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Management of a Peripheral Giant Cell Granuloma in the esthetic area of upper jaw: A case report

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ABSTRACT

INTRODUCTION: Peripheral Giant Cell Granuloma (PGCG) is the most common giant cell lesion found in the jaws; it originates from the connective tissue of the periosteum or from the periodontal ligament in response to local chronic irritation. Early and accurate diagnosis of these lesions allows for conservative management without compromising adjacent teeth or tissues.

PRESENTATION OF CASE: This paper presents a case of PGCG in the esthetic zone of the upper jaw in a 23-year-old female patient. The treatment offered consisted of an excisional biopsy with immediate soft tissue grafting to prevent esthetic complications. The growing lesion has caused an interproximal spacing between the central and lateral incisors. The spacing spontaneously closed during the next six weeks after excision and no relapse occurred during postoperative follow-up.

DISCUSSION: Proper management of a PGCG lesion requires excluding other pathologies prior to planning for surgery. Correct diagnosis of such lesions is essential to optimize the treatment and prevent recurrence. Clinical examination alone may not give a correct picture, thereby requiring histopathological confirmation.

CONCLUSION: Immediate soft tissue augmentation using a connective tissue graft has been suggested as a surgical solution after removal of PGCG to minimize patient discomfort and the loss of precious tissues.

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1. Introduction

Peripheral Giant Cell Granuloma (PGCG) is a localized tumor-like gingival enlargement and it is a hyperplastic not a neoplastic lesion.¹ It is an occasional lesion of the oral cavity, originating from the interdental tissues (periosteum or periodontal membrane) following local irritation or chronic trauma particularly from subgingival plaque and calculus.^{2–4} Though these lesions occur over a wide age range; the peak incidence in males is in the second decade compared to the fifth decade for females.¹ Moreover, PGCG lesions are up to twice as frequent in the mandible as in the maxilla.⁵

Lesions can arise anywhere on the gingival or alveolar mucosa in dentate or edentate patients, but most occur anterior to the molar teeth. However, in dentate areas lesions usually arise in the interdental papilla. Also, it can be found in the edentulous alveolar margin or at marginal gingival level.^{2,6,7}

2. Case report

A 23 years old female patient was referred by her dentist to Alpha Clinic – a private clinic limited to periodontics and dental implants that is located in Ramallah, Palestine – for an exophytic gingival growth on the anterior buccal maxillary gingiva (Fig. 1).

On the first visit in May 2012, the patient reported that a small mass has been progressively growing since February 2012. The growth was painless but bleeding was detected on provocation. The patient was breast feeding and her infant was 10 months old at the date of intake. She stated that she has not received any medication during the last year. She reported that hormonal disturbances have been recognized after delivery and that levels have subsided significantly during the last few months. No significant findings were detected in the extra-oral examination.

In the intra-oral examination, a solitary pedunculated, exfoliated, lesion was observed in the gingiva between upper left central and lateral incisor. The lesion was reddish and 8 mm × 12 mm in maximum dimensions. On palpation, the lesion had a firm consistency. The contour was regular with determined margins and was associated with a flaring space between the two incisors of 2 mm at the contact area level (Fig. 2). The spacing has only been recently observed by the patient together with the growing lesion. There

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Fig. 1. Exophytic gingival growth on the anterior buccal maxillary gingiva.



Fig. 2. Solitary, pedunculated, exfoliated, lesion in the gingiva between upper left central and lateral incisors.

was no occlusal trauma with opposing teeth to explain the pathological migration of any of these incisors. The patient's oral hygiene status was poor. No history of acute or chronic physical trauma to the affected area was reported by the patient.

Intra-oral peri-apical radiograph revealed no pathological findings with slight localized reduction of the level of interdental bone between the two upper left incisors. The lamina dura was detected adjacent to the periodontal ligament spaces, but the crestal bone showed less opacity (Fig. 3). Related teeth (#21 and #22) responded positively to cold test ruling out the possibility of endodontic origin of disease. Complete Blood Count was performed and all blood results were within normal limits (RBCs: $4.66 \times 10^{12}/L$, Hg: 12.5 g/dl, and WBC: $8.48 \times 10^9/L$).

The patient received comprehensive examination that was followed by two scaling sessions and provided with proper oral hygiene instructions.

After 3 months, the lesion was re-evaluated and no significant changes were recorded in its clinical appearance. Thus, the patient was scheduled for surgical excision. Under local anesthesia, the lesion was excised down to the periosteum; a thin layer of alveolar bone was resected as well (Fig. 4). A connective tissue graft was placed on the defect area to compensate the excised tissues and to avoid an esthetic complication in the anterior region (Fig. 5). The excised tissue was sent for histo-pathological analysis in CAP LABS (Center for Advanced Pathology Labs, Bethlehem, Palestine) (Fig. 6).

The histo-pathological analysis showed mucosa with well circumscribed lesion that consists of numerous osteoclast-like giant cells near hemorrhagic areas. The presence of cellular, vascular and fibrous stroma with scattered mitotic figures was reported; and no necrosis was observed (Fig. 7).

During the first six weeks after excision, spontaneous closure of the space with the relapse of the incisors to their normal position in the upper arch occurred. Follow up visits were scheduled at three week intervals. Scaling and oral hygiene instructions were

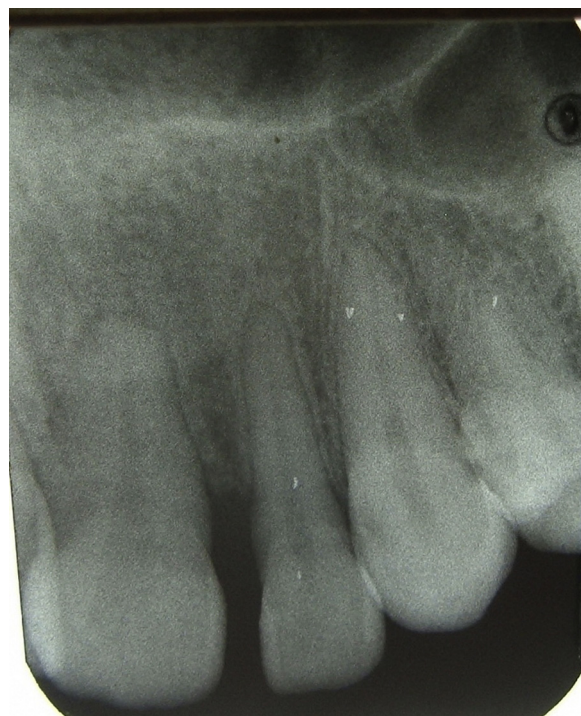


Fig. 3. Intra-oral peri-apical radiograph revealing slight localized reduction of the level of interdental crestal bone between the two incisors.

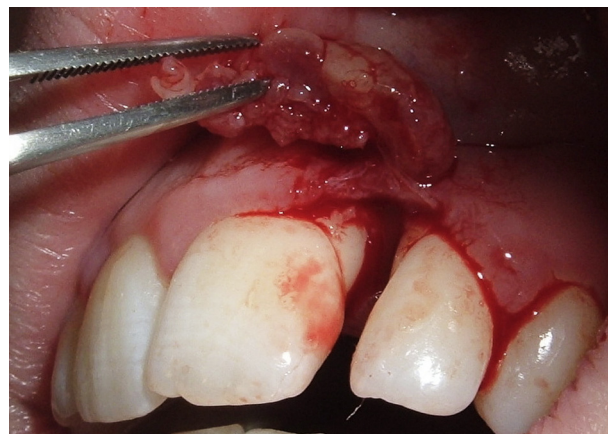


Fig. 4. Excision of lesion.



Fig. 5. Connective tissue graft sutured on defect area to compensate the excised tissues and to avoid an esthetic complication.

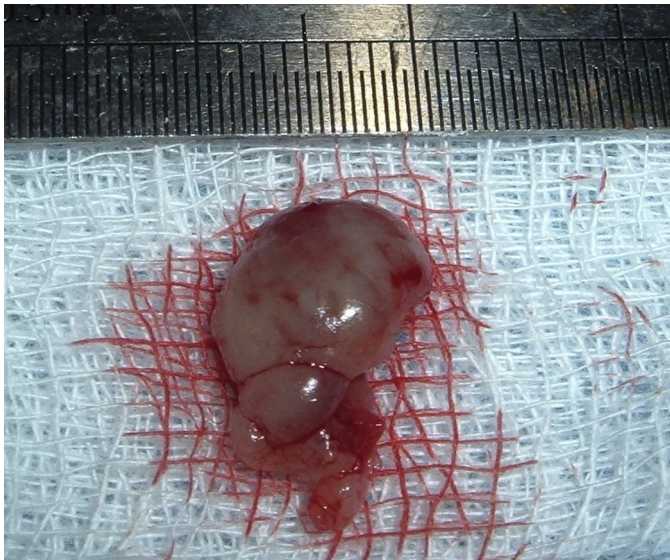


Fig. 6. The excised tissue was sent for histo-pathological analysis after being placed in a container with formalin.

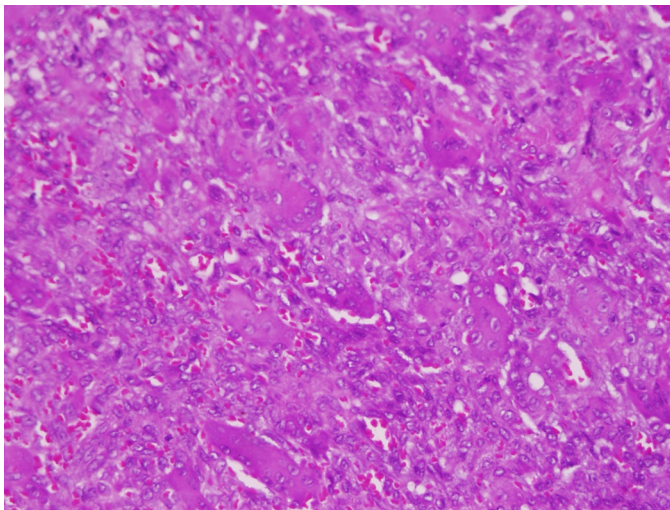


Fig. 7. Histo-pathological analysis showing numerous osteoclast-like giant cells near hemorrhagic areas, no necrosis observed.

performed on every recall visit. No signs of recurrence of the lesion have been observed during first year after the excision. There was no esthetic problem caused by the excision; this is due to proper healing of the connective tissue graft on the healthy tooth surface (Fig. 8). A written consent was taken from the patient for publishing her case in the scientific literature.

3. Discussion

Clinically, PGCG has characteristics which 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. The color can range from dark red to purple or blue commonly with ulcerated surface.^{2–4,7} Pain is not a common characteristic, and lesion growth in most cases is induced by repeated trauma.¹

PGCG is a soft tissue lesion that rarely affects the underlying bone, though the latter may suffer superficial erosion.^{2,3} Radiographs may reveal superficial erosion of the crest of the interdental



Fig. 8. One year follow-up, no signs of recurrence of the lesion have been observed.

bone or, in edentulous areas, of the alveolar bone margin but these are not constant feature.¹

The differential diagnosis of PGCG includes lesions with very similar clinical and histological characteristics, such as central giant cell granuloma, which are located within the jaw itself and exhibit a more aggressive behavior. Only radiological evaluation can establish the distinction between central and peripheral forms of giant cell granulomas.

The treatment of PGCG comprises surgical resection with elimination of the entire base of the lesion in addition to the eradication of the underlying source of irritant factors.^{2,4} If incomplete bone resection was done, the growth may recur.² To avoid recurrence after treatment, in addition to complete simple excision with extensive clearing of the base of the lesion, the source of irritation needs to be eradicated.⁶

Recurrence of PGCG is infrequent, ranges as little as 5–11% have been reported.^{8,9} Early diagnosis based on clinical and radiological findings and confirmed by pathological analysis allows for conservative management with less risk of destruction for the adjacent teeth and tissues.

This case shows that the proper management of a PGCG lesion requires excluding other pathologies prior to diagnosis, which is confirmed by the histopathological analysis of the excised lesion. Surgical excision with bone resection removed the lesion with no signs of recurrence. Soft tissue grafting using a connective tissue graft to prevent esthetic complications was performed immediately after surgical excision.

Conflict of interest

No conflicts to declare.

Funding

None.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Author contributions

Dr. Alaa' Z. Abu Gharbyeh: Data collection, writing the paper, follow-up of patient.

Dr. Mohammad Assaf: surgical procedure.

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