

Plasma Cell Gingivitis

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Abstract: Plasma cell gingivitis [PCG] is a rare benign condition of the gingiva characterized by sharply demarcated erythematous and edematous gingivitis often extending to the mucogingival junction. It is marked by a dense infiltrate of normal plasma cells separated into aggregates by strands of collagen. As the name suggests it is diffuse and massive infiltration of plasma cells into the sub-epithelial gingival tissue. This case report outlines the case of PCG, which is suspected to be brought on by the usage of herbal tooth paste. Patient was advised to refrain from the use of herbal toothpaste and along with gingivectomy, no further reoccurrence was found. As more and more herbal products are gaining popularity, clinicians should be aware of effects of these products. Early diagnosis is essential as plasma cell gingivitis has similar pathologic changes seen clinically as in leukemia, HIV infection, discoid lupus erythematosus, atrophic lichen planus.

Keywords: Plasma cell gingivitis, Hypersensitivity, Plasma cells, Herbal tooth paste.

1. Introduction

A. Background

Plasma cell gingivitis (PCG) is a rare benign condition of the gingiva. It is marked by a dense infiltrate of normal plasma cells separated into aggregates by strands of collagen [1]. This disease was characterized by erythematous, edematous, nonulcerated gingival tissue, chiefly confined to the maxillary anterior gingiva and mucosa and occasionally accompanied by cheilitis and glossitis [2]. PCG is known by a variety of other names such as atypical gingivostomatitis, plasmacytosis, idiopathic gingivostomatitis and allergic gingivostomatitis. It is a hypersensitivity reaction to some antigen, often flavoring agents or spices found in chewing gums, toothpastes and lozenges. Early diagnosis is essential as PCG has similar pathologic changes seen clinically as in leukemia, HIV infection, discoid lupus erythematosus, atrophic lichen planus and cicatricial pemphigoid that must be differentiated through hematologic and serologic testing [3]. This case report outlines the unique case of PCG, which is suspected to be brought on by the usage of herbal tooth paste associated with unusual gingival enlargement in a 30-yearold patient.

B. Case report

A 30-years-old female reported to the Department of Periodontics and Implantology, Rajas dental college and hospital (Tamilnadu) with a chief complaint of painless, bleeding swollen gums in her upper and lower front teeth region [Figure 1]. Patient noticed the swelling 3 months ago in her front tooth region, which was slowly increasing in size. Intraoral examination revealed a marked erythematous, edematous, friable maxillary and mandibular gingiva extending from premolar to premolar. Clinical evidence of ulceration was not found. The upper labial mucosa was erythematous from the mucobuccal fold to the vermilion border. The commissures of the patient's lips were not involved. No other oral mucosal lesions were present. Gingiva had a reddish pink granular appearance and bleeding on probing was present. Probing depth ranged from 5 mm to 7 mm with an attachment loss of 2 mm to 3 mm in the maxillary & mandibular anterior teeth region. No mobility was present. Patient had a poor oral hygiene and improper oral hygiene measure due to fear of pain while brushing. Patient was systemically healthy and did not report a positive drug history. Physical examination revealed no cervical or submandibular lymphadenopathy and no facial asymmetry. The major salivary glands were non tender and produced normal saliva on palpation. No facial skin lesions were observed. After taking a detailed history, it was found that the patient was using colgate total toothpaste and changed to a herbal tooth paste since past 4 months. Radiographs showed the presence of physiologic bone level bone. Provisional diagnosis of the atypical gingivitis with gingival enlargement was made.

Treatment and follow-up:

Initial periodontal therapy comprising of scaling and root planing and oral hygiene instructions were given. Patient was also instructed to rinse with 0.2% chlorhexidine twice daily. The patient was advised to discontinue the use of herbal toothpaste. The appearance of the gingiva was not improved and complete resolution of enlargement was not accomplished after 15 days [Figure 2]. Gingivectomy was performed [Figure 3, 4, 5] and the excised mass was sent for biopsy. Postoperative follow up after 3 months showed firm and resilient gingiva with

no enlargement [Figure 6]. No reoccurrence was found after 6 months of follow-up.

C. Histological findings

Microscopic examination revealed a marked squamous hyperplasia with focal ulceration and diffuse dense subepithelial plasmacytic infiltrate consistent with PCG [Figure 7]. At higher magnification, plasma cells were seen without cellular atypia. The individual plasma cells had eccentric round nuclei with cartwheel chromatin pattern and an abundant cytoplasm.

2. Discussion

Plasma cell gingivitis is a rare condition characterized by diffuse and massive infiltration of plasma cells into the sub-epithelial gingival tissue [4]. Clinically, the illness presents as a diffuse reddening together with edematous swelling of the gingiva, with sharp demarcation along the mucogingival border. The etiology of PCG is not clear, but due to the obvious presence of plasma cells many authors suggest that it is an immunological reaction to allergens; these latter may occur in toothpaste, chewing gum, mint pastels and certain food [5]. It has been suggested that strong spices and some herbs such as chilli, pepper, clove and cardamom may be important factors.

For differential diagnosis, most cutaneous disorders were eliminated from consideration by the absence of skin lesions and also a negative Nikolsky sign. However, the patient's failure to appropriately respond to the initial periodontal therapy necessitated a biopsy of the involved tissue. The histopathological picture revealed replacement of underlying connective tissue by a population of cells predominantly made up of plasma cells thus indicating the diagnosis.

Owings in 1969 described four patients with the triad of cheilitis, glossitis, and generalized gingivitis, which he called "atypical gingivostomatitis." He speculated that the lesions were caused by an autoimmune reaction triggered by an anaerobe from the gingival crevice, a possible true allergic response, or an undetectable hormonal imbalance [6]. Poswillo discussed the possible neoplastic nature of a subset of the lesions.

In November 1971 Kerr et al described 12 patients, ranging in age from 11 to 58 years old, with what they called plasma cell gingivitis. These authors attributed the enlarged inflamed gingiva to a reaction to the flavoring in gum and candy. All 12 patients had a marked reduction in symptoms after they discontinued using the gum. Some of the patients were then given gum to chew for 15 minutes, with immediate return of the symptoms [8].

In 1977 Silverman and Lozada wrote an article entitled "An Epilogue to Plasma Cell Gingivitis." They believed that plasma cell gingivostomatitis was a transient syndrome affecting a few people during the period of 1966 to 1970 as a result of a hypersensitivity reaction to an unknown allergen [9]. Vickers and Hudson's suggested that *Candida albicans* was of etiologic

importance [10]. Although it was suggested that plasma cell gingivostomatitis syndrome had largely disappeared, Palmer and Eveson described two more cases in 1981 in which they were not able to identify an antigen. In 1983, Lubrow et al described a case caused by Dynamints (Warner Lambert Co., Morris Plain, N.J.), a popular hard candy [11].

Finally, in 1989 MacLeod and Ellis described a patient with plasma cell gingivitis whose symptoms coincided with the use of an herbal toothpaste. There appears to be three types of plasma cell gingivitis. One is caused by an obvious allergen (tooth- paste, chewing gum, and flavored mints), one is neoplastic, and a third is of unknown etiology [12].



Fig. 1. Baseline



Fig. 2. Phase one post-operative view



Fig. 3. External bevel gingivectomy



Fig. 4. Immediate post-operative view



Fig. 5. One-week postoperative view



Fig. 6. One-month post-operative view

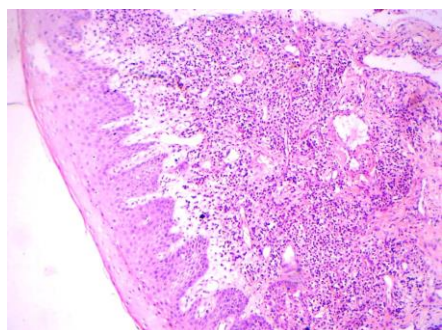


Fig. 7. Histopathological examination

3. Conclusion

Because PCG mimics lesions associated with other serious conditions, such as leukemia and myeloma, an early diagnosis is important. The case presented here highlights the adverse effects and irrational use of herbal agents in tooth paste. Thus, emphasizing the need for comprehensive history taking, examination and appropriate diagnostic tests in order to arrive at a definitive diagnosis and treatment plan for gingival conditions that are refractory to conventional therapy.

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