

Allergic Response

Allergic contact stomatitis



Background.—Allergic contact stomatitis (ACS) is an immune-inflammatory disorder involving a T cell–mediated hypersensitivity reaction to an exogenous allergen or allergens in direct contact with the oral mucosa. Many agents can cause ACS, so patch testing may be required to identify the allergen. However, any diagnosis of ACS must be supported by an appropriate history and clinical results. Treatment is based initially on avoiding or removing the allergen, with persistent cases requiring topical, sublingual, or systemic glucocorticosteroids. The pathogenesis, clinical findings, diagnosis, and management of ACS were reviewed.

Pathogenesis.—Many immune cells and biological mediators in the oral mucosa can initiate a hypersensitivity response. The relatively slow incidence of ACS is likely explained by the constant flow of saliva, which flushes away potential allergens. Dysregulation of the oral mucosal immunity mechanisms or some other dysfunction of these mechanisms may allow the development of a hypersensitivity reaction.

ACS occurs when a genetically predisposed subject is sensitized to a specific allergen and then exposed to that allergen, usually more than a single time. The magnitude and duration of the response depends on the interactions between the signaling pathways of specific combinations of activated pattern-recognition receptors. It is possible that a critical minimal threshold of allergen is required for the exposure to result in clinically detectable ACS.

Clinical Manifestations and Diagnosis.—Few patients with ACS can pinpoint their exposure to the most common contact allergens (Table 1). The clinical features of ACS tend to be nonspecific, so the diagnosis is usually presumptive and confirmed when inflammation resolves after elimination of the suspected allergen. Localized allergenic triggers are associated with circumscribed stomatitis; agents in mouthwashes or food flavorings tend to cause widespread stomatitis. The differential diagnosis of ACS is extensive (Table 2).

Patients may manifest intense erythema, vesicles, erosions, ulcers, shaggy hyperkeratosis, or a combination of these. Often the lesions extend beyond the area where the exposure is presumed to have occurred. Reports of pain, burning, or itching in the area are not unusual, but all these symptoms usually resolve when the allergen is removed. The condition can be aggravated by concurrent exposure to an allergenic agent and local mechanical irritation. The nature and potency of the allergen dictate the clinical experience, along with length of exposure, allergen concentration, variant of the T cell–mediated response generated, and any dysregulation of the immune-inflammatory response. ACS is more often found in women than men but has no age predilection.

Diagnosis may require patch testing to identify the contact allergen. Test patches are usually applied to the upper back for 48 hours, with a second reading obtained 96 hours after removing the patch. This detects delayed immune reactions. Positive results indicating allergic contact sensitivity consist of erythema, edema, or small vesicles.

Management.—Once the diagnosis has been made, the patient should be instructed to avoid or remove the allergen. Topical corticosteroids are usually given, but

Table 1.—Some Agents That May Induce Allergic Contact Stomatitis

• Medications
Mouthwashes: chlorhexidine, Listerine ⁴
Topical anesthetics, ⁵ topical glucocorticoids ⁶
Inhaled budesonide ²
• Food, spices (particularly cinnamon), candies, chewing gum ⁷
• Gloves, rubber dams ⁸
• Dental impression material, gingival retraction cords ⁹
• Dental restorative metals ¹⁰
• Acrylic denture materials ¹¹
• Dental implants ^{12,13}
• Metal orthodontic devices ¹⁴

(Courtesy of Feller L, Wood NH, Khammissa RAG, et al: Review: Allergic contact stomatitis. *Oral Surg Oral Med Oral Pathol Oral Radiol* 123:559-565, 2017.)

Table 2.—Some Oral Mucosal Conditions to be Considered in the Differential Diagnosis of Allergic Contact Stomatitis^{3,16,26}

- Irritant contact stomatitis
- Erythroplakia
- Erythroleukoplakia
- Lichen planus
- Plasma cell gingivitis
- Mucosal changes secondary to anemia
- Burning mouth
- Non-specific inflammatory mucositis
- Immunoinflammatory conditions such as pemphigus vulgaris and mucosal pemphigoid

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severe, extensive lesions may require systemic corticosteroids and antihistamines.

Patients who have oral mucosal conditions such as recurrent aphthous stomatitis, oral lichen planus, angioedema, erythema multiforme, orofacial granulomatosis, and burning mouth syndrome are more likely than controls to test positively on patch tests for allergens such as metals, flavoring, and preservatives. It is possible that certain

allergens provoke a superimposed delayed hypersensitivity reaction that aggravates these mucosal conditions.

Clinical Significance.—ACS results from an antigen-specific T cell—mediated hypersensitivity response to an allergen or allergens in direct contact with oral mucosal areas. A definitive diagnosis is only possible by identifying and avoiding or removing the allergen. If the allergen cannot be detected, patch testing is required. Treatment involves the administration of topical corticosteroids for most patients, along with removal of the allergen. For those with more extensive involvement, systemic corticosteroids and antihistamines may be needed.

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Antibiotics

Prophylaxis against infective endocarditis



Background.—The fear that dental procedures can release blood-borne pathogens that could prompt the development of infective endocarditis (IE) has led to recommendations for the use of prophylactic antibiotics. However, in the light of all the problems with antibiotic resistance developing because of overuse of antimicrobial agents, the guidelines for the use of antibiotic prophylaxis (AP) for dental procedures are often unclear. The most succinct guideline is that patients at risk should receive AP before dental procedures that are associated with bleeding. However, the guidelines are not specific as to which procedures require AP and which do not, whether the same antibiotic can be used when multiple procedures are performed in a short period of time, which antibiotics are most acceptable and if they vary with patient factors, if prophylaxis is needed for patients with impaired host defenses, and whether using chlorhexidine mouthwashes before dental procedures should be combined with

antibiotics. A review of the current situation and recommendations for practice were offered.

Procedures Requiring AP.—Dental procedures that may involve bleeding should be covered by AP, whether the procedures are therapeutic, diagnostic, or screening (Box 1). Suture removal has been a questionable procedure with regard to AP, with the European and Australian guidelines not recommending AP and the US guidelines recommending it. Sutures are an unavoidable area where plaque accumulates, so the thread should be cleansed before use and cut as close to the tissue surface as possible. Some suture knots still become invaginated in the soft tissues, with removal marked by bleeding.

The current view is that sutures should be avoided whenever possible. Should their use be unavoidable and invagination occur and cause significant bleeding, AP should be administered within 2 hours of removal,