CASE REPORT

Plasma cell gingivitis with severe alveolar bone loss

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SUMMARY

Plasma cell gingivitis is a rare benign condition of the gingiva characterised by sharply demarcated erythaematous and oedematous gingiva often extending up to the muco gingival junction. It is considered a hypersensitive reaction. It presents clinically as a diffuse, erythaematous and papillary lesion of the gingiva, which frequently bleeds, with minimal trauma. This paper presents a case of a 42-year-old man who was diagnosed with plasma cell gingivitis, based on the presence of plasma cells in histological sections, and severe alveolar bone loss at the affected site, which was managed by surgical intervention.

BACKGROUND

Plasma cell gingivitis, also known as atypical gingivostomatitis,^{1 2} idiopathic gingivostomatitis,³ allergic gingivostomatitis⁴ and plasma cell gingivostomatitis,⁵ is a rare benign inflammatory condition of unknown aetiology.⁶ It presents clinically as a diffuse, erythaematous and papillary lesion of the gingiva, which frequently bleeds, with minimal trauma.⁷ Plasma cell gingivitis is a rare benign condition characterised by diffuse and massive infiltration of plasma cells into subepithelial gingival connective tissue.

Ulceration is rare in the pathologically changed gingiva. Plasma cell gingivitis is the result of an allergic reaction to bacterial plaque, even though this might have since been eliminated by means of conventional periodontal treatment.⁸

It is thought to be a hypersensitivity response. The aetiology of plasma cell gingivitis has been allergens such as mint and cinnamon, which are present in toothpaste and chewing gum. Other categories of this disease can be neoplastic lesions or lesions of unknown causes.⁹ There have also been reports of bacterial plaque acting as an allergen.⁸

CASE PRESENTATION

A 42-year-old man presented with pain and swelling of the gums at the upper front region of his jaw over the past 1 year. The swelling was gradually increasing, causing masticatory problems and aesthetic deformities due to its size, and the patient's lips could not be closed properly (figure 1).

On clinical examination, a localised gingival swelling of 3 cm×3 cm was present in the patient's upper anterior jaw region. Plaque accumulation was present around the teeth and gingival bleeding occurred with even the slightest pressure. The solitary lesion was red, exophytic and sessile, with a broad base, and was haemorrhagic with bleeding on probing the area.

There was no relevant medical history. Routine haematological investigations were found to be

Figure 1 Preoperative facial view.

normal and an intraoral periapical radiograph showed severe alveolar bone loss in the affected area (figure 2). The patient was given a differential diagnosis of pyogenic granuloma.

The initial phase of the treatment plan consisted of oral hygiene instructions, scaling and root planing followed by periodic re-evaluation. Thereafter, it was decided to further treat the lesion with a surgical approach (figure 3). A thorough family and medical history was taken to rule out any contraindications for surgery. The required surgical procedure was explained to the patient and consent was taken. After oral prophylaxis, surgery was performed under a local anaesthesia (2% xylocaine with epinephrine). The enlarged localised lesion was excised up to the base of the lesion without bone exposure and total excision was ensured by removing the remnants of soft tissue to prevent recurrence of the lesion; the wound was sutured (figure 4). Antibiotics and analgesics were administered along with routine oral hygiene instructions to the patient.

The excised tissue was sent for histopathological examination, which revealed the presence of stratified, squamous, parakeratinised, hyperplastic epithelium overlying a densely infiltrated connective tissue. There was a dense infiltrate of plasma cells that were arranged in the form of sheets and a few areas showed the presence of Russell bodies (figure 5A, B). The histopathological examination confirmed diagnosis of plasma cell gingivitis. Immunohistochemical staining for κ and λ light chains was carried out to check for the presence of plasma cells and for confirmatory diagnosis (figure 6A, B).

Postoperative healing was uneventful and the patient's speech and masticatory problems were

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Figure 2 Intraoral periapical radiograph showing severe alveolar bone loss in affected anterior areas.

completely resolved. There was no recurrence of the disease at 6 month follow-up (figure 7) and a gain in bone level was seen in an intraoral periapical radiograph taken after 6 months (figure 8).

INVESTIGATIONS

An intraoral periapical radiograph was advised, which showed severe loss of alveolar bone in the affected area. All parameters were within normal physiological limits in the routine blood investigation performed.

DIFFERENTIAL DIAGNOSIS

Peripheral giant cell granuloma, irritational fibroma and pregnancy tumour, pyogenic granuloma, etc, were included in the differential diagnosis of the present case.

Figure 3 Peroperative view.

Figure 4 After complete excision of the lesion.

TREATMENT

Treatment involved complete surgical excision of the lesion.

OUTCOME AND FOLLOW-UP

Postoperative follow-up was carried out at 1, 3 and 6 months. Healing was satisfactory and postoperative 6 month recurrence was not found.

DISCUSSION

Plasma cell gingivitis is a rare condition characterised by diffuse massive infiltration of plasma cells into the subepithelial gingival tissue.¹⁰ Clinically, the illness presents a diffuse enlargement with oedematous swelling of the gingiva in the maxillary and

Figure 5 (A) Histopathological examination at $\times 10$ magnification revealing stratified, squamous, parakeratinised, hyperplastic epithelium overlying a densely infiltrated connective tissue. (B) Histopathological examination at $\times 60$ magnification showing dense infiltrate of plasma cells that was arranged in the form of sheets.

Figure 6 (A) Immunohistochemical staining showing strong positivity for the κ light chain seen in the polyclonal plasma cell population. (B) Immunohistochemical staining showing weak immunohistochemical expression, noted for the λ light chain.

mandibular anterior segment. Although the exact mechanism of plasma cell gingivitis is not known, in some cases it can be due to allergic origin, but most cases are without any known or identifiable agents. The aetiology of plasma cell gingivitis is not

Figure 7 Six month postoperative follow-up.

Figure 8 Six month postoperative intraoral periapical radiograph.

clear but due to the obvious presence of plasma cells many authors are of the opinion that it is an immunological reaction to allergens; however, the allergens are not easily identifiable.

Gargiulo *et al*,¹¹ in 1995, split plasma cell gingivitis into 3 types:

1. Allergic;
2. Neoplastic;
3. Of unknown origin.

The present case belongs to type 3, as the patient did not give any history of allergies. After histopathological and haematological investigation, diagnosis of neoplasm was ruled out. Many authors have found that the condition occurs due to unknown origin in the anterior gingiva most frequently in the maxilla. Here our patient also showed pronounced enlargement of facial gingiva in the anterior maxilla.

Gargilo and Legman, in 1976, reported a case of plasma cell gingivitis involving the attached gingiva, which strongly supports the clinical status of this case. In the present case, sufficient local deposits of plaque and calculus were detected. Enlargement involved the marginal gingiva as well as the attached gingiva. This finding was inconsistent with plaque-induced gingivitis, which would normally involve only the marginal gingiva.

The differential diagnosis of the condition is very important because of its similarity to some other aggressive conditions. Lesions of pyogenic granuloma are usually pedunculated with an ulcerated surface, which is not seen in plasma cell gingivitis.

The histopathological differential diagnoses were pemphigus, lichen planus, leukaemia and myeloma. Pemphigus and lichen planus were excluded on the basis of negative 'Nikolsky's Sign', biopsy and history. The absence of atypical plasma cells ruled out malignancy such as myeloma. The normal haematological investigation along with biopsy ruled out leukaemia. Immunohistochemistry determines the clonality of the lesion, where, in a reactive lesion, the κ to λ light chain ratio is 2:1, and in the case of malignancy the ratio may be greater than

10:1.¹² In the present case, the ratio was approximately 2:1, suggestive of an inflammatory aetiology.

Gingival ulceration is rare in plasma cell gingivitis.¹¹ In the present case, mild gingival ulceration was seen.

The management of a patient with plasma cell gingivitis should be symptom-based; plaque control and conventional therapies alone will not cure the disease. Possible allergens should be eliminated in an attempt to discover the underlying cause. In a patient with an unknown underlying cause allergy testing can be undertaken.

However, in spite of all possible evaluations and therapeutic interventions, some patients do not respond to treatment and no cause for the disease can be identified. In the present case, 6 month postoperative, recurrence was not found.

Learning points

- ▶ To find preventive measures to avoid aesthetic and functional problems of patients with plasma cell gingivitis.
- ▶ To educate patients on oral hygiene maintenance to prevent the recurrence of lesions.
- ▶ To make patients aware of the oral complications of such lesions.

Competing interests None.

Patient consent Obtained.

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