

TELANGIECTATIC OSTEOSARCOMA: A RADIOLOGICAL CASE REPORT

Radio-Diagnosis

Dr. Dhruvi M. Patel	Resident, Department of Radiology, Gujarat Cancer and Research Institute, B. J. Medical College Ahmedabad.
Dr. Himanshu C. Soni*	Associate Professor, Department of Radiology, Gujarat Cancer and Research Institute, B. J. Medical College Ahmedabad*Corresponding Author
Dr. Asma Momin	Former Resident, Department of Radiology, Gujarat Cancer and Research Institute, B. J. Medical College Ahmedabad.
Dr. Nikunj bhagora	Resident, Department of Radiology, Gujarat Cancer and Research Institute, B. J. Medical College Ahmedabad.

ABSTRACT

Telangiectatic osteosarcoma is a rare, aggressive variant of conventional osteosarcoma characterized predominantly by blood-filled cystic spaces with malignant osteoid production. It may closely mimic an aneurysmal bone cyst on imaging. In the present case, imaging demonstrated an expansile destructive lytic lesion with cortical destruction and extraosseous extension. MRI showed a heterogeneous lesion with internal cystic areas. Post-contrast images demonstrated enhancing solid components with cystic component. Histopathological examination confirmed telangiectatic osteosarcoma. Recognition of aggressive features and enhancing solid components is important for differentiating telangiectatic osteosarcoma from benign cystic bone lesions.

KEYWORDS

Telangiectatic osteosarcoma, osteosarcoma, MRI, malignant osteoid

INTRODUCTION

Osteosarcoma is an aggressive primary malignant bone tumour characterized by production of malignant osteoid.

Telangiectatic osteosarcoma (TOS) is a rare subtype of osteosarcoma characterized predominantly by blood-filled and necrotic cystic spaces with viable malignant tumour tissue and osteoid-producing sarcomatous cells in the intervening septa. [1,3]

Because of its predominantly cystic and hemorrhagic appearance, telangiectatic osteosarcoma can closely mimic an aneurysmal bone cyst. Recognition of cortical destruction, aggressive periosteal reaction, extraosseous soft-tissue extension and enhancing solid components is therefore important for diagnosis.

Case Study

A 11-year-old boy presented with complaints of swelling of right knee with difficulty in walking with pain for 6 months duration.

Radiograph demonstrated an expansile lytic destructive lesion involving the metadiaphyseal region of right distal femur bone, with cortical destruction and an associated soft-tissue component and pathological fracture.



Figure 1 (ap View)

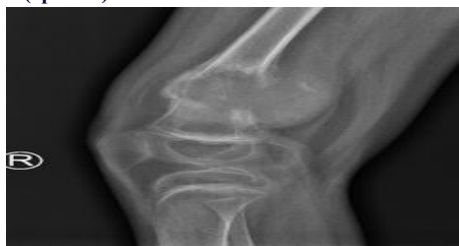


Figure 2 (lateral)

CT demonstrated an expansile osteolytic lesion measuring There was cortical breach at multiple sites with extraosseous extension into adjacent soft tissues. Internal areas of fluid attenuation suggestive of necrosis.

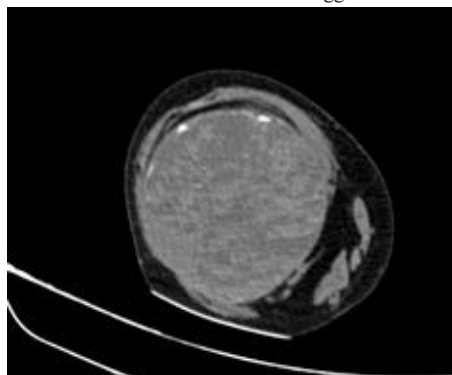


Figure 3 (plain Ct Axial)

MRI demonstrated a large heterogeneous expansile lesion. The lesion was predominantly hypointense on T1-weighted images and heterogeneously hyperintense on T2/STIR images. Few internal fluid components were noted.

Post-contrast images demonstrated enhancement of the solid components and thick irregular septations. Extraosseous soft-tissue extension was noted involving metadiaphysis of right distal femur

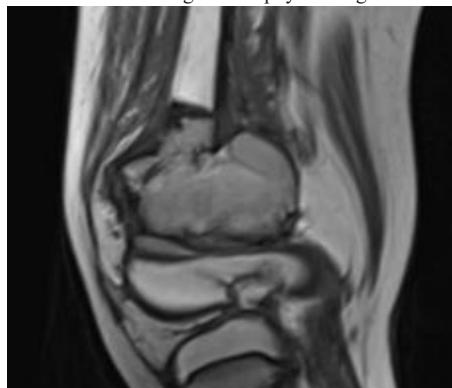


Figure 4 (t1 Coronal)

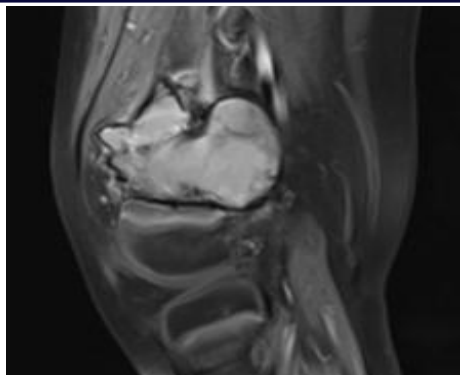


Figure 5 (t2 Coronal)

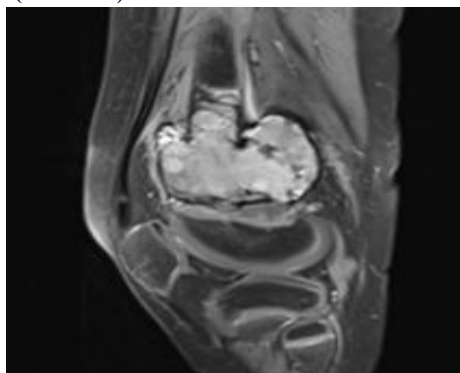


Figure 6 (t1 Post Contrast Sagittal)

On PET CT it shows FDG avid uptake showing destructive lytic lesion noted involving the distal metadiaphyseal region of the right femur, associated with a predominantly non-avid, heterogeneously enhancing soft tissue component.

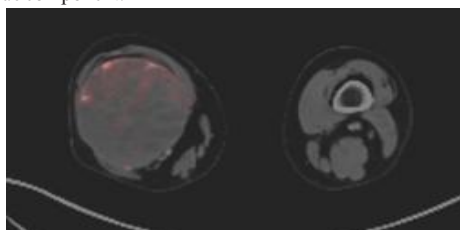
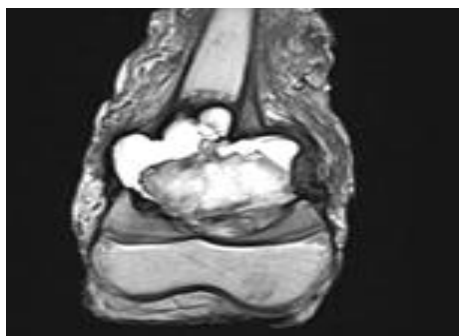


Figure 7 (pet Scan)

Histopathologically, TOS consists of blood-filled spaces separated by septa containing malignant pleomorphic cells and malignant osteoid. The imaging appearance therefore reflects the underlying pathology, with hemorrhagic/cystic areas corresponding to blood-filled spaces and enhancing solid components corresponding to viable tumour. [1,3]

The major imaging differential diagnosis of TOS is aneurysmal bone cyst. Both entities may occur in young patients and demonstrate expansile osteolytic lesions with fluid–fluid levels. However, features such as an aggressive pattern of bone destruction, cortical breach, soft-tissue mass and substantial enhancing solid components favour TOS. [3,4]



Post Op Specimen (t2wi Coronal)

DISCUSSION

Telangiectatic osteosarcoma is characterized by blood-filled cystic spaces with relatively little solid tumour component. Multiple fluid fluid levels are a characteristic imaging finding but are not specific and may also occur in aneurysmal bone cyst.

Features favouring telangiectatic osteosarcoma include a wide zone of transition, cortical destruction, aggressive periosteal reaction, extraosseous soft-tissue extension and enhancing solid tumour components. CT may demonstrate subtle osteoid mineralization that can be difficult to appreciate on MRI.

MRI is useful for evaluating intramedullary extent, soft-tissue involvement, neurovascular relationships and joint involvement. Identification of enhancing nodular or solid components within a predominantly cystic lesion should raise suspicion for telangiectatic osteosarcoma and guide biopsy toward viable tumour.

CONCLUSIONS

Telangiectatic osteosarcoma is an aggressive primary bone malignancy that can mimic an aneurysmal bone cyst because of its predominantly cystic and hemorrhagic appearance. The combination of aggressive bone destruction, cortical breach, extraosseous extension and enhancing solid components should raise suspicion for malignancy. Correlation with CT and MRI findings and targeted biopsy of the enhancing solid component are important for definitive diagnosis.

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