Title

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Case Report

Goodness, gracious, great balls of fire: A case of transient lingual papillitis following consumption of an Atomic Fireball.

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Abstract

Transient lingual papillitis is a benign condition characterized by the inflammation of one or more fungiform papillae on the dorsolateral tongue. Although it is a common condition that affects more than half of the population, few cases have been reported in the dermatological literature. Therefore, it is a condition uncommonly recognized by dermatologists though it has a distinct clinical presentation that may be easily diagnosed by clinicians familiar with the entity. We report an interesting case of transient lingual papillitis in a 27 year-old healthy woman following the consumption of the hard candy, Atomic Fireball. We describe treatment and resolution of the condition, and its recurrence following re-exposure to the identified culprit. This report further reviews the literature to illustrate the clinical manifestations, etiology, differential diagnosis, course, and treatment of this condition.

Keywords: transient lingual papillitis, oral pathology, oral conditions

Introduction

Transient lingual papillitis (TLP) is a common disorder first described by Whitaker et al. in 1996 [1, 2]. It is characterized by acute inflammation of the fungiform papillae located on the anterior dorsolateral surface of the tongue [1-3]. Its onset is abrupt and lasts one to several days, with quick resolution and low risk of recurrence [1-4]. Clinically, TLP presents with 2 to 3-mm solitary or multiple white, yellow or red papules, sometimes accompanied by erythema and/or edema [1-3, 5]. Patients may experience a burning prodrome and often complain of pain with the lesions [2-4]. The exact etiology of TLP has yet to be elucidated but trauma is thought to be the most likely cause [2]. Most cases appear to be multifactorial, with reported triggers including stress, viral infections, food and beverage hypersensitivity, and atopic disease [2, 3, 6], (Table 1).

Relatively few cases have been reported in the oral pathology literature, and even less frequently in the dermatological literature. We report the case of a 27-year-old woman presenting with TLP after exposure to the cinnamon-flavored hard candy, Atomic Fireball.

Case synopsis

A 27-year-old woman presented to our clinic complaining of red and white painful bumps on her tongue for three days. She reported mild irritation of the dorsolateral aspects of her tongue that grew increasingly painful prior to developing small papules. She denied new medications, toothpaste, mouthwash, recent illness, trauma, travel, or dental procedures. Her review of systems was negative for fevers, chills, cough, rhinorrhea, sore throat, abdominal pain, diarrhea, and headache. The patient was healthy and without significant medical history other than iron deficiency anemia. After further questioning, she reported eating two Atomic Fireballs two days prior to the onset of the eruption, but denied eating any other new foods.

On examination, she was noted to have multiple 1 – 2mm pink and white papules on the anterior two-thirds dorsal and lateral aspects of her tongue (Figures 1, 2).

Figure 1. Multiple 1-2mm white and pink papules on the anterior dorsolateral surface of tongue correlating with location of fungiform papillae.
Figure 2. Lateral view of TLP affecting anterolateral surface of the tongue. Sparing noted on the posterior tongue.

No lesions were noted on the ventral or posterior tongue (Figure 3). The buccal, palatal, and gingival mucosa were spared. Following examination, our differential diagnosis included contact stomatitis and transient lingual papillitis.

Figure 3. Unaffected ventral surface of tongue

Owing to the distribution and morphology of the lesions, we favored transient lingual papillitis as her diagnosis and the patient was treated with triamcinolone acetonide 0.1% dental paste twice daily as needed for symptomatic relief. A week later, the patient cancelled her follow-up appointment. She reported that the triamcinolone paste alleviated the pain and the rash had resolved within two days.

Weeks later, the patient presented to our clinic with a similar eruption (Figure 4). Once again, she reported that she had eaten the cinnamon flavored jawbreaker, Atomic Fireball, and developed the symptoms a day after eating the candy. She was re-started on triamcinolone dental paste and scheduled to return to clinic as needed.

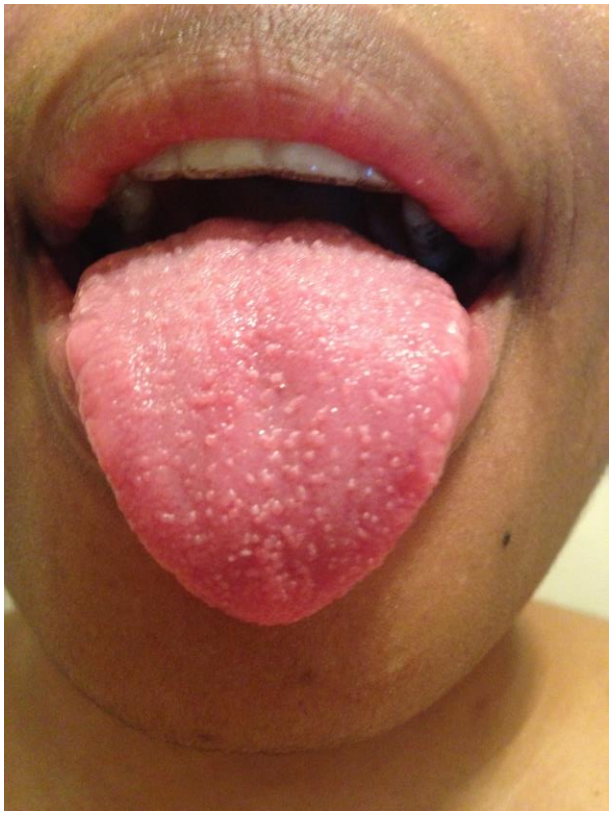

Figure 4. Diffuse 1-2mm papules on the anterior dorsolateral surface of the tongue

Discussion

Though infrequently reported in the literature, transient lingual papillitis is a common condition that is thought to mostly affect young women [2]. It is an inflammatory disease of the fungiform papillae of the tongue that often presents with pain. Most cases of TLP appear to be multifactorial, with various triggering factors noted across case reports [1-3, 7] (Table 1).

Table 1. Triggering factors associated with Transient Lingual Papillitis

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Mechanical trauma
Thermal injury (acute and chronic)
Stress
Hormonal fluctuations
Viral infections
URIs
Food and beverage hypersensitivity
Atopic disease
Contact or airborne toxins
Oral hygiene products
Fractured teeth
Oral appliances
Materials used in dental restoration procedures, including stainless steel crowns

Although thought to affect over half of the population, the exact prevalence of this common condition is unknown as it is often not captured clinically given its transient nature [2, 6]. Although TLP generally affects adults, cases have been reported in pediatric patients as young as 3 months of age [6].

On clinical presentation, patients may note an acute onset of a pale to yellow or erythematous papule with exquisite pain that is disproportional to the appearance of the lesion [1-4]. Hence the term "lie bump," a common pervading myth about TLP of a single, extremely painful papule that results from telling a lie [4]. Other variants of TLP have been described, including a papulokeratotic variant, which is florid in distribution and recurrent in nature, and may or may not be painful [2, 3]. Another commonly described variant is eruptive lingual papillitis, which is associated with infections, mostly URIs or strep throat. This variant is accompanied by fever, lymphadenopathy, and irritability, and is mostly seen in the pediatric population [8, 9].

Reported cases of TLP have had durations ranging from twenty-four hours to up to five days, hence the term "transient." Most cases undergo spontaneous resolution. Reassurance, with little to no treatment, is the usual course of action, although numbing rinses or topical coatings are noted to improve painful symptoms [6, 7, 10]. Biopsies are usually not conducted, though histopathologic evaluation in two separate cases revealed similar findings of focal ulceration, mild hyperkeratosis, and mild mixed inflammatory cell infiltrate with numerous small vascular channels [1, 11].

We describe a case with clinical features correlating with the papulokeratotic variant of TLP. Although TLP may present as a solitary or a few irritated papules, several cases of TLP have described florid papules, much like the case presented here. The patient's history, onset of eruption, and recurrence with rechallenge, suggest the Atomic Fireball as the triggering factor. The main ingredients of the Atomic Fireball are capsaicin and cinnamon, which are respectively known to cause irritant and allergic contact dermatitis of the oral cavity [12]. As allergens and irritants have been implicated as triggers of TLP, it is not difficult to understand how exposure to the Atomic Fireball could have resulted in the eruption. Whereas in this case it was relatively easy to identify the trigger of the patient's eruption, targeting a precise cause is often not successful, as evidenced by previously reported cases of TLP. Since most individuals do not experience recurrence of TLP, evaluating for the source of the eruption is often not necessary.

However, in regards to recurrent cases of TLP, it is important to gather further data in order to elucidate the trigger. Patients may be instructed to maintain a diary logging each episode, associated symptoms, and all exposures preceding the onset of eruption including food items, household products, and trauma, as some cases have been linked to atopy. These items can then all be eliminated and reintroduced individually until the offending agent is isolated. In one report, a similar strategy was utilized to detect fish hypersensitivity as the underlying cause of recurrent TLP [6]. Typically, however, the causative agent is not identified, and most individuals have resolution of symptoms without recurrence.

Differential Diagnosis

Given that the eruption occurred following contact with a known allergen and irritant, and that several cases of cinnamon-induced contact stomatitis have been reported in the literature, this diagnosis was at the top of our differential diagnosis [13, 14]. However, there were some features that led us to favor TLP over contact stomatitis. Firstly, the eruption was limited to the dorsal and lateral surfaces of the anterior tongue, with complete sparing of the posterior tongue and all other mucosal surfaces. The tongue is composed of fungiform and filiform papillae on its anterior dorsal and lateral surfaces, and valleate and foliate papillae on its posterior dorsal and lateral surfaces. As the eruption only occurred on the anterior surfaces of the tongue, this suggested that the inflammation spared the valleate and foliate papillae but involved the fungiform papillae. This inflammatory pattern is characteristic of TLP. With a contact stomatitis, one would expect for all areas in contact with the allergen/irritant to be affected. Given that the jawbreaker would likely have made contact with all surfaces and the buccal and palatal mucosa were spared in the presenting case, contact stomatitis is less likely.

Also, contact stomatitis has a much broader clinical presentation and may present as tongue itching, erythematous patches, urticarial plaques, leukoplakia, superficial erosions, ulcerations, and lichenoid eruptions [13]. Whereas, TLP presents with accentuation of the lingual papillae, as noted in Figures A-D, one could argue that TLP may be a clinical presentation of a contact stomatitis. This is reasonable as different reports have documented contact with irritants/allergens as a trigger of TLP. However, we believe that TLP is much more precise diagnosis of our patient's clinical presentation than the broad diagnosis of contact stomatitis. We further classified our diagnosis as the papulokeratotic variant of TLP given its florid distribution and recurrent nature.

Other conditions that should be considered include herpetiform aphthous ulcers and recurrent herpes simplex infections as these conditions are similarly acute in onset and multifactorial in etiology; they are documented to be triggered by stress, trauma, hormonal fluctuations, and illness [6, 15-16, 24-26], (Table 2). However, these entities may be readily distinguished from TLP by the noticeable ulcers that accompany them. Similarly, one could consider oral florid papillomatosis, oral Crohn's disease, oral lichen planus, and leukoplakia, but history and clinical evaluation is often sufficient to distinguish between these entities [17-23], (Table 2).

Table 2. Differential diagnosis of Transient Lingual Papillitis

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Condition	Clinical features	Histologic findings	Etiology
Transient Lingual papillitis	2 to 3-mm solitary or multiple white, yellow or red papules, sometimes accompanied by erythema and/or edema. Burning prodrome and often pain accompanies the lesions. [1-5]	Focal ulceration, mild hyperkeratosis, and mild mixed inflammatory cell infiltrate with numerous small vascular channels. [1,11]	Multifactorial including trauma, stress, viral infections, hormonal fluctuations, food hypersensitivity, atopic disease, oral appliances and oral hygiene products. [1-3, 7]
Contact Stomatitis	Erosions/ulcerations, erythematous lesions, leukoplakia-like lesions, geographic tongue, urticaria, intense itching, burning, paresthesia. [14]	Epithelial spongiosis and perivascular lymphohistiocytic infiltration. [13]	Dental prosthesis, amalgam fillings, flavoring agents (cinnamon, menthol), antimicrobials. [14]
Herpetiform aphthous ulcers	Comprises 7-10% of aphthous ulcers, small round or oval ulcers 1-3mm in diameter arising in crops of 10-150 lesions, with ulcerated floors surrounded by erythematous halo and edema, lasts 7-14 days. [15]	Central zone of ulceration covered by a fibrinous membrane, increased vascularity with mixed inflammatory infiltrate, and perivascular cuffing. [15]	Unclear, often multifactorial. Pathogenesis is T-cell mediated immune response. [16]
Leukoplakia	Precancerous lesions presenting as white patches or plaques on the oral mucosa. [17]	Epithelial acanthosis, atrophy, hyperkeratosis and/or dysplasia, or carcinoma-in-situ. [18]	Betel nut chewing, smoking, smokeless tobacco chewing, and alcohol [19]
Oral florid papillomatosis	A type of verrucous carcinoma. Early lesions appear as white patches on an erythematous surface, developing into extensive gray-white, warty tumors with deeply cleaved surfaces on gingival mucosa. Usually found on a background of chronic irritation or leukoplakia. Most commonly located along the inner aspects of the cheek along bite lines as well as the gingiva. [20-22]	Massively hyperplastic and exophytic epidermis with marked hyperkeratosis and/or parakeratosis. Demonstrates local invasion, koilocytes and chronic inflammatory lymphohistiocytic cells. [20, 21]	HPV (HPV-6/11), tobacco chewing, smoking, chronic inflammatory processes. [20, 21]
Oral Crohn's	Diffuse soft tissue swelling of lips and buccal mucosa, with cobblestoning or corrugated appearance, linear aphthous ulceration, angular chelitis, gingival hyperplasia, epithelial tags or folds, and submandibular lymphadenopathy. [23]	Parakeratinized stratified squamous epithelium with hyperplasia or atrophy along with areas of spongiosis or ulcerations. Chronic inflammatory cells (lymphocytes and macrophages) seen in connective tissue. Also isolated non-caseating granulomas in subepithelium. [23]	Deranged host immunity, nutritional and dietary factors such as negative breast feeding history, increased sugar intake, high level of food additives and chemical intake. [23]
Oral lichen planus	Interlacing white-to-gray thread-like papules on surface of posterior buccal mucosa sometimes with areas of erythema, erosions, or blisters. 6 patterns described: reticular, erosive, plaque-like, papular, bullous, and atrophic. Elevated white dot at intersection of white lines known as striae of Wickham [24]	Degeneration of basal cell layer accompanied by apoptosis of keratinocytes and band-like lymphocytic infiltrate at interface of epithelium and connective tissue; also saw tooth rete pegs, Civatte bodies, and Max-Joseph spaces have been described. [24]	T-cell mediated autoimmune process, drugs (NSAIDs, beta-blockers, sulfonylureas), contact allergens, viruses (HPV, HHV-6, and HCV have been associated), *H.pylori*, EBV, food additives. [24]
Recurrent herpes simplex infections	Prodrome of pain, burning, pruritis before eruption of painful vesicular lesions usually confined to keratinized epithelium (lips, perioral area, gingiva or dorsal surfaces of the tongue). [25, 26]	Ballooning degeneration of epithelial cells, intranuclear inclusion bodies and ground-glass appearance of some nuclei. [27]	HHV-1 and less commonly HHV-2. Sunlight exposure, trauma, and stress (physical or emotional) are associated with recurrence. [26]

Conclusion

Transient lingual papillitis is a common acute inflammatory condition of the fungiform papillae of the tongue. Owing to the transient nature of this disease, with most cases resolving within a few days, it is often not captured clinically. However, given its prevalence, and that patients often present to dermatology clinics with mucosal complaints, it is important to be familiar with this entity. Recognition and diagnosis of this benign condition may help reduce costly workup and patient anxiety. Although the exact etiology is yet to be elucidated, reassurance and symptomatic relief is adequate for treatment though recurrent cases may require further investigations to eliminate triggers.

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