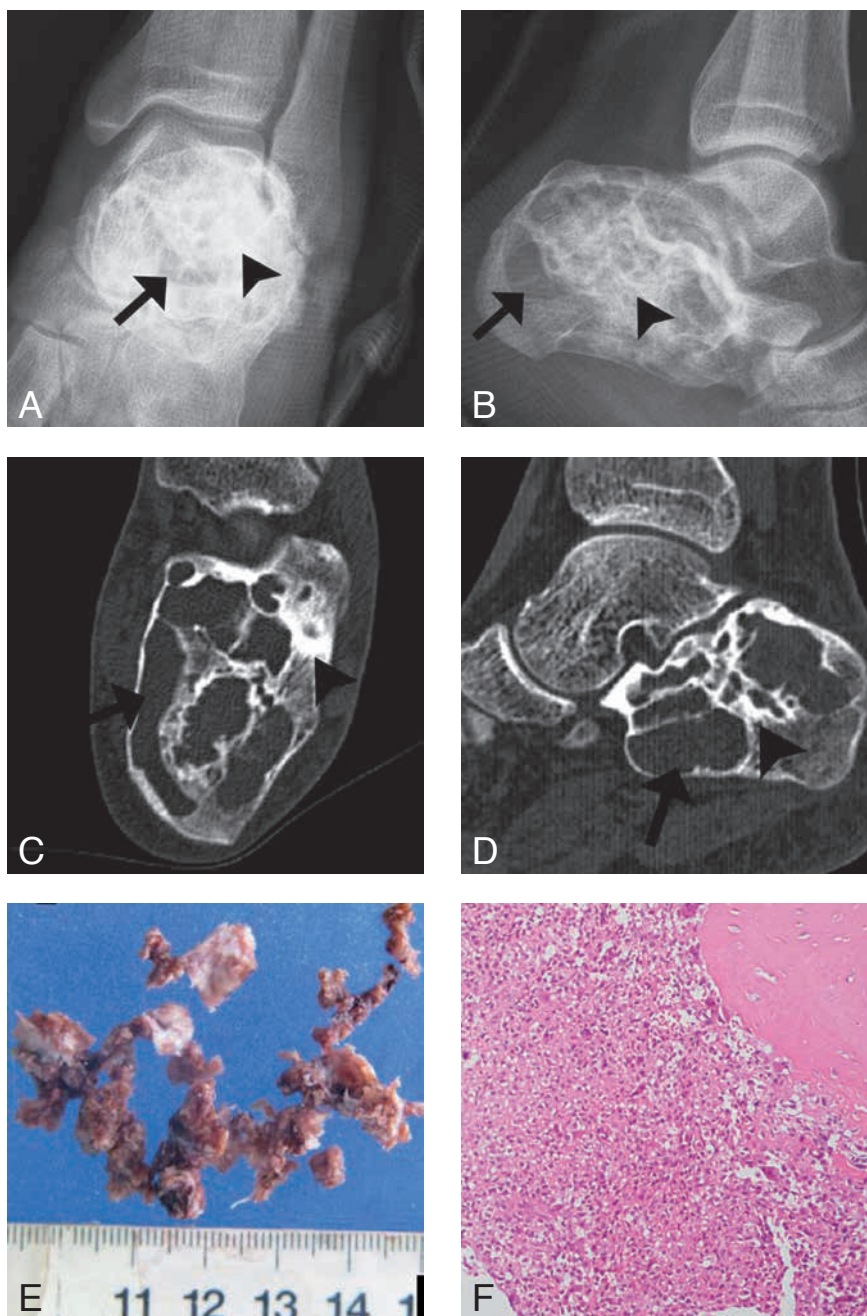


CHONDROBLASTOMA OF CALCANEUS

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Key-word: Chondroblastoma

Background: A 19-year-old male complaining of pain on left foot for one month presented to our hospital. Pain was insidious in onset and gradually progressive with difficulty in walking. He had aggressive pain for 5 days before enrolled in our hospital. On examination, the patient had tenderness on left foot in calcaneus region. Percussion tenderness was obvious.



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	1A	1B
Fig.	1C	1D
	1E	1F

Work-up

Radiological features are characteristic. X-Ray of left foot (Fig. 1A,B) shows round radiolucent area within left calcaneum bone, the lesion was more clearly depicted in lateral view than anteroposterior view, the lateral view showed the septum in the lesion and osteosclerosis. The density of the lesion was heterogenous. No fractures or dislocation of the calcaneum was seen. 256-slice multidetector computed tomography (Fig. 2 A,B) showed 4.1 cm x 6.1 cm x 4.3 cm cystic lesions on the left calcaneum. There was septum in the eccentric lesion with a thin cortical bone, and the margin of the lesion was smooth. The internal calcifications can be seen from the axial section. Both axial section and sagittal section showed the osteosclerosis within left calcaneus bone. The solid periosteal reaction was not seen in this case. The space between each bone appeared normal.

Radiological diagnosis

A radiological diagnosis of *chondroblastoma* was made and proved with pathologic examination. Histopathology showed proliferation of round cells with eccentric nuclei within eosinophilic cytoplasm and chondroid matrix proliferation with “chicken-wire or lace” calcification (Fig. 3). The differential diagnosis includes giant cell tumor. Compared with chondroblastoma, the radiographic features of giant cell tumor include no matrix calcification and no surrounding sclerosis.

Discussion

Chondroblastoma is rare benign cartilaginous tumor. It occurs in the epiphyses and secondary ossification centers of long bones most commonly in humerus, femur and tibia. Chondroblastoma represents less than 1% of all primary bone tumors. Chondroblastoma is rare in calcaneus bone of foot. Few cases showed aggressive soft tissue invasion, sarcomatous change or metastasis. Chondroblas-

toma occurs predominantly in male than female in 3:2 ratios. The concept of this tumor as benign chondroblastoma was clearly established by Jaffe and Lichtenstein after they reported several cases in 1942. One study showed that benign calcaneal tumors are very rare in which only 12 cases are found during 12-year period (1.9% of bone tumors seen) without any case of chondroblastoma of calcaneus. Patients may present with insidious onset of pain in heel region, morning stiffness and limitation of motion at ankle. The site of location of tumor can effect on functionality of patient.

Radiographic imaging shows chondroblastoma as centrally or eccentrically located osteolytic lesion which involves epiphysis or secondary ossification centers. Chondroblastoma is round or oval lesion which is radiolucent with well-defined margins on radiograph. Some calcified or bony fragments can be present. It has well defined margins and sclerotic border. CT scan shows mineralization of matrix with soft tissue extension and cortical erosion. On MRI, chondroblastoma shows low signal on T1 weighted images and high or variable signal on T2 weighted images which denote prominent cellular stroma of tumor.

In treatment, curettage with usage of high speed burr and bone grafting can be done. Heavy irradiation with or without curettage is inadvisable in young patients due to possible damage of active epiphyseal tissue with later deformity.

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