

**Peripheral Giant Cell Granuloma: Case Report and Review****Richa Khurana, Sangita Agarwal<sup>1</sup>, Richa Jain<sup>2</sup>, Mayank Vermani<sup>3</sup>, Shweta Aggarwal<sup>4</sup>, Arun Garg<sup>4</sup>**

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**ABSTRACT:**

Peripheral giant cell granuloma or “giant cell epulis” is a benign hyperplastic lesion caused by local trauma or chronic irritation. It arises from the periodontal ligament or mucoperiosteum. This article reports the diagnosis and successful treatment of peripheral giant cell granuloma in a 16 year old male patient.

**Keywords:** Giant cell granuloma, Hyperplasia, Neoplasm

**INTRODUCTION**

An oral inflammatory hyperplastic lesion is a common entity and may be defined as an increase in the size of an organ or tissue due to an increase in the number of its constituent cells as a local response of tissue to injury.<sup>1</sup> Traumatic irritants include calculi, overhanging restoration, foreign bodies, caries, chronic biting and sharp bony spicules and appliances with overextended borders.<sup>2</sup>

The peripheral giant cell granuloma (PGCG) is an inflammatory hyperplastic type of lesion that probably involves a reactive response in the periosteum, periodontal ligament and gingiva.<sup>1</sup> It is set apart from other inflammatory hyperplastic lesions by the presence of multinucleated giant cells whose origin is yet undetermined.

The etiology of PGCG has not been defined precisely. Giant cell lesions of the gingiva in the past have been referred to as “peripheral reparative giant cell tumors”. Lesions are not neoplasm but tissue response to local injury. Therefore now referred to as “peripheral giant cell granulomas”.

In 1962, **Gottsegen**<sup>3</sup> suggested the development of peripheral giant cell granuloma often after periodontal surgery.

Recently, **Choi et al**<sup>4</sup> reported the association of peripheral giant cell granuloma with hyperparathyroidism secondary to renal failure. The lesions appear centrally in bone typically associated with hyperparathyroidism referred to as brown tumors.<sup>5</sup> It has also been reported with dental implants.<sup>6</sup>

The peripheral giant cell granuloma occurs exclusively on the gingiva or edentulous alveolar ridge, presenting as pink to deep red or purplish blue mass. The PGCG bears a close microscopic resemblance to the central giant cell granuloma. Thus, prefix peripheral is needed to differentiate them and it may represent a soft tissue counterpart of the central bony lesion<sup>7</sup> as believed by many pathologists.

**CASE REPORT**

A 16 years old male patient reported to department of periodontology with chief complaint of swollen gums in right lower back tooth region for last one month. History revealed that swelling started as a pea nut size which increased over a period of 1 month to present size. He went to local doctor where he was prescribed some medication for three days

but he did not get relief. Swelling is associated with bleeding while brushing. Medical history and past dental history was noncontributory. There was no history of local trauma.

On intraoral examination 2x2 cm<sup>2</sup> gingival overgrowth present buccally in relation to right mandibular 2<sup>nd</sup> premolar and 1<sup>st</sup> molar, attached to interdental gingiva, red in color, oval in shape, smooth and shiny surface with well defined margins and soft to firm in consistency, non tender with no localized lymphadenopathy.(Figure 1) There is no significant calculus deposition on associated teeth and oral hygiene status was fair.



Figure 1: Preoperative view

Intraoral periapical radiograph revealed crestal bone loss in the adjacent teeth. A complete blood picture was done which came under normal range.

Surgical excision was planned under local anesthesia (LA). A mucoperiosteal flap was raised with crevicular incision and lesion is completely excised with entire periosteal base. After complete removal of local irritants, sutures were placed.(Figure 2) The specimen(Figure 3) was stored in 10% formalin and sent for histopathologic examination. Sutures were removed after 1 week. There was no evidence of recurrence till 9 months of follow-up.(Figure 4)



Figure 2: Immediate post operative view



Figure 3: Excised tissue



Figure 4: Postoperative view after 9 months

## HISTOPATHOLOGY

Hemotoxylin & Eosin stained section showed a dense fibrocellular stroma with plump proliferating fibroblasts. There were many giant cells in the connective tissue stroma along with many dilated blood capillaries with few having engorged blood elements. Collagen was arranged haphazardly throughout. Chronic inflammatory cells were also seen. Overall impression was suggestive of Peripheral giant cell granuloma.(Figure 5)

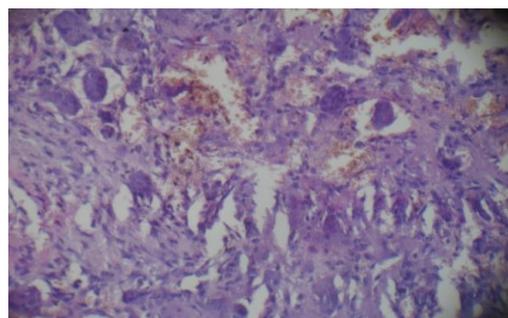


Figure 5: Histopathological view x 40 magnification

## DISCUSSION

The Peripheral giant cell granuloma occurs in any age, with peaks in incidence during the mixed dentition period<sup>8</sup> and in the age group of 30–40 years. It is more common among females (60%). The mandible is more common affected site.<sup>7,9</sup> The preferential location of the lesion according to Pindborg is the premolar and molar zone<sup>10</sup>, though Shafer<sup>11</sup> and Giansanti<sup>9</sup> suggest that it usually occurs in the incisor and canine region. Lesions can become large in size attain even 2cm. The clinical manifestation is similar to that of pyogenic granuloma, although the PGCG is frequently more bluish-purple compared with the bright red color of a typical pyogenic granuloma. There are no pathognomonic clinical features whereby PGCG lesions can be

differentiated from other forms of gingival enlargements.

Radiographically, PGCG associated with the teeth sometimes reveals superficial destruction of the alveolar margin or crest of the interdental bone and with the edentulous ridge, it characteristically exhibits superficial erosion of the bone with peripheral "cuffing" of the underlying bone.<sup>11</sup>

Various clinical terms have been used on the basis of the anatomic site and traumatic agent involved or on the basis of an ulcerated or necrotic surface.<sup>2</sup> The differential diagnosis of peripheral giant cell granuloma includes pyogenic granuloma, peripheral ossifying fibroma, inflammatory fibrous hyperplasia, peripheral odontogenic fibroma and papilloma, all present with comparable clinical and radiographic findings. But, definitive diagnosis can only be established through histopathological examination.

The presence of giant cells has been ascribed to a number of causes. There may be a phagocytic response to hemorrhage in a preexisting granulation tissue<sup>12</sup> or arise from the endothelial cells of the capillaries, periosteum, periodontal ligament or connective tissue of the gingiva.<sup>7,13</sup>

Peripheral giant cell granuloma lesion treatment aims at elimination of the entire base of the growth with a border of normal tissue by eliminating all chronic local irritants. Close follow up is indicated because of recurrence rate of approximately 10%.<sup>7</sup> Cold scalpel, electrocautery, lasers, etc are the different treatment approaches used to excise the lesion. But the literature shows no difference between cold scalpel and CO<sub>2</sub> laser resection of peripheral giant cell granuloma.

Progressive growth in some cases produces a significant bulk that compromises normal oral function. Lesion of significant size can lead to bone resorption and pathological migration of involved adjacent tooth. Thus, the early and precise diagnosis of PGCG, allows conservative management with a less risk for bone loss on adjacent teeth.

## REFERENCES

1. Priddy RW. Inflammatory hyperplasias of the oral mucosa. *J Can Dent Assoc* 1992; 58:311-21.
2. Wood NK, Goaz PW. Differential diagnosis of oral and maxillofacial lesions. Peripheral oral esophytic lesions 5th ed. St Louis, Mosby; 2006. pp 136 ,141.
3. Gottsegen R. Peripheral giant cell granuloma following periodontal surgery. *J Periodontol* 1962;33:190-4.
4. Choi C, Terzian E, Schneider R, Trocheset DA. Peripheral giant cell granuloma: Associated with hyperparathyroidism secondary to end-stage renal disease: A case report. *J Oral Maxillofac Surg* 2008;66:1063-6.
5. Chaparro-Avendano AV, Berini-Aytes L, Gay-Escoda C. Peripheral giant cell granuloma. A report of five cases and review of the literature. *Med Oral Patol Oral Cir Bucal* 2005;10:53-7.
6. Hirshberg A, Kozlovsky A, Schwartz-Arad D, Mardinger O, Kaplan I. Peripheral giant cell granuloma associated with dental implants. *J Periodontol* 2003;74:1381-4.
7. Katsikeris N, Kakarantza-Angelopoulou E, Angelopoulo AP. Peripheral giant cell granuloma. Clinicopathologic study of 224 new cases and review of 956 reported cases. *Int J Oral Maxillofac Surg* 1988;17:94-9.
8. Chadwick BL, Crawford PJ, Aldred MJ. Massive Giant Cell epulis in a child with familial cyclic neutropenia. *Br Dent J* 1989;167:279-81.
9. Giansanti JS, Waldron CA. PGCG. review of 720 cases. *J Oral Surg* 1969;27:787-91.
10. Pindborg JJ. Atlas deenfermedades de la Mucosa Oral. 5<sup>th</sup> ed. Barcelona; Ediciones Cientificas Tecnicas;1994. pp186.
10. Shafer WG, Hine MK, Levy BM. A Textbook of Oral Pathology. 4<sup>th</sup> ed. Philadelphia; W B Saunders Company; 1983. pp144-6.
11. Bernier JL, Cahn LR. Peripheral giant cell reparative granuloma. *J Am Dent Assoc* 1954; 49:141-8.

12. Sapp JP. Ultrastructure and histogenesis of peripheral giant cell granuloma. *Cancer* 1972; 30:1119-29.

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