Primary Osteosarcoma Arising From Skull- A Case Report

Authors
Dr K Srinivas Rao¹, Dr Lalitha Reddy.K¹, Dr Syed Fathima¹, Dr Sanjay.R,
Dr Milaap Shah²

¹Department of Radiation Oncology, Yashoda Hospital Secundrabad, Telangana, India
²Department of Pathology, Yashoda Hospital Secundrabad, Telangana, India

Corresponding Author
Dr Syed Fathima

Address: 10-3-36 Ward no:130  First floor Mahendra Hills, Addagutta, East Maredpally, Secundrabad, 500026, Telangana, India

Abstract
Primary osteosarcomas of skull which occur de novo are less frequent. Only 150 cases of osteosarcoma skull have been reported.¹⁷ A 20 year old female presented with osteosarcoma in the Right temporal bone as painless temporal swelling, which rapidly enlarged since 1 month. She underwent Craniotomy and Biopsy elsewhere, Final Histopathology report was suggestive of Primary osteosarcoma.

Introduction
Osteosarcoma is most common bone tumor which typically occurs in extremities.² Only 6% to 8% of osteosarcomas arise from skull and hence a rare entity.² Osteosarcomas of skull presents late compared to osteosarcomas of long bones, usually in third to fourth decade with no gender predilection.² Because of rare condition, we report a case of osteosarcoma arising de novo from the temporal bone in a 20 year old female who presented with swelling in the Right temporal region (Fig:1) and headache. We describe clinical symptoms and the imaging features of this rare tumor and provide a brief review of the literature.

Case Report
A 20 year old female was diagnosed with Right temporal extraaxial lesion underwent Right temporal craniotomy and biopsy of the lesion elsewhere. Post op Histopathology was suggestive of ‟osteoblastoma ‟osteosarcoma
Patient now presented to our institute with Right temporal fossa swelling which was pain full. Pain was moderate and continuous type. On physical examination patient had firm to hard diffuse swelling in Right temporal fossa. Tenderness was present. A healthy temporal craniotomy scar present. No neurological deficit on CNS examination. (Fig:1) Patient has no comorbidities, and no history of any treatment (H/o irradiation, H/o chemotherapy), trauma and pagets disease. Evaluated further with MRI Brain T2 weighted MR imaging revealed ill defined mass lesion in Right anterior aspect of temporal region which is seen terminating along Right temporal fossa at craniotomy site. Post gadolinium scan showed diffuse enhancement with central non enhancing area

**Pathology**

![Fig 3: CT Temporal bone Showing Heterogenous enhancement of right temporal bone](image)

![Fig 3: HPE showing filigree pattern of osteoid matrix without osteoblastic rimming.](image)
**Description**

Pleomorphic cells with marked atypia with filigree pattern of osteoid matrix. Osteoid is devoid of osteoblastic rimming.

**Discussion**

Osteosarcoma is a common tumor in extremities but in skull region it is very rare. Incidence of primary osteosarcoma is rare (1% to 2% of all skull tumors). The occurrence of osteosarcoma in the skull peaks in the third decade. Common risks factors for osteosarcoma of skull is similar to that of osteosarcoma of the long bones, such as radiation exposure, Paget disease, Li-Fraumeni syndrome, and other bone abnormalities, such as fibrous dysplasia, multiple osteochondromatosis, chronic osteomyelitis, myositis ossificans, and trauma are also associated conditions. Secondary osteosarcoma occurs most commonly with Paget's disease, has a higher recurrence rate and are usually more aggressive.

Clinical presentation of skull osteosarcoma is based on site of tumor involved, it usually presents as slow growing painless swelling. Other symptoms as cranial nerve palsies, headache and visual impairments can be seen. Histologically osteosarcoma has spindle shaped cells with immature bone formation. Histopathological type consists of Osteoblastic which is most common among all subtypes others include chondroblastic, fibroblastic, telangiectatic, parosteal, periosteal, and small cell osteosarcomas. If osteosarcoma of bone suspected, infiltrative lesion identified on plain radiograph should be followed by an MRI to further characterize the tumor location and extension. Imaging with MRI and CT may reveal bone growth with lytic regions and periosteal remodeling, as seen in osteosarcomas of other areas. Core needle biopsy or open biopsy can be performed to confirm the diagnosis.

As osteosarcoma of skull is a rare disease, correct diagnosis and proper treatment plans are difficult. Upon diagnosis of osteosarcoma patients should undergo maximum safe resection of detectable disease and followed by adjuvant therapy (chemotherapy/radiotherapy). Surgical resection is beneficial in patients with tumors that are confined to the periosteum and locally invasive disease. Age at time of diagnosis, surgical resection are clinically significant survival determinants for osteosarcoma. Post surgical local recurrence has poor prognosis, Increased tumor size responds less to chemotherapy and a poor prognosis indicator. Currently, the combination of methotrexate, Adriamycin, and cisplatin has become standard of care. Radiotherapy may also be administered, but osteosarcoma is relatively radioresistant, this may more commonly be reserved for inoperable or more advanced cases. Metastasis seen most commonly to Lung associated with worse Prognosis.

**References**

