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Case Report

Osteosarcoma of the Distal Tibial Shaft Extending to Subcuticular Level in a 16-Year-Old Female

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Abstract:

We are presenting a case of a 16-year-old female patient presented in opd with pain, swelling, and restricted range of motion. On examination, the affected leg and ankle swollen, erythematous, and tender to touch, with limited range of motion at ankle joint. X-Ray of leg with ankle identified periosteal reaction in form of sunburst appearance at distal tibia. MRI imaging confirmed malignant primary neoplasm, and treatment involved surgical intervention? an chemotherapy, followed by prosthesis care showed significant.

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Introduction

Clinical dectectable metastatic disease at initial diagnosis occurs in less than 20% of patients with high-grade osteosarcoma (OS) and predicts a poor outcome, with long-term survival rates between 10% and 40%.[1]

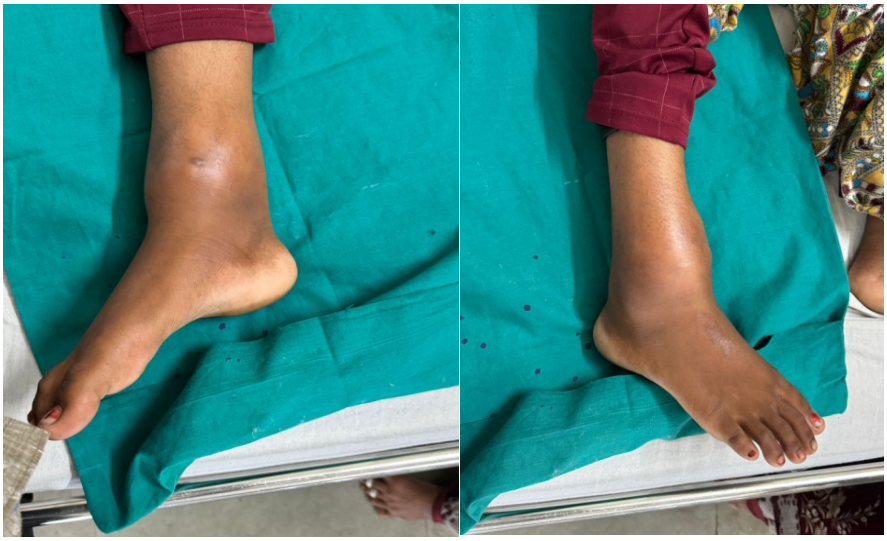
common malignant tumors of the musculoskeletal system in children, adolescents, and young adults Osteosarcoma is a highly malignant primary bone tumor that commonly affects adolescents and young adults. It typically arises in the metaphyseal region of long bones, with the distal femur and proximal tibia being frequent sites. However, osteosarcoma in the distal tibia is relatively uncommon.

The successful treatment of osteosarcoma (OS) requires both systemic chemotherapy and definitive surgical resection of the primary tumor and all clinically detectable metastasis. Surgery alone achieves an overall survival rate of less than 20%. [1-5] In an attempt to reduce tumor size to allow complete resection of the primary tumor without amputation, chemotherapy was administered as the initial treatment.6 This preoperative or neoadjuvant chemotherapy offered the advantage of early systemic treatment of microscopic foci of metastatic disease.

Here, we present a case of osteosarcoma originating from the distal tibial shaft with extension into the subcuticular level in a 16-year-old female.

Patient Information: A 16-year-old female presented to the orthopedic clinic with complaints of progressively worsening pain and swelling in her lower right leg, particularly around the ankle region. The symptoms had persisted for 3 months and were associated with occasional nocturnal pain and tenderness. There was no history of trauma or infection.

Clinical Presentation: On examination, the patient had a swollen, tender mass over the distal tibial shaft extending to the ankle. The mass was firm and immobile, with a size of approximately 5 cm in diameter. There was erythema of the overlying skin, and the mass was palpable at the subcuticular level, indicating superficial spread. The range of motion of the ankle joint was limited due to pain.



Investigations:

1. X-ray: A plain radiograph of the lower limb showed a mixed lytic and sclerotic lesion in the distal tibial shaft with characteristic sunburst periosteal reaction. There was cortical destruction with soft tissue extension, suggesting an aggressive bone tumor.

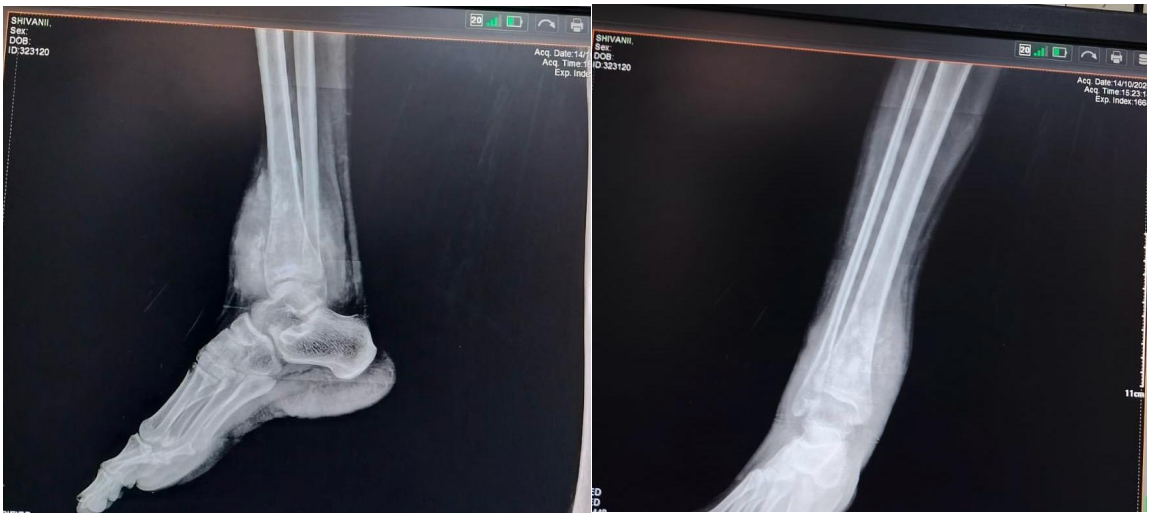


Fig. showing Xray AP lateral view sunburst periosteal reaction over distal part of tibial shaft

2. MRI: Magnetic resonance imaging revealed a diffuse marrow replacing lesion involving the lower tibia shaft extending up to the subcuticular level with associated soft tissue intensity mass s/o malignant primary bone neoplasm like osteosarcoma

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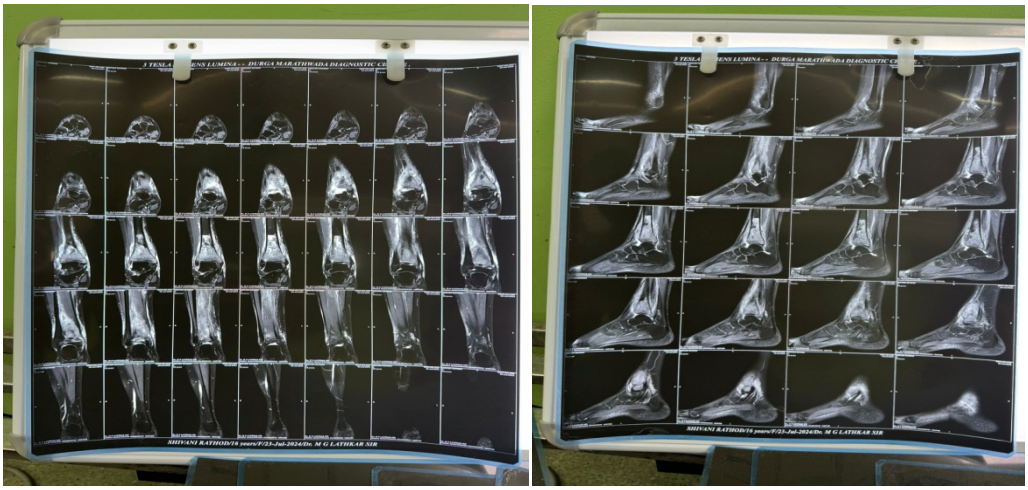
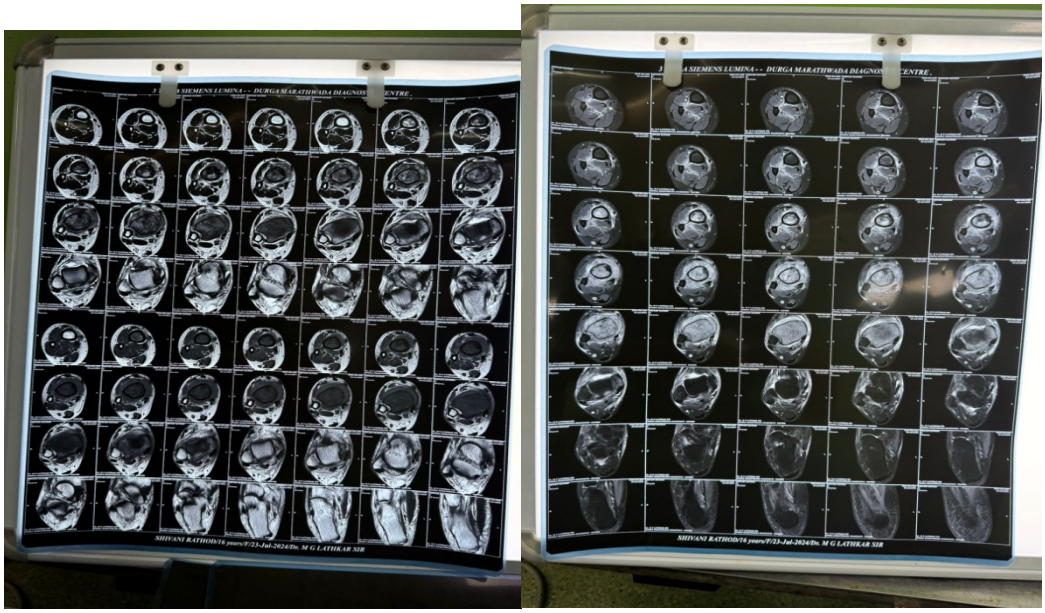
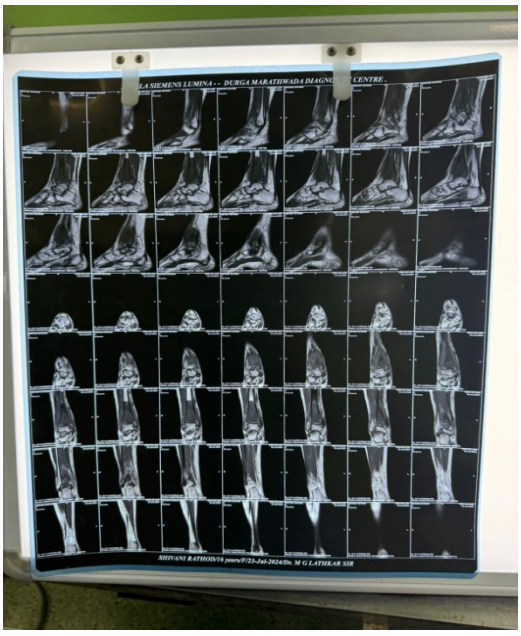
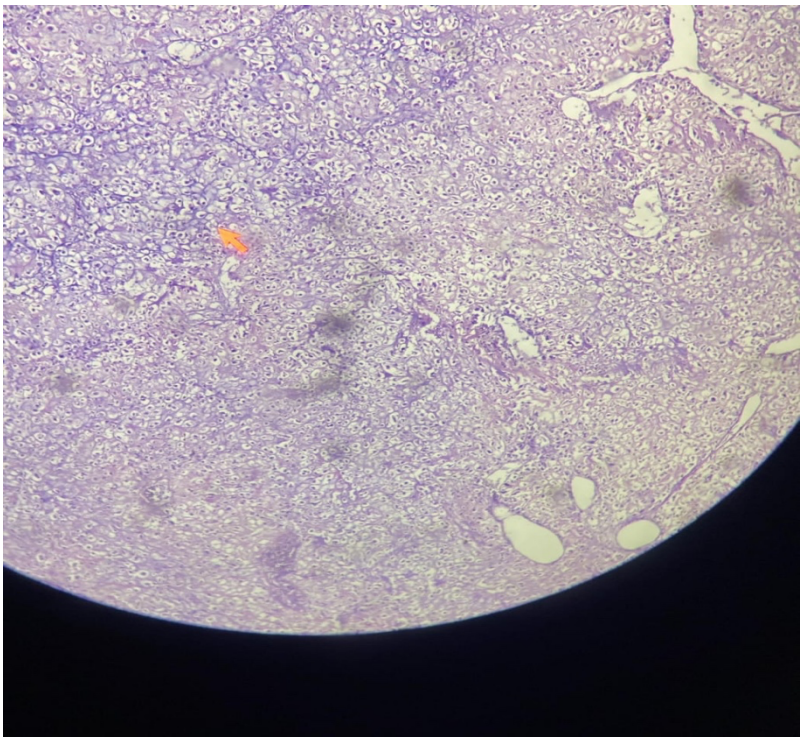






3. Biochemical markers ALP LDH for diagnosis1. prognosis and response to treatmen

Biopsy: showing pleomorphic (varied) malignant cells, atypical mitoses, and variable amounts of osteoid matrix, which appearing as lace-like or dense sheets



Diagnosis: A case of 3 months old right ankle pain with diffuse swelling over right distal leg and ankle with high-grade osteosarcoma of the distal tibial shaft with subcuticular extension.

Treatment:

1. Neoadjuvant Chemotherapy: The patient was started on neoadjuvant chemotherapy as per standard osteosarcoma protocols, including agents such as methotrexate, doxorubicin, and cisplatin. This aimed to reduce the tumor burden and facilitate surgical resection. At TATA hospital Mumbai and asked to take follow up for further management but patient absconded
2. Surgical Resection:
3. Postoperative Care:
4. Adjuvant Chemotherapy:

Outcome and Follow-up:

Discussion: Osteosarcoma of the distal tibia is less common compared to the more frequent sites such as the distal femur or proximal tibia. The extension of the tumor into the subcuticular level, as seen in this case, represents an aggressive pattern of growth. Limb-sparing surgery? [ask hod sir] combined with chemotherapy remains the mainstay of treatment, and the prognosis depends on the extent of the disease, response to chemotherapy, and surgical margins

Conclusion

This case highlights the importance of early diagnosis and a multidisciplinary approach in managing osteosarcoma of the distal tibia with subcuticular extension. Limb preservation surgery? with chemotherapy can provide functional outcomes while effectively controlling the disease. Regular follow-up is essential for monitoring potential recurrence or metastasis.

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