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Case Report

Challenges and solutions in plasma cell gingivitis: A clinical case analysis

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ABSTRACT

Plasma cell gingivitis (PCG) is an uncommon benign gingival condition characterized by sharply defined erythematous and oedematous gingival lesions, often extending to the mucogingival junction. This hypersensitivity reaction presents as diffuse, papillary gingival inflammation, prone to bleeding upon minimal trauma. Histologically, PCG manifests as a dense infiltration of normal plasma cells within collagenous stroma, typically localized to the free and attached gingiva. The primary management approach involves identification and avoidance of the allergen source, alongside nonsurgical periodontal therapy. We report a 26-years-old female patient diagnosed clinically as plasma cell gingivitis and confirmed histologically. Surgical treatment along with pharmacological interventions resulted in complete resolution of symptoms. This case underscores the importance of comprehensive evaluation and tailored treatment approaches in managing plasma cell gingivitis.

1. Introduction

Plasma cell gingivitis (PCG) is a rare inflammatory condition characterized by abnormal proliferation of plasma cells within gingival tissues, presenting as diffuse, erythematous, and hyperplastic lesions with associated symptoms such as pain, burning sensation, and bleeding gums.[1] It is also known as atypical gingivostomatitis, plasma- cytosis, idiopathic gingivostomatitis and allergic gingivostomatitis. Despite unclear etiology, PCG has been linked to allergic reactions to various agents. Its clinical resemblance to other pathologies underscores the importance of timely diagnosis through hematologic and serologic assessments.[2] Chronic inflammation in PCG significantly impacts oral health-related quality of life. We present a case of PCG in a 26-year-old female, focusing on clinical presentation, diagnostic challenges, and therapeutic strategies, aiming to enhance understanding and management of this condition.

2. Case Report

A 26-year-old female presented to the Department of Periodontics OPD, Government Dental College, Trivandrum, with complaints of pain, swelling, and bleeding episodes in her gums. The patient reported having poor oral hygiene characterized by the presence of calculus, stains, and dental plaque, resulting in severe inflammation and pain for the past few months. Additionally, the patient disclosed a medical history of hypothyroidism and was currently under medication. (Figure 9)

Upon intraoral examination, inflammation of the gingiva was observed in both the upper and lower jaws in the anterior region. Probing depths ranged from 6 mm to 12mm, with an attachment loss of 6mm in the mandibular

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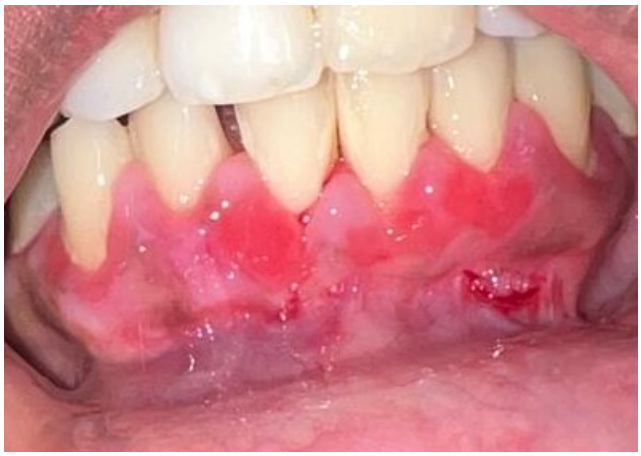

Figure 1: Inflammation of lower anterior part

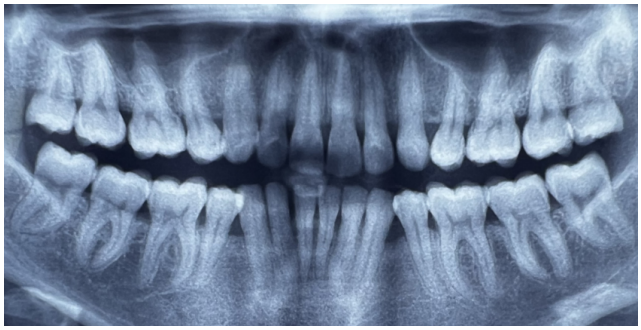

Figure 2: Panoramic view of Alveolar bone

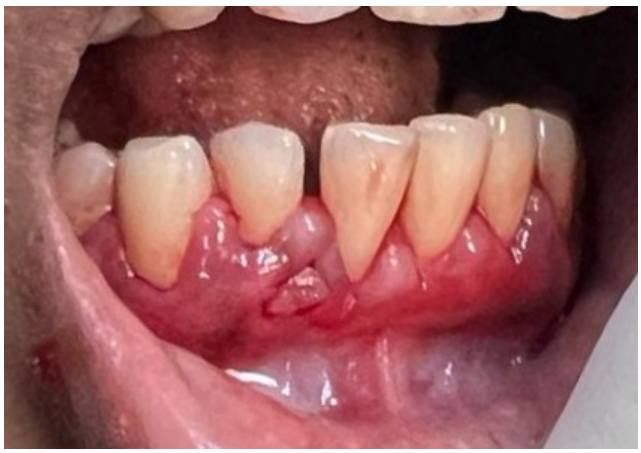

Figure 3: Incision for biopsy

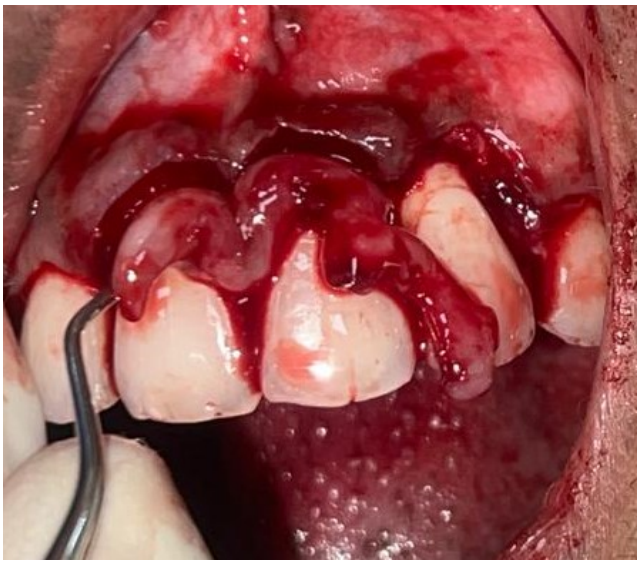

Figure 4: Excision

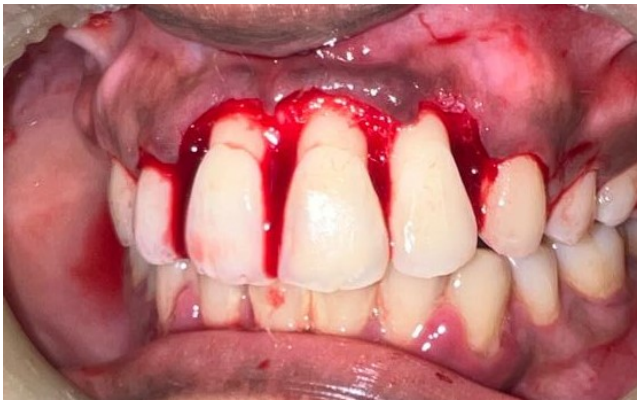

Figure 5: After excision

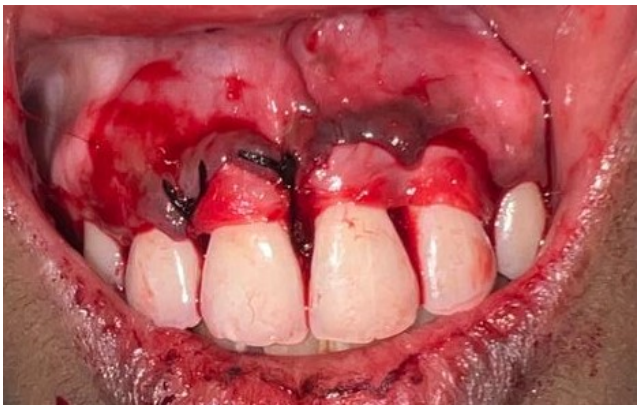

Figure 6: Collagen mesh placed

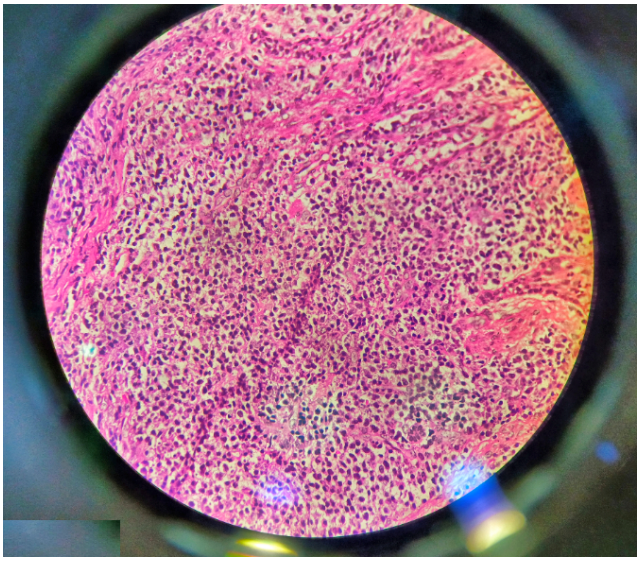

Figure 7: HPR at 40x

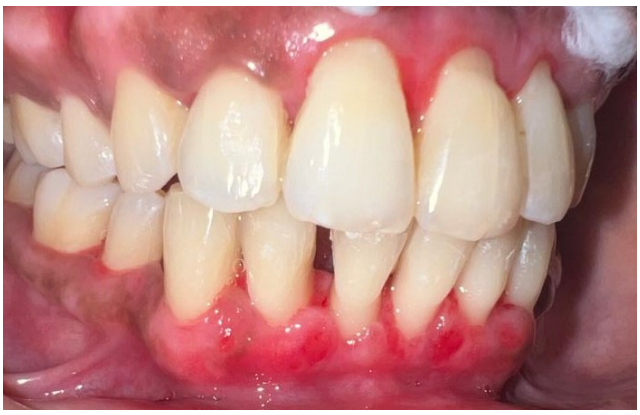

Figure 8: One month Post op

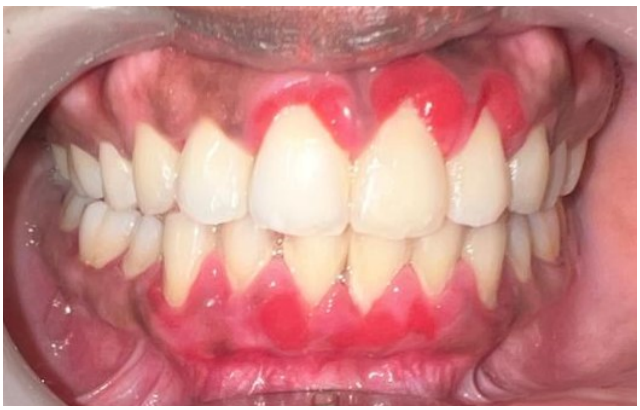

Figure 9: Inflammed gingiva (Pre op.)

anterior teeth region. The gingiva appeared reddish-pink with positive bleeding on probing. (Figure 1)

Initially, the patient was prescribed gum astringent ointment and chlorhexidine mouth rinse and asked to return for a review after two weeks. Despite slight improvement, inflammation and bleeding on probing persisted during the follow-up appointment. Phase I therapy was then performed, and additional oral hygiene maintenance instructions were provided.

Upon the patient's return after three months, severe gingival enlargement and spontaneous bleeding on probing were observed. Intraoral examination revealed the presence of dental plaque, supra and subgingival calculus, along with severe red oedematous friable gingival tissue. Mild horizontal interdental bone loss was noted on the orthopantomogram (OPG). (Figure 2)

An incisional biopsy was performed concerning teeth 41 and 42, including the marginal and attached gingiva. (Figure 3) The patient was referred to the Department of Oral Pathology for biopsy analysis, which initially reported inflammatory hyperplasia. Subsequent to the biopsy, deep gingival curettage was performed, and the patient received Metrohex gel, antibiotic prophylaxis, and chlorhexidine mouthwash.

Upon the next appointment, excisional biopsy was performed concerning teeth 11, 12, 21, and 22, followed by the placement of collagen mesh and suturing with 3-0 silk suture.(Figures 4, 5 and 6). Coe pak was applied for tissue healing and protection. The histopathological examination showed stratified squamous epithelium with oedematous pseudo-hyperplasia. The underlying connective tissue stroma exhibited fibro cellular tissue densely infiltrated with chronic inflammatory cells, predominantly plasma cells and lymphocytes, along with abundant endothelium-lined blood capillaries. At high magnification, numerous plasma cells were observed throughout the stroma, characterized by hyperchromatic, cartwheel-shaped nuclei. Based on these findings, a diagnosis of plasma cell gingivitis was established. (Figure 7)

The patient underwent a final review after the removal of Coe pak and sutures, ten days post-biopsy. The treatment resulted in significant improvement, demonstrating the effectiveness of the combined therapeutic approach in managing plasma cell gingivitis. (Figure 1)

3. Discussion

Plasma cell gingivitis (PCG) is a rare condition characterized by a significant infiltration of plasma cells in the subepithelial gingival tissue.[3,4] Clinically, PCG manifests as diffuse erythematous gingival enlargement with edema affecting both the marginal and attached gingiva in the anterior regions of the maxilla and mandible.[5] In 1995, Sollecito et al. classified PCG into three types based on etiology: Type 1, attributed to an allergen; Type 2, with a

neoplastic nature; and Type 3, of unknown origin. This case report pertains to Type 3 PCG, as it lacks a clear identifiable cause or allergen trigger.[6]

The patient's poor oral hygiene, compounded by the presence of calculus, stains, and dental plaque, likely exacerbated the inflammatory response.[7] The patient's medical history of hypothyroidism is noteworthy, as certain systemic conditions can predispose individuals to periodontal diseases. Hypothyroidism, characterized by decreased thyroid hormone production, may contribute to impaired immune function and delayed wound healing, potentially exacerbating gingival inflammation and disease progression.[8]

The accurate diagnosis of this condition mandates comprehensive evaluation, including clinical, histopathological, and haematological screening.[9] Given its resemblance to other aggressive conditions, differential diagnosis is crucial. Absence of skin lesions and a negative Nikolsky sign helped to exclude most cutaneous disorders. Despite normal haematological test results, the patient's inadequate response to initial periodontal therapy necessitated a tissue biopsy. The biopsy played a crucial role in eliminating the possibility of oral granulomatous lesions.[10,11] Additionally, blood picture provided reassurance by ruling out any hematologic malignancies.

S Dhir et al. suggested Candida albicans as a potential etiological factor, microscopic examination revealed the absence of fungal hyphae, effectively excluding any such infection in this case.[12] Histopathological analysis revealed a predominant population of plasma cells, indicating the definitive diagnosis.

Initial treatment modalities included gum astringent ointment and chlorhexidine mouthwash, aimed at reducing inflammation and controlling bacterial plaque.[13] However, the persistence of symptoms necessitated more aggressive intervention, leading to phase I therapy and subsequent deep gingival curettage. Management of plasma cell gingivitis typically involves a multifaceted approach, including thorough oral hygiene measures, professional periodontal therapy, and elimination of potential antigenic triggers. In this case, excisional biopsy and collagen mesh placement were performed to address the refractory nature of the condition and promote tissue healing.

Regular follow-up evaluations are essential to monitor treatment response and disease progression.[14] The significant improvement observed following treatment highlights the effectiveness of the therapeutic regimen employed in managing plasma cell gingivitis. In conclusion, this case underscores the clinical challenges associated with plasma cell gingivitis and highlights the importance of a comprehensive diagnostic evaluation and tailored treatment approach in achieving favourable outcomes for affected individuals.[15]

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None.

5. Conflict of Interest

None.

References

1. Younis RH, Georgaki M, Nikitakis NG. Plasma Cell Gingivitis and Its Mimics. *Oral Maxillofac Surg Clin North A*. 2023;35(2):261–70.
2. Joshi C, Shukla P. Plasma cell gingivitis. *J Indian Soc Periodontol*. 2015;19(2):221–3.
3. Joshi M, Prasanth T, Kosala M, Bhandari SK. Plasma cell gingivitis: A perplexing and rare clinical entity. *J Indian Soc Periodontol*. 2022;26(4):397–400.
4. Gargiulo AV, Ladone JA, Ladone PA, Toto PD. Case report: plasma cell gingivitis A. *CDS Rev*. 1995;88(3):22–3.
5. Janam P, Nayar BR, Mohan R, Suchitra A. Plasma cell gingivitis associated with cheilitis: A diagnostic dilemma! *J Indian Soc Periodontol*. 2012;16(1):115–9.
6. Sollecito TP, Greenberg MS. Plasma cell gingivitis. Report of two cases. *Oral Surg Oral Med Oral Pathol*. 1992;73(6):690–3.
7. Hirschfeld J, Higham J, Chatzistavrianou D, Blair F, Richards A, Chapple ILC, et al. Systemic disease or periodontal disease? Distinguishing causes of gingival inflammation: a guide for dental practitioners. Part 1: immune-mediated, autoinflammatory, and hereditary lesions. *Br Dent J*. 2019;227(11):961–6.
8. Aldulaijan HA, Cohen RE, Stellrecht EM, Levine MJ, Yerke LM. Relationship between hypothyroidism and periodontitis: A scoping review. *Clin Exp Dent Res*. 2019;6(1):147–57.
9. Gupta V, Kaur H, Yadav VS, Kala S, Mishra D. Clinicopathological and immunohistochemical analysis of plasma cell gingivitis- A retrospective study. *J Indian Soc Periodontol*. 2022;26(5):434–9.
10. Kaur H, Mishra D, Roychoudhury A, Bhalla AS, Ramteke PPS, Kumar L, et al. Plasma cells in oral lesion: A clue to diagnosis or a diagnostic dilemma. *J Oral Maxillofac Pathol*. 2022;26(4):591. doi:10.4103/jomfp.jomfp_398_21.
11. Vishnu V, Ramesh R, Radhakrishnan R, Sreelakshmi RM. Plasma Cell Gingivitis Mimicking Granulomatous Disease: A Diagnostic Dilemma. *Clin Adv Periodontics*. 2021;11(4):220–4.
12. Negi BS, Kumar NR, Haris PS, Yogesh JA, Vijayalakshmi C, James J, et al. Plasma-Cell Gingivitis a Challenge to the Oral Physician. *Contemp Clin Dent*. 2019;10(3):565–70.
13. James P, Worthington HV, Parnell C, Harding M, Lamont T, Cheung A, et al. Chlorhexidine mouthrinse as an adjunctive treatment for gingival health. *Cochrane Database Syst Rev*. 2017;3(3):8676. doi:10.1002/14651858.CD008676.pub2.
14. Timothius CJC, Stern I, Stern JK, Abdelsayed R, Peacock ME. Plasma Cell Gingivitis: Clinical and Pathological Case Report. *Compend Contin Educ Dent*. 1995;44(5):1–4.
15. Solomon LW, Wein RO, Rosenwald I, Laver N. Plasma cell mucositis of the oral cavity: report of a case and review of the literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2008;106(6):853–60.

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