Aggressive Central Giant Cell Granuloma

Niranjanaprasad B Indra, KY Giri, Himanshu Pratap Singh, Sunil Kumar Mall

ABSTRACT

Central giant cell granuloma (CGCG) is an uncommon benign proliferative lesion occurring more commonly in the anterior region of the mandible. It may become aggressive leading to expansion and perforation of the cortex. Mobility and displacement of teeth and root resorption are often observed. The purpose of the study is to show that the radical treatment of CGCG by en bloc resection gives better postoperative results with no recurrence seen in 1 year follow-up.

Keywords: Mandible, Benign tumor, Central giant cell granuloma.

CASE REPORT

A 42-year-old male patient presented with swelling and pain in his anterior lower region of the mandible. The history of complaint revealed gradual growth of the swelling during the past 1 year. The medical history was not significant. On intraoral examination, there is a swelling in anterior region of mandible extending from right side 2nd premolar crossing the midline upto 1st premolar on left side with obliteration of oral vestibule (Fig. 1). Lower left central incisor, lateral incisor and canine were missing. Occlusal view, CT scan and OPG were taken (Figs 2 to 4). Radiographs revealed unilocular periapical radiolucency and destruction of cortical plate in lower anterior region extending from right side 2nd premolar upto 1st premolar on left side, with intact lower border.

INTRODUCTION

Central giant cell granuloma (CGCG) is an uncommon benign lesion that was described by Jaffe in 1993. There are some controversies about its nature. Some associate it as benign tumor of the maxillofacial skeleton, others as reactive, non-neoplastic lesion. Central giant cell granulomas are more commonly found in the mandible and mainly in young adults. Clinical and radiographic appearances of central giant cell granulomas are not pathognomonic. Two distinct forms are currently recognized: (1) nonaggressive and asymptomatic slow growing forms which do not perforate cortical bone and (2) aggressive forms that result in expansion and perforation of cortical bone and even tooth displacement and root resorption. Central giant cell granulomas have various radiographic appearances. Most lesions are multilocular, well circumscribed radiolucencies. However, they may occasionally manifest as unilocular radiolucencies. The anterior segment of mandible is affected more commonly than other regions.

Aggressive and nonaggressive forms of CGCGs are similar in their histopathologic features which demonstrate lobules of spindle fibroblasts, numerous multinucleated osteoclast-like giant cells often clumped in areas of hemorrhage and reactive woven bone rimmed by osteoblasts. In addition, scattered inflammatory cells within the stroma can be seen.
Clinical findings suggested a differential diagnosis of CGCG, aneurysmal bone cyst, calcifying epithelial odontogenic tumor and giant cell tumor. Incisional biopsy was done. Histological examination revealed a hemorrhagic background with presence of plump bland fibroblasts, hemosiderin and fewer giant cells with smaller number of nuclei which are less uniformly distributed. Histological report suggested the lesion as CGCG. Surgical management was carried out under general anesthesia by performing enbloc resection of mandible with 2 cm margins beyond the radiographic limits (Fig. 5). Excisional biopsy report confirmed the same diagnosis of incisional biopsy. After enbloc resection, 1 year follow-up did not show recurrence (Fig. 6).

**DISCUSSION**

Central giant cell granuloma is a benign intraosseous lesion of the jaws. It was first described as ‘Central giant cell reparative granuloma’ by Jaffe HL in the year 1953. Currently the term ‘reparative’ is not used for description because of the destructive nature of the giant cell granuloma. Giant cell granuloma is considered as benign proliferation of fibroblasts and multinucleated giant cells that occurs almost exclusively within the jaws. It is seen in all age groups ranging from 2 to 80 years, but more than 60% of the cases occur under the age of 30 years. Although, sex distribution varies in different reviews, CGCG shows female predilection almost twice that of males. Many studies have showed that the lesions are more common in the anterior segments of the jaws and can even cross the midline. Occasionally, they may present in the facial bones and small bones of hand and feet. Central giant cell granuloma can be aggressive or nonaggressive. The nonaggressive form may present with asymptomatic swelling or may be discovered accidentally during routine radiological investigations. The aggressive form of CGCG presents with pain, rapid growth, cortical perforation and root resorption. The rate of recurrence varies between 13 and 49%. Whitaker and Waldron reported a mean interval between diagnosis and initial treatment and treatment of a recurrence of 21 months, with very few recurrences 2 years after initial treatment.

The radiological appearance of CGCG is variable with either unilocular or multilocular radiolucency, well- or ill-defined with variable expansion and destruction of the cortical plate. The final diagnosis eventually rests on histopathology, since clinical and radiological features are not specific. Some lesions are more destructive with a marked tendency to recur and thus require more radical treatment. Of the similar appearing entities giant cell tumor are more difficult to differentiate from CGCG without clinical and histological aids. Central giant cell
Granuloma generally occurs in younger subjects than giant cell tumor. Diffuse sheets of large giant cells and polygonal mononuclear cells seen in giant cell tumor are lacking in CGCG. Deposition of osteoid is occasionally observed in CGCG which is lacking in giant cell tumor. Cystic areas (the aneurysmal bone cyst component) are less common as compared to giant cell tumor. Differentiation from brown tumor is based mainly on clinical and laboratory data as well as differences in the age of onset and multiplicity of lesions.\textsuperscript{12,13}

The management of CGCG will depend on the clinical and radiographic findings. Generally, curettage of well-defined localized lesions is associated with a low rate of recurrence. In extensive lesions with radiographic evidence of perforation of cortex, a more radical excision is mandatory. In such cases even partial maxillectomy or mandibulectomy has to be done. The medical management of CGCG as an adjunct to surgery includes treatment with steroids or calcitonin which inhibits osteoclastic activity.\textsuperscript{14}

\section*{CONCLUSION}

Giant cell granuloma of jaws, lesions that might arise either from peripherally in the periodontal ligament, mucoperiosteum or centrally in the bone. It is a benign tumor but in some cases, it is locally destructive. This lesion has also been reported in small bones of hands and feet. Surgery is the most traditional and accepted method of treatment. Central lesions often require radical excision because of recurrence nature of lesion.

\section*{REFERENCES}