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Giant Cell Tumor At An Offbeat Location

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Abstract

Background: Several cases of giant cell tumor (GCT) have been reported. Hereby, we are reporting a case of GCT in the distal tibia which is an unusual site.

A 30 years old male presented with diffuse painful swelling in distal leg and foot since 3 months. No previous history of trauma. On examination, there was restricted ankle joint movements and bony tenderness over the medial malleolar region.

Radiological findings of distal tibia showed diffuse osteolytic lesion with talar and subchondral cyst. MRI showed features are of GCT with secondary aneurysmal bone cyst.

During excision and curettage, fluid was aspirated from the lesion and was sent for cytological examination. Simultaneously biopsy was also taken and sent for histopathological examination. Cytological examination revealed an occasional osteoclast like giant cell. Remaining fluid was sent for cell block and histopathological examination revealed features of GCT.

Conclusion: Early detection of common lesions at an unusual site with cytology and cell block helps in retrieving minute tissue fragments from fluid samples to yield a timely definitive cytodiagnosis and further aids in appropriate management.

Keywords: GCT, distal tibia, unusual site.

Introduction

Giant cell tumor (GCT) was first described by Cooper in 1818. It is an intermediate tumor with a wide range of behaviour. GCT has a potentially aggressive behaviour and rarely metastasizes to lungs.[1] The most common locations are the distal femur, proximal tibia, distal radius and sacrum in descending order.[2] It may also occur in pelvis, skull, facial bones and spine in association with Pagets disease. GCT most commonly occurs in long bones of metaphysis and epiphysis but can occur in unusual locations. GCT constitutes 5 % of all primary bone tumors with increased prevalence among females.[1]

Case Report:

A 30 year old male presented with diffuse painful swelling in distal leg and foot since 3 months. There was no previous history of trauma.

On Examination: Restricted ankle joint movements and bony tenderness was present over the medial malleolar region.

Radiological findings: X-ray showed diffuse osteolytic lesion, thinned out cortex, solid periosteal reaction, arthritic changes in ankle and subtalar joint, osteopenic changes in distal tibia and fibula, talar subchondral cyst (figure 1). MRI showed features are of GCT with secondary aneurysmal bone cyst (figure 1).

During excision and curettage**,** fluid was aspirated from the lesion and sent for cytological examination. Simultaneously biopsy was sent for histopathological examination(HPR) .

Cytology smears from the fluid showed only an occasional osteoclast like giant cells with large areas of haemorrhage (figure 2).

Cell blocks were made from the remaining fluid to aid a better diagnosis. Cell block and histopathology revealed highly cellular lesions composed of multiple scattered osteoclast like giant cells amidst mononuclear, round to oval, spindle shaped stromal cells with pale eosinophilic cytoplasm and indistinct nucleoli. Also noted were areas of haemorrhage at places. There was no evidence of atypical mitosis/cellular atypia in the sections studied (figure 3).

Discussion:

GCT by far is the most common intermediate aggressive tumor with a purely lytic component. It is thought to be originating from undifferentiated cells within supports and tissues of bone marrow.

Apart from usual sites, GCT may occur anywhere in the skeleton. Rare sites for GCT include vertebral bodies, hands, feet, patella, talus, ankle and pelvis. Multicentricity is known to occur commonly at these rare sites.[3]

GCT at unusual sites are very challenging to make a diagnosis which requires clinical data, radiology and pathological correlation will help in making a definitive diagnosis.

Today many cases of GCT at unusual sites have been reported. Hence, GCT as one of the differential diagnoses must be thought of. Few cases of GCT reported at unusual sites are enumerated in Table 1.

Conclusion:

Early detection of common lesions at an unusual site with cytology and cell block helps in early and definitive cytodiagnosis which aids in appropriate management as GCT has high recurrence rate.

Ethical consideration: As the study required only routine histopathology slides with no additional financial requirements, and consent being taken from every patient at the time of hospital admission regarding utilization of data for research purpose, the protocol did not need formal ethical clearance from review board.

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Table 1: GCT cases reported at unusual sites.[4,5,6,7,8]

Study	Year	Unusual Site of GCT

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Saikia K et al	2009	Proximal phalanx
Mohapatra A et al	2018	Distal tibia
Mohaidat et al	2019	Ribs
Galvan D et al	2019	Talus
Kaya I et al	2018	Temporal bone and skull
Present case	2022	Distal tibia

Figure 1: 1A- X-ray showing diffuse osteolytic lesion in distal tibia. 1B- MRI showing features of GCT with aneurysmal bone cyst

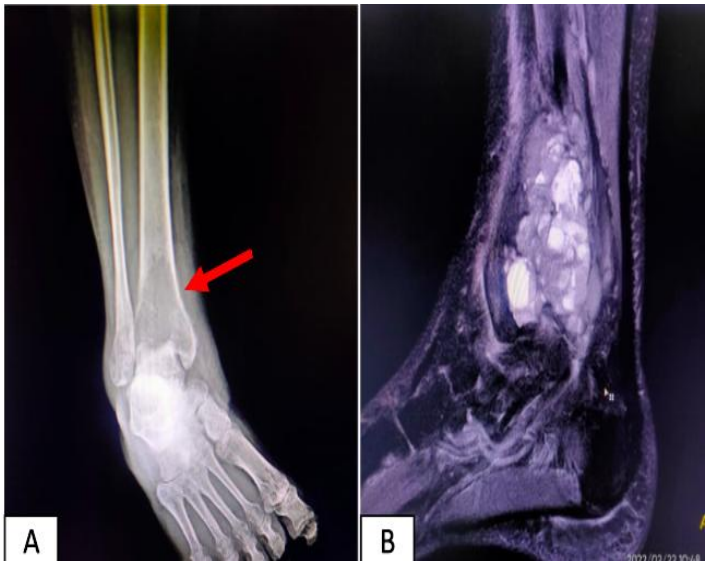

Figure 2: 2A- Cytology showing osteoclast like giant cells.2B,2C- Cell block showing features consistent with GCT

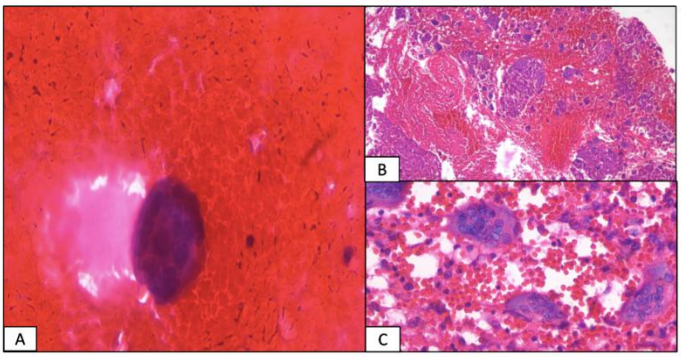

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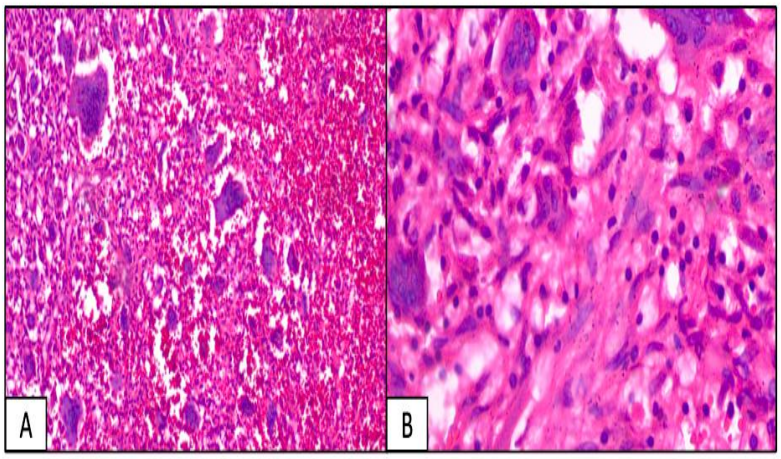
Figure 3: A,B- Histopathology showing features consistent with GCT.



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