Plasma Cell Gingivitis

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Plasma cell gingivitis (PCG), an infrequent benign inflammatory condition of unknown etiology, is a type of plasma cell orificial mucositis, which includes a wide spectrum of conditions. We present the case of a 13-year-old girl who had PCG with an erythematous congestive plaque on the anterior maxillary gingiva for 4 years. Occasionally, the lesion became increasingly swollen and painful and bled. Results of a histopathologic examination showed dense plasmacytic infiltrate in the dermis, affecting the dermoepidermal border, with immunohistochemical positivity in the κ and λ light chains and vascular proliferation. "Lozenge" keratinocytes, "watery" spongiosis, and exocytosis were seen in the epidermis. Laboratory analysis showed notably low levels of both serum IgA and secretory IgA. We consider whether secretory IgA at low levels has an important etiopathogenic role favoring the development of localized subclinical repetitive infections that could lead to chronic PCG.

Plasma cell gingivitis (PCG) is a benign inflammatory condition that is uncommon (at least in the dermatologic literature) and of unclear etiology. Usually, PCG is found on the anterior gum.[1,2] This condition is a type of plasmacytosis circumorificialis[3] or plasma cell orificial mucositis.[4] The broad category of plasma cell orificial mucositis comprises conditions similar to balanitis of Zoon[5]—conditions involving the orificial mucous membranes. These conditions have been reported on the lips,[4,6,7] tongue,[4] vulva,[8,9] conjunctiva,[9] nasal aperture, larynx, epiglottis,[10] and elsewhere.

PCG is characterized by macular lesions that are bright red, velvety, sharply circumscribed, and flat to slightly elevated. These lesions are generally asymptomatic, although some patients complain of pruritus, burning, or pain. Histopathologically, PCG is defined mainly by a dense, bandlike plasmacytic infiltrate in the upper dermis.[4,9]

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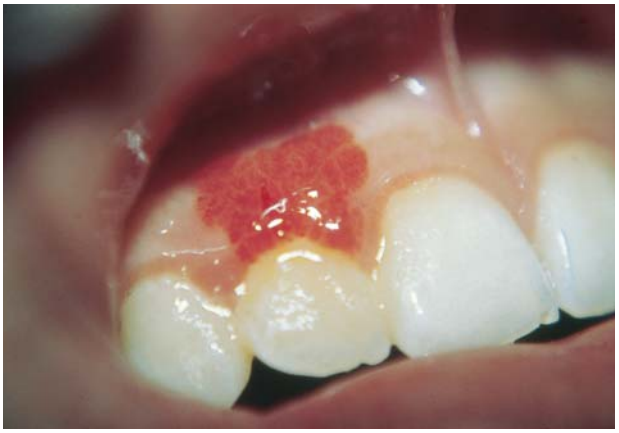

Figure 1. A bright red, slightly elevated plaque on the upper gum with a fine, whitish, superficial network.

Case Report

A 13-year-old girl without significant pathologic or dental history (other than the habit of chewing gum 2 or 3 times a week) had a bright red, congestive, asymptomatic plaque on her upper gum for 4 years. Occasionally and without any clear association with the girl's menstrual cycle, the lesion became increasingly swollen and bled; pain was sporadic during these episodes. The girl had used different dentifrices, all to no effect; she had not used mouthwashes. She had no cavities filled or dental surgery performed.

Results of a laboratory analysis showed notably low levels of both serum IgA (6.68 mg/dL; normal range, 90–385 mg/dL) and secretory IgA (0.3 mg/dL; normal range, 2–20 mg/dL); other immunoglobulin levels, hemogram, and general biochemical tests were normal. Results of serologic tests for syphilis and cultures for bacteria and fungi from a frotis of the lesion were negative.

Results of a physical examination of the oral cavity showed a bright red, slightly elevated plaque on the upper gum at the level of the right lateral incisor. The 1.1×0.9-cm plaque had a congestive aspect; a fine, whitish, superficial network; well-defined borders; and a T-shape (Figure 1). No other lesions were found.

With histopathologic examination, the epithelium showed discontinuous areas of hyperplasia

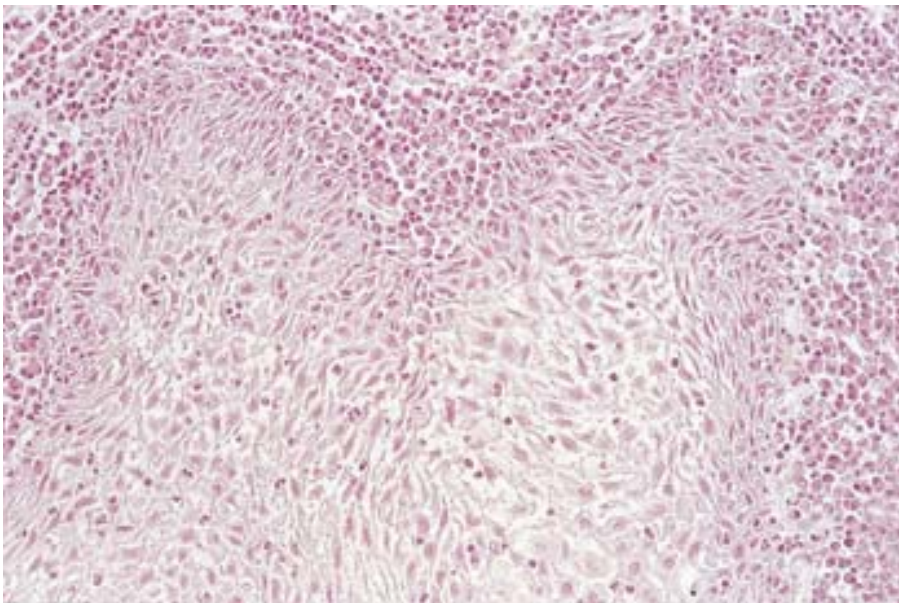

Figure 2. In the epithelium, there is an increase in cellular spaces between keratinocytes (watery spongiosis); also, diamond-shaped keratinocytes (lozenge keratinocytes) and exocytosis are present (H&E, original magnification ×100).

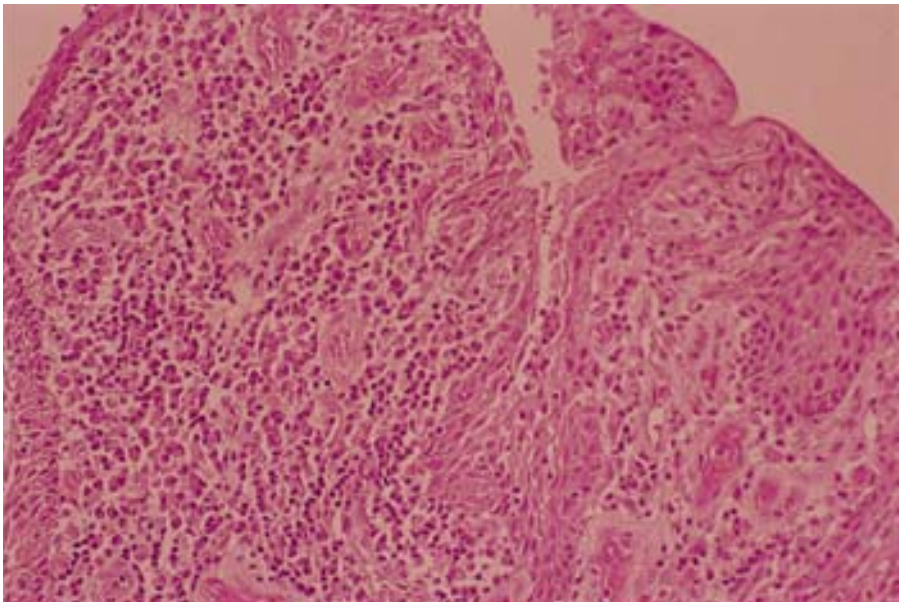

Figure 3. In the dermis, there is an intensely inflammatory infiltrate composed mainly of plasma cells (H&E, original magnification ×100).

(with acanthosis and papillomatosis) alternating with areas of atrophy. Also noted were an increase in the cellular spaces between keratinocytes, caused by watery spongiosis at this level, and an absence of horny and granular cell layers. The keratinocytes, in the suprabasal layers, were diamond shaped and wider than they were taller—that is, lozenge keratinocytes (Figure 2). In the dermis and on the dermoepidermal border, there was an intensely inflammatory infiltrate composed of plasma cells (>85%) and scarce amounts of lymphocytes, neutrophilic granulocytes, macrophages, and eosinophilic granulocytes (Figure 3). The epidermis showed little exocytosis of plasma cells, lymphocytes, or neutrophilic granulocytes; the upper dermis showed vascular proliferation and vasodilatation (Figure 4). Results of an immunohistochemical study showed a notable cytoplasmic positivity for the κ and λ light chains in similar proportions (Figure 5). Periodic acid-Schiff stain results were negative for fungi and yeast.

The patient stopped using chewing gum. Three different topical treatments were consecutively tried and evaluated for one month each: 0.5% hydrocortisone in Orabase®, 0.1% triamcinolone acetate in Orabase, and 2% fusidic acid. None of these treat-

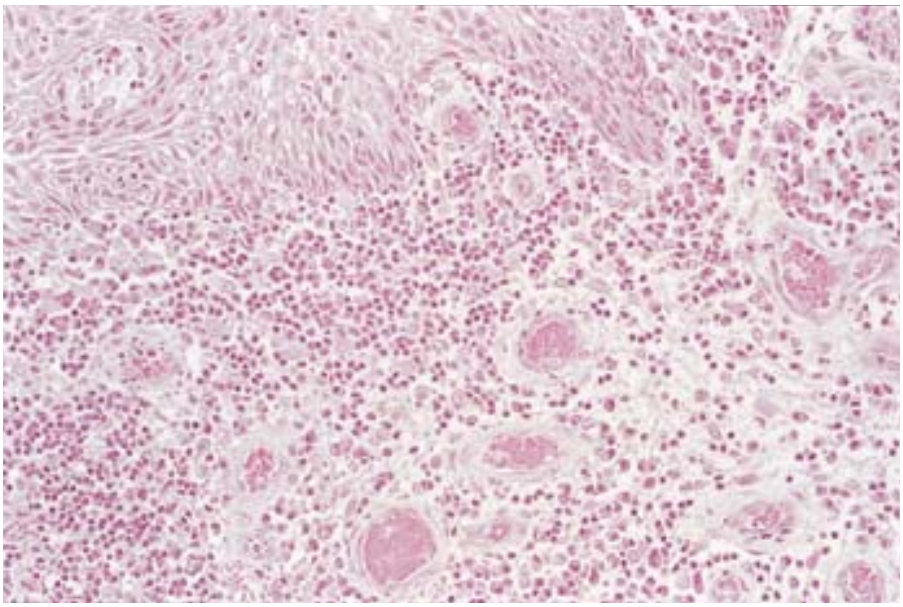

Figure 4. In the upper dermis, there is prominent vascular proliferation and vasodilatation (H&E, original magnification ×100).

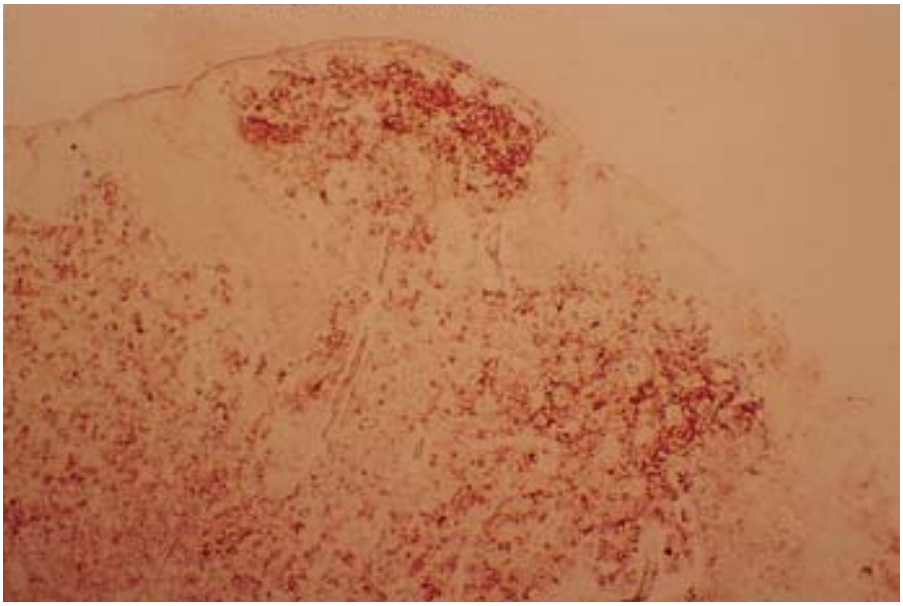

Figure 5. Immunohistochemical positivity for κ light chains (periodic acid-Schiff stain, original magnification ×25).

ments improved the condition. For this reason, superficial electrocoagulation of the lesion was performed. This treatment caused the lesion to disappear completely and remain asymptomatic for 2 years despite the patient's recurrent use of chewing gum.

Comment

Our patient presented with a lesion having clinical features of plasma cell mucositis and a fine, whitish, superficial network, probably produced by the acanthosis. However, the clinical spectrum of this entity is varied; both thickened, erythematous, fissured plaques[4] and infiltrated, yellow-orange plaques[6] have been reported. Superficial erosions are often present, especially in cases of cheilitis,[11] as are multiple brighter red pinpoints ("cayenne pepper spots").[12]

In addition, Ferreira-Marques[13] described an entity, plasmoacanthoma, with a debatable nosologic enclave. Plasmoacanthoma consists of a tumoral lesion or a vegetating nodule in the mucosal surface of an orifice; the histologic substratum of this lesion is characterized by intense acanthosis and hyperkeratosis (in the epidermis) and predominantly plasmacytic infiltrate (in the dermis). Some authors have included this entity within the spectrum

of plasma cell mucositis,[13] whereas others have classified it as a different pathology to retain its tumoral character.[4,14] Coexistence of lesions typical of plasma cell mucositis (eg, cheilitis) and lesions typical of plasmoacanthoma, as was reported by Van der Kerkhof and Van Baar,[15] favors the hypothesis that both patterns form part of the same pathologic entity and are derived from a common pathogenic mechanism that broadens the clinical spectrum of this pathology.

As already mentioned, from a histopathologic viewpoint, the intensely inflammatory infiltrate in the dermis and in the dermoepidermal border—infiltrate consisting mainly of plasma cells in the absence of epidermal neoformation—is considered characteristic of this pathology. However, Souteyrand et al[12] emphasized certain alterations in the epidermis (ie, atrophy, lozenge keratinocytes, watery spongiosis) and vascular proliferation in the dermis as typical symptoms. These characteristics are absent in patterns such as lichen planus, secondary syphilis, and candidiasis, which give rise to differential diagnostic problems. However, we emphasize that, although epidermal atrophy is a very common sign in some patients, including our patient, areas of atrophy alternate with areas of acanthosis[4]; and in other patients, only acanthosis has been reported.[6]

Although the etiology of PCG remains unknown, different predisposing factors in oral mucosa have been suggested: diverse allergens or irritants[16]; reactions to various dietary components[17]; and habitual use of chewing gum, fluoride dentifrices, or mouthwashes.[1,18] In the genital region, PCG has been attributed to continual friction; heat; poor hygiene; or chronic infections,[9,19] including a case of potential infection due to herpes simplex virus.[8] For this reason, and even more because many inflammatory conditions affecting the mucosal periorificial membranes appear with an infiltrate mainly of plasma cells, some authors have indicated that this entity could represent a nonspecific inflammatory response to an unknown exogenous agent.[20]

Our patient's clinical pattern remained unchanged after she stopped using chewing gum and was treated with topical steroids. However, in most cases attributed to hypersensitive reactions to the use of chewing gum, certain dentifrices, or certain mouthwashes, the clinical symptom is described as "burning mouth," and the affected area is more generalized (involving lips, tongue, and gums) and disappears after the implicated agent has been eliminated.[18]

Our patient's low levels of serum IgA and secretory IgA closely correspond to IgA deficits established for serum IgA levels less than 5 mg/dL. Secretory IgA inhibits adherence of germs to the mucosal surfaces of the genitourinary, respiratory, and digestive tracts and has an important protective role in these areas.[21] We think that our patient's notably low levels of serum IgA and secretory IgA could have an etiologic role favoring the development of localized, repetitive, subclinical infections that could lead to nonspecific chronic PCG. To confirm this assertion, however, we would need to check if the decreases occur in other cases. (In a case described by White et al,[4] serum IgA level was normal, but no mention was made of secretory IgA level.)

Clinical differential diagnoses include allergic and irritant contact dermatitis, lichen planus, fixed drug eruption, infectious diseases (mainly candidiasis and secondary syphilis), herpes simplex virus infection, and tumoral processes such as extramammary Paget disease and, above all, in situ carcinomas such as erythroplasia of Queyrat and/or infiltrated epidermal carcinomas. That serologic tests for syphilis and cultures for fungi had negative results and that the lesion followed a characteristic histologic pattern of PCG—in the absence of intraepidermal or infiltrative neoformation—enable us to make an accurate diagnosis. As we took our patient's clinical history, our attention was drawn to the occasional episodes in which her plaques increased in turgidity, pain, and bleeding; these symptoms had not been described in other cases and made us wonder about possible endometriosis. Given the hyperemic character of our patient's lesion, we instead established the differential diagnosis of hemangioma superficial. After the histopathologic study, however, we rejected both endometriosis (because of the absence of endometrial neoformation) and hemangioma superficial (because of the absence of vascular malformation).

As with other research using immunohistochemical studies,[2,4,22] our study showed a polyclonal pattern for the κ and λ light chains. This pattern confirms the benign reactive character of the disease. However, Noorily[7] reported a case in which myelodysplastic syndrome and plasma cell cheilitis coexisted (although Noorily did not establish an association between these pathologies).

Various topical treatments have produced different results. Some authors have reported that potent steroids (eg, clobetasol propionate), both topical[6] and intralesional, have produced remission, whereas other authors have reported clear resistance to these steroids and have recommended surgical excision, radiotherapy, or cryotherapy for severe cases.[4] Studies have shown good genital[23] and oral[12] responses

to topical treatments of 2% fusidic acid. Fusidic acid did not work for our patient, which surprised us because we had previously achieved good results applying Fucibet® (fusidic acid with betamethasone) in 2 cases of plasma cell balanitis unsuccessfully treated with clobetasol propionate (unpublished observations). Perhaps our young patient did not care for the bitter taste of the prescribed formula and did not apply it sufficiently, leading to its therapeutic failure. The excellent results obtained with superficial electrocoagulation, and its lack of associated complications, allow us to consider this a good therapeutic alternative, at least in the few cases resistant to conventional topical treatments.

Other therapeutic options are available. Morioka et al[8] obtained spectacular results using intralesional injections of interferon alfa in a case of plasmacellular vulvitis with tumoral aspect (of the plasmoacanthoma type), of possible viral etiology, that was resistant to topical and intralesional corticosteroid treatment, cryosurgery, and even resection with conventional surgery. In addition, Tamaki et al[11] obtained optimal results using oral griseofulvin in 2 cases of plasma cell cheilitis, one of which had been unsuccessfully treated with prednisolone and topical corticosteroids.

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