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Management of recurrent peripheral giant cell granuloma in a 10year old female patient

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Abstract

Peripheral giant-cell granuloma is an exophytic lesion of the oral cavity, classified as a tumor like lesion, it does not a true neoplasm however it is often associated with a response of local irritation and trauma. It may arise either from, mucoperiosteum, centrally in the bone or peripherally in periodontal ligament. The lesion develops mostly in adults, commonly in the lower jaw, with slight female predilection although it is uncommon in children. This case report presents a case of 10-year-old female patient who reported to our department with the chief complaint of recurrent overgrowth in left upper back region of her mouth since 1 year. A complete excision with diode LASER was done. Patient is under regular follow up & there is no reoccurrence of the lesion for last 8 months.

Keywords: Peripheral Giant Cell Granuloma, Excisional biopsy, Oral lesion, gingival enlargement, Diode LASER, PGCG, Posterior maxilla

Introduction

Peripheral giant-cell granuloma is an exophytic lesion of the oral cavity, also known as giant-cell epulis, osteoclastoma, giant-cell reparative granuloma, or giant-cell hyperplasia. The etiology of giant cell granuloma is unknown till date but local irritation due to trauma, accumulation of dental plaque or calculus for long durations, periodontal diseases, faulty restorations, traumatic extractions or ill-fitting dentures and appliances which continuously irritates the gingiva have been suggested to majorly contribute towards this lesion.

Clinical Features

This lesion sometimes can be found in young children but most patients affected by PGCG fall under fourth to

sixth decades of life. It has a female predilection similar to Central giant cell granuloma. Peripheral giant cell granuloma may vary considerably in clinical appearance but it always occurs on the gingiva or alveolar process, mostly anterior to first molar region. It appears to be a pedunculated lesion that seems to be arising from deeper tissues of gingiva varying in its size and is generally vascular or haemorrhagic in nature with an ulcerated surface.

Case Report

A 10year old female patient reported to the department of Pedodontics and Preventive Dentistry, with a swelling on the left upper back teeth region of the oral cavity in the last 3 months. She presented a history of similar lesion 1year back in the same location of the oral cavity which was excised by LASER in a private dental clinic in Tamil Nadu, of which the patient did not have any relevant documents.

For the current lesion patient gave a history of 3 months. Initially lesion started as a small nodular growth which increased progressively to its current size. Patient did not complain of any spontaneous pain or bleeding, but only when provoked while tooth brushing or eating. There was no history of trauma, neurological deficit, fever, loss of appetite, loss of weight and patient was systemically healthy otherwise.

On intraoral clinical examination a solitary gingival swelling in the area of upper left posterior region of maxilla involving and surrounding resorbing 65 and erupting 24 was seen. The mass measured about 2 × 3 cm in dimension spreading from buccal side of the maxillary alveolar ridge to the palatal side. On palpation it was firm in consistency, pink in colour and a whitish mucous membrane with a focal area of ulceration which was caused due to the trauma from patient rubbing salt on the lesion. The border of the swelling was ill defined involving region 63 to 26. On extraoral examination no discrepancy was seen.

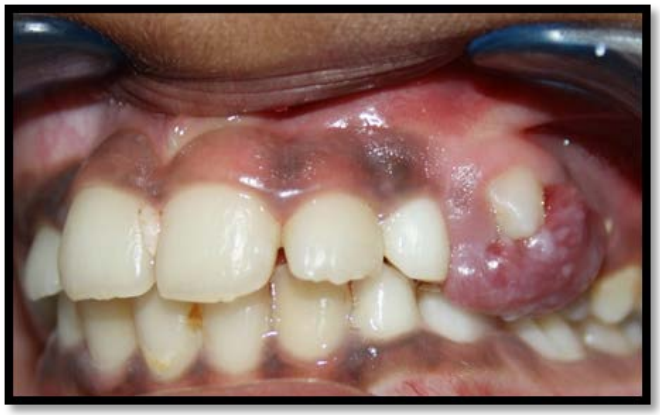

Figure 1: Buccal view of lesion

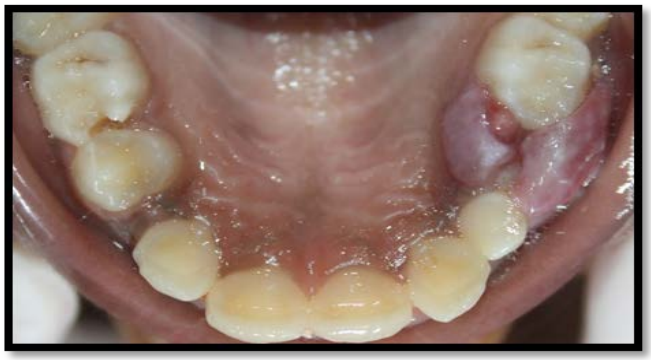

Figure 2: Occlusal view of the lesion

Management

Maxillary occlusal radiograph and intraoral periapical radiograph showed no radiographic changes of bone involvement.

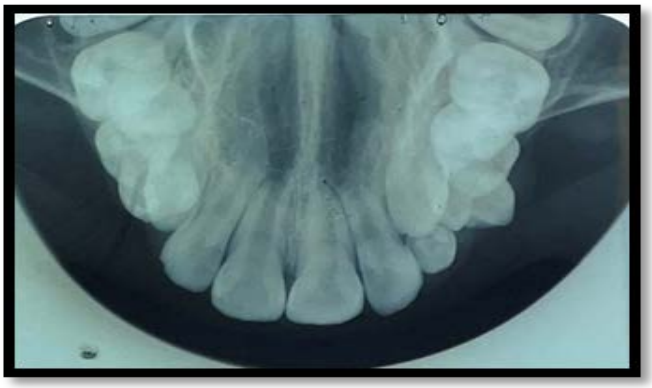

Figure 3: Occlusal radiograph showing no signs of bone involvement

Patient's hemogram value was well within the limit, so complete excision of the lesion was done using diode LASER. During the procedure mobile 65 was extracted under local anaesthesia and it revealed that the lesion was extending below the crown of 65. The lesion was excised till the cemento- enamel junction of erupting 24 which was at the level of alveolar ridge and was made sure that no remnants tissue tags were left. Haemostasis was achieved immediately due to use of LASER. The excised specimen was subjected for histopathological examination.

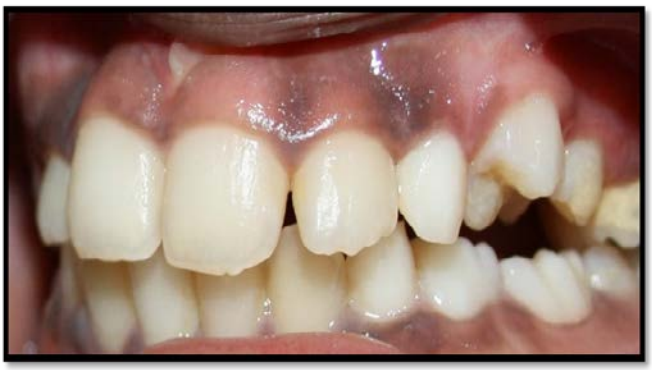

Figure 4. Post operative anterior view

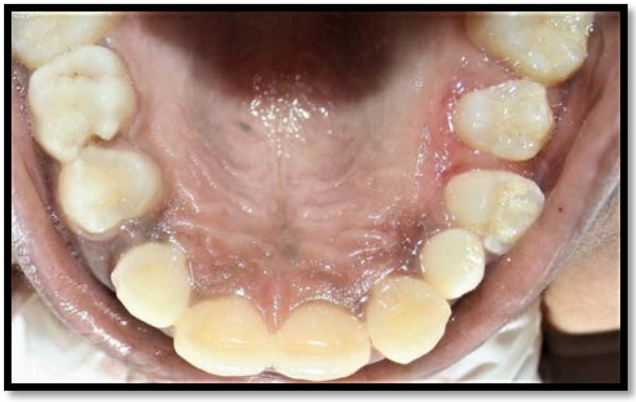

Figure 5: Occlusal view, after 8 months

The patient has been under regular follow up for last 8 months and oral hygiene has been maintained meticulously, there is no reoccurrence of the lesion.

Microscopic Examination

Microscopic examination showed stratified squamous mucosa with the sub epithelium displaying parts of a lesion composed of sheets of plump spindle shaped mononuclear cells with minimally pleomorphic, vesicular nuclei, small nucleoli and moderate amounts of amphophilic cytoplasm. Numerous osteoclasts like multinucleated giant cells were present along with aggregates of hemosiderin laden macrophages and in areas the stroma was replaced by inflammatory granulation tissue with moderate infiltrates of mixed inflammatory cells. Mitotic activity was ~6/10hpf but atypical mitotic figures were not present indicating Peripheral Giant Cell Granuloma.

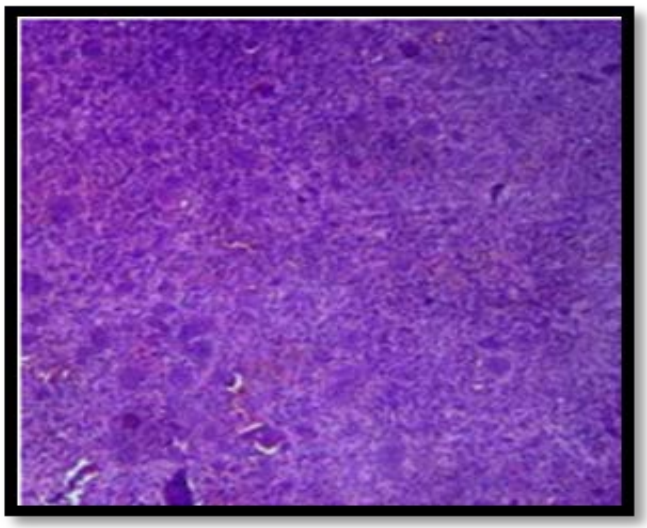

Figure 6: Histology examination of the excised sample

Discussion

Occurrence of peripheral giant cell granuloma is not common in young age group. Only 33% of the patients presented with PGCG under the age group of 20years out of 720 patients in a study conducted by Andersen L et.al, which also concurs with the findings of another study in which 33 of 97 cases (34%) occurred in individuals between 5 and 15 years of age. [1,2] The giant cell granuloma (GCG) is not a neoplasm, but a reactive lesion caused by trauma or irritation. Usually, it occurs in patients with poor oral hygiene condition [3]. Only 9% of the cases occur in children aged up to 10 years and

range from 6.5% to 12.7% in patients of 11–20 years [4,5]. The origin of giant cells in PGCG is still up for discussion. Some authors have concluded that the multinucleated cells in PGCG are of osteoclastic origin and are derived from differentiated mononuclear cells. The mechanism that activates or recruits' osteoclasts in PGCG is still being investigated and is not determined. Clinically PGCG, PG, peripheral ossifying fibroma (POF), and gingival fibromatosis (GF) are proliferative gingival lesions that can show very similar characteristics but can present distinct infiltrative features and recurrence probability [6]. Clinically, peripheral odontogenic fibroma (WHO type) must be considered in the differential diagnosis of dome-shaped or nodular, nonulcerated, growths on the gingiva like PGCG. Peripheral odontogenic fibroma is characterized by a fibrous or fibro myxomatous stroma containing varying numbers of islands and strands of odontogenic epithelium that is clearly distinguishable from PGCG histopathology [7]. PGCG features separate it from the fibrous and vascular epulides. It presents as a firm, soft, bright pedunculated or sessile nodule with various sizes that range from small papules to enlarged masses, though they are generally less than 20 mm in diameter with the color ranging from dark red to purple or blue commonly with ulcerated surface [8, 9]. Pain is not a common characteristic, and lesion growth in most cases is induced by repeated trauma to that area [10].

The treatment of the PGCG involves the removal of irritating factors and, mainly, the surgical excision of the lesion, carefully curetting its edges and base, in order to reduce recurrences [11]. To avoid recurrence the surgical resection should involve elimination of the entire base of the lesion in addition to the eradication of the underlying source of irritant factors [12]. PGCG is reported to have a wide recurrence rate, varying from 5% to 70.6% of cases, probably attributed to the surgical technique used to excise the lesion [13].

Conclusion

Early detection of the PGCG results in a more conservative treatment plan with reduced risk for tooth and bone loss. Especially for the pediatric patients' full medical history followed by complete physical, imagological, and histopathological examination is critical in order to diagnose correctly, aiming for a correct treatment plan and thereby reducing the possibility of recurrence and minimize patients' discomfort.

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