



## PLASMA CELL GINGIVITIS – A CASE REPORT.

### Dental Science

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### ABSTRACT

Plasma cell gingivitis is a disorder first described in the 1960s and was believed to be caused by an allergic reaction to flavored chewing gum and toothpaste. The lesion was believed to have been largely eliminated by removing the allergens from the products. We report a case, not related to a known allergen. When viewed in a total perspective, the clinical examination, history of change in toothpaste, laboratory data and histologic examination provide support for the diagnosis of Plasma cell gingivitis.

### KEYWORDS

Plasma cell gingivitis, toothpaste, allergen, plasma cells.

### INTRODUCTION:

Gingival enlargement is one of the frequent features of gingival diseases. However due to their varied presentations, the diagnosis of these entities become challenging for the clinicians. They can be categorized based on their etiopathogenesis, location, size, extent etc. Based on etiopathogenesis, enlargements could be inflammatory, drug influenced, those associated with systemic conditions or diseases, neoplastic or false enlargements. According to location, enlargements could be marginal, papillary or diffuse and based on distribution, it can be localized or generalized.<sup>1</sup>

The purpose of this article is to present Plasma cell gingivitis (PCG), which is primarily a hypersensitive response of the gingiva with abundance of plasma cells in connective tissue. The etiology is difficult to elicit; however specific known allergens have known to be responsible, ex: toothpaste, khat, food, chewing gum, and also unknown origin<sup>2</sup>. The importance of diagnosing plasma cell gingivitis is that the appearance of the gingiva can mimic a variety of more serious conditions such as, aggressive gingivitis which can be seen in HIV-positive patients differentiated from plasma cell gingivitis. Once the histologic diagnosis of plasma cell gingivitis is made, it is still imperative to identify the antigenic source of the inflammation.<sup>3</sup> The possibility of an allergic component in the etiology of PCG was suggested following reports of several cases 1966 and 1971 which were attributed to inclusion of unidentified antigen in various products, notably chewing gum and toothpaste<sup>4</sup>. Flavoring agents such as cinnamon have been suggested as possible allergens,<sup>5</sup> although in many cases, the exact identification of etiologic agent remains difficult. The treatment of this lesion involves removal of offending agent whenever it is identified.<sup>6</sup> The case presented here is a plasma cell gingivitis associated with unusual gingival enlargement in 37 year old female patient.

### CASE REPORT

Patient aged 37 years old reported to the Department of Periodontics, V S Dental College and Hospital, Bengaluru with the chief complaint of swelling and bleeding gums associated with burning sensation of the mouth on taking hot and spicy food for the past 3 months. The medical history was non-contributory. The positive history given was, switch to herbal tooth paste and Ayurvedic formulations in the form of powder and mouth rinsing oil.

Oral examination revealed generalized severe gingival enlargement, pronounced erythema, edematous gingiva with loss of stippling and bleeding on slight manipulation. Local plaque and calculus, loss of attachment with respect to maxillary anterior region with deep bite, generalized pockets ranging from 5-6 mm were seen. Retained root stump of deciduous canine tooth (53) was extracted under local anesthesia. There was no evidence of vesicular eruptions and Nikolsky's sign was negative. (Figure 1 a,b & c)



Figure 1a



Figure 1b



Figure 1c

A blood specimen was obtained in order to rule out Leukemia or other blood dyscrasias. The complete blood count and differential counts were normal.

A diagnosis of Plasma Cell Gingivitis was made based on the history, clinical examination and blood tests. A gingival biopsy was carried out to confirm the diagnosis as well as to exclude other conditions. (Figure 2a,b and c)



Figure 2a

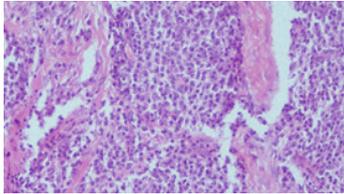


Figure 2b

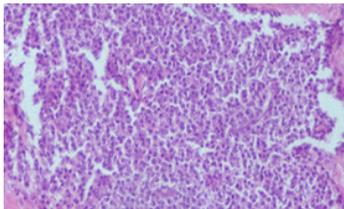


Figure 2c

Microscopic examination revealed parakeratinized stratified squamous epithelium with focal hyperplasia and areas of ulceration. Underlying connective tissue was densely infiltrated with sheets of mature plasma cells with eccentrically placed nucleus. Few lymphocytes and macrophages were present with evident Russel bodies. Thick fibrous band between the inflammatory infiltrate and few budding capillaries lined by endothelial cells were seen. Few odontogenic rests and foci of calcifications were present in lamina propria. (Figure 2b and c)

Orthopantomogram (OPG) and Cone Beam Computed Tomography (CBCT) examinations revealed alveolar bone loss with respect to maxillary anterior region. (Figure 3 a, b & c)



Figure 3b

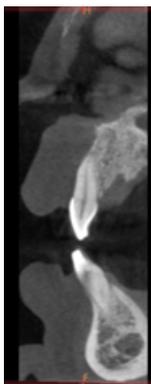


Figure 3c

The patient was advised to discontinue the herbal tooth paste. Initial therapy included oral hygiene instructions, oral prophylaxis- scaling and root planning, twice daily rinsing with 0.12% chlorhexidine for 2 weeks which improved the appearance of gingiva. But marginal gingiva and some parts of attached gingiva were still edematous. (Figure 4 a, b & c)



Figure 4a



Figure 4b



Figure 4c

**Discussion**

Plasma cell gingivitis is a rare condition, characterized by diffuse and massive infiltration of the plasma cells into the connective tissue. The first case was reported by Kerr *et al.* in 1981, when they observed gingival enlargement in gum chewers, which disappeared following the discontinuation of the chewing habit.<sup>7</sup> Plasma cell gingivitis has been classified into three types by Garguilo, Timms *et al.*, as an immunological reaction to allergens, neoplasia or of unknown origin. In our case, the etiology was unknown (and hence, can be classified as the third variant of PCG. Plasma cell gingivitis usually occurs in the anterior gingiva, most frequently in the maxilla. Even in our case, the patient showed pronounced enlargement of the facial gingiva in the anterior maxillary and mandibular regions.

Plaque induced gingivitis would normally involve the marginal gingiva alone and not the entire width of attached gingiva. In the present case, there was an inflammation of marginal and attached gingiva which was not responding to local therapy, and hence inconsistent with a plaque related etiology. Biopsy had helped to rule out oral granulomatous lesions. Blood picture cleared doubts about hematologic malignancies. Vickers *et al.* suggested candida albicans as an etiological factor; however, an absence of fungal hyphae under microscopic examination excluded any such infection in this case.<sup>2</sup>

Clinically, PCG presents as a diffuse reddening, together with edematous swelling of the gingiva, with a sharp demarcation along the mucogingival border. In our case, the patient presented with a fiery red gingival enlargement, localized to the anterior segment of the jaws, refractory to oral prophylaxis. These findings are consistent with earlier reports.<sup>9</sup>

Histopathologically, it is important to differentiate among the various plasma cell tumors. Aggregates of plasma cells must be carefully examined. Morphologically normal plasma cells are common constituents of allergic soft tissue reactions. However, sheets of atypical plasma cells may represent multiple myeloma, Waldenström's macroglobulinemia, or solitary plasmacytoma.<sup>4</sup>

It was apparent from the history, blood investigations and histopathology that there was some agent in the herbal toothpaste, and perhaps some forms in the Ayurvedic formulations, which served as an allergen to produce a PCG. Because herbal toothpaste and Ayurvedic medicines are formulations of complex ingredients, there are many possibilities as to what the antigen might be. In this case the specific

allergen could not be ruled from the history of the patient; however the symptomatic relief experienced by the patient by stopping the use of herbal toothpaste and Ayurvedic formulations and oral hygiene maintenance did improve the clinical picture of the case does pinpoint unknown cause. The highlight of this case is the exaggerated response of the gingiva in the form of enlargement associated with minimal etiologic factor (plaque and calculus). Case is being followed up. Plasma cell gingivitis, although a remote clinical entity, is of clinical significance. All efforts should be made for the management and meticulous follow up especially in cases with an unknown etiology.<sup>10</sup>

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