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### **Original Article**

# Prevalence and subjective knowledge of tongue lesions in an Indian population



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#### ARTICLE INFO

Article history: Received 29 October 2015 Accepted 18 December 2015 Available online 13 January 2016

Keywords: Tongue Fissured tongue Coated tongue Oral diseases

#### ABSTRACT

Aim: The current study was designed to determine prevalence of various tongue lesions and their association with age, gender, systemic illness, deleterious habits, and distribution over the surfaces of tongue. It also explored the awareness and knowledge of subjects in relation to presence of tongue lesions, etiological factor, symptoms, and treatment received if any. *Methods*: The present study was conducted on 1360 randomly selected dental outpatients from 1/10/2013 to 30/09/2014. Examination of tongue included surface changes, size, movements, and the presence of mucosal lesions. The subjects were asked about the knowledge, symptoms, and treatment obtained in case of awareness regarding the lesion.

Results: The prevalence of tongue lesions was found to be 13.75%. The most prevalent lesion was found to be coated tongue. The majority of the lesions were located on dorsum of tongue and not related with age, gender, habit, and systemic condition. A considerable number of subjects were aware of the changes on their tongue but negligible number sought any treatment.

Conclusions: The presence of tongue lesions in the study population was found be significant. Hence, general dental practitioners and health care providers should be educated about the diagnosis, etiology, investigations, and proper management of such tongue lesions.

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#### 1. Introduction

Tongue is a remarkable muscular organ which performs a host of diverse yet important functions such as taste, phonation, mastication, deglutition, suckling, maintenance of oral hygiene, protection of deeper structures, and facilitation of orofacial growth.<sup>1</sup> The easy clinical accessibility of tongue makes it a good indicator in oral and general clinical examinations. Due to its strategic location, various oral as well as systemic diseases often

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http://dx.doi.org/10.1016/j.jobcr.2015.12.007

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<sup>2212-4268/&</sup>lt;sup>®</sup> 2015 Craniofacial Research Foundation. Published by Elsevier B.V. All rights reserved.

encompass tongue in a diversified pattern, and hence consequently can hamper its structure and functions noticeably. Nevertheless, involvement of tongue is also seen in various syndromes such as Vanderwoude and Melkersson Rosenthal to name a few.<sup>2</sup>

Building and augmenting research aptitude in public health are highly recommended by World Health Organization for effective control of disease and the socioeconomic development of any given country.<sup>3</sup> Epidemiological studies performed in different locale have substantiated importance of tongue lesions considerably but extensive review of literature revealed lack of such studies being conducted in developing countries, especially in South East Asian region. With a working hypothesis that a considerable variety of lesions occur in the study population, the current study was designed to determine the prevalence of various tongue lesions in a population of socioeconomically underprivileged Purba Medinipur district of West Bengal, India and to assess the subjects symptoms, knowledge, and awareness of their tongue lesions, and the type of the treatment provided. The association of the lesions with age, gender, adverse habits, and underlying systemic disorder was also appraised in the present study.

#### 2. Material and methods

The present cross-sectional study was conducted on 1360 dental outpatients (10–70 years) who visited the Department of Oral Medicine and Radiology from 1/10/2013 to 30/09/2014. The study design was approved by the Ethical Committee of the institute and informed written consent forms in the local Bengali language were obtained from the subjects or their guardians who were willing to participate in the study. The study questionnaire collected information regarding age, gender, deleterious habits, and medical and pharmacological history. The consumption of tobacco in any form and alcohol were considered under deleterious habits.

All the investigators, oral medicine experts, were trained and calibrated by the most experienced investigator. To determine interobserver reliability, the initial 25 subjects were examined by all the investigators and Cronbach's alpha test was applied. The value of Cronbach's alpha test was 0.8 and thus the internal consistency between examiners was found to be good. Henceforth, tongue was examined by all the investigators under artificial light with conventional mouth mirror, tweezer, and gauze piece.

The universal precautionary measures were observed and the lesions were diagnosed according to WHO criteria suggested by Kramer and co-researchers.<sup>4</sup> Examination of tongue included surface changes, its size and movements, and the presence of mucosal lesions. As the questionnaire was open ended, the subjects were asked about the knowledge, symptoms, and treatment obtained in case of awareness about the lesion. The cases that required additional exams, such as biopsy (malignancy, lymphangioma, squamous papilloma, hemangioma, lichen planus, candidiasis, and leukoplakia) were included only after the final diagnosis was confirmed. The obtained data were compiled and subjected to statistical analysis using Statistical Package for Social Sciences (SPSS) software version 16 (SSPS Inc., Chicago, IL, USA). Chi square test was used to compare lesions with age, gender, habits, and systemic illness. Frequencies and percentages were calculated. *p*-Value <0.05 was considered statistically significant.

#### 3. Results

The study was conducted on 1360 outpatients, out of which 187 subjects showed presence of one or more tongue lesions with prevalence rate of 13.75%. Majority of the subjects, i.e. 103 (55.1%) were from 31 to 50 years age group. One hundred and four subjects (55.6%) were male and 83 (44.4%) were female, although the difference was not statistically significant (p value = 0.124). A total number of 81 subjects with tongue lesions gave history of tobacco consumption in some form but it was not significant statistically (p value = 0.06). Twenty-one varieties of lesions with total number counting to 222 were noted, with coated tongue (30.6%) being the most prevalent lesion (Table 1). As much as 25.7% subjects were suffering from some type of systemic illness with gastrointestinal disorders topping the list (Table 2). The various gastrointestinal disorders evaluated were gastritis, gastroesophageal reflux, and inflammatory bowel diseases. None of the patients were on medications which could cause manifestations on tongue. A statistical significance was noted with distribution of lesions which showed majority of the lesions (77.9%) located on the dorsum of tongue. Nearly 30% of the subjects were aware of the changes on their tongue with as much as 21.9% being symptomatic but astoundingly less than 5% of them sought any treatment for the same.

Most common tongue lesions in the study such as coated tongue, pigmented tongue, fissured tongue, and lichen planus were predominantly noted in middle age group (Table 3). Among them, pigmented tongue was significantly encountered in females (p value 0.003). The presence of lichen planus

Table 1 – Frequency and percentage of tongue lesions.			
S. no.	Lesion	No. of patients	Percentage
1.	Coated tongue	68	30.6
2.	Fissured tongue	45	20.1
3.	Pigmented tongue	29	12.9
4.	Lichen planus	19	8.5
5.	Partial ankyloglossia	17	7.6
6.	Geographic tongue	8	3.6
7.	Depapillated tongue	7	3.1
8.	Traumatic ulcer	4	1.8
9.	Traumatic fibroma	3	1.3
10.	Sqamous cell carcinoma	3	1.3
11.	Candidiasis	3	1.3
12.	Oral submucous fibrosis	3	1.3
13.	Aphthous ulcer	2	0.9
14.	Median rhomboid glossitis	2	0.9
15.	Hairy tongue	2	0.9
16.	Foliate papillitis	2	0.9
17.	Leukoplakia	1	0.4
18.	Hemangioma	1	0.4
19.	Varicosity	1	0.4
20.	Squamous papilloma	1	0.4
21.	Lymphangioma	1	0.4

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