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Case Report

Chondroblastoma: A Rare Bone Tumor Presenting at Unusual Age at an Unusual Site

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Abstract: Chondroblastoma is rare benign bone tumor of cartilaginous origin that accounts for less than 1 % of all bone tumors. It usually develops in immature skeleton in the second decade of life and has a slight male preponderance. Approximately 75% cases of chondroblastoma involve epiphysis of long bones. Phalanges are a rare site for chondroblastoma. Here we report the case of a 68 year old female with Chondroblastoma of right ring finger whose age and site are unusal for a diagnosis of chondroblastoma. Based on CT findings the two diagnostic possibilities considered were namely, Bizzare parosteal osteochondromatous proliferation and Glomus tumor. The diagnosis of chondroblastoma in this rare location was made based on pathological evaluation of the specimen. So always keep in mind that rare presentation at a rare site is a possibility.

Keywords: Chondroblastoma, chicken wire calcification, Bizzare parosteal osteochondromatous proliferation, glomus tumor.

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INTRODUCTION

Chondroblastoma (CBT), originally described by Ewing in 1928 as "calcifying giant cell tumor" is a rare cartilage producing bone tumor [1]. It tends to develop in the second decade of life. Any portion of the skeleton may be involved but majority of the tumors occur at the ends of long bones extending to articular cartilage. In older individuals tumor involves non tubular bones such as craniofacial skeleton or bones of hands and feet. It has a predilection for epiphyseal or apophyseal region. Clinical presentation varies with site of the disease. The typical radiological presentation of CBT is a well demarcated eccentric and lytic lesion with a thin rim of sclerotic bone. Central fluffy calcifications are seen as radiodensities. Adjacent cortex show evidence of erosion or thinning [1, 2].

CASE REPORT

69 year old female presented with swelling of the right ring finger since 10 years. It was associated with mild pain but the intensity of pain gradually increased over 2 years. Although ignored in the beginning, increase in size and pain of the swelling was the reason for her Orthopedic consultation. X ray of right hand showed a fairly circumscribed lytic lesion in the epiphysis of distal phalange with soft tissue extension. CT studies have shown a well-defined lesion in the distal phalangx of fourth finger with punctate calcification and cortical erosion. The possibilities considered were Bizaree parosteal osteochondromatous proliferation and glomus tumor. Later she underwent amputation at proximal interphalangeal joint and the gross specimen showed a well circumscribed glistening grey white lesion measuring 2.2 x 1.3 x 0.7 cm which is at a distance of 1.2 cm from the resected margin. Histopathology of the lesion showed a circumscribed neoplasm arising from the bone composed of ovoid cells arranged diffusely interspersed with osteoclast like giant cells. Individual cells have scant eosinophilic cytoplasm and ovoid nucleus with grooves. Characteristic chicken wire calcification seen.

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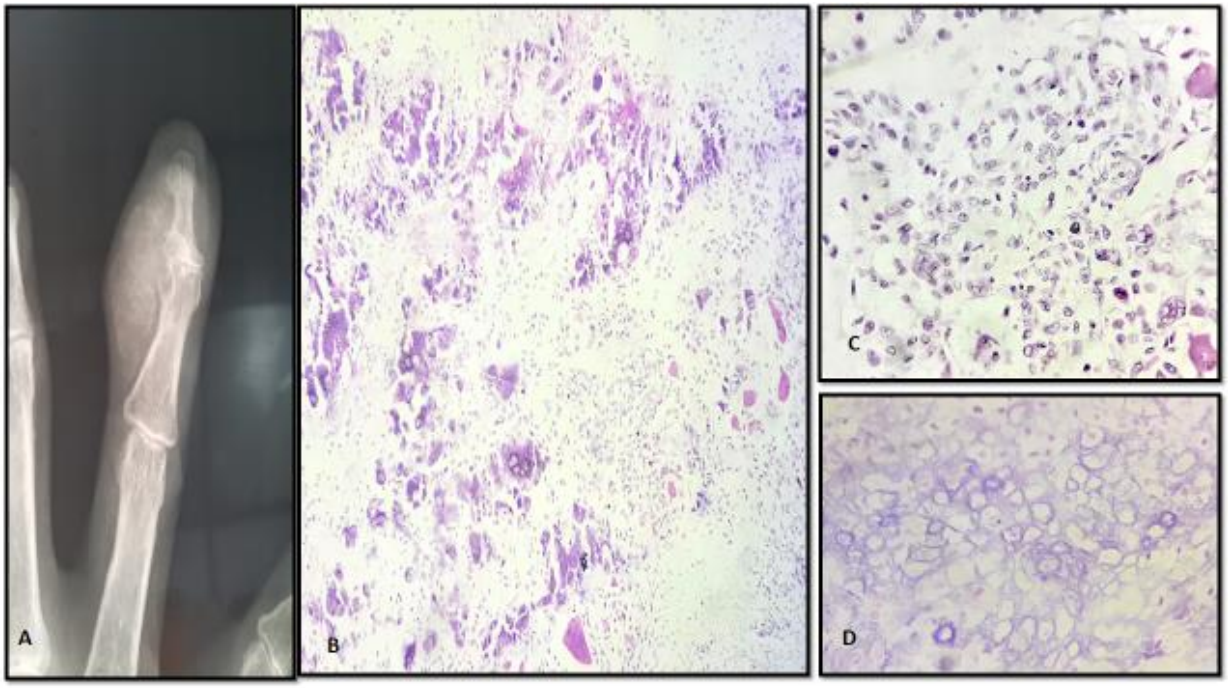

A) X ray right hand showing a fairly circumscribed lytic lesion in the epiphysis of distal phalangx with soft tissue extension. B & C) Histopathology showing mononuclear cells with well-defined cell border and ovoid grooved nuclei seen interspersed with multinucleate giant cells. D) Chicken wire calcification

DISCUSSION

Chondroblastoma also referred as Codman tumor, is a benign cartilaginous neoplasm. It was first established in 1931 by codman as "giant cell chondromatous tumor of epiphysis". In 1942, Jaffe and Lichtenstein distinguished chondroblastoma from giant cell tumors and created the term Benign Chondroblastoma. Despite being rare, they are the frequently encountered benign epiphyseal neoplasm in skeletally immature patients. It accounts for less than 1% of all bone tumors. There is a slight male predominance. Any portion of the skeleton may be involved, but majority of tumors occurs at the ends of long bones extending to the articular cartilage [2, 3].

The clinical presentation is quite non-specific and varies with site of disease. The most common symptom is pain. The radiological appearance is quite characteristic. It is a well-defined, often sclerotically marginated lucent lesion showing geographical bone destruction. Mineralisation, trabeculation, cortical erosion and expansion are frequently present [4].

Chondroblastomas are usually less than 5 cm. it is seen as a well-defined eccentric lesion with thin sclerotic rim. They tend to be white and firm. Microscopically, chondroblastomas are composed of a mixture of mononuclear cells and giant cells. The giant cells are usually not as numerous as those seen in a typical giant cell tumor. The cytological features of chondroblastoma are quite typical. They contain mononuclear cells with oval nuclei with a groove, similar to the cells of Langerhans histiocytosis. The cytoplasmic outlines are usually distinct and the cytoplasm is pink or clear. Chondroid differentiation or calcification between the tumor cells known as chicken wire calcification is a characteristic feature. The islands of cartlage are usually stained pink and juxtaposed to typical areas of mononuclear cell proliferation. Mitotic figures are commonly seen cytological atypia is rare [5, 6].

About one third of chondroblastoma show areas of secondary aneurysmal bone formation. This histological feature does not affect prognosis. Chondroblastoma is a benign tumor that locally recurs [7, 8].

In our case radiologist suspected Bizarre parosteal osteochondromatous lesion and glomus tumor probably due to its typical location in phalanges. But Bizarre Parosteal Osteochondromatous Proliferation usually occurs in the third to fourth decades of life, show zonation and characteristic blue bone histologically. The doubt was cleared by typical histolopathological features of chondroblastoma like mononuclear cells with grooved nuclei, chicken wire calcification and osteoclast like giant cells. Giant cell tumors occurs in metaphysis of patients with closed epiphysis. Microscopically it is characterised by numerous osteoclast like giant cells which are larger and more numerous than chondroblastoma. But no chondroid differentiation or chicken wire calcification seen. Glomus tumor is a vascular, but not a bone neoplasm.

CONCLUSION

Chondroblastoma is a rare benign cartilaginous tumour which accounts for less than 1% of all bone tumors. Its occurrence in skeletally mature individuals is also rare. Phalanges of finger as a primary site of chondroblastoma is even rarer. So always keep in mind that a rare case at a rare site is a possibility.

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