Case Report

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Surgical Excision of Peripheral Giant Cell Granuloma: Case Report

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ABSTRACT

Peripheral giant cell granuloma (PGCG) is described as an elevated lesion that is located mostly on the gingival mucosa and alveolar crest, as a consequence to local irritative factors and trauma. It occurs more commonly in the mandible than the maxilla. The treatment of choice of the PGCG is the surgical excision. Here we present a case of a controlled diabetic 52 years old male patient with a gingival mass in upper right quadrant, clinically and histologically diagnosed as PGCG. The lesion was completely excised surgically. Healing was uneventful, and no recurrence was observed during follow-up. This case highlights the importance of early diagnosis, proper surgical sequencing, and consideration of systemic factors such as diabetes in achieving optimal healing. This paper also reports a maxillary location of giant cell granuloma, while the literature reports more commonly on the mandibular location.

Keywords: Peripheral Giant Cell Granuloma; Calculus; Surgical Excision

Introduction

Peripheral giant cell granuloma is often characterized by a painless, smooth surface lesion that can range from a few millimeters to several centimeters. It's typically brown, red or even purple in hue and may have a sessile or pedunculate base, with soft to firm consistency. Microscopically the lesion features an abundance of multinucleated giant cells. This is how it differentiates from other exophytic oral differential diagnoses [1]. PGCG has been linked to several local factors including dental plaque, calculus, food impaction, chronic infections, periodontal disease or periodontal surgery, faulty restorations, ill-fitting appliances and trauma from tooth extractions [2]. PGCGs can be found in all age groups, although the 40–60 age range is when they are most frequently encountered. Furthermore, the mandible is the PGCGs' preferred site; the maxilla is rarely affected [3].

Case Report

In our case a 52-year-old male came to department of Oral Medicine and Periodontology of Ain Shams University with a chief complaint of large lump on the right maxillary region appeared 1 year ago with a history of gradual increase in size which then became static. Intraoral examination revealed a red-bluish pedunculated nodular mass presenting a similar tissue to the one observed in the liver, measuring 3cm x 2cm, soft to firm in consistency, non-easily bleeding and painless related to tooth numbers 11,12 and 13. Surrounding tissues exhibited plaque and heavy calculus deposits (Figure 1). Panoramic radiograph revealed generalized alveolar bone loss across the dentition, with localized severe vertical bone resorption around teeth 11, 12 and 13 corresponding to the lesion site. (Figure 2) The patient reported a history of type 2 diabetes mellitus, which was poorly controlled approximately one year ago which explains the radiographic picture. Current laboratory reports confirmed that his glycemic status is now well controlled (HbA1c within target range), indicating improved diabetes management prior to surgical intervention. The patient first underwent Full-mouth scaling and debridement, root planning in the affected area and followed by oral hygiene instructions.

Due to the extensive bone loss and hopeless prognosis of the maxillary canine and premolars, these teeth were extracted under local anesthesia. Then complete surgical removal of the lesion, it was separated from the adjacent tissue and excised in one piece with additional curettage of the cortical bone surface to prevent recurrence. (Figures 3 & 4) Primary closure was achieved with controlled hemorrhage. The excised lesion was then sent for histopathological study and confirmed PGCG (Figures 5 & 6).

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Figure 1: Showing reddish blue nodule in canine premolar region.

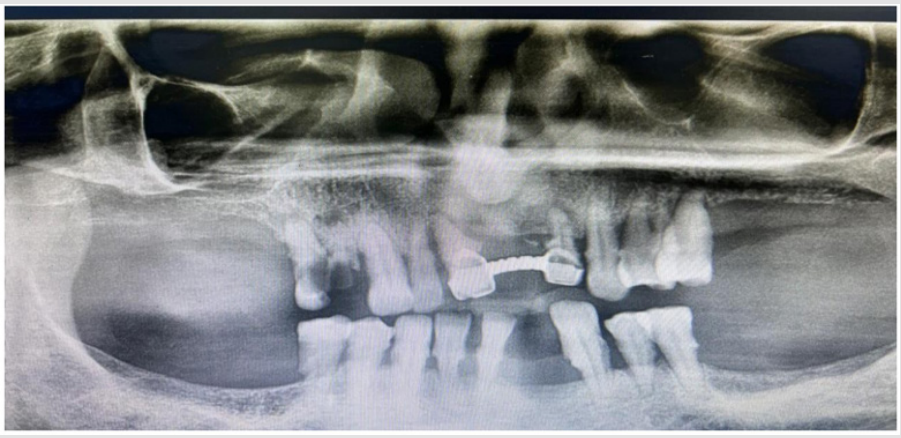

Figure 2: Showing generalized alveolar bone loss with localized severe vertical bone resorption around teeth 11, 12 and 13.

Figure 3: Showing complete excision.

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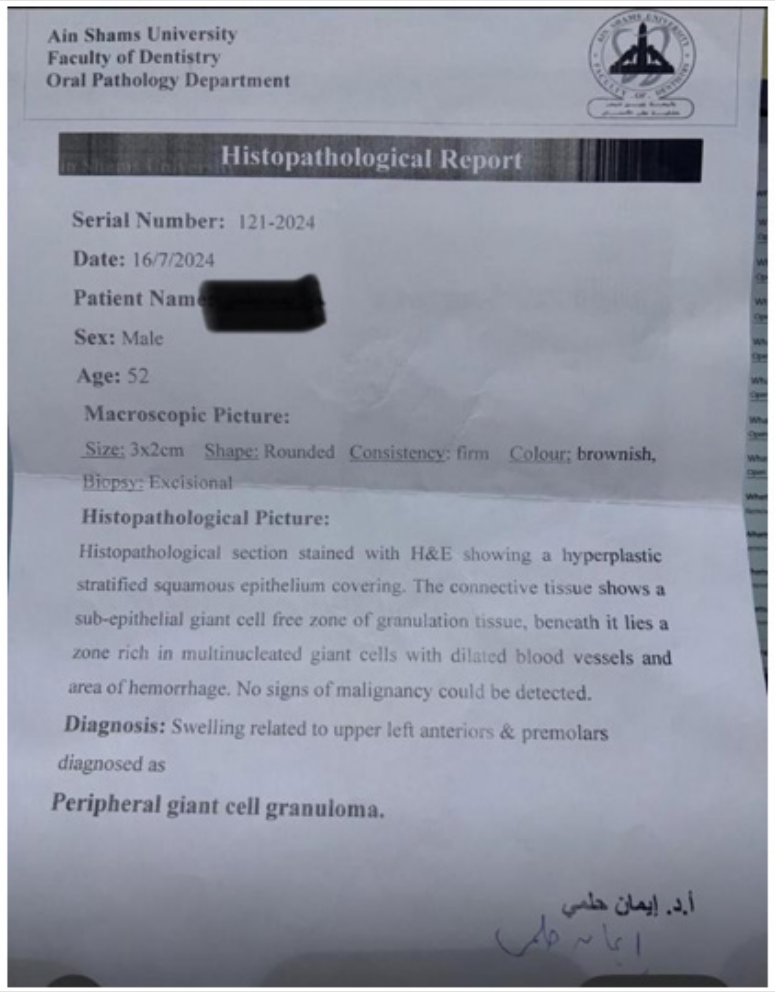
Figure 4: Showing extracted hopeless teeth.

Figure 5: Showing primary closure using polypropylene suture.


Ain Shams University
Faculty of Dentistry
Oral Pathology Department

Histopathological Report

Serial Number: 121-2024

Date: 16/7/2024

Patient Name: [redacted]

Sex: Male

Age: 52

Macroscopic Picture:

Size: 3x2cm Shape: Rounded Consistency: firm Colour: brownish, Biopsy: Excisional

Histopathological Picture:

Histopathological section stained with H&E showing a hyperplastic stratified squamous epithelium covering. The connective tissue shows a sub-epithelial giant cell free zone of granulation tissue, beneath it lies a zone rich in multinucleated giant cells with dilated blood vessels and area of hemorrhage. No signs of malignancy could be detected.

Diagnosis: Swelling related to upper left anteriors & premolars diagnosed as

Peripheral giant cell granuloma.

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Figure 6: Showing the biopsy report.

Discussion

Peripheral giant cell granuloma is an exophytic common lesion occurring in the oral cavity. These perivascular lesions are mainly consecutive to local irritants such as tartar, plaque, incompatible restoration, traumatic tooth extraction and chronic inflammation [4]. In this case, the presence of heavy calculus and active periodontal inflammation likely played a central role in lesion development. In this current case report, a patient had a lesion seen in the maxillary canine premolar area. It has been reported that PGCG is about 1.5 times more likely to occur in the mandible than in the maxilla [3] A study on 62 cases reported that 43 of them occurred in the mandible (69.4%) and 19 (30.6%) in the maxilla [3]. Surgical excision of the mass and preventative measures to eliminate any potential predisposing factors are the recommended treatment of PGCG. This can include the extraction of any associated teeth in cases of periodontal ligament involvement [5]. The recurrence rate is low and generally reported to be less than 10%, when the irritating factors are eliminated [5]. So in this case staged approach used initial scaling, oral hygiene reinforcement, extraction of hopeless teeth, followed by surgical excision with additional curettage of the cortical bone surface was particularly beneficial. And no recurrence was observed following the complete excision of the lesion during a six-month follow-up period with maintainig good oral hygiene. It's crucial to remember that these granulomas can become quite large if neglected.

Conclusion

Early detection of peripheral giant cell granuloma is crucial, as timely intervention can limit the extent of local bone destruction and improve the likelihood of preserving adjacent teeth. Delays in diagnosis may allow the lesion to progress, resulting in deeper periodontal involvement, compromised tooth stability, and the need for more extensive surgical procedures. Careful surgical technique remains fundamental for successful management, ensuring complete excision of the lesion and minimizing the risk of recurrence. Comprehensive

evaluation through clinical examination and radiographic imaging supports accurate assessment of lesion extent, underlying bone involvement, and the overall periodontal condition. Such thorough assessment facilitates informed treatment planning and may help prevent severe complications, including tooth loss. Long-term success also depends on consistent oral hygiene practices and regular follow-up, both of which reduce local irritants, support periodontal stability, and lower the likelihood of recurrence.

Conflict of Interest

The authors report no conflict of interest.

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