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RESEARCH ARTICLE

A CASE REPORT OF A GINGIVAL PLASMA CELL GRANULOMA IN A PATIENT ON ANTIHYPERTENSIVE THERAPY

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ABSTRACT

Drug-induced gingival overgrowth (DIGO) can be a serious concern for both patients and clinicians. DIGO is a well-documented side-effect of some pharmacologic agents, including, but not limited to, calcium channel blockers, phenytoin, and cyclosporine. Plasma cell granulomas (pseudotumors) are exceedingly rare, non-neoplastic, reactive tumor-like proliferation, primarily composed of plasma cells that manifest primarily in the lungs, but may occur in various anatomic locations. Intraoral plasma cell granulomas involving the lip, oral mucosa, tongue, and gingiva have been reported in the past. This is the first case report of amlodipine induced plasma cell granuloma of the gingiva in the medical literature presenting a 54 year-old female patient with hypertension, who received amlodipine (10 mg/day, single dose orally) for 15 month , sought medical attention because of developing maxillary anterior massive gingival overgrowth causing functional and esthetic problem, which was treated by excisional biopsy. Histologically, these lesions were composed of mature plasma cells, showing polyclonality for both lambda and kappa light chains and fibrovascular connective tissue stroma confirming a diagnosis of plasma cell granuloma. This case also highlights the need to biopsy for unusual lesions to rule out potential

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INTRODUCTION

Systemic medication use can cause gingival overgrowth or enlargement entirely or in part. It happens as a side effect after medications that are primarily used for non-dental therapies, therefore the overgrowth cannot be attributed to a change in the drug's intended pharmacological activity.(1)Conversely, the medical profession knows very little about how medications affect gingival tissues. Amlodipine is a dihydropyridine calcium channel blocker (CCB) of the third generation that is used to treat angina and hypertension. The initial reports of amlodipine-induced gingival overgrowth (AIGO) and gingival sequestration of amlodipine were made by Ellis et al(2)Since then, despite the fact that there have been many reports of nifedipine-induced gingival overgrowth, only few solitary cases of AIGO have surfaced in the dental literature. It has been observed that up to 20% of patients on nifedipine therapy will experience gingival hypertrophy. Research has indicated that the incidence of AIGO ranges from 1.7% to 3.3%.A (3). When it does, switching to a different medication should be followed by surgical removal of the enlarged gingiva. While the most common surgical technique is scalpel surgery, other techniquesinclude radiosurgery, electrosurgery, and various wavelengths of lasers. For this aim, a 445 nanometer (nm) blue light diode laser could be employed. When compared to other types of diodes, it is safer for the surrounding tissues and more efficient.(4)

A seldom documented tumor with an unclear etiology and pathology is called a plasma cell granuloma. Similar lesions have also been referred to by other synonyms, including spindle cell pseudotumor, xanthomatous granuloma, histiocytoma, inflammatory myofibroblastic tumor, and inflammatory pseudotumor. (5) Although it has happened in other extra-pulmonary sites, it mostly affects the lungs.(6) This lesion is a reactive, inflammatory process that typically affects the mobile tissues of the oro-nasopharyngeal region, including the tongue, lip, buccal mucosa, paranasal sinuses, and so on. It is not a neoplastic process or linked to the monoclonal expansion of a single plasma cell(7).(8)There are very few cases reports have been documented, and they are considerably more uncommon on the gingiva.In (9) It is frequently uncommon and linked to some long-term exposure to antigens. Foreign bodies, periradicular inflammation, or periodontitis could be the cause of this.(10). The present case report describes an unusual case of amlodipine induced massive plasma cell granuloma on the gingival.

CASE REPORT: A 60-year-old female patient reported to the Department of Periodontology, K.D Dental College and Hospital Mathura Uttar Pradesh, India, with the chief complaint of swollen gums in lower front teeth region since one month previously. Also, she reported pain and discomfort upon mastication. The history of the present illness revealed that the growth was present since one month ago, gradually increased in size, is associated with difficulty on mastication, and interferes with maintenance of oral hygiene.

On taking a proper medical history, the patient was found to be hypertensive and was on Amlodipine therapy (20 mg 1 Once a day orally) for the last 12 years. The dental history mentions extraction of some teeth due to periodontitis. On periodontal examination, GO was apparent from the distal aspect of the mandibular lateralincisor to the distal aspect of the left lateral incisor on both buccal and palatal aspects. The overgrowth was sessile with a smooth surface and approximately 2×2×3 cm in size. Bleeding on probing was positive in relation to the overall dentition including the sulcular epithelium of the region of the GO (Fig. 1). Three-degree tooth mobility (Miller's index) was present in relation to the left lower lateral incisor to right lower lateral incisor with a probing pocket depth of 10 mm.

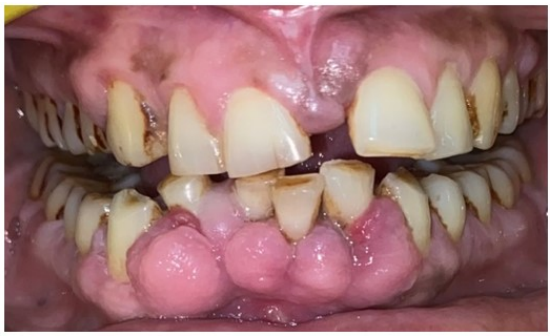


Fig: 01 preoperative

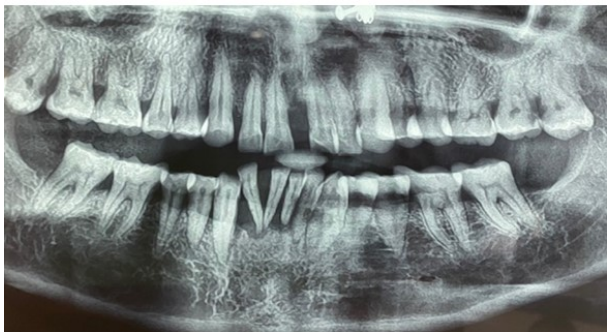


Fig: 02 OPG

On palpation, GO was firm in consistency and was fixed to the underlying structures. It was non-tender, non-pulsatile, non-fluctuant, and non-compressible in nature. Severe horizontal bone loss in relation to the mandibular lateral and central incisorswas evident on the panoramic radiograph (Fig. 2). A provisional diagnosis of AIGO, combined gingival overgrowth, and irritation fibroma was made based on the clinical findings. After the completion of phase I therapy, an excisional biopsy along with extraction of the left and right lowercentral and lateral incisor was planned, and the treatment was explained comprehensively to the patient.

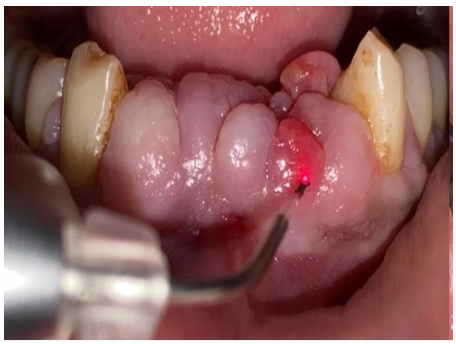


Fig. 3. A Excision with diode laser

Amlodipine was substituted by another antihypertensive drug, angiotensin-converting enzyme inhibitor (ACE inhibitor), after consultation with the responsible physician.

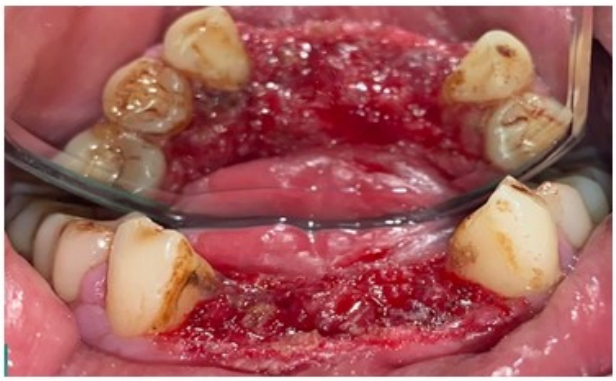
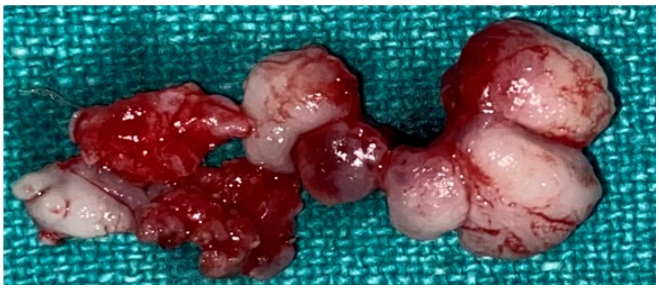


Fig. 3B. Excision of GO

With the patient's consent and after necessary hematologic investigations, surgical excision was performed under local anesthesia with Diode Laser (Fig. 3A and 3B). The excised tissue sample was fixed in 10% formalin and was sent for histopathologicalexamination. (Fig: 4).



Antibiotics and analgesics were prescribed for the patient for five days. 0.12% Chlorhexidine mouthwash twice a day was advised. Oral hygiene instructions were reinforced. The sections stained with Hematoxylin and eosin (H&E) revealed the presence of proliferative stratified squamous epithelium at the surface with elongated rete ridges. Areas of ulceration were noted. The underlying stroma was fibro cellular with bundles of collagen intersecting, patchy distribution of chronic inflammatory cells characterized predominantly by mature plasma cells, lymphocytes, and occasional eosinophil, suggesting a plasma cell lesion (Fig. 5A). This was further confirmed by performing immunohistochemistry (IHC) on the biopsy sample for Kappa (K) and Lambda (λ) light chains. IHC staining of the tissue section showed notable cytoplasmic positivity for both K and λ light chains (K chains more than λ chains; Fig. 5B and 5C).

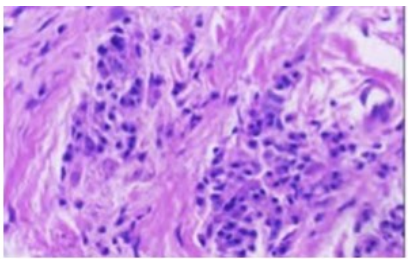


Fig. 5a

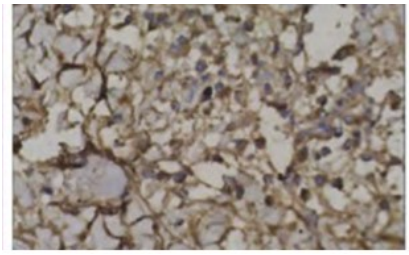


Fig. 5b

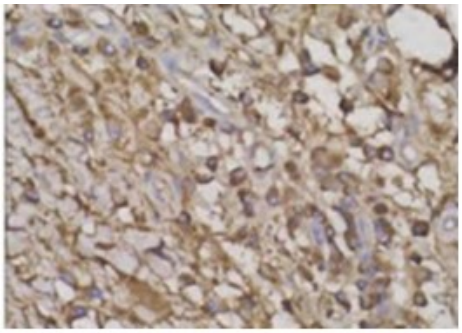
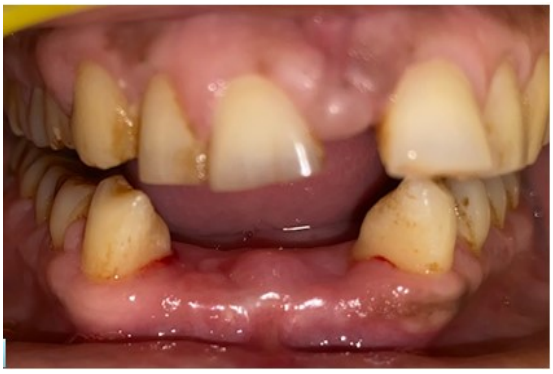


Fig. 5c

All these features suggest polyclonal plasma cell proliferation, confirming the histopathological features. Therefore, a confirmatory diagnosis of PCG was made based on the clinical, histopathological, and IHC analysis. Healing was uneventful after surgery. The patient was followed every week for a month and then every 3 months and thereafter for a period of 1month. There was a significant improvement in the gingival status of the overall dentition as a result of thorough and strict plaque control measures at subsequent maintenance visits in the entire duration of the supportive periodontal therapy No evidence of recurrence of the growth was seenduring the recall visits in a period of 15 months (Fig. 6).



DISCUSSION

The present case report discusses gingival PCG and emphasizes the importance of a confirmatory diagnosis for GO. Since the patient was a known hypertensive, was on Amlodipine therapy since 12 years previously, the clinical picture of the GO has inclined us towards the provisional diagnosis of drug-induced GO, combined overgrowth, and fibroma. PCG is also known as inflammatory myofibrohistiocytic proliferation, inflammatory myofibroblastic tumor, inflammatorypseudotumor, and xanthomatouspseudotumor (11). PCG is categorized under the intermediate category of fibromyofibroblastic tumors by the World Health Organization (WHO) (12). Very importantly, Plasma cell lesions of the gingiva have to be distinguished from other plasma cell lesions/conditions of the body, namely multiple myeloma, osseous solitary plasmacytoma, and soft tissue myeloma (extramedullaryplasmacytoma).

Multiple myeloma and osseous solitary plasmacytoma are the tumors of the bone, whereas soft tissue myeloma (extramedullaryplasmacytoma) and PCG are soft tissue tumors. Differentiating PCG from soft tissue plasmacytoma is mandatory and critical as PCG is benign, while plasmacytoma is a malignant lesion exhibiting variably differentiated, monomorphic multi-nucleated plasma cells (13). IHC determines the polyclonality of the PCG lesion; in a reactive lesion, K chains are greater than λ chains, and the K to λ light chain ratio is 2:1, whereas in case of a neoplastic lesion, the ratio may be greater than 10:1 or 1:10 (14). A study demonstrated that the use of a laser instead of a scalpel for removing gingival enlargements significantly reduces the recurrence of the disease (15). Other advantages of laser surgery over scalpel surgery include less discomfort and minimal or no bleeding (16). In addition to carbon dioxide and neodymium-doped yttrium aluminum garnet lasers, diode lasers with different wavelengths (e.g., 810 nm or 980 nm) have been used for oral soft tissue surgery (17-18). In addition, a blue light diode laser with a novel wavelength (e.g., 445 nm) might be a preferred option . Until now, therapeutic diode lasers used in dentistry have generally had wavelengths ranging from 810 nm to 980 nm. A study proved that the 445-nm blue light diode laser device that we used for our procedure has a more efficient cutting depth than traditional high-wavelength diode lasers without increasing thermal side effects . Compared with conventional high-wavelength red light diode laser systems, a crucial advantage of blue light lasers is that they penetrate less into the tissue and are less dispersed . Thus, the desired incision is made without causing serious thermal trauma to the adjacent tissues (4).

CONCLUSION

In summary, amlodipine-induced gingival plasma cell granuloma is a unique pathological entity that is defined by the presence of fibrovascular connective tissue stroma and mature polyclonal plasma cell sheets. The pathophysiology of amlodipine-induced gingival plasma cell granuloma of gingiva is thought to be multifactorial, however there is a chance that the drug/cellular interaction is relevant. Regardless of clinical judgment and/or apparent surgical success, this case underscores the necessity of biopsy atypical lesions to rule out probable neoplasms and the necessity of submitting the excised tissue for histopathological evaluation.

REFERENCES

1. Marshall RI, Bartold PM. Medication induced gingival overgrowth. Oral Dis. 1998;4:130–51. (PubMed) (Google Scholar)
2. Ellis JS, Seymour RA, Thomason JM, Monkman SC, Idle JR. Gingival sequestration of amlodipine and amlodipine-induced gingival overgrowth. Lancet 1993;341:1102-3.
3. Sucu M, Yuce M, Davutoglu V. Amlodipine-induced massive gingival hypertrophy. Can Fam Physician 2011;57:436-7
4. Braun A, Kettner M, Berthold M, Wenzler J-S, Heymann PGB, Frankenberger R: Efficiency of soft tissue incision with a novel 445-nm semiconductor laser. Lasers Med Sci. 2018, 33:27-33. 10.1007/s10103-017- 2320-9
5. Shek AW, Wu PC, Samman N. Inflammatory pseudotumour of the mouth and maxilla. J ClinPathol 1996;49:164-7.
6. AnilaNamboodripad PC, Jaganath M, Sunitha B, Sumathi A. Plasma cell granuloma in the oral cavity. Oral Surg 2008;1:206-12.
7. Soares J, Nunes JF, Sacadura J. Plasma cell granuloma of the tongue. Report of a case.HistolHistopathol 1987;2:199-201.
8. Ballesteros E, Osborne BM, Matsushima AY. Plasma cell granuloma of the oral cavity: A report of two cases and review of the literature. Mod Pathol 1998;11:60-4.
9. Phadnaik MB, Attar N. Gingival plasma cell granuloma. Indian J Dent Res 2010;21:460-2.
10. Neville BW, Doliglas D, Carl M, Jerry E. Hematologic disorders. In: Neville BW, Doliglas D, Carl M, Jerry E, editors. Oral and Maxillofacial Pathology. 2nd ed. Philadelphia: Saunders; 2002. p. 526-7.
11. Arthur S. Inflammatory pseudotumor. In: Mills SE, Carter D, Greenson JK, Reuter VE, Stoler MH (editors). Sternberg's.Diagnostic Surgical Pathology. Philadelphia: Lippincott Williams and Wilkins, 2010:1024-6.
12. Fletcher CD, Unni KK, Mertens F. Pathology and genetics of tumours of soft tissue and bone. France, Lyon, Larc Press, 2002:91-3
13. Acevedo A, Buhler JE. Plasma-cell granuloma of the gingiva.Oral Surg Oral Med Oral Pathol. 1977 Feb;43(2):196-200.
14. Peacock ME, Hokett SD, Hellstein JW, Herold RW, Matzenbacher SA, Scales DK, et al. Gingival plasma cell granuloma. J Periodontol. 2001 Sep 1;72(9):1287-90.

15. Mavrogiannis M, Ellis JS, Thomason JM, Seymour RA: The management of drug-induced gingival overgrowth. J Clin Periodontol.2006, 33:434-9. 10.1111/j.1600-051X.2006.00930.x
16. Vescovi P, Corcione L, Meleti M, et al.: Nd:YAG laser versus traditional scalpel. A preliminary histological analysis of specimens from the human oral mucosa. Lasers Med Sci. 2010, 25:685-91. 10.1007/s10103-010- 0770-4
17. Pick RM, Colvard MD: Current status of lasers in soft tissue dental surgery .J Periodontol.1993, 64:589-602. 10.1902/jop.1993.64.7.589
18. Derikvand N, Chinipardaz Z, Ghasemi S, Chiniforush N: The versatility of 980 nm diode laser in dentistry: a case series. J Lasers Med Sci. 2016, 7:205-8. 10.15171/jlms.2016.36
19. Amaral MBF, de Ávila JMS, Abreu MHG, Mesquita RA: Diode laser surgery versus scalpel surgery in the treatment of fibrous hyperplasia: a randomized clinical trial. Int J Oral Maxillofac Surg. 2015, 44:1383-9. 10.1016/j.ijom.2015.05.015

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