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Peripheral Giant Cell Granuloma – Report of Two Cases

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KEYWORDS

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ABSTRACT:

Peripheral giant cell granuloma (PGCG) also called giant cell epulis, giant cell hyperplasia is benign reactive oral lesion that can grow rapidly most often caused by local irritation or trauma. It represents only 7% of all benign tumours of jaw. It commonly presents as purplish red or bluish red nodule histologically consisting of abundant multinucleated giant cells. Now a days it is also seen at locations near the implants with higher recurrence rate. Its cause is unknown but sometimes trauma or irritation is one of its causes. This article focuses on it.

INTRODUCTION

Jaffe originally reported giant cell lesions in the jaws as "giant cell reparative granuloma" in 1953, however Bernier and Cahn named the lesions as "peripheral or central giant cell reparative granuloma (PGCG)" in 1954.[1,2] It is also known as a giant-cell epulis, osteoclastoma or giant cell hyperplasia.[3] Its exact cause is unknown, however there are a few locally irritating variables that might cause discomfort, such as tooth trauma, ill-fitting prosthesis, and poor restorations.[4,5]

This article presents two instances of totally treated patients with PGCG, one (case 1) focusing on dental trauma as the etiological cause for PGCG, and other (case 2) on idiopathic etiology.

CASE REPORTS

Case report 1

A 56-year-old male patient reported to department of oral medicine and radiology with a tissue overgrowth in the region of mandibular right posterior alveolar ridge along with mobility of associated tooth since 1 year [Fig.1]. Patient had noticed the growth 1 year ago, which was smaller in size and gradually increased to the present size. Patient gave history of continuous trauma of opposing tooth to the same region [Fig.2].

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Fig 1 Bullbous, exophytic overgrowth seen in the region of 45,46,47

Fig 2 Opposite tooth causing continuous trauma

Intraorally round to oval, bulbous, pinkish, pedunculated growth was present measuring approximately 2.5×2×1.5 cm in size in the 44,45,46 region. Overlying surface was somewhat ulcerated and coated with yellowish slough and indentations, indicating trauma from the opposing teeth. Oral hygiene of the patient was very poor. On palpation, it was soft to firm in consistency. There was no similar swelling present in any other part of body. Patient was systemically healthy. On the basis of history and clinical examination, we diagnosed irritational fibroma as our provisional diagnosis because the opposing tooth was causes continuous trauma. For radiographic investigation, an orthopantomograph (OPG) and an intraoral periapical radiograph were taken. In the area 44, 45, and 46 it revealed a nonhomogeneous shadow with peripheral cupping of the underlying bone [fig.3].

Fig 3 Nonhomogenous shadow with peripheral cupping of bone in the region of 45,46,47

An incisional biopsy was performed due to the size of the lesion. The specimen was sent for histopathological evaluation. Histopathological analysis of the specimen revealed a large number of multinucleated giant cells together with mononuclear plump spindle-shaped cells which were suggestive of peripheral giant cell granuloma .

Surgery was scheduled and the lesion was completely excised from the adjacent tissue and removed in toto under local anesthesia [Fig.4,5]. Also extraction of remaining teeth was done. Four interrupted sutures were placed [Fig.6]. The specimen was sent for further histopathologic examination. Microscopically section showed surface covered with parakeratotic squamous epithelium. Many multinucleated giant cells with different nuclei and sizes and shapes were seen in the connective tissue. The underlying connective tissue was densely fibrocellular, with persistent inflammatory cell infiltration and vascular proliferation, which confirmed our diagnosis as peripheral giant cell granuloma.

Follow up:

After two weeks, the sutures were removed [Fig.7]. The postoperative recovery was uneventful. No complaints or recurrences were reported throughout the two-year follow-up period [Fig.8,9].

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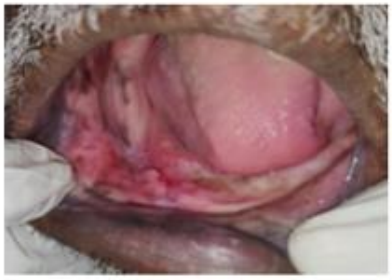

Fig.7 Immediate follow up

Fig.8 Follow up after two years showing healthy gingiva

Fig.9 Follow up OPG showing absence of lesion with missing all teeth.

Case report 2

A 65 year male patient reported to our department for soft mass on mandibular anterior alveolar ridge. The lesion had appeared two months before. Clinical exploration revealed a solitary, oval, well defined, sessile growth seen with respect to 31,32 with smooth surface [Fig.10]. The lesion measured 1×0.5 cm in size. Radiological examination showed peripheral cupping of bone.

The excisional biopsy was performed under local anesthesia and the lesion was completely excised from surrounding mucosa, the specimen was sent for further histopathological analysis [Fig.11] which supported the diagnosis as peripheral giant cell granuloma.

Fig.10 Small tissue mass on residual alveolar ridge

Fig.11 Surgically removed lesion specimen

Fig.12 Microscopic picture

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DISCUSSION

Peripheral giant cell granuloma (PGCG) is extraosseous, exophytic, benign reactive hyperplastic lesion of the gingiva which is relatively uncommon. It represents clinically as bluish red or purplish red with smooth shiny or mamillated surface, sessile or pedunculated, firm to soft nodule with occasionally ulcerated surface.[5,6] Predominantely occurs more in mandible than the maxilla (2.4:1), same as in our case, and is usually seen in 4th to 6th decade with female predilection (65%), but in our case it was seen in the male patient.[3,4] Most commonly seen in the interdental papilla, edentulous alveolar ridge and anterior to molars, same as in our case.[8] Recently, certain articles have revealed that it also occurs in locations near dental implants with higher recurrence rate.[12] Some incidences are recorded in children as well.[7] In our situation, chronic trauma caused by opposing teeth may have been the cause of PGCG; nevertheless, traumatic tooth extractions, poorly completed fillings, unstable dental prosthesis, plaque, calculus, persistent infections, or impacted food might also be etiological factors.[4]

Chronic trauma can produce inflammation, resulting in granulation tissue with endothelial cells, chronic inflammatory cells, and fibroblast proliferation, which manifests as an overgrowth called reactive hyperplasia.[8] Reactive hyperplasia found in oral cavity include PGCG, pyogenic granuloma, peripheral fibroma, peripheral ossifying fibroma.[12] In 1962, Gottsegen also reported PGCG occurrence after periodontal surgery.[1] PGCG usually originates from either the periodontal ligament or mucoperiosteum.[3]

As PGCG is a soft tissue lesion ,there are no specific finding are seen in radiographic investigation, still it is required to distiguish it from intraosseous lesions like CGCG.[1] Sometimes PGCG shows concave or superficial resorption of the bone beneath the lesion which is termed as “leveling effect” or “cupping effect” also widening of the periodontal ligament space along with mobility of associated teeth, like in our case.[1,9] Among the differential diagnoses for PGCG are fibrous hyperplasia, peripheral ossifying fibroma, and pyogenic granuloma.[6]

Histopathological features of PGCG include presence of numerous multi-nucleated giant cells (or sheets) in the background of plump ovoid and spindle shaped mononuclear stromal cells as a distinctive feature. Sometimes scattered mitotic figures were also reported.[1,10,11] Additionally, the connective tissue may show signs of bleeding, hemosiderin, inflammatory cells, and newly produced bone or calcified material.[5]

Treatment includes excision of the lesion and suppression of underlying etiological factors.[4] The high-power diode laser is an excellent soft tissue surgical instrument ideal for cutting and coagulating gingiva and mucosa, with a low recurrence rate and fewer trauma.[4,13]

CONCLUSION

Abnormal occlusal stresses generated by the existence of certain teeth may have caused tissue irritation in areas with remaining alveolar ridges. This could be an irritating element for PGCG growth. Many times, PGCG can be misdiagnosed as an irritational fibroma. Also in most cases, radiographic examinations yield no findings. A histopathological study is required for confirmation of diagnosis. Following confirmation, thorough excision of the lesion is required to limit the recurrence risk. Although there have never been any reports of aggressive tendencies or malignant transformation of these lesions, routine follow-up is still required.

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