VOLUME-6 | ISSUE-3 | MARCH - 2017 • ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

Osteoclastoma: A rare jaw tumor with a novel treatment approach

Dental Science

KEYWORDS: giant cell tumour, osteoclastoma, maxillectomy, craniofacial bone

Pawan Goyal	Senior Resident, Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, King George's Medical University, Lucknow. U.P
Vaibhav Anand	Senior Resident, Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, King George's Medical University, Lucknow. U.P
Sanjay Kumar	Senior Resident, Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, King George's Medical University, Lucknow. U.P
Hari Ram	Professor, Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, King George's Medical University, Lucknow. U.P
Shilpi Gangwar	Senior Resident, Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, King George's Medical University, Lucknow. U.P

ABSTRACT

Giant cell tumours (GCT) of the bone are relatively rare, benign condition of jaw, which accounts for around 4-5 % of all primary bone tumors. A 14 years old female reported with a painless swelling on right side of face since 5 months, rapidly increasing in size with no history of any associated trauma or loosening of teeth or ill habits. Patient presented with facial asymmetry over right side of the face. Intraoral examination revealed a swelling in the gingivo-labial groove. Incisional biopsy revealed a histopathological reading of numerous multinucleated giant cells along with fibroblastic proliferation intermixed with collagen fibres and mononuclear cells and area of hemorrhage. Infrastructural maxillectomy was performed and intraoperatively temporary surgical splint was placed.

Introduction:

Giant cell tumours (GCT) of the bone are relatively rare and accounts for only 4-5 % of all primary bone tumors[1]. GCT is mostly benign but can be aggressive. It usually affects the epiphyses of the long bones and the most common locations in order of frequency are the lower end of femur, upper end of tibia and lower end of radius. It has got slightly more predilection for female, with a ratio of 1.4:1, predominantly occurs early in life, but can occur in second to third decade of life. The incidence of craniofacial GCTs, involving the sphenoid, ethmoid and temporal bones is much less common, accounting for only 2% of all GCTs[2]. GCT of the maxilla presenting with painful swelling has been previously reported. Recurrence rate is high between 40-60%, and up to 4% metastasis to the lung[3].

Case report:

A 14 years old female reported to Department of Oral & Maxillofacial Surgery with a painless swelling on right side of face since 5 months. Swelling was of insidious onset and rapidly increasing in size. There was no history of any associated trauma or loosening of teeth. There was no nasal discharge, facial paraesthesias or epiphora. Medical history and family history were non contributory to the disease. The patient did not have any associated ill habits.

Extraoral inspection revealed facial asymmetry over right side of the face extending from infraorbital margin of right eye upto right commisure of mouth supero-inferiorly and from right ala of nose upto tragus of the right ear medio-laterall[figure 1 and 2]. Overlying skin was apparently normal. On palpation swelling was non tender, bony hard, smooth-surfaced with no local rise of temperature. Paresthesia was not evident. Intraoral examination revealed a swelling in the gingivo-labial groove extending from the right upper central incisor to the first molar with extension within the palate extending from incisive foramen anteriorly up to the junction of hard and soft palate[figure 3]. Medio-laterally swelling was lateral to the mid palatal raphe upto alveolus of right side maxilla with no crossing of midline. Mucosal color was apparently normal. There was no associated lymphadenopathy.

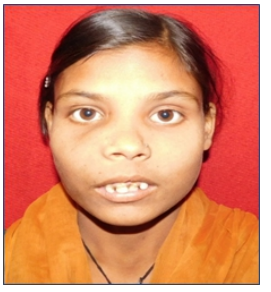

Figure 1 Pre op: Frontal view

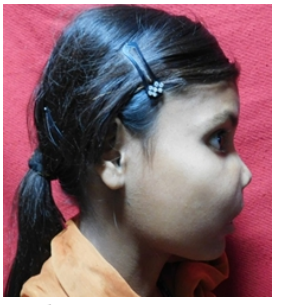

Figure 2 Pre op: Lateral view

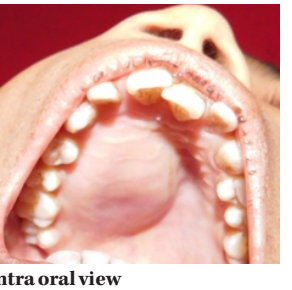

Figure 3 Pre op: Intra oral view

Routine hemogram was within normal limits except raised alkaline phosphatase, which was 467.7 IU/L (normal range- 50-240). Serum calcium was 9.3 mg/dl and phosphorus 4.1 mg/dl, which were within normal limits. ECG and Chest X-ray were within normal limits.

Computed tomography scan(fig. 4 and 5) showed a well-defined heterogeneously enhancing soft tissue attenuation lesion with cystic changes and multiple thin bony septae measuring approximately 4x4.8x4.9 cms is seen involving the body of right maxilla and palatine process of maxilla with evidence of bony destruction and intraoral extension. Superiorly, the lesion is seen extending into nasal cavity and is seen causing thinning and remodelling of turbinates. Medially, the lesion is seen causing erosion of medial wall of right maxillary sinus and bulging into nasal cavity with deviation of nasal septum towards left side. Antero-laterally the lesion is seen causing thinning and remodeling of lateral wall of right maxilla with possible extension overlying subcutaneous tissue. Left maxillary sinus along with ethmoid, sphenoid and frontal sinuses are normal.

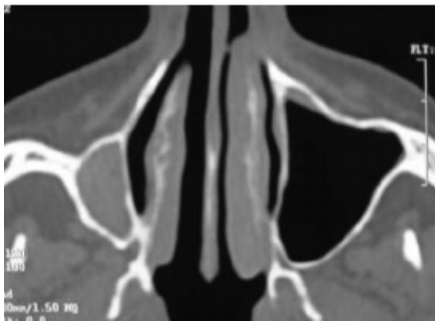

Figure 4 Ct Scan – Axial view

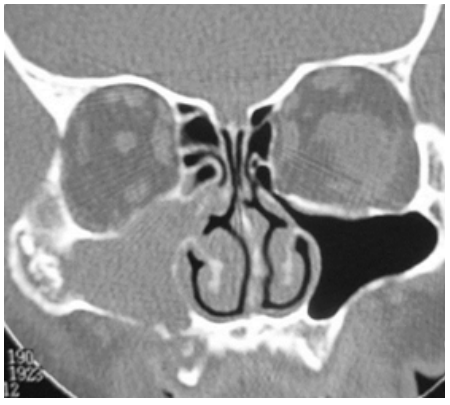

Figure 5 Ct Scan – Coronal view

Incisional biopsy revealed a histopathological reading of numerous multinucleated giant cells along with fibroblastic proliferation intermixed with collagen fibres and mononuclear cells and area of hemorrhage. Individual spindle cells are stellate shaped and having smooth nuclei and tailed cytoplasm. Fibrous stroma also encloses few bony trabeculae. Histomorphology was consistent with Osteoclastoma.

The tumor was exposed through intraoral approach under general anaesthesia and excision of the lesion was performed in toto along with infrastructural maxillectomy[figure 6 and 7]. Intraoperatively, temporary surgical splint was placed prior to fabrication of definitive prosthesis.

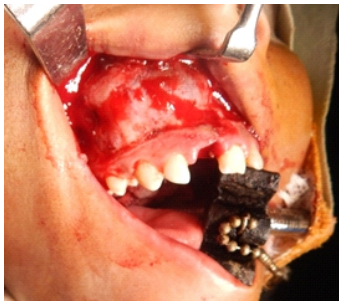

Figure 6 Intra oral approach

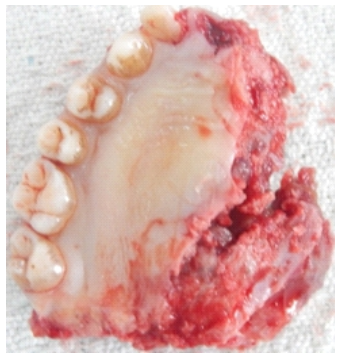

Figure 7 Resected specimen

Postoperative recovery was uneventful [figure 9] and the final histopathological report was consistent with Osteoclastoma [figure 8].

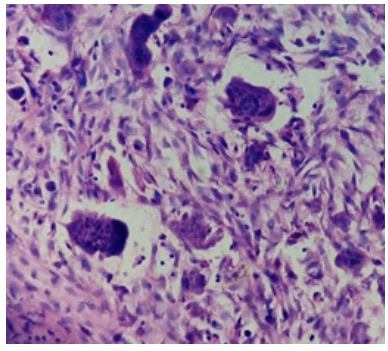

Figure 8 Histopathological slide

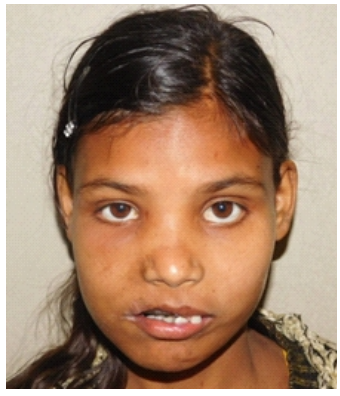

Figure 9 Post op: frontal view

Discussion:

GCT are distinctive neoplasm characterized by a profusion of mononuclear cells which are scattered throughout stroma of mononuclear cells. The neoplastic mononuclear cells are derived from mesenchymal cell and these cell are the progenitors of giant cells[4]. GCT commonly affects the long bones but can occur anyway. The incidence of GCT over craniofacial bone is rare. True GCT contributes only 2% of all gaint cell rich tumors of jaw and usually after 2nd decades of life[4].

The common presentation of maxilla GCT includes painful swelling over cheek as in our patient, epistaxis, restricted mouth opening, toothache and in advance cases nasal blockage, restriction in eye movement sometimes bulging of eye ball of affected side and difficulty in swallowing too. Inspite of all these features to diagnose osteoclastoma of jaw is difficult task.

Plain radiographs are usually not helpful upto that extent, CT scan is necessary to assess the extent of lesion and biochemical

VOLUME-6 | ISSUE-3 | MARCH - 2017 • ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

investigation like alkaline phosphatase is useful to rule out Paget's disease. The other bony lesion of maxilla may mimic clinically as well as radiologically same as GCT of maxilla like giant cell granuloma, aneurysmal bone cyst tumor, odontogenic myxoma, bone vascular lesion, cystic ameloblastoma and malignant neoplasm of jaw bones such as sarcomas and Langerhan's cell histiocytosis.[5] Early diagnosis and accurately identification from the other disease that also have / contain multinucleated giant cells is very essential.

Considering the available treatments of the osteoclastoma of jaws are curettage, curettage with combination of adjuvant therapy like cryosurgery and bone cement or bone graft and bone resection. Literature suggested that only curettage have very high recurrence rate of 15% to 42%.[6]

Therefore, the management of osteoclastoma is complete resection of the tumor with reconstructive surgery and life long follow up is also equally important[7]. Our patient underwent for complete resection of the disease and split thickness skin graft to cover the raw area in terms of reconstructive surgery. Patient and her parents did not give consent for microvascular surgery, so we decided prosthetic rehabilitation with maxillary obturator.

Conclusion:

Osteoclastoma is rare finding of maxilla and is considered as true neoplasm of undifferentiated cells of bone marrow. It appears in children usually under 5 years of age and occurs mostly at the end of long bones but are rarely seen in skull particularly in the jaws. A few cases were also reported in sphenoid[8,9,10], frontal bone, ethmoid labyrinth and temporal bone .

References:

1. Som PM, Brandwein M. Sinonasal cavities : inflammatory diseases, tumors, fractures and post operative findings. In : Som PM,Curtin HD editors.head and Neck Imaging Vol. 1 , 3rd ed. New York : CV Mosby Year Book Publishers :1996 pp 126-318.
2. Marioni G, Marchese-Rangona R, Gaurda-Nardini L, Stramare R, TognazzaE, Marino F, Staffieri A. Giant Cell Tumor (Central Giant Cell lesion) of Maxilla. Acta otolaryngol.2006july;126(7);779-81.
3. Agrawa A, Shukla A. Osteoclastoma of Maxilla A Rare Case. Indian J Otolaryngol Head Neck Surg june2015; 15:860-5.
4. Goldring, S R et al. Human giant cell tumor of bone. Identification and characterization of cell type. J. clin Invest 1987; 79:483-6.
5. Ahuja p, Rathore AS, Chhina S, Manchanda A. Aggressive giant cell granuloma mimicking giant cell tumor. IJCRI 2011; 2 :5-10.
6. Dahlin DC, Caldwell Lecture. Giant cell tumor of bone: highlight of 407 cases. AJR Am J Roentgenol 1985; 144:955-60.
7. LastenGS, JensenPk et al. Local Recurrences in giant cell tumor of bone: Long term follow up of 31 cases. Int Orthop 1996; 20 (3): 172-6.
8. Rimmelin A, Roth J, George B, et al. Gaint cell tumor of the sphenoid bone: case report. Neuroradiology 1996 oct ; 38 (7):650-3.
9. Kujas M, Faillot T, Van Effenterre R, et al. Bone giant cell tumor in gaint cell tumor in neuropathological practice: A fifty years overview. Arch AnatCytolPathol 1999; 47 (1):7-12.
10. Barnab E, Darrouzet V, Chambrin A et al. Rev LaryngolOtolRhinol (Bord) 1997; 118(2): 133-7.