ISSN: 2455 – 9938
PubMed- National Library of Medicine - ID: 101731611

*EIJO: Journal of Science, Technology and Innovative Research (EIJO–JSTIR)*
*Einstein International Journal Organization (EIJO)*
*Available Online at: www.eijo.in*
*Volume – 8, Issue – 6, November - December - 2023, Page No. : 01 - 04*

# Plasma cell gingivitis: A diagnostic dilemma – Case Report

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**Type of Publication:** Case Report

**Conflicts of Interest:** Nil

## Abstract

Plasma cell gingivitis (PCG) is a benign condition of the gingiva, rarely encountered clinically as enlarged marginal and attached gingiva. It is histopathologically characterised by plasma cells infiltration in connective tissue. Hypersensitivity reaction due to antigen is thought to be as main etiological factor. Early diagnosis and intervention is essential as plasma cell gingivitis has similar clinical presentation as seen in leukemia, multiple myeloma, discoid lupus erythematosus, atrophic lichen planus, desquamative gingivitis, or cicatricial pemphigoid which must be differentiated through hematologic examination. The present case is of 18 years old, young female patient suffering from gingival enlargement reported in Department of Oral Medicine and Radiology in Divya Jyoti College of Dental Sciences and Research, Modinagar. On histopathological examination it was diagnosed as plasma cell gingivitis

**Keywords:** Atrophic, Hematologic, Leukemia, Plasma Cell

## Introduction

Plasma cell gingivitis (PCG) is a rare benign inflammatory condition of the gingiva. Various abbreviations of plasma cell gingivitis are atypical gingiva-stomatitis, idiopathic gingiva-stomatitis, allergic gingiva-stomatitis, and plasma cell gingiva-stomatitis[1]. The first incidence was reported back in the year 1952 when Zoon referred to the term as “plasma-cell infiltrate.” The lesions have also been reported on the lips, tongue, vulva, conjunctiva, nasal aperture, larynx, and epiglottis[2]. PCG is believed to be due to hypersensitivity reaction caused by allergen. Various allergens documented are chewing gums, certain components of toothpastes, cinnamon, mint, red pepper, and khat leaves[3]. However, PCG has been classified into three categories, based on the etiology as follows: PCG due to allergens, PCG due to neoplastic origin, and PCG due to unknown cause[4].

Clinically, PCG is characterized by fiery red gingiva, friable with oedematous consistency sharply demarcated often extending to the muco-gingival junction. Moreover, the gingiva bleeds easily on provocation[1]. PCG mimics lesions associated with discoid lupus, lichen planus, cicatricial pemphigoid, leukemia, and myeloma; thus, an early diagnosis in such cases is vital to the patient’s interest[1].

## Case Presentation

Female patient, aged 18 years, reported to the Department of Oral Medicine and Radiology in Divya Jyoti College of Dental Sciences and Research, Modinagar with the chief complaint of upper and lower swollen gums since 6-7 months.

Intraoral examination revealed generalized gingival enlargement covering up to the cervical third of the clinical crowns. Gingiva was red, oedematous, and friable, with the absence of stippling, and easily bleeds on provocation. Gingival enlargement extends from teeth 16 to 27 in the maxilla (Figure 1). Minimal local deposits were found in the mouth. There was no loss of attachment; however, generalized pseudo pockets ranged from 6mm to 8mm were recorded. The medical, dental, and personal history of the patient was non-contributory. Investigative hematologic examination was not significant. Nikolsky's sign was negative with no cutaneous lesion.

**Excisional biopsy was done to rule out PCG**

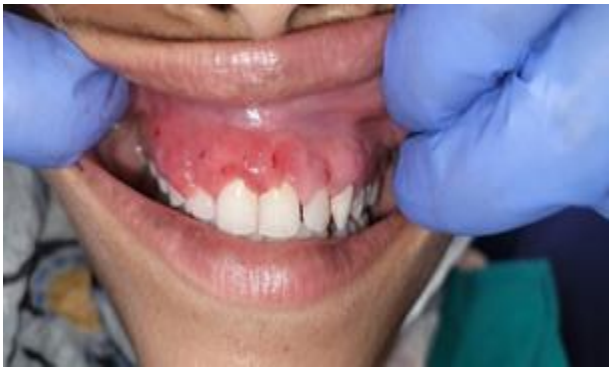

Figure 1: Pre-Operative View

Histopathological examination revealed parakeratinised stratified squamous epithelium with irregular rete ridges. The epithelium is spongiotic with prominent intercellular junctions in many areas. The underlying connective tissue demonstrates dense plasmocytic infiltrate chiefly composed of plasma cells and few other inflammatory cells like eosinophils and lymphocytes. At high power, these plama cells demonstrates eccentric round nuclei with abundant cytoplasm. Cartwheel appearance can be appreciated in many nuclei of these plasma cells. Scattered langhans giant cells with multiple nuclei arranged in horse shoe shape can be seen. Few homogenous, eosiniphilic, spherical Russell bodies can also be appreciated. Odontogenic cell rest can be noticed in few areas. Dense collagen bundles, hylanised in focal areas, interspersed with fibroblast associated with inflammatory component are present in the connective tissue. Numerous blood vessels of varying size and shape, many engorged with RBC's are scattered throughout the connective tissue. Above features were indicative of plasma cell gingivitis (puberty induced) (Figure 2).

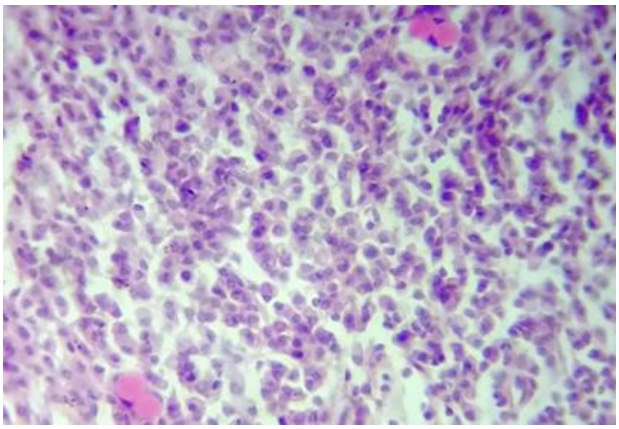

Figure 2: H&E stained slide showing extensive plasma cell infiltration along with hyalinised Russell bodies.

**Discussion**

PCG is a rare inflammatory condition, characterized by diffuse and massive infiltration of the plasma cells into the connective tissue[5]. Kerr and Kenneth in 1981 reported gingival enlargement in gum chewers, which disappeared following the discontinuation of the chewing habit[6]. Gargiulo et al. classified PCG as an immunological reaction to allergens, neoplasia, or of unknown origin[4]. Antigenic identification is necessary for proper diagnosis of the condition along with clinical, histopathological, and haematological screening[5]. However, in the present case, identification of antigen was unattainable; therefore, it was classified as the third variant of PCG. PCG resembles histologically as multiple myeloma and plasmacytoma, clinically as acute leukemia. Clinically, PCG is characterized as oedematous swelling with diffuse erythema clearly demarcated from mucogingival junction[1]. In the present cases, gingival enlargement was confined to maxillary teeth which was fiery red in color and obstinate to oral prophylaxis. These findings are consistent with earlier cases as documented by Joshi and Sukla[1]. In contrast to the case reported by Kumar et al., in present case, loss of attachment and severe bone loss were not appreciated [8]. In similar to the present case, Makkar et al. reported a case of PCG in a 17-year-old female with generalized aggressive periodontitis[9]. As presented in a most recent case series by Prasanna et al., a similar case of PCG associated with cheilitis[5]. Gingivitis, cheilitis, and glossitis have been described as a triad for plasma cell gingivostomatitis[6].

Histopathologically, it is crucial to differentiate PCG from various plasma cell tumors. Diagnosis by clinical exclusion, haematological, histopathological examination, helps to arrive at a diagnosis of PCG.

**Conclusion**

As PCG mimics various other fatal conditions such as leukemia and multiple myeloma, early diagnosis and prompt treatment of the lesion are necessary. Therefore, a careful case history taken along with hematological, histopathological, and immune-histochemical examination is necessary so as to exclude other lesions and come to a proper diagnosis.

**Consent:** Patient was explained about the lesion, and informed consent was taken.

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