

Prevalence of tongue disorders among patients attending the oral medicine clinic at a tertiary hospital in Nigeria

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Abstract:

Objective: Tongue lesions are health concern to both oral health care providers and the general public. This study was aimed at determining the prevalence of tongue disorders. **Method:** This was a retrospective study of the patients who presented at the Oral Medicine Clinic, University of Benin Teaching Hospital, Benin City, Nigeria, over a period of 3 years (January 2011 to December 2013). Patients' records for the period of study were carefully reviewed and all cases of tongue disorders within the study period were selected based on clinical diagnosis. Further confirmation of some of the tongue lesions was done with laboratory and histopathology investigations. **Results:** A total of 813 patients were seen during the study period, among which tongue lesions were diagnosed in 84 (10.3%) of the subjects. Males accounted for 39.3% (33), while females accounted for 60.7% (n = 51). Recurrent aphthous ulcer (RAU) (19.0%) and oral candidiasis (9.5%) accounted for most of the lesions affecting the tongue. RAU was highest in the third decade (n=6, 7.1%). Geographic tongue affected mostly patients below 30 years of age (n=6, 7.1%). Burning tongue was noticed more in patients over 70 years (n=3, 3.6%) while squamous cell carcinoma (3.6%) was observed in patients above 50 years of age. **Conclusion:** This study showed a 10.3% prevalence of tongue disorders. RAU and oral candidiasis were the commonest tongue disorders. Public health education regarding the diagnosis of these lesions is needed because in some cases early recognition of tongue lesions may provide useful diagnostic markers for some diseases.

Keywords: Tongue, disorders, prevalence

Introduction

The tongue may be involved in a wide range of oral mucosal disorder. Apart from this involvement in generalized oral conditions, several lesions are quite peculiar to the tongue. Many of these depend on alterations in the gustatory mucosa; a specialized epithelial covering of the tongue and, particularly in the papillae. These structures appear to be generally susceptible to changes brought about by some systemic abnormalities (1).

Most local tongue lesions can be categorized as congenital or developmental, traumatic, infectious, neoplastic, or idiopathic. Tongue lesions of systemic origin can be grouped into those that are related to infections, blood dyscrasias, immunologic disorders and metabolic diseases (3). In anaemias, major changes are seen on the tongue. Glossitis is the term used for red, smooth, and sore tongue, particularly characteristic of anaemia. In both pernicious and iron-deficiency anaemias, the tongue appears red and smooth with atrophy of the filiform papillae (4).

Previous studies reported that most commonly encountered tongue diseases resulting from

systemic conditions are median rhomboid glossitis, atrophic glossitis, fissured tongue, and geographic tongue, while among local conditions; there are papilloma, hairy tongue and leukoplakia with their possible malignant evolution (5, 6). Tongue lesions constitute a considerable proportion of oral mucosal lesions, and are of health concern to both oral health care providers and the public. Examination of the tongue and oral mucosa is an essential part of a general physical examination thus dental clinicians need to recognize and know a spectrum of disorders affecting the tongue (2). The common tongue lesion is pseudomembranous candidiasis. The soft, creamy patches of pseudomembranous candidiasis can be wiped off the mucosa, leaving erythema. Erythematous candidiasis causes widespread erythema and soreness of the tongue, sometimes with thrush (7). Treatment involves topical or systemic antifungals. Commonly used topical regimens include nystatin, clotrimazole (Mycelex troche), and systemic fluconazole (Diflucan). Systemic agents such as fluconazole, ketoconazole (Nizoral), and itraconazole (Sporanox) may be used for patients who have candidiasis refractory to topical therapy,

are intolerant of topical agents, or are at high risk of developing systemic infection (8-10).

The base-line data on tongue lesions are necessary for oral health planning and education. They are also of clinical and therapeutic importance for oral/dental health care providers (11). Most of the studies on tongue lesions had largely been conducted in developed countries. In Nigeria, little or nothing has been done in reporting tongue disorders. The aim of this study was to determine the prevalence of tongue disorders amongst patients reporting at oral medicine clinic, Benin city.

Subjects and methods

A retrospective study was carried out at the Oral Medicine Clinic, University of Benin Teaching Hospital, Benin City, Nigeria, over a period of 3 years (January 2011 to December 2013). Records of patients who were attended during the study period were carefully reviewed. All cases of tongue disorders were selected based on clinical diagnosis. Diagnosis of the various tongue lesions was done based on clinical presentation. Confirmation of diagnosis for some of the tongue lesions was based on laboratory and histopathology investigations. Data on patients' age, sex, clinical and laboratory diagnosis of the tongue lesions were abstracted from the records.

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) software version 16 (SPSS® Inc., Chicago, IL, USA). Univariate analyses were performed whereby frequencies of patient characteristics and distribution of various tongue lesions were generated. Ethical approval was obtained from the Research Ethics Committee, College of Medical Sciences, University of Benin, Benin City, Nigeria.

Results

Records of 813 patients were reviewed, of which 10.3% (n=84) of the records had a diagnosis of tongue lesions. Females accounted for 60.7% (n=51) giving a male to female ratio of 1:1.5. The highest proportion (27.4%) of the records were of patients aged between 21-30 years. (Table 1).

Table 1: Participants' age and sex distribution

| AGE GROUP (Years) | Sex | | TOTAL (%) (n=84) |
|-------------------|------------------|-------------------|-------------------|
| | Male (%) (n=33) | Female (%) (n=51) | |
| 11-20 | 5 (15.2) | 6 (11.8) | 11 (13.1) |
| 21-30 | 10 (30.3) | 13 (25.5) | 23 (27.4) |
| 31-40 | 6 (18.2) | 6 (11.8) | 12 (14.3) |
| 41-50 | 5 (15.2) | 5 (9.8) | 10 (11.9) |
| 51-60 | 3 (9.1) | 10 (19.6) | 13 (15.5) |
| 61-70 | 3 (9.1) | 5 (9.8) | 8 (9.5) |
| ≥71 | 1 (3.0) | 6 (11.8) | 7 (8.3) |
| TOTAL | 33 (39.3) | 51 (60.7) | 84 (100.0) |

There were diverse diagnosis of tongue disorders. The most prevalent being recurrent aphthous ulcer (RAU) (19.0%) followed by oral candidiasis (9.5%). RAU was highest in the third decade (n=6, 7.1%). Geographic tongue affected mostly patients below 30 years of age (n=6, 7.1%). Burning tongue was diagnosed more frequently in patients over 70 years (n=3, 3.6%) while squamous cell carcinoma and atrophic glossitis (3.6% each) were only observed in patients above 50 years of age. The least observed lesions were; tuberculous ulcer, traumatic neuroma, tongue paraesthesia, myositis, angioedema, herpetic stomatitis and idiopathic leukoplakia seen in one patient each, (Table 2).

Table 2: Distribution of tongue disorders by age groups and sex

| Tongue Disorders | Sex | | Age Groups | | | | | | | Total (n=84)(%) |
|----------------------------|-------------|---------------|------------|----------|----------|----------|----------|--------|--------|-----------------|
| | Male (n=33) | Female (n=51) | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | ≥70 | |
| Recurrent aphthous ulcers | 6 | 10 | 4 | 6 | 3 | 1 | 1 | 1 | 0 | 16 (19.0) |
| Oral candidiasis | 5 | 3 | 0 | 1 | 2 | 2 | 0 | 1 | 2 | 8 (9.5) |
| Geographic tongue | 4 | 3 | 3 | 3 | 0 | 0 | 0 | 1 | 0 | 7 (8.3) |
| Erythema Multiforme | 5 | 2 | 1 | 1 | 3 | 1 | 0 | 1 | 0 | 7 (8.3) |
| Allergic Mucositis | 1 | 6 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 7 (8.3) |
| Burning tongue | 1 | 6 | 0 | 1 | 1 | 1 | 1 | 0 | 3 | 7 (8.3) |
| Traumatic ulceration | 2 | 4 | 0 | 1 | 1 | 2 | 2 | 0 | 0 | 6 (7.1) |
| Tongue purpura | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 4 (4.8) |
| Squamous cell carcinoma | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 (3.6) |
| Fissured tongue | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 3 (3.6) |
| Atrophic glossitis | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 (3.6) |
| Pyogenic granuloma | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 3 (3.6) |
| Median rhomboid glossitis | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 (2.4) |
| Tuberculous ulcer | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 (1.2) |
| Traumatic neuroma | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 (1.2) |
| Tongue paraesthesia | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 (1.2) |
| Myositis | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 (1.2) |
| Angioedema | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (1.2) |
| Herpetic stomatitis | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 (1.2) |
| Idiopathic leukoplakia | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 (1.2) |
| Enlarged fungiform papilla | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 (1.2) |
| | 33(39.3) | 51(60.7) | 11(13.1) | 23(27.4) | 12(14.3) | 10(11.9) | 13(15.5) | 8(9.5) | 7(8.3) | 84 (100.0) |

Discussion

This study revealed a prevalence of 10.3% of patients with tongue disorders; those presenting with RAU and oral candidiasis were common. This was in contrast to a previous study (11) done in Jordan among a total of 2000 dental out-patients which reported a prevalence of 29.9%; with fissured tongue being the most common lesion observed in 11.5% of the subjects. These discrepancies might have been due to differences in sample sizes and methods of obtaining participants. All the patients in the Jordanian study were attending for routine dental check-up or for dental treatment unlike those in our study where patients were attending the oral medicine clinic for

diagnosis or treatment of oral soft tissue lesions. It is unlikely that patients with asymptomatic tongue lesions such as fissured tongue will attend the oral medicine clinic.

Recurrent aphthous stomatitis was the most frequent of the tongue disorders. This may be due to the fact that the lesion is painful and hence patients report early at the clinic for intervention unlike fissured tongue and erythema migrans which are sometimes accidental findings in patients during oral examination. The next common disorder affecting the tongue was oral candidiasis. Oral candidiasis is caused by an overgrowth of candida species and the risk factors include antibiotic and corticosteroid use,

immunodeficiency (e.g. HIV) diabetes mellitus, extremes of age and people with poor nutrition (12, 13). The stated risk factors, namely poor nutrition, injudicious use of antibiotics and immunodeficiency states are common in developing countries, thus not surprising to observe possible outcomes in form of oral candidiasis. Besides, oral candidiasis presents as unsightly whitish patches on the tongue. This may contribute in influencing the affected individuals to seek treatment.

Our finding of 8.3% prevalence of geographic tongue among young age subjects is consistent with that reported in other parts of the world (11, 14, 15). In general, the reported association of geographic tongue with sex is inconsistent. While our results demonstrate similar occurrence among males and females, comparable to other studies (16, 17), one study reported higher prevalence among females (11). Due to the fact that geographic tongue may cause a burning sensation on the tongue, symptomatic patients may be expected to seek treatment. On the other hand, its patchy appearance may also cause alarm to the affected individuals. This would in turn make the condition fairly common at the clinic.

Allergic mucositis which was also common amongst participants in this study was earlier reported among some Nigerian herbal toothpaste users (18). Researchers further reported that regular use of some herbal toothpaste available to consumers in the Nigerian market may result in unpleasant oral mucosal signs and symptoms. Upon withdrawal of the herbal toothpaste use cessation of symptoms occurred (18).

About 8.3% of the patients in the present study had burning tongue and it was more common in women, similar to previous observations (19, 20). Median rhomboid glossitis was found in 2.4% of the population. While most of the cases of median rhomboid glossitis are asymptomatic, some patients complain of persistent pain, irritation, or pruritus (21) which may influence care seeking.

Squamous cell carcinoma cases were found predominantly in patients above 50 years. This is in keeping with previous report that oral cancer occurs mostly in middle-aged adults and elderly patients with compromised cellular immunity (22). Age is frequently named as a risk factor for oral cancer, as historically it occurs in those over the age of forty. The age of diagnosed patients may indicate a time component in the biochemical or biophysical processes of aging cells that allows malignant transformation, or perhaps, immune system competence diminishes with age (23).

The present study is limited by the fact that there was insufficient number of patients to make a detailed statistical analysis. This limitation also made it difficult to compare our findings with some previously reported studies.

Conclusion

This study showed a 10.3% prevalence of tongue disorders the commonest being RAU and oral candidiasis. Majority of the tongue disorders occurred in patients in the third decade of life.

Conflict of interest:

None declared by the authors.

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