

PERIPHERAL GIANT CELL GRANULOMA – CASE REPORT

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Abstract

Background: Peripheral giant cell granuloma (PGCG) has been reported to be the most prevalent oral giant cell lesion. It has been classified as a benign inflammatory hyperplastic lesion found in the gingiva or the alveolar ridge and most probably is not a true neoplasm; rather, it is believed to have a reactive nature and induced by local irritants or trauma. However, its etiologic factor has not been elucidated yet.

Case report: A case of a peripheral giant cell granuloma in a 10-year-old boy. Excisional biopsy was carried out after administering local anesthesia and the tissue was sent for histopathological analysis, which yielded a diagnosis of PGCG it was supported by clinical and radiologic examinations. The lesion was completely removed up to the periosteum level. There has been no residual or recurrent lesion, swelling or bony defects in the area involved after biopsy after a 1-year follow-up.

Conclusion: Early and definite diagnosis of peripheral giant cell granuloma based on clinical, radiographic, and histopathological examination makes conservative management possible with minimal risk to the adjacent hard tissues. Surgical excision is a successful treatment of choice and minimizes recurrence.

Keywords: Peripheral giant cell granuloma; Giant cells; Giant cell epulis; Treatment.

Introduction

Solitary gingival enlargements are rather common in children and are induced by reactive responses to local irritants.¹

Peripheral giant cell granuloma (PGCG) is a rare exophytic lesion of the oral cavity, also referred to as giant cell epulis, osteoclastoma, giant cell reparative granuloma, or giant cell hyperplasia.² It chiefly originates from the gingival connective tissue, periodontal membrane or periosteum of the alveolar ridge, or as a reactive lesion in the face of local irritation.³ Initially, similar central lesions found in jaws were referred to as reparative lesions. Due to the rare nature of reparative responses, currently researchers prefer the term "peripheral giant cell granuloma".⁴

The lesion is not probably a true neoplasm; rather, it might be reactive in nature and occurs on the gingiva and the alveolar ridge usually in response to local irritants such as tooth extraction procedures, poor tooth restorations, impaction of food, ill-fitting dentures, and accumulation of plaque and calculus.⁵ Low socioeconomic status and poor oral hygiene, also, have been speculated to be factors that contribute to the development of peripheral giant cell granuloma.⁶ Local irritants or trauma have been reported as etiologic factors but the real cause has not been elucidated yet.

Clinically, PGCG occurs only on the gingiva or the edentulous alveolar ridge as a red or reddish,⁷ firm, soft, bright nodule or as a sessile or pedunculated mass,⁸ with the incisor and canine regions being the most common locations with a slight preference for the mandible.¹

Histological features of PGCG include a non-capsulated mass of tissue that contains many young connective tissue cells and multinucleated giant cells. Hemorrhage, hemosiderin, inflammatory cells and newly formed bone or calcified material might also be found throughout the cellular connective tissue. The PGCG exhibits a very close

microscopic resemblance to the central giant cell granuloma, with some pathologists believing that it might be a soft tissue variant of the central lesion.⁹

Radiographic features are predominantly nonspecific. However, in some cases radiographic examinations reveal superficial destruction of the alveolar crest of the interdental bone in cases in which the granuloma is associated with the teeth. In cases in which the granuloma is associated with the edentulous ridge, it usually results in superficial erosion of bone with peripheral "cuffing" of the underlying bone.¹⁰

Management consists of surgical excision and elimination of all the local contributing factors. The recurrence rate has been reported in the order of 10%.¹¹

Case Report

A 10-year-old male patient presented to the Pediatric Department of Dental School, with a chief complaint of gingival enlargement. The patient had a purple painless swelling between his mandibular permanent central incisors that bled during brushing. [Figure 1]



Figure 1: Intraoral view of lesion

The patient was systemically healthy and was not taking any medications. Intraoral examination revealed a 7-mm circumscribed smooth-edged tumor-like lesion on the anterior mandibular gingiva between the mandibular central incisors. The lesion was dark reddish to purple. The base appeared to extend subgingivally and it was not

pedunculated. It did not hurt on pressure. Bleeding was observed around the gingival margin upon probing. It did not blanch when palpated. Radiological examination revealed no bone involvement. [Figures 2 and 3]



Figure 2: Periapical radiograph



Figure 3: Panoramic radiograph of the patient

An excisional biopsy was carried out. The biopsy specimen was immersed in 10% formalin and sent to the Department of Pathology. The microscopic features of the lesion were consistent with PGCG. Histological examination revealed a reddish-purple exophytic lesion with an ulcerated overlying epithelium with multinucleated giant cells in a background of mononuclear stromal cells and extravasated red blood cells. [Figure 4] Postoperative healing was uneventful. [Figure 5] No recurrence has been detected 1 year after surgery. [Figure 6]

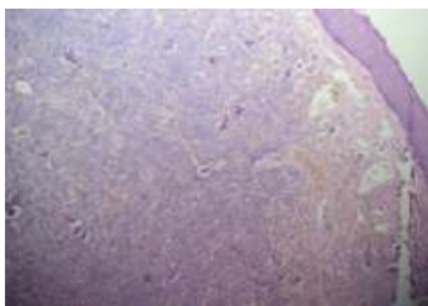


Figure 4: Histopathologic view of the lesion under 10x



Figure 5: Postoperative photograph after 1 month



Figure 6: Postoperative photograph after 1 year

Discussion

Giant cell granulomas (peripheral and central) are benign, non-odontogenic, rather rare tumors of the oral cavity, originating from the gingiva or the mucoperiosteum of the alveolar bone.¹¹ The lesion is more common in the mandible than the maxilla. The PGCG occurs throughout life, with a peak of incidence during the mixed dentition period,¹² and in the 30–40-year age group. It is a little more common in females (60%).³

Several hypotheses have been proposed to explain the nature of giant cells. The presence of multinucleated giant cells has been attributed to some factors, from a phagocytic response to hemorrhage in a preexisting granulation tissue;¹³ in addition, the lesion might originate from the endothelial cells of the capillaries, periosteum, periodontal ligament, or connective tissue of the gingiva.^{1,3,14} Another hypothesis is that they were osteoclasts remaining after physiological resorption of the teeth.^{9,15}

Clinically, this gingival lesion emerges as a red, purple or blue rubbery, smooth-surfaced nodule or mass. The most common features are surface ulceration, hemorrhage and displacement of the teeth, with its size varying from a small papule to a massive enlargement; however, most lesions are <2 cm in diameter. Pain is not common unless the lesion is traumatized repeatedly.¹

Radiographic examination of all the gingival lesions, including PGCG, is necessary to determine the extent and origin of the lesion.¹ Although PGCG develops within the soft tissue “cupping”, there might be superficial resorption of the underlying alveolar bone crest. In some cases, it might be difficult to differentiate a peripheral lesion from a central giant cell granuloma penetrating into the gingival soft tissue through the cortical plate.⁹ Periapical radiographs often reveal superficial resorption or cupping of the alveolar bone.¹⁶

In rare cases, PGCG is an oral manifestation of hyperparathyroidism with no obvious central bony involvement. Although this is unusual, hyperparathyroidism should be considered when multiple lesions are detected or when there are frequent recurrences despite proper treatment.¹⁷

Gingival lesions in children, resembling the PGCG, are the pyogenic granuloma, parulis and peripheral ossifying fibroma. It might be difficult to differentiate pyogenic granuloma from the PGCG by only considering the clinical features. In general, the pyogenic granuloma appears as a

soft, friable nodule that bleeds freely with minor manipulation. Unlike PGCG, there is no displacement of teeth and resorption of the alveolar bone. Another erythematous nodular lesion of the gingiva is the parulis, which is due to an entrapped foreign body, a gingival pocket and/or a nonvital tooth. Pain and purulent exudation in association with fluctuations in the lesion size help make a distinction between this inflammatory lesion and PGCG. The peripheral ossifying fibroma is a reactive gingival growth with clinical features similar to those of PGCG. Despite the fact that this reactive lesion is often ulcerated and inflamed, it lacks the purple or blue discoloration commonly associated with PGCG. Identification of small calcifications within the tumescence on a radiograph helps diagnose the peripheral ossifying fibroma. The final consideration in relation to the red or blue discoloration of the soft tissue nodule is a hemangioma. Although the majority of hemangiomas are congenital, some vascular malformations enlarge during childhood. Brisk bleeding, an increase in tissue temperature and blanching upon palpation are characteristic features of this vascular lesion.¹

Management of PGCG consists of elimination of the entire base of the growth in association with elimination of any local irritants,¹⁷ as was followed in our case.

Conclusion

Early and definite diagnosis of peripheral giant cell granuloma based on clinical, radiographic, and histopathological examination makes conservative management possible with minimal risk to the adjacent hard tissues. Surgical excision is a successful treatment of choice and minimizes recurrence.

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