cells and multinucleated giant cells admixed with fine calcification which confirmed the final diagnosis of Chondroblastoma.[fig 3 a,3b]

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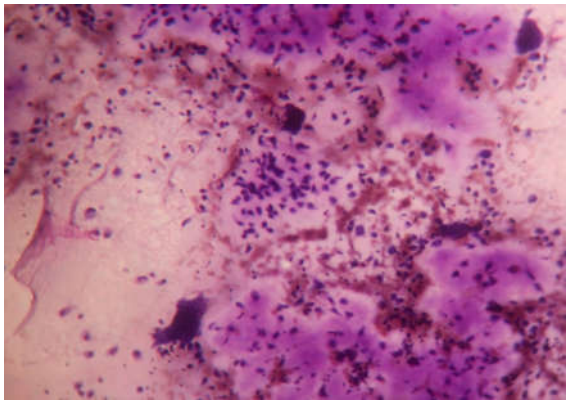

Fig 2 A FNAC Showing Cellular Smear In Chondroid Background

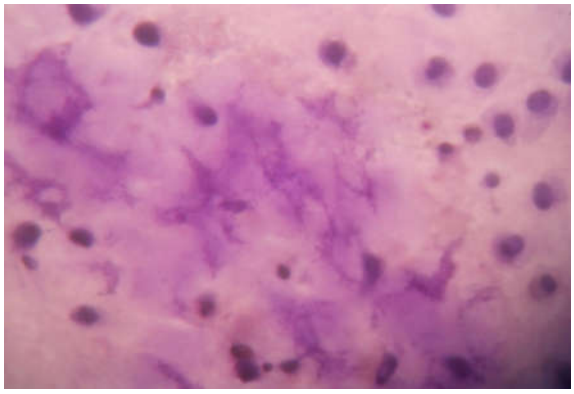

Fig- 2 B FNAC-Showing Chondroid matrix and Fine Chicken Wire Calcification

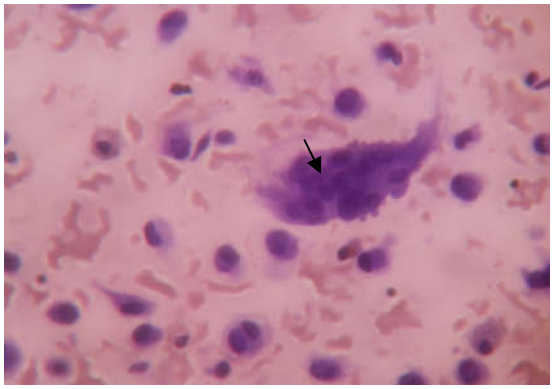

Fig 2 C FNAC Showing Osteoclastic Giant Cells and Presence of Nuclear Grooving (Arrow)

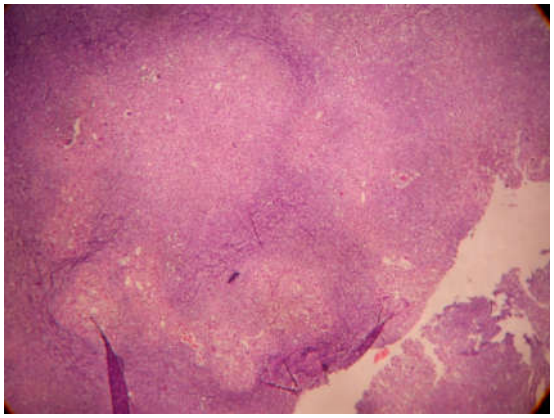

Fig-3 A Histopathology Scanner View Showing A Lobular Architecture

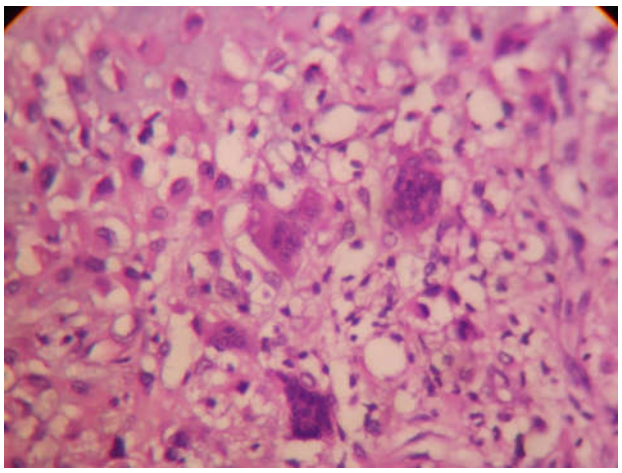

Fig-3 B Histopathology Showing Admixture of Mononuclear Cells Showing Nuclear Grooving And Multi Nucleated Giant Cells

DISCUSSION

Chondroblastoma is a benign cartilaginous neoplasm that affects patients predominantly in their 2nd decade. It was 1st described by Codman in 1931. In 1942 Jaffe and Lichenstein described the lesion as chondrogenic tumor developing at epiphysis of long bones and was initially considered to be an osteoclastoma variant. The diagnosis of chondroblastoma is documented here on basis of following features-:1) Mononuclear cells in clusters and singles having distinct outline and reniform grooved nuclei.2) Osteoclastic giant cells dispersed over chondroid matrix and3) fine chicken-wire blood vessels.

Many a times chondroblastoma is mistaken as giant cell tumor on aspiration cytology, but FNAC of giant cell tumor shows two population of cells, dominant mononuclear spindle cells and multinucleated osteoclastic type of giant cells .But presence of chondroid matrix differentiates chondroblastoma from a giant cell tumor[5]. Mononuclear cells in chondroblastoma are rounded cells with distinct cell borders, well demarcated cytoplasm having irregular ridged nuclei with longitudinal clefts(chondroblasts) while in giant cell tumor, cells resemble histiocytes with nuclei similar to those of giant cells.[6]

Another entity to differentiate chondroblastoma cytologically is chondromyxoid fibroma which is metaphyseal in location with rare intratumoral calcification in contrast to chondroblastoma which is a cell rich tumor and is epiphyseal in location with sclerotic rim and matrix calcification. Cytologically chondromyxoid fibroma characterized by spindle to stellate,fibroblast like cells in singles or in clusters in myxoid background substance along with chondroid fragments.

Fink *et al* reviewed 322 cases of chondroblastoma and reported that 42 cases involved the foot of which chondroblastoma was seen in posterior, subchondral areas of talus, calcaneum, calcaneal apophysis [7]. Zhang *et al* presented a case report with chondroblastoma of talus and concluded that 4% of all chondroblastomas arise from the talus [8].But reports of Chondroblastoma in the proximal phalanx of toe is rare in literature which is unique in this case report.

CONCLUSION

Although the aspiration cytology is very convenient and reliable method for rapid diagnosis of bone lesions the failure rate is high due to hardness and the fibrous nature of the tumors as they are guarded by thick cortex leading to difficulty in piercing. Still FNAC can prove to be an invaluable tool in diagnosis of chondroblastoma as in our case. Chondroblastoma of phalanx is rare, so a thorough cytomorphological evaluation is necessary to distinguish it from other giant cell containing lesions.

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