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Peripheral Giant Cell Granuloma: An Unusual Case Report with Review of Literature

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Case Report

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Abstract: Peripheral giant cell granuloma (PGCG) is a non-neoplastic, tumor-like reactive lesion occurring exclusively on gingiva/alveolar crest. It is also known as giant cell epulis, osteoclastoma, giant cell reparative granuloma or giant cell hyperplasia. Clinically, it appear as pyogenic granuloma, peripheral ossifying fibroma and many other peripheral lesions seen in the oral cavity, thereby histopathology is mandatory for the diagnosis of this lesion. This article reports a peripheral giant cell granuloma arising at mandibular anterior region in a 50 years old male patient. The biopsy specimen revealed features consistent with PGCG.

Keywords: Peripheral ossifying fibroma, Reparative Granuloma, Epulis.

INTRODUCTION

Peripheral giant cell granuloma (PGCG) is a non-malignant, generally asymptomatic hyperplastic lesion of the attached gingiva or alveolar mucosa. This lesion is usually rangeg from 1.0–1.5 cm in diameter and rarely come across a lesion *i.e.* >1.5 cm. It is thought to arise from the gingival connective tissue or the periosteum of the alveolar ridge in response to injury [1].

Peripheral giant cell granuloma about more than 100 years ago, Jaffe through his research affirmed that the giant cell tumors occurring at other areas of the body were poles apart from the giant cells found in the jaws and termed them as giant cell reparative granuloma [2].

Bernier Cahn suggested that these lesions should be called as either a peripheral or central giant cell reparative granuloma [3]. Bhaskar *et al*. in 1959 subdivided giant cell granuloma into central and peripheral types[4]. Giant cell granulomas occurring within the bone are called central giant cell granuloma (CGCG) and those occurring on edentulous alveolar processes or gingiva are called PGCG.

Gottsegen in 1962 stated that PGCG are developed after periodontal surgery while others claimed that they developed in response to local irritating factors like tooth extraction, poor dental restorations ,food impaction, ill-fitting dentures, Plaque and calculus[5,6]. However, one of most common predisposing factors causing PGCG is poor oral hygiene which is commonly found in people belonging to the lower socioeconomic status [7]. Hence, recently, Choi reported the association of peripheral giant cell granuloma with hyperparathyroidism secondary to renal failure [7]. The mandible is affected slightly more often than the maxilla [9]. Lesions are painless, vary in size and in appearance from smooth, regularly outlined masses to irregularly shaped, multilobulated protuberances with surface indentations [10, 11]. Here, we report an unusual case of an asymptomatic hyperplastic lesion of the attached gingiva and alveolar mucosa of 50-year old male patient with 2.5 mm in diameter.

CASE REPORT

A 50-years old male patient reported to the Department of Oral & Maxillofacial surgery, Career postgraduate institute of dental sciences and hospital, Lucknow, UP, India for an overgrowth in mandibular anterior region since 7- months. Initially, the patient was not very concerned about the lesion but its growing size made him seek the treatment. On intraoral examination, the lesion was non-tender on palpation but the patient gave a history of bleeding usually when interfered accidentally with the occlusion while biting. The lesion was reddish, soft and ulcerated covering the 31 and 41 tooth region [Figure 1&2]. The patient's oral hygiene was poor. He was systemically healthy and was

not under any sort of medication. Clinical differential diagnosis included PGCG, pyogenic granuloma and hemangioma. Excisional biopsy for the lesion was planned to rule out the differential diagnosis. Full mouth scaling and root planning was done and patient was recalled after 1 week [Figure 3]. The tissue up to full length was excised from both the buccal and lingual aspect of the involved region with the help of B.P blade no.15 [Figure 4]. Hemostasis was obtained using pressure pack and gel sponge. The area was examined properly for the presence of any other local irritating factors like subgingival plaque and calculus. Thorough scaling and root planning was performed and the area was irrigated with normal saline. The patient was advised for Chlorhexidine mouthwash for 2 weeks and antibiotic and analgesic for 5 days. The biopsy report showed that the lesion was composed of aggregates of multinucleated giant cells in a background of mononuclear stromal cells, extravasated red blood cells and deposits of hemosiderin. The lesion was surrounded by bands of fibrous connective tissue stroma [Figure-5]. Hence, based on clinical & the histopathologic findings, diagnosis of peripheral giant cell granuloma was made. The patient was recalled after 6 months and the surgical area showed uneventful healing [Figure- 6].

Fig-1: Preoperative facial view

Fig-2: Preoperative lingual view

Fig-3: One- week after scaling and root planning

Fig-4: Excised tissue

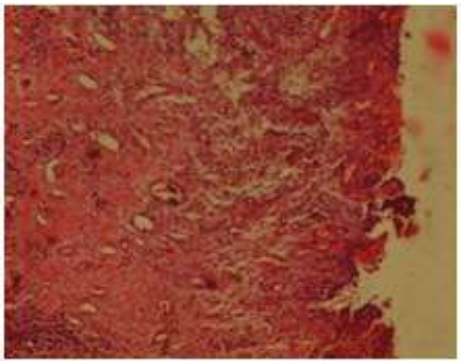

Fig--5: Histopathological view

Fig-6: After 6-months Post operative view

DISCUSSION

Chronic local irritation of the gingiva can lead to the manifestation of spectrum of reactive lesions, one of which is PGCG that is thought to either originate from the periodontal membrane surrounding the tooth or from the periosteum of the bone. Since it is known that periodontium responds to the similar irritants in a different way, it is postulated that PGCG is a more intense response of periosteum to the irrigational factors than that associated with the formation of the more common lesion that is pyogenic granuloma [12, 13]. Sood *et al*. stated that PGCG is presumably a reactive lesion caused in response to local irritation or trauma [14]. Bodner *et al*. suggested that these lesions comprise of an abnormal proliferative response to aggregation [15].

Bodner *et al*. was found in his study, significantly higher percentage of reports of large PGCG's (>2 cm) in people with xerostomia.

Reduced salivary flow rate
↓
Changes in salivary composition
↓
Altered physiologic functions of saliva like lubrication & protection of oral mucosa
↓
Exposes the lesion more aggressively to irritational factors of mastication

[Pathogenesis of xerostomia induced peripheral giant granuloma]

Vittek *et al.* in 1982 found progesterone and estrogen receptors on human gingiva [16]. A study conducted by Matter *et al*. suggested that PGCG was propagated by pregnancy rather than being "pregnancy dependent and concluded that ovarian hormones influence the growth of this lesion, however the effect is secondary [17].

It is manifested clinically as a painless, soft, nodular mass and typically bluish — red hue in contrast to pyogenic granuloma that has a characteristic bright red color. The lesion is usually asymptomatic; however, repeated trauma due to occlusion can lead to its growth with eventual ulceration and secondary infection. A secondarily infected lesion presents a 'yellow zone' caused due to the aggregation of a fibrin clot at the ulcer site [18].

The lesion exhibits the unique ability of rapid growth and can reach a significant size within several months of its primary diagnosis [6]. These lesions have a reported average diameter of less than 20 mm, but the extent of their growth capacity is not well-known, but usually is approximately about 0.5-1.5 cm [19]. Rarely the lesions attain a size of about 2 cm

According to a study conducted by Bodner *et al*. females are more likely to have larger lesions than males and the mean age at which lesions >2 cm occurred was elderly age group that is about 50 years[15].

Microscopic examination is required for definitive diagnosis. The PGCG has numerous foci of multinuclear giant cells and hemosiderin particles in a connective tissue stroma. Areas of chronic inflammation are scattered throughout the lesion, with acute involvement occurring at the surface. The overlying epithelium is usually hyperplastic, with ulceration at the base [20]. In the present case, all these features were present. The treatment of choice is surgical excision with the suppression of the underlying etiologic factors. The periosteum must be included in the excision to prevent recurrences; in fact recurrence is frequent and is observed in 5% and 11% of cases according to Eversole and Mighell respectively [13, 21]. Curettage in addition to the excision to remove the base of the lesion also has been suggested.

PGCG is a lesion of unknown etiology which requires immediate diagnosis and treatment. Microscopic study provides confirm diagnosis and helps in the definite management of the lesion, thus preventing it from damaging the adjacent tissues.

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