



Geographic Tongue: Two Case Reports with Review

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Abstract

Geographic tongue is a recurrent benign condition of tongue, which occurs in a diversity of age groups, and more prevalent in females than males. It is usually an asymptomatic condition, but some patients give history of burning sensation, pain and during exacerbations submandibular lymphadenopathy. It has variable presentation in shape and size of lesions. Though it is a prevalent condition the definite etiology is not known. Usually considered as an oral manifestation of psoriasis, but definite results were not published till the date. This case report is to present the variable age groups and presenting symptoms and review about the possible etiology, associated factors and treatment of geographic tongue.

Keywords: *Geographic tongue, Wandering rash, Erythema migrans, Cervical lymphadenopathy.*

Introduction

Geographic tongue, or benign migratory glossitis, is usually an asymptomatic inflammatory disorder of the tongue mucosa of unknown etiology. It is characterized by circinate, erythematous, ulcer-like lesions of the dorsum and lateral border of the tongue due to loss of filiform papillae of the tongue epithelium. Lesions tend to change location, pattern, and size within minutes to hours. There have been many reports regarding the association between geographic tongue and psoriasis.^{1,2} Here we describe two cases of geographic tongue in two different age groups with review of literature.

Case Report 1

A female patient aged 5 years came to the department of oral medicine and radiology with a chief complaint of white patches over front

surface of tongue since one year, which were sudden in onset persists for one week and again reappears on other areas on tongue after 9-10 days. No history of burning sensation or any secondary discharges. Medical and dental history was non-contributory. On inspection four areas of depapillation are present on dorsal surface of tongue, measuring about 1.5 cm × 1 cm in their maximum dimensions, which are oval to irregularly shaped, surrounded by white circinate borders (Figure 1). On palpation, there was no tenderness and the lesions are non-scrapable. Based on the history and clinical findings, diagnosis was given as benign migratory glossitis.

Case Report 2

A male patient aged 35 years came with a chief complaint of burning sensation on tongue since 2 years, which is moderate in intensity, aggravated

to spicy foods and relieves on time, and patient gave history of white patches over tongue which are recurring in nature. Medical and dental history was non-contributory. Patient was a known smoker since one year and known alcoholic since 7 years. Intraorally on inspection there are three erythematous depapillated areas measuring 1.8×1.5 cm in their maximum dimensions and

lesions were covering almost entire left and right lateral surfaces, varying in shapes like oval, round and diffusely shaped surrounded by white border (Figure 2). No signs of any secondary changes. On palpation lesions were non-tender and non-scrappable. No signs of regional lymphadenopathy seen.

Figure 1(a) Profile and (b) Lesions on dorsal surface of tongue

(a)

(b)



Figure 3: (a) Profile and lesions on (b)dorsal surface of tongue

(a)

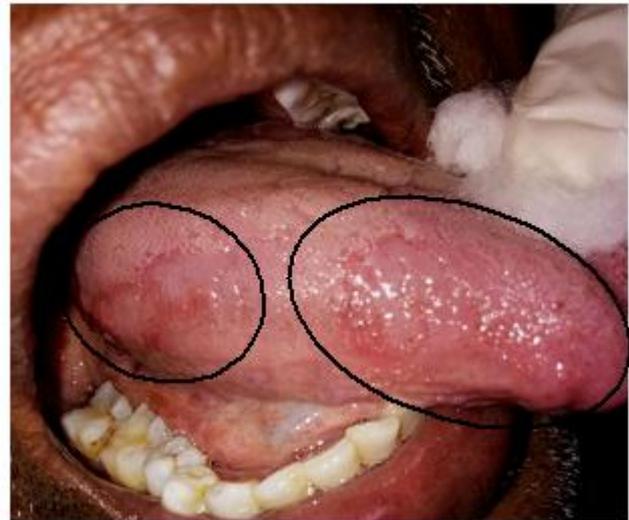
(b)



(c)



(d)



Discussion

Benign migratory glossitis is a recurrent condition of tongue of unknown etiology¹. It was first described by Rayer as “wandering rash of the tongue” in 1831⁵. The lesions heal and frequently develop quickly in other areas, prompting the name of benign migratory glossitis. Majority of the lesions are asymptomatic, but some cases show symptoms like pain, burning sensation, decreased taste sensation, sensing a foreign body or pain in the ear/ submandibular nodes^{1,2}. It has a prevalence rate of about 3% in united states³; according to Patil. S et al. Prevalence of total tongue lesions in India is 12.07%, of which geographic tongue constitutes 16.4% benign condition commonly seen on the tip, lateral borders and dorsum of the tongue.

According to analysis of Redman RS et al., the prevalence of this condition differs in no important respect according to age or sex, although there is possibility that it may be significantly greater among the very young (2 to 3 years of age)⁸.

Many risk factors have been proposed for GT: hormonal disturbances and oral contraceptive use, psychological findings, diabetes mellitus, allergic conditions such as atopy, hay fever and rhinitis and dermatological diseases such as pustular Psoriasis, seborrheic dermatitis and, pityriasis rubra pilaris (Wysocki and Daley, 1987); and Reiter's Syndrome. There is also a reported

correlation with Down syndrome (Ercis et al, 1996) and fissured tongue (FT). Emotional stress is one of the factors in the development of this condition.¹². Hubiche T et al., reported the occurrence of a geographic tongue in patients treated with some multitargeted kinase inhibitors humanized anti-VEGF (vascular endothelial growth factor) monoclonal antibody bevacizumab (Avastin, Roche) for patients as monotherapy for metastatic renal cell carcinoma. In a study conducted by Alikhani M et al. salivary level of IL-6 in GT was significantly higher.

Various Clinical Presentations: Geographic tongue varied clinically from small areas of loss of filiform papillae to florid widespread changes of edematous white areas surrounding denuded erythematous patches.¹¹ Migratory well-demarcated areas with elevated yellowish hyperkeratotic borders, erythematous erosions, with loss of filiform papillae, surrounded by white circinate rims type lesions were reported by Hubiche T et al.¹⁷

Histological Presentation: Histologic lesions parallel the clinical appearance of the epithelium of the tongue. Histologic examination may reveal an acute and chronic inflammatory infiltrate in the submucosa, with epithelial edema and with neutrophils forming micro abscesses. The central erythematous patch represents atrophy of the filiform papillae, have mononuclear infiltrates in sub- and interepithelial positions, two types of

basal cells (either typical epidermal basal cells or immature basal cells), filament and filament bundle formation in the spinous layer, lack of a stratum granulosum, and incomplete keratinization or parakeratinization in the surface layer. The white border is composed of regenerating filiform papillae and a mixture of keratin and neutrophils, leukocyte invasion into the epithelial layer, inter epithelial edema, rupture of cell junctions, glycogen deposits in epithelial cells, and exfoliation of necrotic cells in the surface layer^{5, 9, 16}. Differentiation into filiform papillae is lacking in the erythematous areas. Scanning electron microscopy has revealed that the surface of geographic tongue contains two types of abnormal mucosa: an atrophic area, on which the hair of filiform papillae is absent but the bodies appear typical, and a white margin of desquamating cells. Microfissures are located between atrophic and normal mucosa.⁵

Associated Conditions: According to Rezaei F et al., study conducted in 7-18 years old students there was no association between psoriasis and geographic tongue, but as the study group was lower age the authors expected the psoriasis may manifest at an elder age⁷. Wysocky et al. stated that there is a relationship between geographic tongue and diabetes and found a fourfold increase in the prevalence of geographic⁹. As per the studies conducted by Jainkittivong A, et al. to determine the association between geographic tongue and scrotal tongue, in the age group of 1 to 60 years and above patients there was a higher concurrence of fissures with the typical appearance of a central atrophic area bounded by a raised circinate line showed a significant co-existence^{9,13}, and there is a genetic linkage between the two conditions in males²². Atopy is one of the conditions that manifests geographic pattern on tongue¹⁰ and it was found that HLA antigen B15 were raised in these patients¹¹, but it is not exclusive to that disorder. It is more likely that it is a sign common to those patients who have a tendency to develop recurrent acute inflammatory diseases (asthma rhinitis) on

surfaces in contact with the external environment, whether or not they are atopic.¹¹ in children up to 2 years is the association between geographic tongue, seborrheic dermatitis, and spasmodic bronchitis was reported by rahamimoff et al., Diagnosis was mainly based on detailed history and clinical presentation.

Treatment: In asymptomatic case no treatment is required. Patient should be assured of the condition. Successful treatment with topical 0.1% tacrolimus for symptomatic geographic tongue was reported by Ishibashi M et al.,¹⁴ Tacrolimus is an immunosuppressive macrolide and its anti-inflammatory action is similar to that of cyclosporine, which involves the inhibition of interleukin 2 (IL-2) production by T cells.

Conclusion

In the present case reports two different age groups were determined which implies it has a wide range of age group and symptoms may or may not be present. More researches are needed to find out the exact etiology and factors associated for symptoms associated and non-symptomatic cases.

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