“Osteoclastoma of Maxilla” a Rare Case

Anjana Agrawa¹ · Anusha Shukla¹

Received: 11 April 2015 / Accepted: 9 May 2015 / Published online: 24 June 2015
© Association of Otolaryngologists of India 2015

Abstract Giant cell tumour (GCT) of the bone accounts for 5 to 9 % of primary bone tumors. The most common sites are long bones. The incidence of craniofacial GCTs, involving the sphenoid (Kujas et al. Arch Anat Cytol Pathol, 47(1):7–12, 1999), ethmoid and temporal bones is rare, but they do exist, among all GCT tumors 2 % are found in craniofacial bones. Here is a report on a case of osteoclastoma of maxilla, presented to us with complains of swelling and pain over left side of cheek, nasal obstruction from last 5 months. Excision of whole mass from anterior wall was done under general anesthesia.

Keywords Osteoclastoma · Rare tumour of maxilla · Multinucleated giant cell · Curettage

Introduction

Osteoclastoma of maxilla is very rare, these tumors more common in females than males, these tumors are characterized by presence of multinucleated giant cells (osteoclasts), GCT is generally benign but can be aggressive, recurrence rate is high between 40 to 60 %, up to 4 % metastasize to lungs.

Case Report

A 25 year old male patient resident of Dewas M. P. reported to our hospital with chief complains of progressive swelling over left side of face from last 6 months, patient was also having complain of nasal obstruction from last 5 months along with pain over left side of face. The swelling became rapidly increasing in its size from last 1 month, because of which his symptoms got worsened, nasal obstruction got increased further leading to difficulty in breathing and his problem was increasing day by day. On examination there was swelling present on left cheek which was extending from infraorbital rim to upper alveolus, and from left nasomaxillary groove to left zygoma. On examination of nose, left side nasal cavity was found partially obliterated by bulge due to swelling, on examination of oral cavity bulging was seen on left side of hard palate anterior part with obliteration of gingivobuccal sulcus. Fine needle aspiration cytology was done from the swelling which revealed osteoclasts like giant cells with round to oval nucleus. Serum alkaline phosphatase levels were found increased 280 µ/L, serum calcium was found normal. CT PNS revealed lobulated mass lesion in inferior aspect of maxilla involving alveolar ridge and hard palate with cortical expansion and thinning with mass protruding into nasal cavity, maxillary sinus and oral cavity.

Excision of mass was planned, under general anesthesia, sub labial incision of 4 to 5 cm extending from 1st incisor to 2nd premolar was given just above gingivobuccal sulcus, complete mass extending from hard palate to lateral wall of nose, anterior wall of maxilla and upper alveolus up to zygoma was excised and sent for pathological evaluation.

Pathological evaluation reported-gross-irregular greyish black soft to firm pieces measuring 2 × 1 × 0.5 cm.

✉ Anjana Agrawa

✉ Anusha Shukla
dr.anusha21@gmail.com

¹ Department of ENT, R D GARDI Medical College, Ujjain, India

Microscopy-H&E stain shows large multinucleated giant cells and stromal cells, osteoclasts, inflammatory cells are also present (Figs. 1, 2, 3).

Discussion

Giant-cell tumor of the bone is an uncommon tumor of the bone. It is characterized by the presence of multinucleated giant cells (osteoclast-like cells). Malignancy in giant cell tumor is uncommon and occurs in approximately 2 % of all cases. The giant-cell tumour stromal cells (GCTSC) constitute the neoplastic cells, [1] which are from an

Fig. 1 Diffuse swelling present in anterior part of hard palate pushing left maxillary region towards the opposite side

Fig. 2 CT scan axial view showing bony expansile swelling in left maxillary region

Fig. 3 Coronal view of CT scan showing typical soap bubble appearance of osteoclastoma in lower left alveolar region

osteoblastic origin and are classified based on expression of osteoblast cell markers such as alkaline phosphatase and osteocalcin. The mononuclear phagocyte consists of cells in different system of the body, as in vascular system, it is called monocyte and in tissue of different parts of the body they are called macrophages. Monocyte chemoattractant protein 1 is a potent chemoattractant factor specific for monocytes. Scientists have evaluated the localization and regulation of MCP-1mRNA and protein in giant cell tumour (GCT) by using northern blot analysis, in situ hybridization and immunohistochemistry. In situ hybridization and immunohistochemistry revealed that both MCP – 1 gene transcription and protein were consistently present in the cytoplasm of stromal-like tumour cells of GCT.

Diagnosis—diagnosis based on biopsy. Multinucleated giant cells, osteoclasts with up to hundred nuclei that have prominent nucleoli. Treatment—Surgery is the treatment of choice if the tumor is determined to be resectable. Curettage is a commonly used technique [2]. The situation is complicated in a patient with a pathological fracture. Curettage and Acrylic cementation in large tumour. For sites like the spine, where excision is sometimes not possible, radiotherapy [3] is done. Pharmacotherapy for GCTOB, includes bisphosphonates such as Zolidronate, which are thought to induce apoptosis in the MNGC fraction, preventing tumor-induced osteolysis. Indeed in vitro studies have shown Zolidronate to be effective in killing osteoclast-like cells [4] [5]. More recently, humanized monoclonal antibodies such as Denosumab targeting the RANK ligand (RANKL) have been employed in treatment of GCTOB in a phase II study. This is based on the notion that increased expression of RANK-ligands by stromal cells plays a role in tumor pathogenesis

[5]. Regular follow up [5] of patients is necessary as it tends to re-occur.

References

1. Huang L, Xu J, Wood DJ, Zheng MH (2000) Gene expression of osteoprotegerin ligand, osteoprotegerin, and receptor activator of NF- κ B in giant cell tumor of bone. *Am J Pathol* 156(3):761–767
2. Balke M, Schremper L, Gebert C et al (2008) Giant cell tumor of bone: treatment and outcome of 214 cases. *J Cancer Res Clin Oncol* 134(9):969–978. doi:[10.1007/s00432-008-0370-x](https://doi.org/10.1007/s00432-008-0370-x) PMID **18322700**
3. Mendenhall W, Zlotecki R, Scarborough M, Gibbs C, Mendenhall N (2006) Giant cell tumor of bone. *Am J Clin Oncol* 29(1):96–99. doi:[10.1097/01.coc.0000195089.11620.b7](https://doi.org/10.1097/01.coc.0000195089.11620.b7) PMID **16462511**
4. Werner M (2006) Giant cell tumour of bone: morphological, biological and histogenetical aspects. *Int Orthop* 30:484–489
5. Thomas DM, Skubitz T (2009) Giant-cell tumour of bone. *Curr Opin Oncol* 21:338–344
6. Kujas M, Faillot T, Van Effenterre R, Poirier J (1999) Bone giant cell tumour in neuropathological practice. A fifty year overview. *Arch Anat Cytol Pathol* 47(1):7–12