Case report

Unusual presentation of maxillary plasma cell gingivitis mistakenly treated as aggressive periodontitis. (A case report)

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1. Introduction

Plasma Cell Gingivitis is a rare benign inflammatory condition affecting the gingiva with an unknown etiology [1]. This disorder is characterized by diffuse infiltration of plasma cells into the sub-epithelial gingival tissue. Plasma Cell Gingivitis (PCG) is characterized by macular lesions that are bright red, velvety, sharply circumscribed, and flat to slightly elevated. Presentation of case: Female patient 38 years old, complain of mobility of upper right 7 with dull pain and swelling related to it. She also mentioned that the upper wisdom molar at the same side was extracted a year before due to the same reason. Extraction of upper right 7 and excisional biopsy of surrounding soft tissue was performed. Microscopic examination revealed marked squamous hyperplasia with focal ulceration and diffuse infiltration of plasma cells into the sub-epithelial gingival tissue. Plasma Cell Gingivitis (PCG) is characterized by macular lesions that are bright red, velvety, sharply circumscribed, and flat to slightly elevated. Plasma Cell Gingivitis needs radical management and a thorough diagnosis should be done to rule out hypersensitivity reaction to some allergens as food flavoring agents or oriental spices [4]. Plasma cell gingivitis has three subtypes; lesions of unknown etiology, lesions with an allergic origin, and lesions with neoplastic origin [5]. It has been hypothesized that the immunologic reaction to some allergic antigen might be the possible causative agent. Mint in the toothpaste, chewing gum, cinnamon aldehyde, strong spices, chilies, chewing of khat, and certain constituents of herbal toothpaste have been documented as the reported allergens in the literature [5–7].

PCG is characterized by macular lesions that are bright red, velvety,
sharply circumscribed, and flat to slightly elevated. Pruritus, burning sensation or pain occurs infrequently and the lesions are generally asymptomatic [8].

Plasma Cell Gingivitis mimics lesions associated with discoid lupus, lichen planus, cicatricial Pemphigoid, HIV-related gingivitis, leukemia, and myeloma, thus an early diagnosis in such cases is vital in the patient’s interest [9].

Fig. 1. Intraoral image for the swelling distal to the last molar in the maxilla.

Fig. 2. The extracted second premolar with the lesion biopsy.
2. Presentation of case

The current case report is recorded as recommended by SCARE checklist [10,11]. Female patient 38 years old, complain of mobility of upper right 7 with dull pain and swelling related to it. She also mentioned that the upper wisdom molar at the same side was extracted a year before due to the same reason. The patient said that her previous dentist informed her that the lesion in aggressive form of gum disease which needs no intervention other than regular cleaning.

During clinical examination patient showed poor oral hygiene where plaque and calculus were found in areas related to the affected site, gingiva showed a reddish purplish appearance which bleed on probing. Probing depth ranged from 10 to 12 mm and an attachment loss approaching 8 mm was recorded, mobility grade 3 of upper right 7 and palatal swelling related to upper right 7 the swelling is irregular in shape, soft, palpable, and slightly tender. Blood tests were done to exclude the presence of leukemia or any hematological disorders (Figs. 1 and 2).

Upon radiographic examination, the CBCT showed a complete loss of alveolar bone around the upper right second molar, also a significant horizontal bone loss was shown distal to upper right second premolar and mesial to the upper first molar (Fig. 3).

Phase I therapy was done including scaling and root surface debridement, patient was instructed to maintain oral hygiene care using a soft-bristled toothbrush, in addition, to rinse with 0.2% chlorhexidine twice daily for 2 weeks. The upper right second molar was a hopeless
tooth with a grade III mobility leading to its extraction and an excisional biopsy of surrounding soft tissue swelling was taken. Postoperative follow-up after 3 and 6 months showed no recurrence of the soft tissue swelling.

3. Histopathology of the lesion

Microscopic examination revealed marked squamous hyperplasia with focal ulceration and diffuse dense subepithelial plasma reticulate consistent with PCG. At higher magnification, plasma cells were seen without cellular atypia. The individual plasma cells had eccentric round nuclei with cartwheel chromatin patterns and abundant cytoplasm (Fig. 4).

4. Discussion

PCG and its aggressive form Plasma Cell Mucositis (PCM) is a very rare disease with unknown etiology, clinical aspects, and management. The decision of clinicians depends on clinical and histopathological data reported on a few published case reviews/case series.

The lesion usually arises as a result of a local irritant; which in case the patient becomes aware of early the lesion may regress spontaneously with nonsurgical periodontal treatment [12]. Silverman et al. proposed that Candida albicans may have a role in progress PCG [13]. Herpes virus also was considered a causative agent by Jayaraman et al. [14]. Last, chronic mechanical irritation may have a role in PCG pathophysiology [15]. Several cases of PCG were associated with chronic generalized periodontitis specially in plaque rich areas [2]. The plasma cell infiltrate
is usually found in plaque rich areas and this may help in easily differ-
entiation of lesion [16].

The PCG usually affects the full thickness of the gingival epithelial layer. In order to differentiate the PCG from the Acute Ulcerative Necrotizing Gingivitis; the surface structure of the lesions may have ulcerative lesions, but it doesn’t have the classical destructed dental papillae present in the acute necrotizing ulcerative gingivitis in cases of PCG with ulcerative phenotype [17].

A lot of treatment options were proposed to manage PCG such as corticosteroids, antibiotics, destruction by laser, electrocoagulation by cautery, excision of the tissue by ordinary surgical scalpel and even radiation therapy was proposed. Unfortunately, none of these have proven superiority or show high level of evidence.

Corticosteroids are used frequently with bad results. According to a systematic review of literature published in 1986 [15]; the use of topical or intralesional injection of steroids showed no improvement in symptoms at all. In other reports, corticosteroid was successful in reducing the size of lesion but this decrease in size was associated with scaring [18]. Fogarty et al. managed a case of PCG that involves the larynx with chemotherapy and steroids (prednisolone) and gained a temporary regression; but, symptoms remission after stopping the therapy [19].

Topical antifungals were used; based on the assumption that the tumour arise as a result of Candida infection. However, topical nystatin proved to be ineffective [15].

The PCG was treated with low dose radiation therapy which caused a relative improvement. However, in the end surgical excision by any mean remains the gold standard either by conventional surgical blades, electrocaugulation, CO2 laser or cryotherapy even with risk of recur-
ence [2].

In the current report, the surgical team performed complete scaling and root planning to remove the associated plaque in order to decrease any chance of recurrence or plaque induced exacerbation. The patient was instructed to change here feeding habits and tooth paste to avoid the possibility of exacerbation by unknown allergen. Last the lesion was excised by enblock removal followed by extraction of associated tooth which was hopeless and needed to be removed. The patient currently is under strict follow up to assess any early recurrence and satisfied with the no recurrence.

5. Conclusion

Plasma cell gingivitis needs radical management and a thorough diagnosis should be done to rule out and differentiate it from the ma-
lignant type of plasma cell tumors like multiple myeloma.

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Ethical approval

No Need for ethical approval because it was a standard treatment.

Consent

The patient fully consented for surgical treatment and consented for publishing of her photographic, histological and radiographic data.

Author contribution

Haitham Ahmed Helmy, BDS: Data Collection and Writing of Paper. Abeer fathy fadel, BDS: Data Collection and Writing of Paper. khaled Mohammad Mansour, BDS: Data Collection and Writing of Paper.

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Registration of research studies

None.

Guarantor

Yasser Nabil El Hadidi.

Declaration of competing interest

The authors certify that they have no affiliations with/ or involve-
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