Unusual Presentation Of Peripheral Giant Cell Granuloma A Case Report

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Abstract

Peripheral giant cell granuloma (PGCG) is a rare, benign lesion of the oral cavity. Typically, PGCG presents as a painless mass on the gingiva, often associated with local trauma or inflammation. This article reports a unique case of PGCG in a 56-year-old female patient, characterized by an asymptomatic, massive palatal lesion crossing the midline and occupying a significant portion of the palate. The case is notable for its unusual size and location, as well as the patient's lack of symptoms despite the lesion's extensive growth. This article aims to highlight the importance of considering PGCG in the differential diagnosis of large, asymptomatic gingival lesions.

Introduction:

Peripheral Giant Cell Granuloma (PGCG) or 'giant cell epulis' is a benign reactive, and relatively rare lesion affecting the oral cavity. The etiology of PGCG remains unclear, although it is believed to be related to local irritation, trauma, or inflammation.[1] PGCG typically presents as a painless, slow-growing, and exophytic mass, often affecting the gingiva, alveolar mucosa, or edentulous areas.[2] It is more common in females and typically affects individuals in the third to fifth decades of life.[3]

Since radiographic characteristics are typically nonspecific, microscopic investigation is required to confirm the presence of PGCG. Histopathologically, PGCG is characterized by the presence of multinucleated giant cells, which are thought to be derived from the mononuclear phagocytic system. The giant cells are often scattered throughout the lesion, surrounded by a fibroblastic stroma and a rich vascular network.[4]

Immunohistochemical analysis has also been employed to investigate the expression of various markers in PGCG, including CD68, CD163, and Ki-67.[5]
Recent studies have highlighted the association between PGCG and hyperparathyroidism, suggesting that PGCG may be a sign of underlying hyperparathyroidism in some cases.[6]
Early diagnosis and treatment are essential to prevent bone destruction, tooth displacement, and aesthetic concerns. Surgical excision is the treatment of choice for PGCG, and recurrence rates are relatively low. However, PGCG can recur in some cases, highlighting the importance of long-term follow-up and monitoring.

Case report:

A 56-year-old female patient reported to the Department of Oral Medicine and Radiology with a chief complaint of pain in the upper right back tooth region for the past 1 week. Past dental history revealed that she had a growth on the palate, which was initially smaller in size and gradually attained to present size during the last 4 months. The patient did not experience any discomfort or bleeding from the same. In the past, there was no history of trauma, fever, loss of appetite, or weight reduction of the patient. Overall, the patient remained healthy. On general physical examination patient was moderately built, nourished with the vital signs in the normal range. There were no clinical signs of anaemia, Jaundice, cyanosis etc were detected in the patient. The examination of specific lesion revealed a solitary space occupying growth present in the palatal vault measuring approximately 5x8cm extending mediolaterally from the marginal gingiva irt 16,17,18 to the opposite quadrant crossing the midline. The surface of the swelling was ulcerated in relation to 11,12,13,14. The swelling was pale pink in colour, pedunculated, firm in consistency, and the overlying mucus membrane was intact (Figure I). CBCT revealed bone resorption irt 16,17 with loss of buccal and lingual cortical plates, discontinuous maxillary sinus floor, and posterolateral border with mucosal thickening of right maxillary sinus.

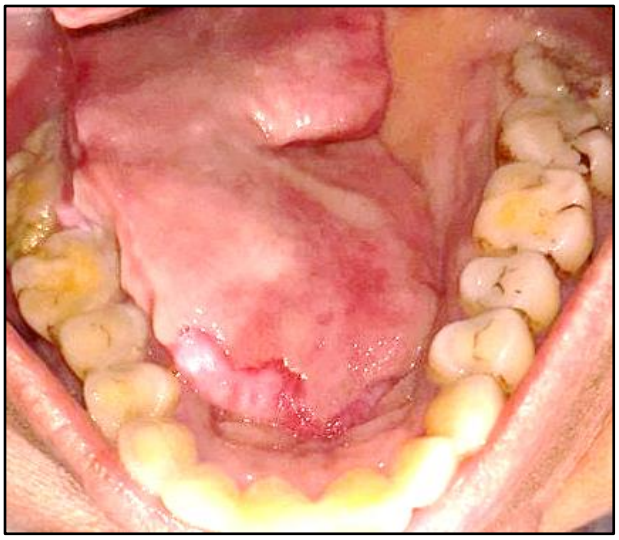

Figure I: The growth involving the palate extending from the marginal gingiva irt 16,17,18 crossing the midline

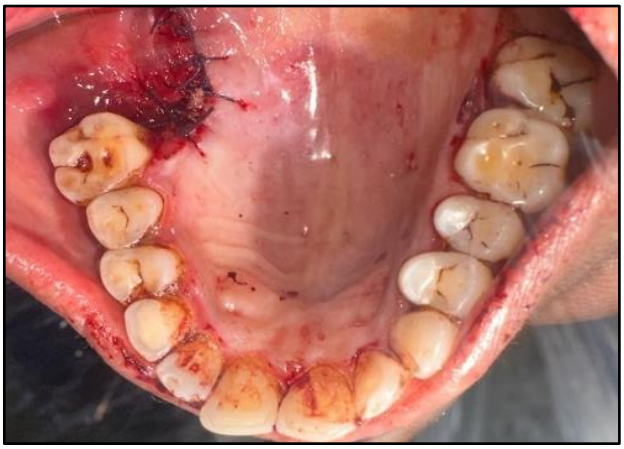

Figure II: Surgical excision followed by suture placement

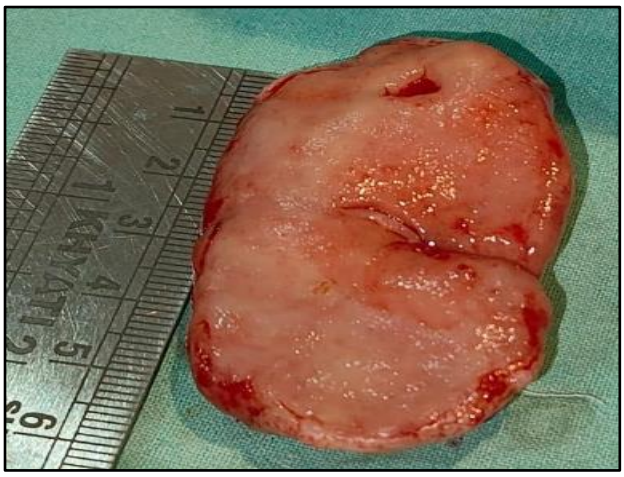

Figure III: Excised specimen

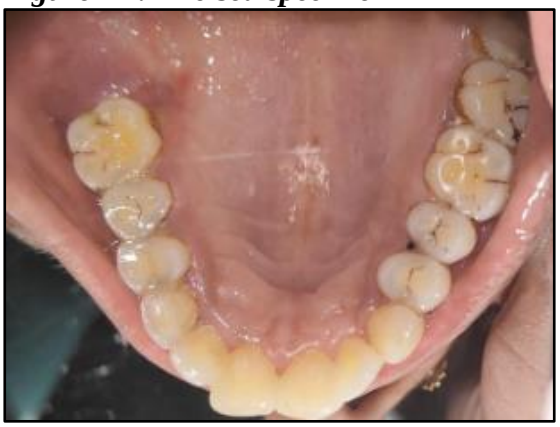

Figure IV: Follow-up after 1 month

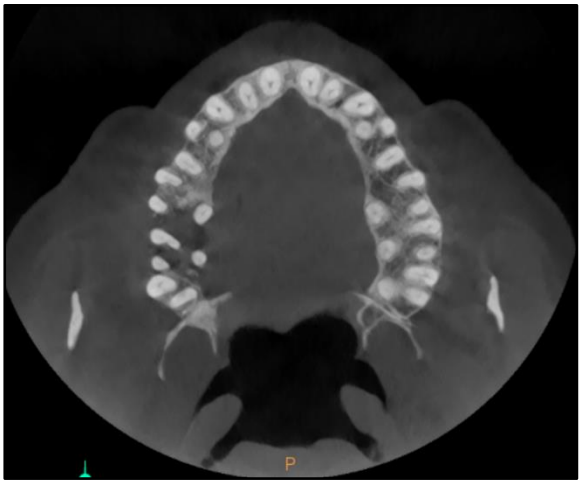

Figure V: Axial CBCT reveals loss of buccal and palatal cortical plates

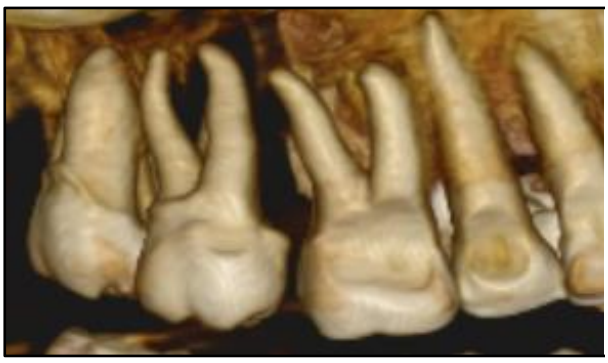

Figure VI: 3D CBCT reveals bone resorption irt 16,17

Following the Haematological evaluation and Radiological investigation; surgical excision of the fibrous growth was done under local anaesthesia. The excised sample was sent for the histopathologic examination (Figure III).

Spindle cells/inflammatory cells were seen, also diffusely arranged predominant multinucleated giant cells of varying sizes showing multiple nuclei resembling foreign body giant cells were seen.

Discussion:

The giant cell granulomas can be central or peripheral. Peripheral giant cell granuloma is an uncommon oral exophytic lesion. Peripheral giant cell granuloma is also known as giant cell epulis, osteoclastoma, giant cell reparative granuloma, or giant cell hyperplasia.[7] The cause and nature of PGCG is yet unknown.[8] Peripheral giant cell granuloma is a benign, reactive lesion that is hypothesized to develop in response to local irritation or damage.[9] The PGCG occurs throughout life, with peaks in incidence during first two decades of life and in the age group of 30–40 years.[10,11] It is more common among females. Peripheral giant cell granuloma presents as a smooth-surfaced or ulcerated, pedunculated or sessile, red or reddish-purple mass on the gingiva.

The lesion may be bluish because of Hemosiderin pigment or unoxygenated erythrocytes near the periphery.[12] The mandible is affected slightly more often than the maxilla and in mandible the anterior region is more commonly affected. A radiograph may occasionally show superficial resorption or “cupping” of the underlying alveolar bone caused by the lesion. The radiograph also helps to determine the source of the lesion, as some central giant cell granulomas can erode through the cortical bone and manifest as gingival masses.

Differential diagnosis of PGCG is important because several other lesions like Central Giant Cell Granuloma (CGCG), Pyogenic granuloma, Haemangioma, and Peripheral ossifying fibroma (POF) seem similar to PGCG and have different treatment and prognosis options. [13] Among these lesions on comparing with PGCG,

Peripheral Ossifying Fibroma shows variable degrees of mineralisation but lacks multinucleated giant cells. Pyogenic Granuloma is characterised by vascular proliferation without multinucleated giant cells. Fibrous Epulis, presents with dense fibrous connective tissue but lacks multinucleated giant cells. Peripheral odontogenic fibromatosis is composed of odontogenic epithelium and fibrous connective tissue without giant cells. Inflammatory fibrous hyperplasia, which is linked to chronic irritation, exhibits fibroblastic proliferation and a chronic inflammatory infiltrate.[14]

Histologically, PGCG consists of multinucleated giant cell nodules on a backdrop of plump ovoid and spindle-shaped mesenchymal cells, as well as extravasated RBCs. The large cells may have either a few nuclei or as many as several hundred. Some have enormous vesicular nuclei, whereas others have small pyknotic nuclei. The origins of the gigantic cell are unknown.

Ultrastructural and immunological studies[15,16] revealed that the large cells are derived from osteoclasts.[17] PGCG is treated with surgical resection that removes the entire base of the lesion and suppresses the underlying cause. If the excision is only superficial, the growth can recur. Most lesions respond well to complete surgical resection, with exposure all of the bone walls. When the periodontal membrane is compromised, removal of the neighbouring teeth may be required to ensure complete resection, although this is initially contraindicated.[18,19]

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