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Case Report

GIANT CELL TUMOR OF TEMPORAL BONE- A CASE REPORT

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ABSTRACT
Giant cell tumor of bone rarely occurs in the skull, particularly in the temporal bone, it is rarest one. They are very aggressive and have tendency to local recurrence and late malignant change with metastases. Multiple bits of grey-brown tissue were received in 10% formalin fixative. These were processed in histokinette, embedded in paraffin and blocks were made with the help of microtome, thin serial sections were taken of 4-5 microns and stained with heamatoxylin and eosin. Histologically it showed good number of giant cells, which were large cell containing 20 – 25 nuclei in pale pink cytoplasm, some of them showing mild pleomorphism. No mitosis was seen. The stroma, mainly composed of spindle cells and mononuclear cells and was diagnosed as Giant cell tumor of temporal bone. In temporal bone of the skull, true giant cell tumor, osteoclastoma is very rare and it should be differentiated from the less aggressive reparative granuloma as the clinical behavior of these lesions can be greatly different. Hence proper evaluation by histological serial sections is beneficial in arriving at proper diagnosis, for further management.

KEYWORDS: Cranial bone, giant cell tumor, temporal bone, locally aggressive.

INTRODUCTION

Giant cell tumor is very uncommon in bones of skull, with the exception of mandible. Giant cell tumor usually arises in long bones, developing from the mesenchymal cells of the connective tissue framework. Such cells differentiate into fibroblast stromal elements and multinucleated cells of osteoclastic type. Numerous types of giant cell lesions have been described; however, the true giant cell tumor of bone, osteoclastoma, is extremely rare in facial bones. A review of literature reveals 12 reported cases in the temporal bone[9] and this one could be the probable 13th case of its kind. Hence this rare uncommon tumor of temporal bone is presented with available review of literature.

Case Report

A female aged 33 years presented with right side ear fullness and hearing loss and on examination a soft pinkish mass, filling the external auditory canal. On CT scan of temporal bone, a lytic expansile soft tissue density mass of 33x25mm in right EAC with extension into middle ear and erosion was noticed. Excision of the tumor was done and sent for histological examination.

Pathologic findings

Multiple irregular grey-brown bits of tissue received, which was friable and firm in consistency. Histologically, showed multiple giant cells, which are large cell having 20 – 25 nuclei with mild pleomorphism and pink cytoplasm (Fig.1). The stroma is composed of fibrous proliferation and mononuclear cells. Areas of woven bone is noticed and diagnosed as Giant cell tumor of temporal bone.

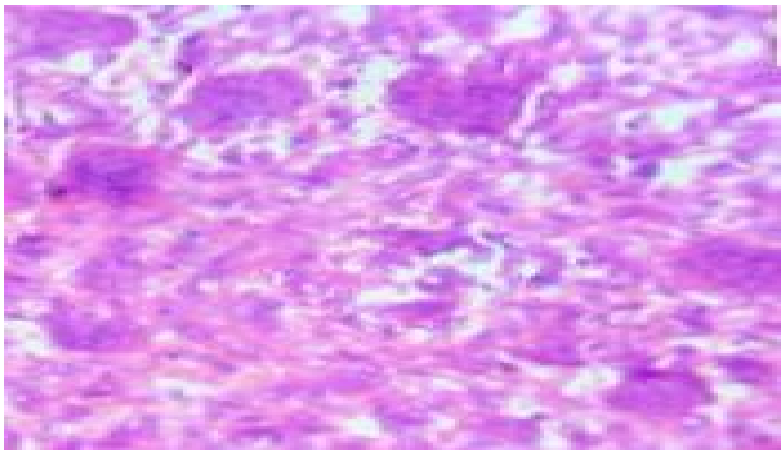

FIGURE 1: histologically, shows many giant cells of oteoclastic type. The stroma showing spindle shaped cells. (H & E 45x)

DISCUSSION

Primary neoplasms originating within the cranial bone are uncommon, accounting for only 2% [2]. Doderlein[3] was the first to report a temporal bone giant cell lesion in 1913. Dahlin[1] described only three cases involving the cranial bones. Hirschl[5], a pathologist has revived the giant cell studies in print and states that eighteen out of 23 patients reported probably suffered from giant cell reparative granuloma rather than true osteoclastoma. He states that a giant cell lesion in the skull bone of a patient below 18 years of age is mostly always a reparative granuloma. Osteoclastoma/giant cell tumor is seen most frequently in the third to fourth decades of life. The clinical course also differs greatly for the two lesions. Reparative granuloma has a benign course; this lytic lesion usually heals by means of new bone formation and sclerosis. Occasionaly it may spread or may recur after incomplete surgical removal in 10 to 15% of cases. But in osteoclastoma/Giant cell tumor is quite different; it is characterized by high recurrence rate of 45% and can metastasize, which is not seen in reparative granuloma[7]. Jaffe[6] has sub classified giant cell tumor of bone into 3 grades- benign, borderline and malignant. Jaffes statistics indicates that 40 – 50% of the patients who were operated on or irradiated experienced local recurrence. Metastasis to lungs is uncommon. The malignant giant cell tumor can be divided into 2 types- primary, in which the tumors are malignant from the onset and secondary, in which a benign tumor undergoes sarcomatous change. While often considered as benign, giant cell tumor can be quite aggressive and have tendency to local recurrence with late malignant change. The temporal bone has 2 main components- squamous and petromastoid. The squamous portion develops by intramembranous ossification, while the petromastoid portion develops from cartilage (endochondral bone). Hence the tumor genesis occurs in the endochondral bone instead of intramembranous bone[10]. Giant cell tumor is commonly seen in 30-50 years of age group with only 16% of patients below 20 year and mild female preponderence is seen[4]. Temporal bone giant cell tumor may invade the infratemporal fossa, paranasal sinuses, nasopharynx and intracranial extension may also be present. Histologically, this should be mainly differentiated from reparative geranuloma. Giant cell tumor consists of plump spindle shaped cells with admixed multi-nucleated, cytologically benign giant cells. The nuclei are generally hypochromatic with inconspicuous nucleoli and mitotic figures are uncommon, whereas in reparative granuloma, the osteoclasts and the stromal cells of the fibroblastic type are different. Other tumors of bone which are histologically characterized by multinucleated giant cells include- Aneurysmal bone cyst, Brown tumor, osteochomdroma, ossifying fibroma. The bone cyst is histologically identical to giant cell reparative granuloma with exception of presence of pools of circulating blood. In Brown tumors histology is also similar. Therefore primary hyperthyroidism should be investigated. The treatment of choice is complete surgical excision; radiation may carry the risk of development of an osteogenic sarcoma. One Russian article reports a cure affected by Cryotherapy[8].

CONCLUSION

Neoplasia of the skull bones are uncommon, accounting for 2.4 – 2.6%. Majority of giant cell tumor occur in the long bones. The skull is a rare location and temporal bone involvement is very very rare. The tumor genesis occurs in the endochondral bone instead of intramembranous bone of temporal bone. This lesion should also be differentiated from other multinucleated giant cell like- Aneurysmal bone cyst, Brown tumor, reparative granuloma, ossifying fibroma. These should be excluded as true giant cell tumor; osteoclastoma is rare in temporal bone, so also the clinical & biological behavior differs from each. Hence proper histological evaluation by serial sections of the tissue is most important in arriving at definitive diagnosis as the therapy differs and also local recurrences can be avoided in the well being of the patient. Surgical excision is recommended for this tumor when possible. Radiotherapy should be considered for inoperable lesions or for cases in which complete excision is not possible.

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