



## Osteosarcoma of fibula: A rare case report of two patients

Gopinath Bandari<sup>1\*</sup>, Ashwin Kumar AH<sup>1</sup>, Reddy IV<sup>1</sup>, Nithin Krishna VP<sup>1</sup> and Venkat Raman S<sup>2</sup>

<sup>1</sup> Department of Orthopaedics, Krishna Institute of Medical Sciences, Secunderabad

<sup>2</sup> Kamineni Institute of medical sciences, Narketpally, Nalgonda

### Abstract

Osteosarcoma of proximal fibula is a very rare presentation. Two patients with osteosarcoma of proximal fibula and their management are reported here. Appropriate surgery combined with chemotherapy (neo adjuvant and post-operative) has given a good out come with a possibility for long time survival of the unfortunate victims.

**Keywords:** osteosarcoma; fibula; malignant bone tumour

**\*Corresponding author:** Dr. Gopinath Bandari, Department of Orthopaedics, Krishna Institute of Medical Sciences, Minister Road, Secunderabad-500003, Telangana, India. Email: [gopinath.bandari@gmail.com](mailto:gopinath.bandari@gmail.com)

Received 9 December 2015; Revised 29 February 2016; Accepted 8 March 2016; Published 16 March 2016

**Citation:** Bandari G, Ashwinkumar AH, Reddy IV, Krishna VPN, Raman SV. Osteosarcoma of fibula: A rare case report of two patients. J Med Sci Res. 2016; 4(2):87-89. DOI: <http://dx.doi.org/10.17727/JMSR.2016/4-021>

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### Introduction

Osteosarcoma is a very aggressive, common primary malignant bone tumour. It usually occurs at the metaphyseal region of long bones, with distal femur, proximal tibia and proximal humerus being the commonest sites [1]. 2% is the incidence of occurrence of osteosarcoma in proximal fibula [2]. Treatment protocol is usually pre-operative chemotherapy, wide resection/ amputation/ limb salvage and post-operative chemotherapy. The long term survival rate has improved with advances in the treatment protocols.

### Patient 1

26-year-old newly married lady, a software professional, presented to orthopaedic OPD with a history of pain, diffuse swelling over the infero-lateral aspect of right knee (Figure 1). It is of 4 months duration and she is unable to bear weight on the affected limb in the last 15 days. She did not consult any doctor earlier and was managing her pain with over the counter medication. Deep peroneal nerve was intact. X-ray revealed a large, diffuse lytic lesion in the proximal fibula (Figure 2), which was suggestive of osteosarcoma. MRI revealed soft tissue extension. Open biopsy confirmed a high

grade osteosarcoma. CT scans of abdomen and chest revealed no metastases. As the limb could not be salvaged due to extra compartmental spread, an above knee amputation was performed. Three months later, after two cycles of chemotherapy, she presented with pain abdomen and was diagnosed to have lump in the abdomen, which was resected. Biopsy confirmed it to be metastatic deposit with divergent (myogenic) differentiation. She was operated by surgical oncologists by radical excision of the lump. At 30 months follow up, she is fit and healthy, leading a happy married life with no complaints and comfortably walking with her above knee prosthetic leg.



**Figure 1:** Clinical picture of the swelling of patient one.

### Patient 2

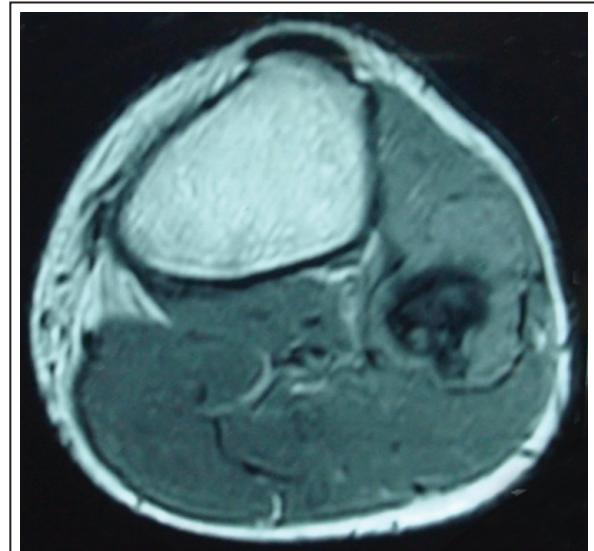
19-year-old male student presented with a history of pain and swelling over the infero-lateral aspect of left knee of 3 months duration. X-rays revealed a lytic lesion in the proximal fibula (Figure 3). MRI was suggestive of osteosarcoma without soft tissue extension (Figure 4). CT of abdomen and chest revealed no metastases and biopsy showed low grade osteosarcoma (Figure 5). Because of the intra-compartmental nature of the lesion and



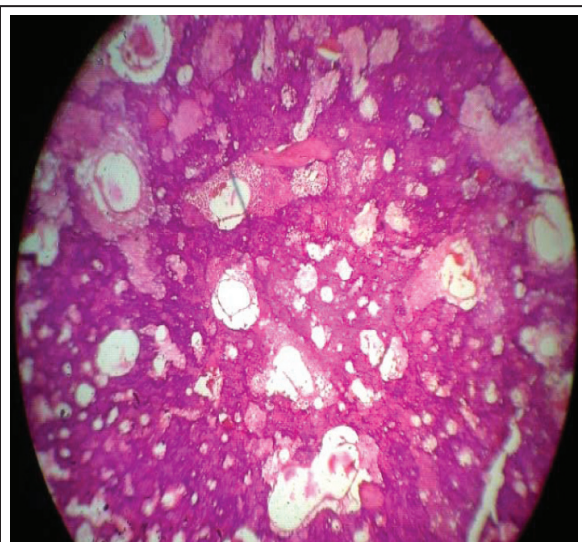
**Figure 2:** Radiograph of patient one showing aggressive lesion of proximal fibula indication of malignancy.



**Figure 3:** Radiograph of patient two, showing lytic lesion of proximal fibula.



**Figure 4:** MRI axial section of patient two, showing lesion in the proximal fibula, with soft tissue extension.



**Figure 5:** HPE of patient 2, showing high power microscopy showing irregular bony trabeculae separated by spindle cells seen in osteoid background.

low grade on histology, limb salvage was planned. Wide resection of the tumor was done after neo-adjuvant chemotherapy. Common peroneal nerve was sacrificed during resection of the tumor. Patient received post-operative chemotherapy. At 3 years follow-up the patient is leading a comfortable life, with ankle-foot orthoses for the foot drop. Presently he is being planned for reconstructive procedures for foot drop.

## Discussion

Osteosarcoma is one of the most common primary malignant tumours occurring during the second decade of life. It occurs in the metaphyseal region of long bones, commonly involving the distal femur, proximal tibia, and proximal humerus. Proximal fibula is a very rare site representing about 2% of all osteosarcomas [3]. Amputation was the treatment of choice historically, but in recent times the aim is to salvage the limb combined with chemotherapy, to prevent metastasis. An above knee amputation is still preferable procedure to limb salvage when the following situations are encountered: Gross invasion of the tibia, extensive multi-compartment involvement especially of the posterior deep compartment, multi-compartment contamination from a previous biopsy or attempted resection, anomalous vascular patterns, especially absent posterior tibial artery, and intra-articular extension of the tumour. Long-term survival for osteosarcoma has improved dramatically during the late 20th

century and approximated 68% in 2009 [2]. Limb salvage procedure might involve removing much of the lateral compartment including the common peroneal nerve resulting in foot drop and knee instability. Complete removal of the tumour should never be compromised for a better functional outcome. There are reports in the literature however where, intentional marginal resection of the osteosarcoma of the proximal part of fibula is done, in order to preserve the limb function [4-6].

## Conclusion

Utmost care should be taken in diagnosing osteosarcoma with its unusual presentation in the proximal fibula as it is uncommon. With timely diagnosis, limb salvage is an attractive option for treatment, for the young patients to get on with their daily living. On the other hand, with a high grade tumour, salvaging the limb might result in an inadequate tumour excision, in which case one should not hesitate to perform amputation. Surgery combined with chemotherapy will give good outcome with a better survival rate.

## Acknowledgement

The Departments of Radiology & Imageology, and Pathology, Krishna Institute of Medical Sciences (KIMS), Secunderabad.

## Conflicts of interest

Authors declare no conflicts of interest.

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