

## CASE REPORT



# Peripheral giant cell granuloma: A case report and review

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**Abstract**

Peripheral giant cell granuloma (PGCG) is a reactive entity which is usually benign and manifests exclusively over the alveolar crest or gingiva. The objective of this case report is to illustrate a case of PGCG and to review the possible differential diagnoses based on the history elicited by a patient, clinical features and radiological features. The present article reports a case of PGCG evolving from the mandibular alveolar gingiva in a 22-year-old female patient. The lesion was excised surgically and there was no recurrent swelling evident in the biopsied on follow-up. Clinical resemblance of PGCG to pyogenic granuloma, peripheral ossifying fibroma and many other peripheral lesions seen in the oral cavity, necessitates radiologic and histopathologic examinations to aid in the early and accurate diagnosis.

**Keywords:** Cupping resorption, peripheral giant cell granuloma, reactive giant cell lesions**Introduction**

Peripheral giant cell lesions (PGCL) are benign reactive exophytic lesions located in the gingiva/alveolar crest. Etiological factors include local factors such as bacterial plaque and calculus, long standing infections, trauma related to exodontia, chronic irritation secondary to poorly finished fillings or poorly fitted dental prostheses, and supernumerary teeth and abnormal occlusal forces.<sup>[1,2]</sup>

The peripheral giant cell granuloma (PGCG), also known as giant cell epulis, PGCL or giant cell hyperplasia, is the most common giant cell lesion in the oral cavity with the incidence rate varying from 5.1% to 43.6%. Since its reparative effect has not been proved till date; the osteoclast activity appears to be doubtful.<sup>[1-3]</sup>

The objective of this case report is to illustrate a case of PGCG and to review the possible differential diagnoses based on the history elicited by the patient, clinical features and radiological features.

**Case Report**

A female patient, aged 22 years, had reported to the Department of Oral Medicine and Radiology of Sri Rajiv Gandhi College of Dental Sciences and Hospital, Bengaluru with the chief complaint of a big swelling on the right side of her mouth below the tongue

since 7 months. The swelling was initially small in size and then gradually increased up to the present size. The patient gave a history of mild localized intermittent pain in relation to the same region while having meals and also slight bleeding on brushing teeth. However, the patient gave no history of traumatic accident and constitutional symptoms like fever or loss of appetite or loss of weight. The patient was healthy systemically.

Extraorally, there was no abnormality detected [Figure 1]. Intraorally, a solitary ovoid swelling was present on the right side of the floor of the mouth in relation to lingual aspects of 43-46 region; extending buccally in relation to 44, 45 region and medially up to the lingual frenum [Figure 2]. The size of the swelling was approximately 3.5 cm × 4 cm, slightly elevating the right lateral border of the tongue. The swelling was covered by normal mucosa with mild focal hyperpigmented areas and had a pedunculated base. On palpation, the swelling was soft to firm in consistency, slightly tender, and blanched on pressure.

Hard tissue examination revealed Grade I mobile 44 and Grade II mobile 45 with erythematous interdental papilla and marginal gingiva in relation to the same teeth. There was generalized bleeding on probing with minimal local factors.

Subsequently, the patient was subjected to orthopantomographic examination which revealed a well-defined inverted drop shaped radiolucency seen between

the roots of 44 and 45; a part of the radiolucency which was on the mesial aspect of 45 had a sclerotic margin [Figure 3]. Periodontal ligament space (PDL) was also widened in relation to 45. Based on the history elicited by the patient, the clinical and radiographic findings, a provisional diagnosis of PGCG was given. A differential diagnosis of pyogenic granuloma, peripheral ossifying fibroma and hemangioma were considered.

An excisional biopsy of the lesion was performed [Figure 4]. A blunt dissection was performed to remove the lesion in one piece and the gross specimen was sent for histopathological examination to the Department of Oral and Maxillofacial Pathology and Microbiology [Figure 5]. A primary closure was done by suturing the biopsied tissue ends with a 3-0 silk suture material, the latter being removed after 1 week. The patient was maintained on a regular follow-up for 5 months with no evidence of recurrence of the lesion.

Histopathology of the specimen revealed parakeratinized stratified squamous epithelium with pseudoepitheliomatous hyperplasia. Subepithelial connective tissue showed a number of young proliferating fibroblasts, multinucleated giant cells and loose haphazardly arranged collagen fibers with some myxoid change.

## Discussion

PGCG is a localized Tumor-like hyperplastic gingival enlargement which usually evolves from the interdental tissues (which may include the periosteum or periodontal membrane) as a consequence of chronic irritation from local factors viz. subgingival plaque and calculus or trauma.

Chronic local irritation of the gingiva is responsible for the occurrence of most of the reactive lesions, one of which is PGCG.



**Figure 1:** Extra oral pictures showing facial profile (frontal and lateral)



**Figure 2:** Intraoral picture showing well defined swelling in the right side of the floor of the mouth

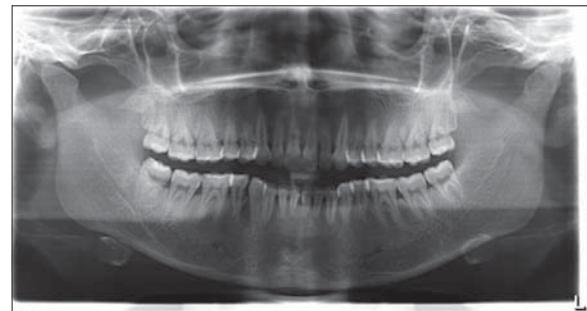
It is believed that PGCG originates either from the periodontal membrane surrounding the tooth or from the periosteum of the bone. It is postulated that PGCG is an exaggerated response of periosteum to the irritation factors than that associated with the formation of pyogenic granuloma (which also has a similar manifestation as that of PGCG) and this is because the periodontium responds to the similar irritants in a different way.<sup>[4]</sup>

Although these lesions occur over a varied age group; the peak incidence observed in males is the second decade in contrast to the fifth decade for females. Moreover, PGCG lesions are more common in mandible when compared to maxilla (2:1). Lesions are seen to arise from anywhere on the gingiva or alveolar mucosa in either dentate or edentate patients, but most occur anterior to the molar teeth. The interdental papilla is mostly affected in dentate patients.<sup>[5]</sup>

The typical presentation is that of a swelling of varying sizes (may range from small papules to enlarged masses); most of them are less 20 mm in diameter. They may be soft to firm in consistency and may have a pedunculated or sessile base. The color of the overlying mucosa may range from dark red to purple or blue commonly with an ulcerated surface. Pain is not a usual feature, though in some cases pain may be induced by repeated trauma.<sup>[5,6]</sup>

Although the PGCG develops within soft tissue, sometimes superficial erosion of the underlying alveolar bone may be seen, which is termed as “cupping” of the bone [Figure 3]. PGCG has to be distinguished from a giant cell lesions arising centrally which erodes the bone and manifests peripherally.<sup>[7]</sup>

Differential diagnosis of PGCG includes pyogenic granuloma, peripheral ossifying fibroma and hemangioma, central giant



**Figure 3:** Orthopantomograph showing the characteristic ‘cupping’ resorption of bone in relation to 44, 45 region



**Figure 4:** Intra and post-operative pictures



Figure 5: Gross specimen after surgical excision of the lesion

cell granuloma (CGCG) with a peripheral extension. Pyogenic granuloma appears as a soft, friable nodule that bleeds readily with slight provocation. Hemangiomas are pulsatile swellings associated with brisk bleeding, increased warmth of the tissue and blanching on palpation are characteristic of this vascular entity. CGCG is an expansile lesion which occurs within the jaws (central lesion); commonly associated with hyperparathyroidism and the diagnosis is confirmed by radiographic picture which shows radiolucency within the jaw often crossing the midline and an elevated serum alkaline phosphatase levels. In CGCG, incisor-cuspid region of the maxillary arch is commonly involved and the radiographs show radiopaque calcifications at the center of the lesion.<sup>[8]</sup>

Surgery remains the mainstay of treating PGCG wherein resection of the lesion with the elimination of its entire base is performed. To prevent the recurrence after treatment, it is necessary to correct or eradicate the underlying source of irritation.<sup>[9]</sup>

## Conclusion

PGCG is the most common giant cell lesion found in the jaws originating from the connective tissue of the periosteum or

from the PDL in response to local chronic irritation. Timely conservative treatment is possible only with an early and accurate diagnosis of these lesions.

## Clinical significance

This case report shows the clinical presentation of PGCG involving the mandibular alveolar mucosa and gingiva. The case report has substantiated the provisional diagnosis by means of radiologic and histopathologic picture.

Most of the reactive oral lesions including PGCG may rapidly grow to reach a significant size within several months of initial diagnosis. Radiographs are important to show the origination of this particular giant cell lesion from the periphery within the oral mucosa and thus help in its diagnosis. If not managed timely, these soft tissue growths may destroy the oral tissues; causing discomfort and tooth movement by resorbing bone.

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