

A RARE LYTIC LESION IN THE CALCANEUM

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ABSTRACT

Aneurysmal bone cyst is a rapidly growing cystic lesion mimicking a true neoplasm clinically and radiologically. Being more common in the metaphysis of the long bones, their occurrence in the calcaneum has been rarely reported. Aneurysmal bone cysts are locally aggressive lesions having various differential diagnoses and Histopathological analysis is needed to differentiate and confirm the diagnosis. Though aggressive, they are benign lesions requiring simple curettage and bone engraftment. However recurrence rate of upto 59 % is reported, and needs continuous follow up.

KEY WORDS

Aneurysmal bone cyst, calcaneum.

CASE REPORT

A 27 years old female presented with recurrent episodes of swelling and pain around the right ankle since one year. This was associated with a painful restriction to walk since 2 months.

Radiography of the right ankle revealed a lytic lesion in the calcaneum with multiple septations. A plain and contrast MRI was done to further evaluate the case and it showed a heterogeneous cystic expansile lesion within the calcaneum. The lesion also showed multiple septations and fluid levels. (Fig A, B) Based on the radiological features a provisional diagnosis of a lytic lesion probably aneurysmal bone cyst was offered.

PATHOLOGICAL FINDINGS

Grossly we received curetted specimen showing multiple reddish brown fragments of soft tissue measuring about 3x2x2cms. Microscopically the lesion was composed of many dilated spaces containing blood and separated by fibrous septa, made up of loosely arranged spindle cells interspersed with numerous giant cells. There was no endothelial lining to the blood filled spaces. Areas showing calcified matrix was also noted. With the above histopathological features the diagnosis of Aneurysmal bone cyst was confirmed. (Fig C, D)

Figure A



Figure B



Figure A and B- Lateral and oblique of right ankle showing expansile lytic lesion with thin shell of cortex and trabeculae traversing the cyst

Figure C



Figure D



Figure C – T 1 weighted MRI of the right foot showing low signal intensity within the calcaneum

Figure D – T2 weighted MRI showing high signal intensity showing sharply circumscribed eccentric expansion in the calcaneum.

Figure E

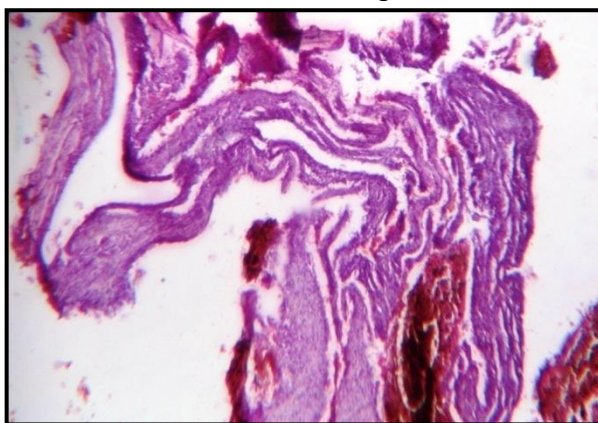


Figure F

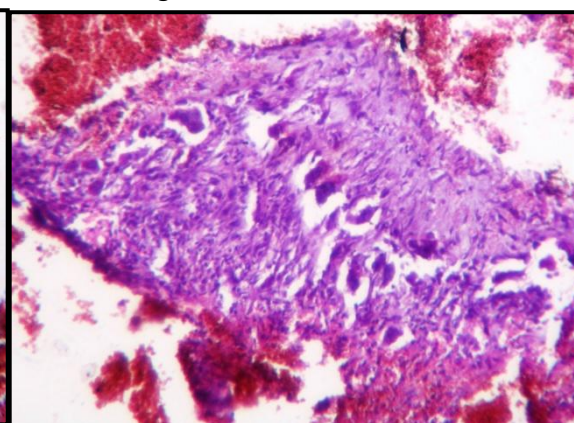


Figure –E: Microphotograph showing dilated blood channels filled with blood

Figure – F: Microphotograph showing giant cells

DISCUSSION

Bone cysts of the calcaneum are rare lesions that may range from benign lesions like simple bone cyst,

Aneurysmal bone cyst to osteosarcomas with secondary Aneurysmal bone cyst formation¹. Most common age group affected is the first two decades

with slight female predominance². Aneurysmal bone cysts accounts for 2.5 % of the primary bone tumors and the most common site is the vertebra accounting for 24 % followed by the metaphysis of long bones (20%)³. Incidence in the carpal and tarsal bones is less than 12%, of which Aneurysmal bone cyst in the calcaneum accounts for only 1 %⁴.

The clonal neoplastic nature of the primary Aneurysmal bone cyst has been proved showing a consistent t(16,17) translocation involving USP6-CHH11 genes causing an up regulation of USP6 a deubiquinating enzyme⁵. Common secondary causes of Aneurysmal bone cyst are giant cell tumors, fibrous dysplasia, chondroblastoma, chondromyxoid fibroma⁶.

The radiological appearance of a primary Aneurysmal bone cyst is often confused with eosinophilic granuloma, giant cell tumor, non-ossifying fibroma, unicameral bone cyst, fibrous dysplasia, chondroblastoma, chondrosarcoma, chondromyxoid fibroma, Ewing's tumour etc. Aneurysmal bone cyst appears as an eccentric, expanding, destructive osteolytic lesion containing internal septations. CT and MRI often show multiple fluid levels representing hemorrhage⁷.

Histology of Aneurysmal bone cyst is characterized by a multiloculated cystic lesion with multiple cystic spaces filled with blood or serum without an endothelial lining. The septum is composed of spindle cells admixed with multinucleated giant cells. Mitotic figures are common but no atypical mitotic figures are seen.

Mode of treatment is a simple curettage with bone engraftment. Later methods like saucerisation,

resection, radiotherapy, cryotherapy and vascular occlusion are being employed. Despite a good outcome recurrence rate of up to 59 % have been noted⁹, requiring a close follow up for several months to years.

To conclude the Aneurysmal bone cyst of the calcaneum is a diagnosis of exclusion as they mimic many other cystic tumors radiologically. Hence histological diagnosis is confirmatory and also a high index of suspicion is needed to commit the diagnosis of Aneurysmal bone cyst in rare sites like calcaneum.

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