



## Case Report

### Peripheral Gaint Cell Granuloma- A Rare Case Report With Review of Literature

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#### ABSTRACT

Peripheral giant cell granuloma (PGCG) is an infrequent red to purple nodular lesion of the oral cavity, also known as giant cell epulis, osteoclastoma, giant cell reparative granuloma, or giant-cell hyperplasia. A 40 years old female patient who complained about gingival enlargement was admitted. Her intraoral examination revealed a raised, nodular, sessile, smooth-edged 2 cm diameter mass and was located on the maxillary gingiva. Excisional biopsy was performed under local anesthesia. The lesion was diagnosed a Peripheral giant cell granuloma after clinical and pathological examination. The lesion was completely excised to the periosteum level. No recurrence of the lesion was found even six months after surgery. It is challenging for clinician to rule out this infrequent lesion without histopathology support.

**KEYWORDS:** Peripheral giant cell granuloma, Giant cell epulis ,Giant cells.

#### INTRODUCTION

Peripheral giant cell granuloma (PGCG) is one of the most frequent giant cell lesions of the jaws and originates from the connective tissue of the periosteum or the periodontal membrane[1]. It is not a true neoplasm but rather a benign hyperplastic reactive lesion occurred in response to local irritation such as tooth extraction, poor dental restorations, ill-fitting dentures, plaque, calculus, food impaction and chronic trauma. Other names of this lesion are peripheral giant cell tumor, osteoclastoma, reparative giant cell granuloma, giant cell epulis and giant cell hyperplasia of the oral mucosa[2]. The peak prevalence is in fifth to sixth decades, in which 20 to 33% occur within the first two decades of life with preponderance in females.[1,2] It occurs most commonly on incisor and canine regions with a slight predilection for the mandible. We present a case of a peripheral giant cell granuloma present in maxilla in a sixty year old female patient who was managed by a conservative surgical approach along with review of literature.

#### CASE REPORT

A 40-year old female was initially referred to Dental department of Vir Chandra Gharwali Institute of Medical sciences, Srikot for an exophytic red to purple nodular lesion in the left maxillary alveolus (Figure 1). The lesion had been present since 1 year and had gradually increased in

size. It bled from time to time but the patient did not seek any treatment. The medical history was not contributory and the patient was not on any medications. The biopsy (to the periosteum level) was undertaken under local anaesthesia, and haemostasis achieved by electrocautery. Chlorhexidine mouth rinse was prescribed postoperatively, twice a day for 7 days. Biopsy specimen was embedded in 10% formalin and sent to department of pathology. Routine histological examination with hematoxylin and eosin stain were performed. A red, exophytic, non-painful lesion arising in the mandibular right premolar area, measuring 60 x 45 x 35 mm in maximum dimension was obtained (Figure 2).

Periapical radiograph revealed superficial erosion of the alveolar crest in relation to the growth. Histopathological examination under low magnification showed epithelium overlying a vascular connective tissue. Under higher magnification, epithelium was of parakeratinized stratified squamous type. Connective tissue stroma showed numerous proliferating blood vessels with extracellular hemorrhage. Numerous spindle shaped fibroblasts were also noted. Several multi-nucleated giant cells were seen interspersed in the connective tissue stroma. Hence histopathological findings confirmed the diagnosis of peripheral giant cell granuloma. The lesion was completely excised to the periosteum level and there is no residual or recurrent, swelling or bony defect apparent in the area of biopsy after a follow-up period of 6 months.

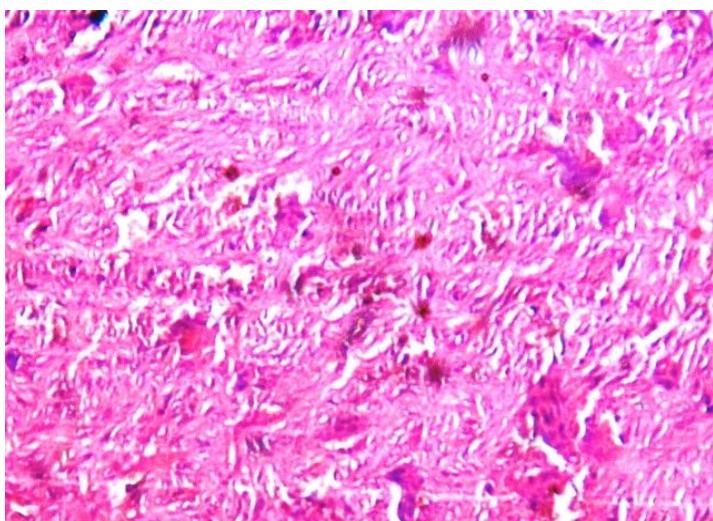
**Figure:1** Intra oral view of the lesion



**Figure:2** Excisional biopsy of the lesion measuring 1.5x1x0.5 mm



**Figure:3** Photomicrograph showing aggregates of multinucleated giant cells in a background of mononuclear stromal cells (H&E, x100 magnification)



## DISCUSSION

Peripheral giant cell granuloma is a relatively common giant cell lesion of oral cavity accounting for 7% of all benign tumors of the jaws[3]. The aggressive factors include trauma, tooth extraction, badly finished restorations, plaque, calculus, chronic infections and impacted food [4,5]. PGCG occurs exclusively on gingiva or edentulous alveolar ridge as variable sized, sessile or pedunculated lesion which is usually deep red to bluish red and bleed easily[6]. The size of the lesion is usually smaller than 2 cm in diameter, although larger ones may be seen occasionally; a diameter as large as 5 cm has been reported[7].

Histologically, PGCG is composed of nodules of multinucleated giant cells in a background of plump ovoid and spindle-shaped mesenchymal cells and extravasated red blood cells. The giant cells may contain only a few nuclei or up to several. Some of them are large, vesicular nuclei; others demonstrate small, pyknotic nuclei. The areas of reactive bone formation or dystrophic calcifications may be seen [8]. The histopathological findings in our case were corresponding to the above description. Jaffe first suggested the term “giant cell reparative granuloma” for the similar central lesion of the jaw bones [9] to help differentiate them from the giant cell tumor [10] as he believed the former lesion to represent a local reparative reaction rather than being a true neoplasm[11].

Bernier and Cahn proposed the term “peripheral giant cell reparative granuloma” for the lesion[12]. Today, the term peripheral giant cell granuloma is universally accepted[9]. The aetiology and nature of PGCG (giant cell epulides) still remains controversial. There is strong evidence that these giant cells are osteoclasts as they have been shown to possess receptors for calcitonin and were able to excavate bone in vitro[13].

A study by Willing[14] et al revealed that the stromal cells secrete a variety of cytokines and differentiation factors, including Monocyte chemoattractant protein-1 (MCP1), Osteoclast differentiation factor (ODF), and Macrophage-colony stimulating factor (M-CSF). These molecules are monocyte chemoattractants and are essential for osteoclast differentiation, suggesting that the stromal cell stimulates blood monocyte immigration into tumour[15]. In the most recent study by Shrestha et al, the osteoclastic giant cells show positivity to cathepsin K, alkaline phosphatase, RANKL, osteoprotegerin & Cluster of Differentiation 68 (CD68)[16].

Peripheral giant cell granuloma has many differential diagnosis such as giant cell tumour, nonossifying fibroma which differs from PGCG lesions in that it lacks the purple or blue discolouration and also x-ray shows flecks of calcification; pyogenic granuloma in which displacement of teeth and resorption of alveolar bone are not observed which distinguishes it from PGCG lesions; CGCG which is an expansive and destructive intraosseous lesion that can perforate the cortex, mimicking PGCG; chondroblastoma which localized in the gum, may provoke irregular bone destruction below the exophytic lesion; odontogenic cyst; parulis, which is frequently associated with a necrotic tooth or with periodontal disorder; haemangioma cavernosum, which is distinguished from PGCG lesions by their pulsatile nature; fissured epulis[17].

In rare instances, PGCG is an oral manifestation of hyperparathyroidism without obvious central bony involvement [18].

## CONCLUSION

Histopathology plays a valuable role in diagnosing this infrequent entity and thus helps in planning an early conservative surgery.

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