

ORIGINAL ARTICLE

GIANT CELL TUMOUR OF MANDIBLE: A RARE ENTITY

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ABSTRACT

Giant cell tumor (GCT) of bone is a peculiar distinctive tumour characterized by abundance of multinucleated giant cells dispersed throughout the stroma of mononuclear cells. Giant cell tumour is believed to be a low- grade variant of osteosarcoma. Giant cell tumors (GCTs) are benign bone neoplasm arising from bone marrow. There are various reports of giant cell tumour of long bones but the jaw bones account for less than 1% of the lesion. Histological identification of GCTs is very difficult because this tumour is quite similar to other lesions like central giant cell granuloma; aneurysmal bone cysts unlike having larger, more nuclei and even distribution. We present a rare case of GCT of the mandible which occurred in a 29 year old male.

Keywords: Giant cell tumor, Mandibular swelling, Jaw tumor, Giant cell.

INTRODUCTION

The Giant cell tumor had been described by variety of nomenclatures, namely hemorrhagic osteomyelitis, ossifying hematoma, osteitis fibros cystica and others. Ambrose Paré gave the first description of tumour in the sixteenth century and the term was later coined by Joseph in the year 1912 [1]. This tumour accounts for about 5% of all biopsied primary bone tumors. The tumour typically involve the metaphysis of long bones like the femur and tibia (more than 50% of giant cell tumour) and spine (12–30%) [2,3]. There are various reports of giant cell tumour of long bones but the jaw bones account for less than 1% of the lesion. These tumors are more common in young people in 2nd to 3rd decade of life and have greater predilection for females [4]. Further the clinical, radiological and histological findings of tumour make its diagnosis exceptionally challenging, especially the head and neck region. We report and highlight the presentation and management of GCT in the jaw of a 29 year male.

CASE REPORT

A 29 year male presented in our unit with a painless swelling on the left side of the lower jaw for 6 months and was increasing in size since. This was associated with the loosening of teeth and bleeding in posterior lower jaw region. The examination revealed a mild swelling of the mandible which was seen to extend from the tooth number 33 to 38 on the left side with missing 36 on intraoral examination. There was obliteration of labial and buccal mandibular sulci associated with buccolingual expansion. Orthopanto-

mograph (OPG) showed a multilocular radiolucency with an expansile swelling in the lower border of the mandible [Fig 1]. Curettage under general anaesthesia was planned. Crevicular incision was given with no. 15 blade from central incisor to third molar [Fig 2]. Mucoperiosteal flap was elevated and curettage was done. Closure was done with 3-0 silk. The histopathological examination showed a richly cellular stroma comprising of plenty of evenly distributed multinucleated giant cells. Based on the characteristic appearance of giant cells, stromal cells findings and lab investigations; a diagnosis of GCT was made [Fig 3, 4]. Patient is doing well at 1 year follow up without any signs of recurrence.

DISCUSSION

Giant cell tumors have got various synonyms like hemorrhagic osteomyelitis, aneurysmal giant cell tumor, ossifying hematoma, hemangiomas bone cyst, expansile haemangioma subperiosteal bone aneurysm, expansile haemangioma and pulsating giant cell tumor [5]. Giant cell tumor of bone accounts for more than 50% of long bones femur and tibia, spine 30% [6]. A low percentage of occurrence of Giant cell tumor is observed in Head and neck region approximately 2% of all the GCTs [7]. Diagnosis of GCTs is quite challenging for a maxillofacial surgeon and oral pathologist because of its rare occurrence in craniofacial region. Radiologically GCT have well defined margin or it may have poorly define margin [8] In our case we observed a multilocular radiolucency with ill defined differentiating margins. Giant cell tumors of jaws

can cause periosteal thickening and pathological fracture. Mandible is more frequently affected than the maxilla with a ratio from 2:1 to 11:9 [4]. The differential diagnosis includes aneurysmal bone cyst, other giant cell lesions, giant cell granuloma (CGCG). There have been various treatment options performed like cryotherapy, chemotherapy, curettage, wide local resection. In our case we chose to perform curettage with extraction of all mobile tooth present in the lesion region [1,4,9]. Feature of this neoplasm mimics range of giant cell benign lesions like ossifying fibroma to locally aggressive lesions like CGCG, aneurysmal bone cyst, high-grade sarcomas and also metabolic disorders such as hyperparathyroidism which is diagnosed by masses of reactive osteoclast like giant cells. The lesion was soft and friable in consistency which was brown in color with blood filled cavities. Recurrence rates range between 20-30% depending on the size and treatment of the tumor. The documented malignant transformation rate is 1-5% [10]. Our patient is kept under regular follow up. There is adequate bone formation with no new complaint.

CONCLUSION

Mandibular GCT is rare tumors with presentation mimicking other common jaw tumors. The diagnosis of these lesions is difficult on pathology as these neoplasm mimics range of giant cell lesions like ossifying fibroma to locally aggressive lesions like CGCG, aneurysmal bone cyst, high-grade sarcomas. The potential benign nature and good treatment response with limited surgical intervention highlights the importance of correct diagnosis of these and differentiation from other aggressive lesions. The rarity and on diagnostic challenges make every such case worth reporting as this will add to the pool of cases and will help in formalizing a proper diagnostic and therapeutic guideline.

Legends

Fig 1: OPG showing multilocular radiolucancy with an expansile swelling

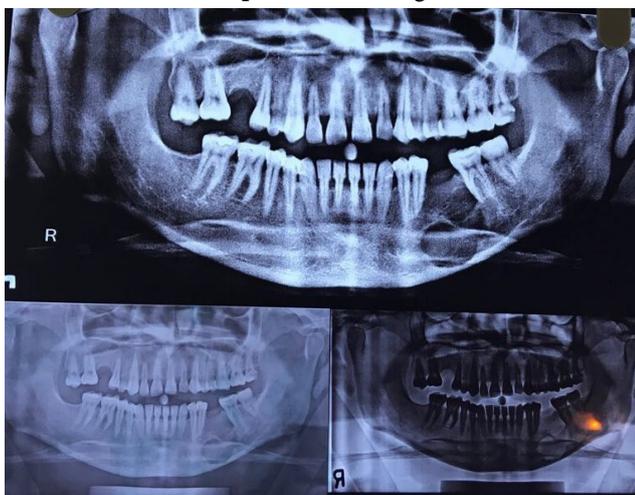


Fig 2: Mucoperiosteal flap with curettage



Fig 3: 100 X showing giant cells and stromal cells

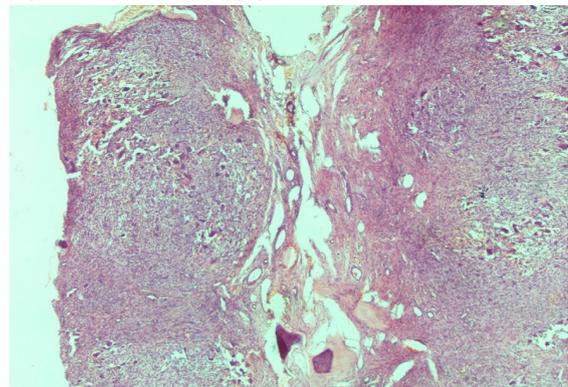
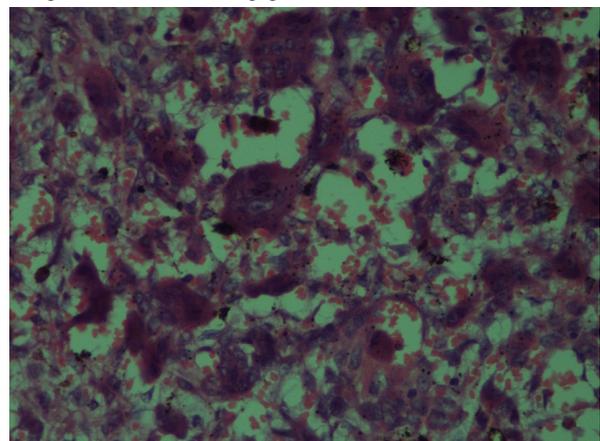


Fig 4: 200X showing giant cells and stromal cells



REFERENCES

1. Raskin KA, Schwab JH, Mankin HJ, Springfield DS, Hornicek FJ. Giant cell tumor of bone. *J Am Acad Orthop Surg* [Internet]. 2013;21(2):118-26.
2. Park SR, Chung SM, Lim JY, Choi EC. Giant Cell Tumor of the Mandible. *Clin Exp Otorhinolaryngol*. 2012;5(1):49-52.
3. Sturrock BD, Marks RB, Gross BD, Carr RF. Giant cell tumor of the mandible. *J Oral Maxillofac Surg*. 1984;42(4):262-7.
4. Park SR, Chung SM, Lim J-Y, Choi EC. Giant cell tumor of the mandible. *Clin Exp Otorhinolaryngol* [Internet]. 2012;5(1):49-52. Available from:
5. Keyser JS, Postma GN. Brown tumor of the mandible. *Am J Otolaryngol - Head Neck Med Surg*. 1996;17(6):407-10.

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6. Lucas DR. Giant Cell Tumor of Bone. Vol. 5, Surgical Pathology Clinics. 2012. p. 183–200.
 7. Luther N, Bilsky MH, Härtl R. Giant Cell Tumor of the Spine. Vol. 19, Neurosurgery Clinics of North America. 2008. p. 49–55.
 8. Schtz P, El-Bassuoni KH, Munish J, Hamed HH, Padwa BL. Aggressive central giant cell granuloma of the mandible. J Oral Maxillofac Surg. 2010;68(10):2537–44.
 9. El Hadidi YN, Ghanem AA, Helmy I. Injection of steroids intralesional in central giant cell granuloma cases (giant cell tumor): Is it free of systemic complications or not? A case report. Int J Surg Case Rep. 2015;8:166–70.
 10. B. Z-K, J. G, A. N, J. K. Central giant cell granuloma of the mandible in a different clinical aspect: A review of literature and own observations [Internet]. Vol. 10, Wspolczesna Onkologia. 2006. p. 250–4.