Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 16, Issue, 05, pp.276-279, May 2025

International Journal of Recent Scientific Research

ISSN: 0976-3031

Subject Area : Musculoskeletal Radiology

A CASE REPORT ON TELANGIECTATIC OSTEOSARCOMA OF DISTAL TIBIA

Dr. Ayyanagari Madhan Mohan Reddy[1], Dr. Sandeep Madineni[2], Dr. G Ramakrishna Reddy[3], Dr. Subhash Reddy Doni[4] and Dr. Aarthi Reddy[5]

[1]Resident, [2,4,5]Associate Professor and [3]Professor and HOD

SVS Medical college, Mahbubnagar, Telangana, India.

DOI: http://dx.doi.org/10.24327/ijrsr.20251605.0052

ARTICLE INFO

Article History:

Received 18th April 2025
Received in revised form 30th April 2025
Accepted 16th May 2025
Published online 28th May 2025

Key words:

Telangiectatic osteosarcoma, Bone tumors, Distal femur, Metaphyseal lesions, Pathological fracture, MRI, CT, Conventional radiog

ABSTRACT

Telangiectatic osteosarcoma is one of the rare subtypes of osteosarcoma and accounts for 4% of all osteosarcomas. Telangiectatic osteosarcoma is a rare variant of osteosarcoma with distinctive radiographic, gross, and microscopic features and prognostic implications. The common sites for the tumor location are the fastest growing long tubular bones; the femur is involved most frequently, followed in frequency by the tibia and humerus – a distribution similar to that of conventional osteosarcoma. This primary high-grade osteosarcoma of the bone is commonly seen in children, adolescents, and young adults. By contrast, primary osteosarcoma in atypical locations such as the axial skeleton or soft tissues occurs in middle to late adulthood. The location, prognosis, and treatment of this unusual lesion mirror that of conventional osteosarcoma.

INTRODUCTION

Telangiectatic osteosarcoma is one of the rare subtypes of osteosarcoma and accounts for 4% of all osteosarcomas. Telangiectatic osteosarcoma is a rare variant of osteosarcoma with distinctive radiographic, gross, and microscopic features and prognostic implications. The common sites for the tumor location are the fastest growing long tubular bones; the femur is involved most frequently, followed in frequency by the tibia and humerus – a distribution similar to that of conventional osteosarcoma. In these bones, the metaphysis is the usual site of origin. Other bones such as the sternum, scapula, ribs, innominate bone, cranial vault, and mandible are uncommonly involved.

Telangiectatic osteosarcoma of the spine accounts for 2% of all cases of primary vertebral osteosarcoma. This primary high-gradeosteosarcoma of the bone is commonly seen in children, adolescents, and young adults.

By contrast, primary osteosarcoma in atypical locations such as the axial skeleton or soft tissues occurs in middle to late adulthood.

*Corresponding author: **Ayyanagari Madhan Mohan Reddy**

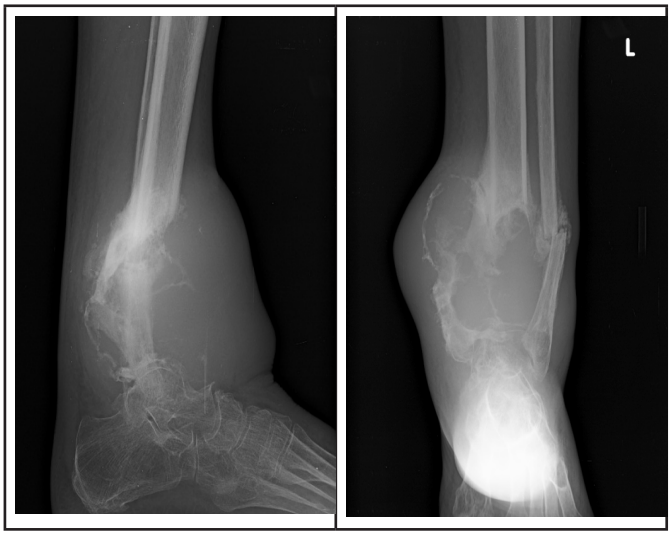
SVS Medical college, Mahbubnagar, Telangana, India.

CASE REPORT

A 50-year-old male patient came with complaints of swelling and pain over left ankle joint for3 months. The swelling is initiallysmall-in-size, gradually progressed to present size. No significant relevant history noted. The patient was initially evaluated using radiograph of left distal leg including foot.

IMAGING MODALITIES: X-Ray,CT,and MRI

X-RAY:



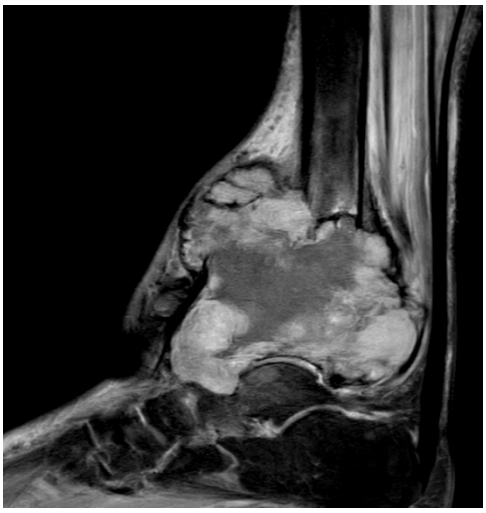
a	b

X-ray Left distal leg including ankle joint **a)**Lateral and **b)**AP views show large expansile ill-defined destructive lytic lesion with wide zone of transition in the epi metaphyseal region of left distal tibia.

The lesion shows extensive periosteal reaction (codman's triangle in the tibia superior to the lesion) with adjacent large soft tissue component.

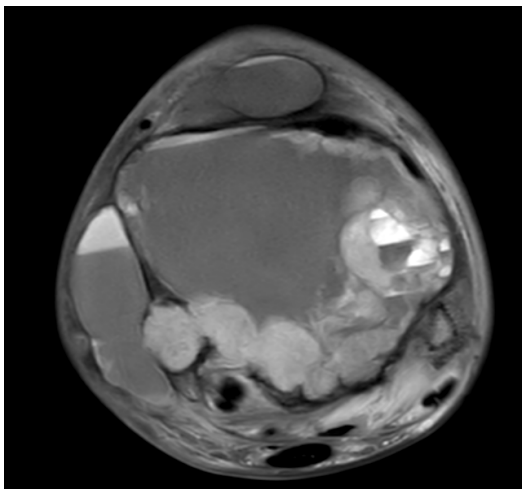
The lesion laterally displaces the fibula causing pathological fracture of the distal fibula with callus formation.

MRI



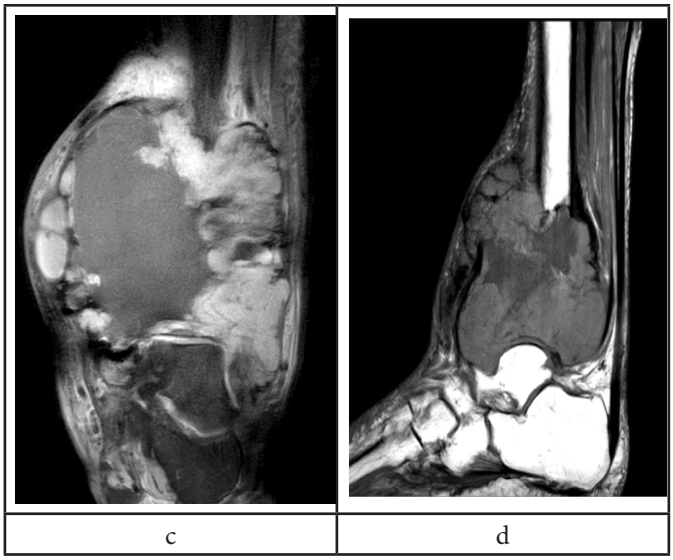
a

a) PD SPAIRSAGGITAL AND AXIAL SECTIONS OF LEFT ANKLE JOINT shows Large, expansile hyperintense lobulated lesion noted in the epimetaphysial region of the left distal tibia with multifocal cortical breach and extraosseous extension of the lesion into adjacent soft tissues.



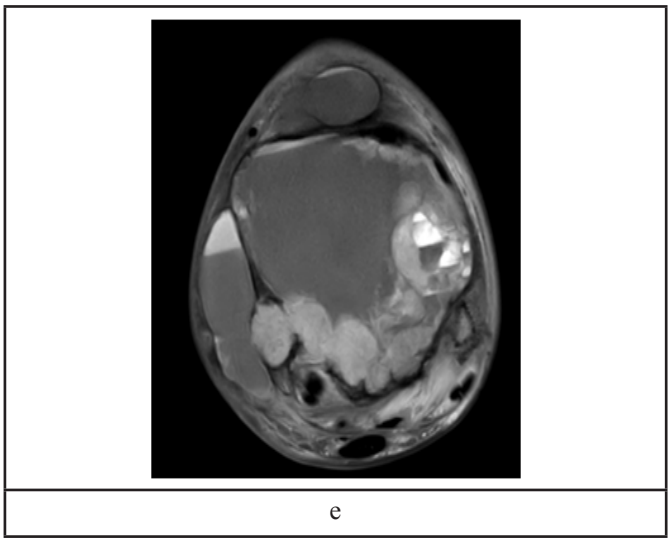
b

b) T2 AXIAL SECTION OF LEFT ANKLE JOINT: The lesion consists of predominantly large homogenous hypointense fluid component and peripheral irregular nodular hyperintense soft tissue component.



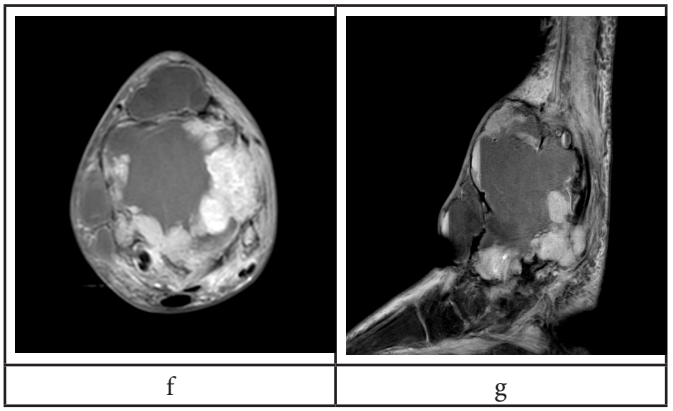
c	d

c&d CORONAL PDSPAIR AND SAGGITAL T1 SECTIONS OF LEFT ANKLE JOINT: Inferiorly the lesion reaches the articular surface of tibia with focal erosions in articular cartilageandalsoreaches superior aspect of talar neck without infiltration.



e

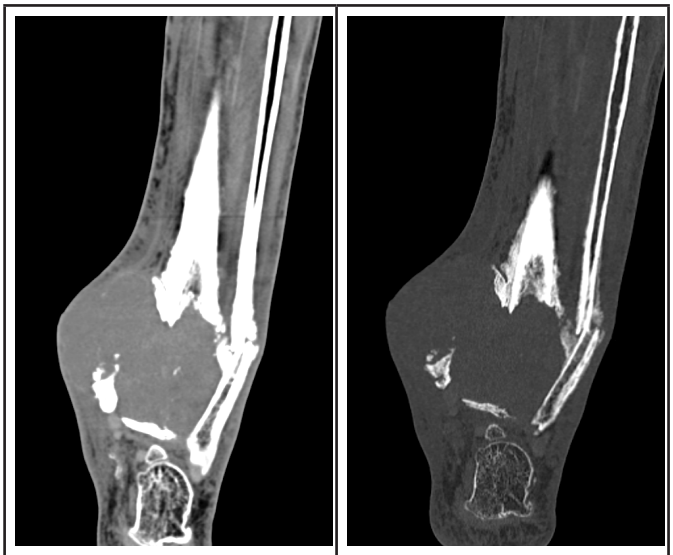
e) MRI AXIAL T2; The lesion shows multiple, variable sized fluidfluid levels within the lesion with dependent fluid shows hypointense signal.



f	g

f&g) AXIAL & SAGITTAL T1 POST CONTRAST: There is moderate enhancement of peripheral irregular nodular soft tissue component and nonenhancing fluid component.

CT



a b

NCCT coronal reformatted sections of ankle joint with left distal tibia and fibula **a)**bone window and **b)**soft tissue window images show large expansile lytic lesion with cortical destruction and soft tissue component. The lesion laterally displaces the fibula causing pathological fracture of the distal fibula with callus formation.

HISTOPATHOLOGICAL FINDINGS:

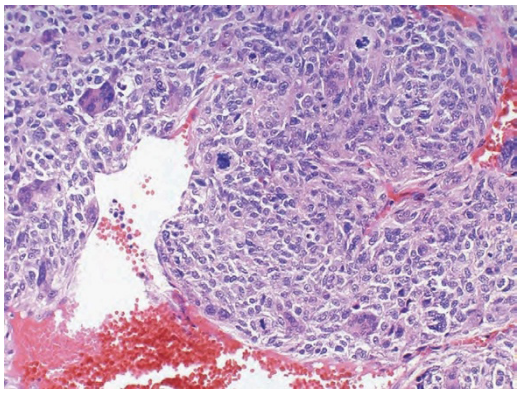
NATURE OF SPECIMEN: Ultrasound guided biopsy from lesion

GROSS: Received grey white slender bits altogether measuring 0.5x0.5 cm.

MICROSCOPIC: Sections studied show clusters of polygonal to pleomorphic cells.

Tumor cells withdensely eosinophilic cytoplasm and hyperchromatic nuclei, that vary in size with nuclear atypia. Small foci of malignant osteoid lined by malignant osteoblasts with lace like irregular trabeculae noted.

Lakes of blood mixed with malignant cells and mitotic bodies are seen.



DISCUSSION

Telangiectatic osteosarcoma(TO) is a rare histologic subtype of osteosarcoma, accounting for approximately 4% of all osteosarcoma cases.[1]Clinically, patients typically present with localized pain, a palpable soft-tissue mass, and occasionally a pathological fracture.[2]The tumor exhibits a male predominance with a 2:1 male-to-female ratio, and the average age at diagnosis ranges between 15 and 20 years.[1]

More than 65% of TOs originate in the metaphyseal regions of long bones, most commonly the femur or humerus. The distal femur is the single most frequent site, accounting for 41.6% of cases. Additional locations include the mid-femur, mid-humerus, mid-tibia, pelvis, fibula, skull, and ribs. Diagnosis involves a combination of imaging modalities-conventional radiography, computed tomography (CT), and magnetic resonance imaging (MRI)-with histologic confirmation obtained through bone biopsy.

Radiographically, TO typically presents as a lytic, expansile lesion with a destructive growth pattern affecting both medullary and cortical bone. Unlike conventional osteosarcoma, TO demonstrates minimal periosteal new bone formation. When present, new bone formation tends to be limited to the tumor periphery and intralesional septa, where clusters of atypical stromal cells may reside.[1] In contrast, traditional osteosarcoma often shows prominent and aggressive periosteal reaction.[4] A Codman triangle is a relatively common feature in TO.[1]

MRI findings are distinctive,T1-weighted sequences frequently reveal areas of high signal intensity corresponding to methemoglobin within hemorrhagic spaces. T2-weighted images often show multiple fluid-fluid levels, which result from layering of different fluid densities within the cystic components of the lesion.

The imaging appearance of TO can mimic that of an aneurysmal bone cyst (ABC), particularly due to the presence of fluid-fluid levels. However, certain MRI features help differentiate TO from ABC. These include the presence of thickened, nodular internal septations due to viable sarcomatous tissue, and the frequent association of TO with an accompanying soft-tissue mass.[1]

Histologically, telangiectatic osteosarcoma (TO) shares several features with aneurysmal bone cysts (ABC). Both lesions are largely composed of necrotic tissue and intralesional hemorrhage, interspersed with thin fibrous septa containing atypical stromal cells. Although malignant cells can be challenging to identify, their presence is sufficient to exclude a diagnosis of primary ABC. Histologic grading of TO is based on cellular atypia and mitotic activity: low-grade lesions exhibit mild to moderate nuclear atypia with infrequent mitoses, whereas high-grade tumors are characterized by anaplastic cellular features and elevated mitotic activity.[1]

Treatment typically involves a combination of neoadjuvant chemotherapy followed by wide surgical resection. Interestingly, TO has been shown to demonstrate greater responsiveness to neoadjuvant chemotherapy compared to conventional osteosarcoma, and in select cases, complete remission has been achieved with chemotherapy alone.[5]

Telangiectatic osteosarcoma (TO) as a more aggressive variant with a poorer prognosis compared to conventional osteosarcoma, more recent evidence suggests that outcomes have improved significantly with the introduction of neoadjuvant chemotherapy.[3]Current data indicate a 5-year

survival rate for TO ranging from 60% to 80%, closely aligning with that of conventional osteosarcoma, which has a reported 5-year survival rate of approximately 69%.[6]

CONCLUSION

Telangiectatic osteosarcoma (TO) is a rare malignant bone tumor that most commonly arises during adolescence and young adulthood, with peak incidence between 15 and 20 years of age. Clinically, patients may present with a painful, irregular soft-tissue mass or, less frequently, with a pathological fracture. A key diagnostic challenge is distinguishing TO from aneurysmal bone cyst (ABC), as the management strategies and prognoses differ significantly. MRI features that aid in differentiation include thickened, nodular septations and peripheral enhancement-findings associated with viable malignant tissue. Histologically, the presence of atypical stromal cells confirms the diagnosis of TO and helps rule out ABC.

References

1. Sangle NA, Layfield LJ. Telangiectatic osteosarcoma. Arch Pathol Lab Med. 2012 May;136(5):572-6.doi: 10.5858/arpa.2011- 0204-RS. PMID: 22540307
2. Limaiem F, Kuhn J, Khaddour K. Cancer, Telangiectatic Osteosarcoma. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2019. http://www.ncbi.nlm.nih.gov/books/ NBK537309/. Accessed January 14, 2020.
3. Liu J, Liu S, Wang J, et al. Telangiectatic osteosarcoma: a review of literature. Onco Targets Ther. 2013;6:593-602.doi:10.2147/OTT.S41351
4. Moore DD, Luu HH. Osteosarcoma. In: Peabody TD, Attar S, eds. Orthopaedic Oncology: Primary and Metastatic Tumors of the Skeletal System. Cancer Treatment and Research. Cham: Springer International Publishing; 2014:65-92. doi:10.1007/978-3-319-07323-1_4
5. Carrasco CH,Charnsangavej C, Richli WR, et al. Osteosarcoma: interventional radiology in diagnosis and management. Semin Roentgenol. 1989;24(3):193-200. doi:10.1016/003 7-198X(89)90014-X
6. Osteosarcoma - Childhood and Adolescence: Statistics. Cancer.net. https:// www.cancer.net/cancer-types/osteosarcoma-childhood-and-adolescence. Accessed July 13, 2020. 20 Supplement to Applied Radiology November / Decemb
7. Nielsen CS Towbin RB; Schaefer CM; Towbin AJ; Aria DJ. Telangiectatic Osteosarcoma. Appl Radiol. 2021;(6):18-20.
8. Weerakkody Y, Feger J, Evangelou K,etal. Telangiectatic osteosarcoma. Reference article, Radiopaedia. org (Accessed on 27 Apr 2025).
9. Joo I, Choi JA, Chung JH, Oh JH, Hong SH, Kang HS. Fibroblastic Type Osteosarcoma of the Ulna: a Case Report of a Tumor in a Rare Location with Atypical Imaging Findings. Korean J Radiol. 2009 Jan-Feb;10(1):85-88.
10. Liu JJ, Liu S, Wang JG, Zhu W, Hua YQ, Sun W, Cai ZD. Telangiectatic osteosarcoma: a review of literature. Onco Targets Ther. 2013 May 28;6:593-602. PMID: 23745051; PMCID: PMC3671797.
11. E Whitehead, E R Melhem, J Kasznica, S Eustace. Telangiectatic osteosarcoma of the skull base. American Journal of Neuroradiology Apr 1998,19 (4) 754-757.
12. Skiadas, V., Koutoulidis, V., Koureas, A. *et al.* Plain X-ray, computed tomography and magnetic resonance imaging findings of telangiectatic osteosarcoma: a case report. *Cases Journal* **2**, 7833 (2009).
13. Crombé, A.; Simonetti, M.; Longhi, A.; Hauger, O.; Fadli, D.; Spinnato, P. Imaging of Osteosarcoma: Presenting Findings, Metastatic Patterns, and Features Related to Prognosis. *J. Clin. Med.* 2024, *13*, 5710.

How to cite this article:

Ayyanagari Madhan Mohan Reddy et al. (2025). A Case Report on Telangiectatic Osteosarcoma of Distal Tibia. *Int. J. Recent. Sci. Res*.16(05), pp.276-279.

****