



A Large Peripheral Giant Cell Granuloma in the Tuberosity Region of Maxilla

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Abstract

The peripheral giant cell granuloma (PGCG) also known as peripheral giant cell reparative granuloma (PGCRG) is a benign inflammatory lesion of the oral cavity, originating from periodontal ligament and periosteum. Its exact etiology is unknown; the most common factors cited are trauma and local irritation. We report a case of 35 year-old female patient with a poor oral hygiene, presenting with a swelling in the tuberosity region of maxilla. The size of the swelling was approximately 30 x 18 mm. An excisional biopsy was done under GA. Histopathological examination of the specimen confirmed the diagnosis of peripheral giant cell reparative granuloma. Post-operative recovery was uneventful. This article presents the diagnosis and treatment of this massive PGCG arising from this uncommon site.

Keywords: Peripheral giant cell granuloma, trauma, local irritation, exophytic growth, ovarian hormone excision, recurrence.

Introduction

The PGCG is a reactive localized hyperplastic lesion, also referred in literature to as giant-cell reparative granuloma, osteoclastoma, giant-cell epulis or giant-cell hyperplasia, the most documented terminology is PGCG^[1]. It is a benign inflammatory lesion of the oral cavity, originating solely from periodontal ligament and periosteum of the gingiva. They comprise approximately 9% of all localized reactive hyperplastic lesions (LRHL) of gingiva namely focal fibrous hyperplasia (FFH), pyogenic granuloma (PG), and peripheral ossifying fibroma (POF)^[2]. It is usually asymptomatic unless

repeated trauma results in an infection. The lesion varies from firm to soft nodular exophytic mass with a peduncle or a sessile base. They appear usually red to reddish-blue in color with a smooth shiny surface or maybe ulcerated secondary to trauma. They display a wide array of sizes, ranging from 0.5- 2 cm. PGCG affects mandible twice more frequently than the maxilla and the most favored site for the lesion is anterior to premolar region^{[3][4]}. It is more commonly seen between the third and fourth decades of life, however it can occur at any age, as early as 04yrs of age has been reported and shows male to female predilection of 1:2. The etiology still

remains unclear, it may be multifactorial. As per study of Bodner et al^[5] the factors responsible for growth of PGCG are compromised systemic health, poor oral hygiene, xerostomia, and ill-fitting dentures. The literature review report various other causes namely plaque, calculus, over contoured gingival restorations, ill fitting prosthesis, tooth extraction, trauma, chronic infections, and food impaction.

Case Report

A 35 year-old female patient reported to our centre with the complaint of swelling in the left upper jaw past 17-18 months. The individual's main concern was increase in size of swelling and difficulty experienced while chewing. History of presenting illness revealed that the swelling was gradual in onset and steadily progressed to reach the current size. There was no history of pain or discharge from the swelling. Past medical and dental history revealed no history of trauma, fever or loss of weight. General physical examination was done to rule out swellings in the other parts of the body. None was found.

On intraoral examination, there was a localized ovoid swelling arising from the left tuberosity region of maxilla, distal to second molar. The swelling was 30 × 18 cm approx in size and the surface of the swelling was smooth and shining red, extending from tuberosity region to the 27, 26, 25, and 24. The swelling was overhanging on to the buccal surface of teeth, creating indentation on it. Fig [1]. On palpation it was firm in consistency and mobile, there was no neurosensory disturbance. The periodontal health status was satisfactory, in spite of the poor oral hygiene.

Further investigations were ordered to confirm the diagnosis, orthopantomogram, intraoral periapical radiographs were normal. Colour Doppler of the cheek with 8-12 MHz linear transducer was done, it revealed a hypoechoic mass measuring 25x15 mm, with an arterial and venous flow, based on the clinical and radiological examination, a

provisional diagnosis of PGCG was considered. Fig [2].

Excisional biopsy was done along with the extraction of the second molar under general anesthesia. Fig [3]. Histopathologic description, section showed abundant multinucleated giant cells along with a rich cellular and vascular stroma alienated by collagenous septa. Individual was regularly followed up at 03months interval for over 02year without any evidence of recurrence.



Figure no.1



Figure no.2



Figure no.3

Discussion

The relative frequency of PGCG as per review of literature varies from 5.1 % to 43.6 % in comparison to other reactive hyperplastic growth.^[6] Bernier Cahn coined the term peripheral giant cell reparative granuloma, currently the term PGCG is unanimously accepted and acknowledged. In 1959, Bhaskar et al. subdivided giant cell granuloma into central and peripheral type. The latter is a benign localized reactive hyperplastic lesion by nature and clinically it mimics other reactive lesions occurring on the gingiva with distinctive histologic framework. It contains multinucleated giant cells embedded in a stromal environment composed of mononucleated stromal cells along with ovoid to spindle-shaped nuclei^[7].

The etiology and its potential capacity to grow remains indecisive, in 1962, Gottsegen put forward the theory that PGCG arose following periodontal surgery while others claimed that they developed in response to local irritating factors. The predisposing factor is poor oral hygiene, and it is most commonly found in people belonging to the lower socioeconomic strata^[8].

PGCG can be seen at any age, however more commonly seen between the third and fourth decades of life. These lesions have an evident female predilection implying a potential hormonal influence, Vittek et al. in 1982 found hormonal receptors for progesterone and estrogen on human gingiva. Matter et al. suggested that the lesion was not purely hormonal dependent; it is conglomerative effect of various causative factors that leads to the hyperplastic growth of gingival^[9].

Tyagi et al. in their studies mentioned, PGCG affects mandible more frequently than the maxilla, in the proportion of 2.4:1. Pindborg stated that the most favored site for the lesion is the premolar and molar area. The size of the lesion reported in the literature ranges from small nodule to large masses ranging from 0.5-2 cm. These lesions are often localized at interdental papillary region and marginal gingiva. However in the present case, this massive lesion had a peduncle and arose from

the tuberosity region of maxilla, which is rare and has not been reported in literature so far.

There are variety of localized hyperplastic growths such as pyogenic granuloma, hemangioma, peripheral ossifying fibroma (POF) and metastatic carcinomas, which arise from gingival tissue and resemble clinically PGCG and also exhibit similar predilection for site and sex. Hence, histopathological examination is mandatory for a definitive diagnosis and optimal treatment.

The treatment of PGCG is excision and elimination of all etiological agents. The modality used for excision ranges from surgical blade, cautery, cryosurgery and lasers. Excision is done up to the level of periosteum and when the periodontal membrane is affected, extraction of the adjacent teeth is done in few cases to prevent recurrence. Extraction of involved teeth remains a controversial issue. Various epidemiological studies report recurrence rate of 5.0-70.6%.^[10] Giansanti and Waldron report a recurrence rate of 5%, whereas a study by Eversole and Rovin reveal a recurrence of 11%. Recurrences are thought to be related to failure to involve the native tissue in the excised specimen.

Conclusion

Peripheral giant cell reparative granulomas are benign reactive lesions; but due to their clinical resemblance to other reactive hyperplastic lesions it poses a diagnostic dilemma to the surgeon. Thorough clinical examination and histopathological investigation is crucial to differentiate it from other analogous lesions. Although there is a tendency of the lesion to recur, adequate excision of the lesion and removal of causative factors prevents the recurrence. This case report points out the rarity in location and size.

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