CASE REPORT

Peripheral Giant Cell Granuloma Related To A Dental Implant: A Clinical Report

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ABSTRACT
Peripheral giant cell granuloma is a benign reactive hyperplastic lesion of the oral cavity, which originates from the periosteum or periodontal membrane. Various local factors have been associated with this lesion. This report discusses the residual excess cement around an implant as a possible cause of the peripheral giant cell granuloma in a 42 year-old woman. Residual excess cement was removed and the lesion was excised surgically. No complications were observed during the 1-year clinical and radiological follow-up.

Key Words: *dental implant, peripheral giant cell granuloma, residual excess cement.*

Introduction

Peripheral giant cell granuloma (PGCG) is a benign reactive hyperplastic lesion of the oral cavity, which originates from the periosteum or periodontal membrane.[1-3]The lesion is generally observed between the fourth and sixth decades of life with a slight female predominance.[1] The clinical appearance is a fleshy, soft, and sessile or pedinculate mass with a color ranging from dark red to purple and it is most often located in the posterior sides of the jaws, especially in the mandible.[2-4]Complicated tooth extraction, denture irritation, periodontitis, ill-fitting dentures have been documented as the primary causes of the trauma that can lead to abnormal tissue response and reactive lesions such as PGCG, piogenious granuloma and peripheral gingival fibroma.[5] Several studies have presented PGCG associated with dental implants in recent years[1-7], but the causes that result in the development of these lesions have not been fully elucidated. The purpose of this study is to report a clinical case of peripheral giant cell granuloma associated with dental implants and to discuss the residual excess cement as a possible cause.

Case Report:

The 42-year old female patient in good general health was referred to the oral surgery clinic from a private practice, with a complaint of the painless gingival mass in the right maxillary posterior area. Intraoral examination demonstrated full-arch fixed reconstruction of the maxilla and localized purple-pink lesion at the palatinal mucosa(Fig.1). The lesion was of hard consistency, with a smooth surface. There was no bleeding in response to probing. The medical history of the patient was non contributory. Her dental history and periapical x-rays revealed that the right posterior maxilla of the patient was rehabilitated with a 2-unit fixed porcelain-fused-to-metal restoration supported by two dental implants (anterior; 4x10mm, posterior; 4x12mm, Straumann AG, Bern, Switzerland) (Fig.2). The implants were osseointegrated, with no mobility or symptoms. The lesion was considered to be in relation to the posterior implant but it had no radiographic appearance and no accompanying significant bone loss (Fig.2). After the lesion was excised totally under local anesthesia (Fig.3), the excess cement was noted around the circumference of the abutment-crown junction. (Fig.4). This excess cement remnant was removed without damaging the surface of the abutment (Fig.5). The histological study of the lesion revealed the diagnosis of PGCG (Fig.6). Patient was scheduled for regular visits in order to follow the healing of the soft tissue. After one week, a healthy, pink-colored mucosa was observed. One year after surgery, uneventful healing of the patient with no recurrence was observed.

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Discussion:

Since there are low numbers of reported cases, the etiology of PGCG associated with dental implants has not yet been determined clearly. To date, improper occlusion, ill-fitting restorations, extraction sockets, calculus, tooth caries, dental plaque, and food impaction have been associated with PGCG.[1,2,5-7] Since none of the above-mentioned factors was prominent in the present patient, the occurrence of PGCG could be attributed to the residual excess cement, which is a common complication of cement-retained implant crowns.[8] Sub-gingival cement enhances plaque accumulation due to its roughness in the gingival sulcus in natural dentition[9,10] and inhibits

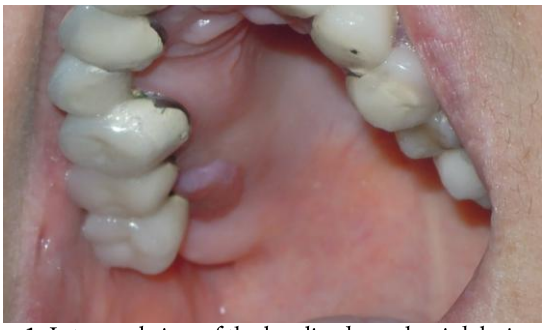


Fig. 1: Intra-oral view of the localized purple-pink lesion at the palatinal mucosa of the maxillary right molar restoration.

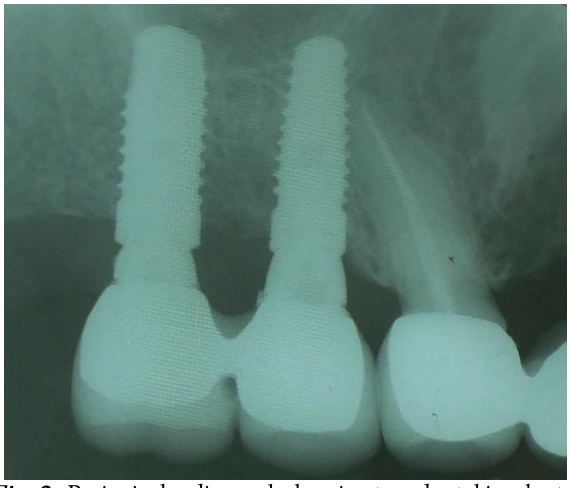


Fig. 2: Periapical radiograph showing two dental implants supporting a 2-unit fixed restoration. No appearance of the lesion and no evidence of significant bone loss around implants were observed.

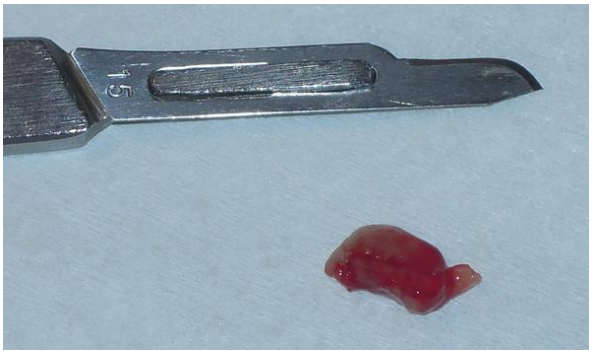


Fig. 3: Macroscopic appearance of the totally excised lesion.



Fig. 4: Excess cement noted at the abutment-crown junction.



Fig. 5: Excess cement was removed and the area debrided.

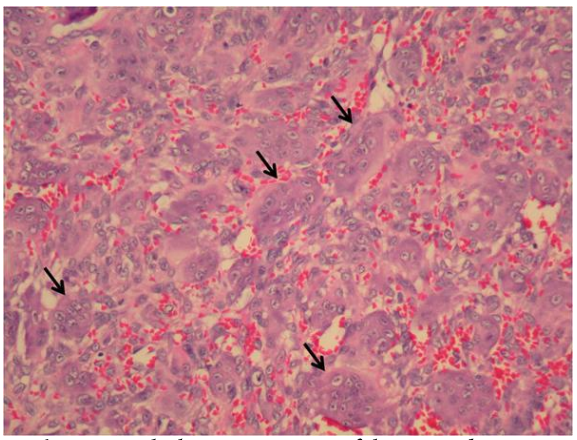


Fig. 6: Histopathologic apperance of the excised specimen. Highly vascular fibrous tissue containing multinuclate giant cells (arrow) clustered around extravasated erytrocytes. (Hematoxylin-Eosin; x200).

the removal of the retained microorganisms, which can lead to local inflammatory response and soft tissue reaction.[11] It has been reported that plaque deposition is heavier and occurs faster around titanium implants than around natural teeth.[12]

For cemented implant crowns, clinicians should avoid deep sub-gingival margin placement, which is likely to make it difficult to remove all cement from the margins.[10] The influence of margin location on the amount of undetected excess cement after insertion of cement-retained implant restorations has been evaluated with an experimental model, where the crown margins were placed -3mm to 1mm above the soft tissues at 1mm intervals. The results indicated that -2mm to -3mm level soft tissue margins demonstrated the greatest excess cement. Also, excess cement was determined even the margins were placed 1mm above the soft tissue.[10]

It has been emphasized that, while cementing an implant crown, a luting agent that is easy to manipulate and remove without damaging implant components should be used.[10] Agar et al.[13] evaluated glass-ionomer, resin, and zinc phosphate cement materials in terms of their ease of removal of excess and for the damage caused to the titanium abutments by various instruments used to remove excess cement. Zinc phosphate cement was found to be the easiest to remove and the resins the most difficult.

Like all other lesions arising from local irritants and/or chronic traumas, elimination of all causative factors as well as surgical resection with extensive cleaning of the base of the lesion are essential in eliminating and preventing the recurrence of PGCG.

Conclusions:

It is critical that all residual excess cement be removed after the cementation of implant crown. Excess cement remaining in the implant sulcus may lead to the development of a reactive gingival lesion such as peripheral giant cell granuloma, which may jeopardize the implant survival.

References:

1. Hernandez G, Lopez-Pintor RM, Torres J, Carlos de Vicente J. Clinical Outcomes of Peri-Implant Peripheral Giant Cell Granuloma: A Report of Three Cases J Periodontol 2009;80:1184-1191.
2. Cloutier M, Charles M, Carmichael RP, Sandor GKB. An analysis of peripeheral giant cell granuloma associated with dental implant treatment. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007;103:618-22.
3. Avendano-Chaparro AV, Berini-Aytes L, Gay-Escoda C. Peripheral giant cell granuloma.A report of five cases and review of the literature. Med Oral Patol Oral Cir Bucal 2005;10:53-57.
4. Penarrocha-Diago MA, Cercera-Ballester J, Maestre-Ferrin L, Penarrocha-Oltra D. Peripheral Giant Cell Granuloma Associated With Dental Implants: Clinical Case and Literature Review. J Oral Implantol 2012;38(1):527-32.
5. Olmedo DG, Paparella ML, Brandizzi D, Cabrini RL. Reactive lesions of peri-implant mucosa associated with titanium dental implants: a report of 2 cases. Int J Oral Maxillofac Surg 2010;39:503-7.
6. Hirsberg A, Kozlovsky A, Schwartz-arad D, Mardinger O. Peripheral Giant Cell Granuloma Associated with Dental Implants. J Periodontol 2003;74:1381-84.
7. Özden FO, Özden B, Kurt M, Gündüz K, Günhan Ö. Peripheral Giant Cell Granuloma Associated with Dental Implants: A Rare Case Report. Int J Oral Maxillofc Implants 2009;24:1153-56.
8. Wadhwani C, Rapoport D, La Rosa S, Hess T, Kretschmar S.Radiographic detection andcharacteristic patterns of residual excess cement associated with cement retained implant restorations: A clinical report.J Prosthet Dent 2012;107:151-157
9. Waerhaug J. The effects of rough surfaces upon gingival tissues J Dent Res 1956;35:323.
10. Pauletto N, Lahiffe BJ, Walton JN. Complications Associated with Excess Cement Around Crowns on Osseointegrated Implants: A Clinical Report. Int J Oral Maxillofac Implants 1999;14:865-68.
11. Wilson TG Jr. The positive relationship between excess cement and peri-implant disease: a prospective clinical endoscopicstudy. J Periodontol 2009;80:1388-92.
12. Felo A, Shibly O, Ciancio SG, Laurello FR. Effects of sub-gingival chlorexidine irrigation on periimplant maintenance. J Am Dent Assoc 1997;10:107-10.
13. Agar JR, Cameron SM, Hughbanks JC, Parker MH. Cement removal from restorastions luted to titanium abutments with simulated subgingival margins. J Prosthet Dent 1997;78:43-7.

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