

A clinical and relevant pathological study of lingual lesions

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Abstract

Background: Lingual lesions have different presentations, some are present at birth and some lesions are acquired depending on etiological and environmental factors. The prevalence of lingual lesions globally is approximately 18.5%. In Indian studies, the incidence of lingual carcinomas in males was 6.5 per 100,000 per annum. **Method:** This descriptive study includes 50 cases of patients with lingual lesions who presented at our ENT Outpatient Department(OPD). Clinical evaluation was done at Sanjeevan Medical Foundation ENT PG Training Institute and relevant histopathological examination was carried out at Siddhivinayak Ganapati Cancer Hospital, Miraj, Maharashtra. The duration of study is one year from May 2019 to May 2020. The prevalence of lingual lesions was studied along with its age group and gender distribution, site of lingual involvement, associated conditions and habits. **Results:** The majority of lingual lesions was observed in the age group between 41 to 50 years with mean age 41.25. Most of the patients belonged to rural areas. Male to Female ratio was 1.94:1, indicating higher incidence of lingual lesions in males when compared to females. Tobacco chewing was a prevalent habit in most patients with malignant and premalignant lingual lesions and other habits of alcohol consumption, paan and betel nut chewing and smoking is also prevalent. 20%(10 cases) patients who presented with lingual lesions and gave history of tobacco chewing had associated oral submucous fibrosis, out of which 1 case had trismus. Aphthous lingual ulcers were the common lingual lesions encountered in 17 cases(34%) in our study followed by geographic tongue, traumatic lingual ulceration and ankyloglossia having 4 cases(8%) each respectively. **Conclusion:** Lingual lesions require a meticulous clinical examination with detailed patient history and presence of any suspicious lingual lesion or lingual patch should be biopsied in order to prevent disease advancement, metastasis and to provide timely therapy.

Key words: Clinical, Lingual lesions, Pathological, Benign, Malignant.

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INTRODUCTION

Lingual lesions of the oral cavity are diverse and vary in its origin, being either congenital or acquired depending on

etiological and environmental factors. The active and mobile musculature of the tongue is structurally and functionally significant for effective swallowing, taste sensing, and speech. Depending on the nature of the lesion or the presence of an irritant stimulus, the site of occurrence differs with different lingual lesions. The prevalence of lingual lesions globally is approximately 18.5%.¹ Dorsum of the tongue (77.9%) was involved by majority of lesions and Byahatti *et al.* stated a similar finding². Lingual lesions are variable, some are single, multiple, diffuse, ulceroproliferative and exophytic lesions. Congenital causes of lingual lesions include ankyloglossia and some could be syndrome associated. Syndromes like Van der Woude and Melkersson Rosenthal and few others have involvement of the tongue³. Tongue is

the commonly involved site for oral cancer with 22% to 39% occurrence⁴. In malignant oral lesions, most common site was the tongue in a study conducted in Allahabad, India⁵. Cancer of tongue survival rates was higher in women compared to men⁶. The prevalent habit of tobacco chewing in India together with paan or betel nut chewing, smoking, alcohol has greatly increased the occurrence of lingual and oral cavity malignancies. Tobacco and alcohol use have been reported in upto 70% cases⁷. In studies conducted in developing countries like India, the incidence of lingual carcinoma in males was 6.5 per 100,000 per annum. Carcinomatous lingual lesions should be clinically detected and managed at the earliest because lingual involvement and infiltration can lead to bilateral lymphatic spread and these carcinomas tend to produce skip metastasis at nodal level. Most common site for benign and malignant tumours was the tongue in the 10 year retrospective analysis published on malignant oral mucosa tumours. Lingual lesions caused by infective etiology include viral infections like herpes and human papilloma virus, fungal infections like candida albicans. These lingual lesions often affect immunocompromised patients especially in retroviral disease. Immune disorders are also likely to produce benign lingual lesions like canker sores. Other etiologies include vitamin deficiencies and laryngopharyngeal reflux. Frequency of lingual carcinomas is slightly more in males according to studies.

RESULTS

TABLE 1: AGE GROUP RELATED DISTRIBUTION

AGE GROUP	MALE	FEMALE	TOTAL
<10	3	2	5
11- 20	2	0	2
21- 30	7	1	8
31- 40	5	4	9
41- 50	4	6	10
51- 60	4	3	7
61- 70	4	0	4
>70	4	1	5
	33	17	50

The mean age is 41.25 and standard deviation is 20.2 in the age group distribution. The age range between 41-50 years had a high frequency of 10 cases(20%).

TABLE 2: GENDER BASED DISTRIBUTION

GENDER	TOTAL PATIENTS	PERCENTAGE[%]
MALE	33	66%
FEMALE	17	34%
GRAND TOTAL	50	100%

MATERIAL AND METHODOLOGY

Clinical study of lingual lesions was done at Sanjeevan Medical Foundation ENT PG Training Institute and histopathology reporting was done at Shri Siddhivinayak Ganapati Cancer Hospital, Miraj, Maharashtra.

Duration of Study: May 2019 to May 2020.

Study Material: Documented detailed history, clinical assessment and histopathological impression.

Inclusion Criteria:

1. Patients with lingual lesions presenting to Sanjeevan Medical Foundation ENT OPD for treatment.
2. Patients of all age groups.

Exclusion Criteria: Patients without structural lingual lesions having functional component.

Sample Size: 50 cases with lingual lesions.

Methodology: Patients were evaluated at Sanjeevan Medical Foundation ENT OPD from May 2019 to May 2020. This descriptive study included detailed documented history of the patient along with history of addictions followed by examination of the lingual lesion and suspicious lingual lesions were biopsied and sent for histopathology confirmation. The nature, type, location of lingual lesion along with orodental status and other associated conditions were studied. The performance of this descriptive analysis is based on mean, standard deviation and percentage wise distribution of data. The Chi-square statistical test was used for analysis certain categorical data association and 5% was taken as the level of significance.

TABLE 3: DISTRIBUTION OF LINGUAL LESIONS ACCORDING TO SITE OF INVOLVEMENT

SITE OF LINGUAL LESION	NUMBER OF CASES	PERCENTAGE [%]
ANTERIOR 2/3 rd (DORSUM)	11	22%
POSTERIOR 1/3 rd and BASE OF TONGUE	7	14%
RIGHT LATERAL BORDER	11	22%
LEFT LATERAL BORDER	6	12%
DIFFUSE	8	16%
UNDERSURFACE(VENTRAL)	7	14%

TABLE 4: DISTRIBUTION BASED ON ORODENTAL STATUS

ORODENTAL STATUS	FREQUENCY	PERCENTAGE[%]
JAGGED TEETH	4	8%
STAINED TEETH	12	24%
AVERAGE ORAL HYGIENE	34	68%
POOR ORAL HYGIENE	16	32%

TABLE 5: DISTRIBUTION BASED ON TYPE OF LINGUAL LESION Page 7

LINGUAL LESION	NUMBER OF CASES	PERCENTAGE[%]
APHTHOUS LINGUAL ULCERS	17	34%
LINGUAL TONSIL	2	4%
MUCOUS PEMPHIGOID	1	2%
ANKYLOGLOSSIA	4	8%
LEUKOPLAKIA	2	4%
LINGUAL MELANOPLAKIC PATCHES	1	2%
GEOGRAPHIC TONGUE	4	8%
HAMARTOMATOUS POLYP	1	2%
MUCOUS RETENSION CYST	1	2%
FISSURED TONGUE	2	4%
LINGUAL CANDIDIASIS	1	2%
GLOSSITIS	2	4%
OROFACIALDIGITAL SYNDROME	1	2%
TRAUMATIC LINGUAL ULCERATION	4	8%
WELL DIFFERENTIATED SCC[SQUAMOUS CELL CARCINOMA]	5	10%
MODERATELY DIFFERENTIATED SCC	1	2%
POORLY DIFFERENTIATED SCC	1	2%
TOTAL	50	100%

TABLE 6: DISTRIBUTION OF LINGUAL LESIONS ASSOCIATED WITH OTHER CONDITIONS

CONDITION	FREQUENCY	PERCENTAGE[%]
ANAEMIA	8	16%
LARYNGOPHARYNGEAL REFLUX[LPR]	6	12%
ORAL SUBMUCOUS FIBROSIS[OSMF]	10	20%
HYPERTENSION[HTN]	5	10%
RETROVIRAL DISEASE[HIV]	1	2%

TABLE 7: DISTRIBUTION ACCORDING TO BENIGN,PREMALIGNANT AND MALIGNANT CATEGORY OF LINGUAL LESIONS.

CATEGORY	FREQUENCY	PERCENTAGE[%]
BENIGN	40	80%
PREMALIGNANT	3	6%
MALIGNANT	7	14%
TOTAL	50	100%

TABLE 8: DISTRIBUTION BASED ON ADDICTIONS

ADDICTION	FREQUENCY	PERCENTAGE[%]
SMOKING	2	4%
ALCOHOL	1	2%
TOBACCO	12	24%

DISCUSSION

Lingual lesions were observed to be more prevalent in males than in females and the male:female ratio was 1.9:1. Out of 50 cases of lingual lesions, 33 cases were males (66%) and 17 cases were females (34%). The age group mean for lingual lesions was 41.25 (age range- 41-50) and standard deviation was 20.2. In patients aged 40 years and above, 90% presented with lingual lesions [8]. Benign lingual lesions comprised as majority of 40 cases (80%), premalignant lingual lesions were seen in 3 cases (6%) and malignant lingual lesions were noted in 7 cases (14%). Aphthous ulcers were frequently observed benign lingual lesions in 17 cases (34%). Minor Recurrent Aphthous Stomatitis (RAS) has a variation between one to five without causing scarring⁹. 4 cases (8%) of traumatic lingual ulceration had associated jagged teeth which could be the causative factor. Lingual lesions affecting the right lateral border and anterior 2/3rd of the tongue had equal frequency of 11 (22%). In this study, 4 cases (8%) had geographic tongue which included 3 females and 1 male. Geographic tongue is observed in middle aged women and is seen in 1-2.5% of the population.¹⁰ Fissured tongue was identified in 2 cases (4%) and some patients complained of burning sensation over the tongue. Darwazeh *et al.* and byahatti *et al.* reportedly estimated 23% and 16% of patients with fissured tongue to be symptomatic respectively¹¹. Glossitis was observed in 2 cases (4%). Ankyloglossia was observed in 4 cases (8%) and these patients belonged to the pediatric age group presenting to our OPD with inability to protrude the tongue and speech difficulty. Congenital developmental anomaly, ankyloglossia had limited tongue protrusion because the lingual frenulum was abnormally short¹². Several other studies have estimated the prevalence of ankyloglossia between 0.1%-3.7%¹³. 20% (10 cases) patients who presented with lingual lesions and gave history of tobacco chewing had associated oral submucous fibrosis and 1 case had trismus. The chronic tobacco chewers had malignant lingual lesions involving the lateral borders which is possibly due to frequent habitual placement of tobacco in the lower lateral sulcus of either side in the oral cavity. Premalignant lingual lesions were leukoplakia, observed in 2 cases (4%) and melanoplakia observed in 1 case (2%). The oral malignancies presented as non-ulcerated masses in approximately 60% cases and as indurated ulcers in 12% cases and compared to other types of tumours, squamous cell carcinomas ulcerated more frequently which was probably due to variation in the biological character¹⁴. The 7 cases (14%) of malignant lingual carcinomas observed in our study were squamous cell carcinomas, of which 5 cases (10%) were well differentiated squamous cell carcinoma, 1 case (2%) was moderately differentiated squamous cell carcinoma and 1

case (2%) was a poorly differentiated carcinoma as per histopathology reporting. Majority of lingual carcinomas are well to moderately differentiated histopathologically¹⁵. Lingual tumours 9mm thick have 66% 5 year survival rate and less than 3mm thick tumour have 100% survival and rate of recurrence are 10-50% [16]. Using Chi square test, the association between gender (males and females) and the habit of tobacco chewing was analyzed. The p-value of this test is 0.24 which is not significant at $p < 0.05$ of which 11 males were tobacco chewers and 22 non tobacco chewers and among the females, 3 were tobacco chewers and 14 were non tobacco chewers. Malignant cases had irregular growth that bleeds on touch along with restriction in tongue movement on clinical examination. Other habits noted was history of smoking, alcohol consumption, betel nut and paan chewing, 2 cases (4%) had history of smoking and 1 case (2%) had history of alcohol consumption. It was also observed that majority of the patients presenting with lingual lesions also had associated poor orodental hygiene and halitosis. Poor oral hygiene was observed in 16 cases (32%) and all patient with malignant lingual lesions had poor oral hygiene with associated halitosis. 1 case (2%) diagnosed with orofacial digital syndrome presented with lingual nodules (noticed on the ventral aspect of the tongue) and had associated polydactyly, retrognathia and abnormal facial features and 1 case (2%) of lingual candidiasis was positive for retroviral disease. Lingual tonsil hypertrophy was seen over the posterior 1/3rd of tongue in 2 cases (4%). Mucous retention cyst, hamartomatous lingual lesion and mucous pemphigoid had 1 case (2%) each. 6 cases (12%) presenting with lingual lesions had associated laryngopharyngeal reflux, indirect laryngoscopic examination revealed hypertrophy of posterior commissure of vocal folds. 8 cases (16%) of lingual lesions had associated anaemia and this low haemoglobin value was observed to be equally present in both genders, males (4 cases) and females (4 cases).

CONCLUSION

Lingual lesions comprise majorly of benign lesions with multifactorial etiology. Malignant lingual squamous cell carcinomas which are poorly differentiated have worse prognosis and majority of base of tongue carcinomas are inoperable and usually require radiotherapy. Malignant lingual lesions in a patient have an impact on their quality of life and can hamper daily activity due to the invasive nature of lingual cancers. Cases presenting with lingual lesions need a meticulous evaluation and work up. Benign lingual lesions are usually responsive to conservative medical management. Etiological cause of lingual lesions need to be ascertained and appropriately managed. Biopsy

of suspicious lingual lesions is essential in order to initiate timely therapeutic measures after investigating the patient.

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