Foreign body gingivitis: An uncommon iatrogenic simulant of oral lichenoid mucositis

Stephanie T. Le, MD,[a] Brian Hinds, MD, MS,[b] Richard Jordan, DDS, PhD, FRCPath,[c] and Anna Haemel, MD[d]
San Diego, Sacramento, and San Francisio, California

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INTRODUCTION

Foreign body gingivitis (FBG) is a rare, chronic inflammatory disease characterized by an immune-mediated reaction against embedded foreign organic or inorganic dental restorative materials. Clinically, FBG is characterized by gingival erythema or erosions within the interdental papillae and free gingival margin that develop months to years after abrasive microtrauma from dental restoration or dental prophylaxis.[1] We report on a patient in whom dental veneer placement years earlier led to FBG, manifesting as chronic desquamative gingivitis and under the histopathologic guise of lichenoid mucositis.

Abbreviations used:

FBG: foreign body gingivitis
OLP: oral lichen planus

CASE

A 60-year-old woman presented with a 2-year history of multifocal sore and swollen gums. Approximately 1 decade prior, she had porcelain dental veneers placed on the maxillary and mandibular anterior teeth. Shortly after symptom onset, a gingival biopsy was interpreted at a local community hospital as "consistent with lichen planus." Several systemic medications were trialed, including hydroxychloroquine, cyclosporine, azathioprine, and mycophenolate mofetil, in conjunction with triamcinolone 0.1% ointment and tacrolimus 0.1% ointment. Oral prednisone with tapering doses provided limited relief, and with failure of the aforementioned systemic therapies, biologic therapy was pursued. While on adalimumab, the patient had a psoriasiform drug eruption. As a result, she was transitioned to ustekinumab and cyclosporine with marked improvement of her psoriasiform rash but continued to exhibit chronic desquamative gingivitis.

Her medical history was noncontributory. At the time of presentation, oral examination found mild erythema of the upper and lower gingiva with focal erosions along the gingival margins without white striations (Fig 1). No scalp or nail disease was present. The remaining examination included mild psoriasiform scale with pustules affecting the bilateral plantar surface with interdigital sparing. Potassium hydroxide preparation was negative for dermatophytosis.

A punch biopsy from the gingiva obtained and reviewed at our institution showed prominent spongiosis and acanthosis of the surface epithelium with a subjacent lichenoid infiltrate comprised of lymphocytes, plasma cells, and histiocytes, along with extravasated erythrocytes situated in a fibrotic superficial lamina propria (Fig 2). Focally, multiple irregularly shaped exogenous fragments (5 to 10 μc) of polarizable and nonpolarizable debris were identified amidst the inflammatory infiltrate (Fig 3). A diagnosis of FBG was rendered.

DISCUSSION

FBG is an unusual, likely underreported condition in the literature with approximately 150 cases to date.

From the Department of Dermatology, University of California, Davis, Sacramento[a]; Department of Dermatology, University of California, San Diego[b]; and UCSF Dermatopathology & Oral Pathology Service[c] and Department of Dermatology,[d] University of California, San Francisco.

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Correspondence to: Anna Haemel, MD, Assistant Professor of Clinical Dermatology, Department of Dermatology, University of California, San Francisco, 1701 Divisadero Street, 3rd Floor, San Francisco, CA 94115. E-mail: HaemelA@derm.ucsf.edu.

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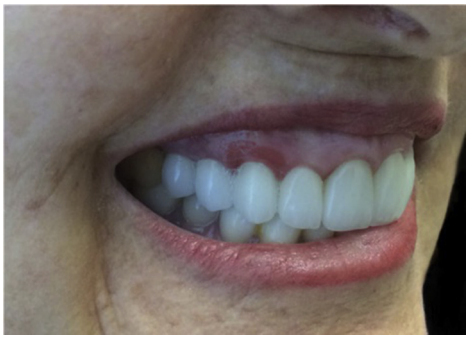

Fig 1. Band-like erythema with focal erosion of the marginal gingiva adjacent to the upper right canine tooth (#6). Note the porcelain veneers on teeth numbers 4 through 10 (right bicuspids, right cuspid, right incisors, left incisors).

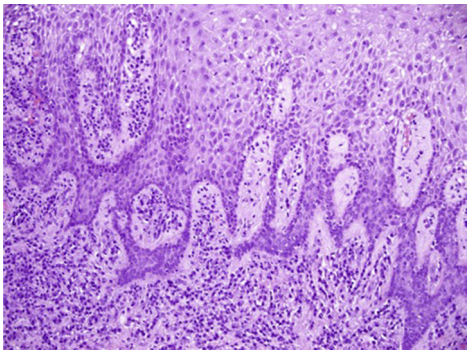

Fig 2. A 3-mm punch biopsy from the right upper gingiva shows a plasma cell–rich inflammatory infiltrate in the subepithelial lamina propria. (Hematoxylin-eosin stain; original magnification: ×100.)

In 1990, Daley and Wysocki[2] first coined the term *FBG* to describe a cohort of patients with refractory gingival disease and histopathologic features of granulomatous gingivitis coupled with deposition of foreign particles in the lamina propria. The authors later documented FBG in 0.3% of 19,534 oral biopsies at a Canadian university-based tertiary referral center in a 6-year interval. At the time, they acknowledged that FBG was unrecognized, so an incidence of 0.3% may alternatively be interpreted as the minimum incidence of FBG. According to prior studies, women (68%-84%) are more frequently affected than men (16%-32%), with a mean age of 48 years, which is similar to the demographics of patients with desquamative gingivitis, particularly lichen planus.[3-5]

The etiopathogenesis of FBG is not well understood. The leading hypothesis is an association with compromised gingival epithelium, which permits introduction of foreign bodies as a nidus for chronic inflammation in and around the gingival sulcus.[1] Risk is perhaps highest in patients who have predisposition for mucosal ulceration and chronic inflammation at the gingival sulcus, such as those with oral lichen planus (OLP), mucous membrane pemphigoid, or chronic periodontal disease.

Granulomatous inflammation is seen in only 50% of FBG cases.[6] Consequently, FBG may be misdiagnosed as one of several heterogeneous mucocutaneous conditions. In particular, FBG most closely mimics the clinical and histopathologic features of OLP, such as in our described case. FBG and OLP have many similarities with subtle differences that enable separation. The clinical distribution of OLP is symmetrical, and lesions may migrate with disease progression, whereas FBG is typified by fixed lesions within the marginal or interdental gingiva. Therapeutically, high-potency topical corticosteroids are first-line treatment for OLP but show minimal to no improvement in FBG.[7] Diagnostic suspicion for FBG should increase considerably if lichenoid interface mucositis is restricted to the interdental gingiva or proves recalcitrant to corticosteroid therapy. Although the disease course is chronic for both entities, OLP exhibits episodic flares coupled compared with FBG that persists indefinitely. Bacterial dental plaque reportedly incites flares of OLP, and symptoms may resolve with better oral hygiene practice. Paradoxically, FBG is unaffected by hygiene measures that target plaque prevention.

The propensity for clinical misdiagnosis highlights the necessity of a mucosal biopsy to establish the diagnosis.[2,7] FBG mimics OLP microscopically with a band-like infiltrate of lymphocytes at the submucosal-epithelial interface coupled with keratinocyte cytotoxicity. Microdeposits of often polarizable foreign particulate matter within and surrounding histiocytes and histiocytic giant cells are pathognomonic for FBG. Diagnostic criteria include histopathologic findings of (1) identification of foreign bodies in the gingival connective tissue in sites of chronic inflammation and (2) localization of the foreign bodies in at least 2 sequential tissue sections. A biopsy may require intense scrutiny given the small size of foreign particulate matter. Cases of FBG have been associated with amalgams, dental crown placement, dental prophylaxis, orthodontic treatment, and periodontal surgery.[1,8]

To date, efficacious conservative therapies for FGB are limited.[6] Topical corticosteroids commonly provide relief in lichenoid mucositis of divergent etiologies, but its role in FBG is less consistent.[9] The role of surgical excision and gingival grafting is controversial and has been suggested in the rare, extreme cases;

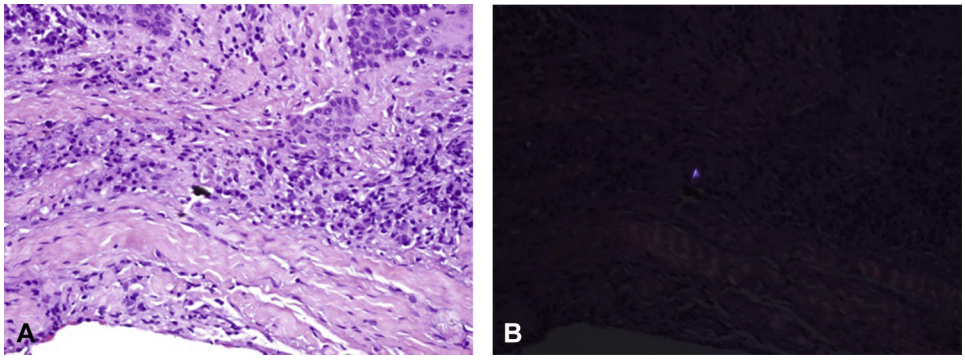

Fig 3. **A**, A 3-mm punch biopsy from the right upper gingiva shows multiple irregularly shaped exogenous fragments (5 to 10 μm) of polarizable and **B**, nonpolarizable debris. (Hematoxylin-eosin stain; original magnification: ×200.)

this treatment is probably impractical in the setting of multifocal involvement.[5] When discussing treatment options, it is important to counsel patients that FBG does not correlate with oral hygiene or calculus formation. Moreover, counseling should focus on an avoidance of air abrasion polishing, which can lead to further exacerbation in predisposed individuals.[9] All together, these factors should be addressed before pursuing any type of dental restoration. FBG is an unusual condition that may present with chronic desquamative gingivitis leading to diagnostic confusion or overt misdiagnosis as erosive lichen planus. Dermatologists should be aware of this entity to prevent diagnostic delay and untoward complications from a therapeutic arsenal better reserved for systemic mucocutaneous disorders.

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