

# A clinical and histopathological study of oral ulcer

M K Bose<sup>1</sup>, Manoj Kumar<sup>2\*</sup>

<sup>1</sup>Assistant Professor, <sup>2</sup>SR, Department of ENT, Darbhanga Medical College and Hospital, Darbhanga, Bihar, INDIA.

Email: [manojkumar67@gmail.com](mailto:manojkumar67@gmail.com)

## Abstract

**Background:** Oral cancer is the eight most common cancer worldwide. The age standardized incidence of oral cancer in India is 14.5 per 1,00,000 population per year. Squamous cell carcinoma is the most common histological variants of oral cancer. Other rare variants of squamous cell carcinoma are: spindle cell or sarcomatoid cancer. The value of histology as an indicator of cancer risk is time tested not only in oral cavity and other head neck regions, but also in other organs like uterine cervix, lungs, breast, skin and esophagus. The term “Dysplasia” holds a key role in diagnosing pre-malignant and malignant lesions of oral cavity. **Methods:** In Department of Otorhinolaryngology, Darbhanga Medical College and Hospital, patients attending ENT OPD of Darbhanga Medical College and Hospital, with oral ulcers will undergo proper epidemiological, clinical and histopathological evaluation. Total 50 patients were included in our study during the period of Aug 2018 – March 2019. After obtaining proper “consent”, Information was collected from the patients on the basis of predesigned data collection sheet. The findings of relevant clinical examinations, routine investigations including histopathological examinations were recorded. **Results:** Majority of the patients belonged to age group 21- 40 years (32.0%) and majority of them from some urban area. (Urban: Rural 56%: 44%). Male population was most commonly affected than female with male: female ratio of 1.50:1. Though a number of habit related risk factors like smoking, alcohol, tobacco chewing etc were present in different percentage among the study population but calculating individual habits risk ratio with development of oral ulceration could not be ascertained as it was beyond the scope of the present study. In the present study RAS (24.0%), erosive LP (18.0%) and oral malignancy (10.0%) constitutes major bulk of the patients. **Conclusion:** The number of habit related risk factors like smoking, alcohol, tobacco chewing etc were present in different percentage among the study population but calculating individual habits risk ratio with development of oral ulceration could not be ascertained as it was beyond the scope of the present study.

**Key Word:** Oral cancer, RAS, erosive LP, Squamous Cell Carcinoma.

## \*Address for Correspondence:

Dr. Manoj Kumar, SR, Department of ENT, Darbhanga Medical College and Hospital, Darbhanga, Bihar, INDIA.

Email: [manojkumar67@gmail.com](mailto:manojkumar67@gmail.com)

Received Date: 30/03/2019 Revised Date: 13/05/2019 Accepted Date: 02/07/2019

DOI: <https://doi.org/10.26611/10161113>

## Access this article online

Quick Response Code:	Website: <a href="http://www.medpulse.in">www.medpulse.in</a>
	Accessed Date: 06 July 2019

## INTRODUCTION

The publication of World Health Organization (2005)<sup>1</sup> on “The burden of oral diseases and risks to oral health” emphasized that, despite the great improvements in oral health in several countries, global problem still persists.

This particularly affects underprivileged groups in both developing and developed countries. The NHANES (Third National Health and Nutrition Examination Survey) in U.S employed a complex, multistage sample involving of 33,994 civilian, non institutionalized people from 19,528 households. According to this survey 4,801 had some oral mucosal lesion (27.9%)<sup>2</sup>. The oral cavity represents the first part of digestive tube; it extends from lips and cheek externally to anterior faucial pillars internally. The oral cavity is subdivided in two parts, one external to the teeth and gingiva (vestibule) and another internal to the teeth and gingiva (oral cavity proper). Oral cavity proper is bounded above by the palate, below by the floor of the mouth, and laterally by the cheek and retro-molar trigone. There are three pairs of major salivary glands (parotid, submandibular and sublingual) and numerous minor salivary glands open into the oral

cavity. Epidemiological studies on oral health mostly concentrate on dental issues rather than oral mucosal lesions.<sup>1</sup> Most of the epidemiological studies on oral mucosal lesions were carried out in “selected or special” population group like patients with dental problem, hospitalized patients, or associated with certain diseases like HIV-AIDS or diabetes or any other systemic disorders or school children etc.<sup>3</sup> and there is a need for general population based study to know the actual epidemiological parameters for oral ulcers. As per review article by Ahmed M et al (2010)<sup>3</sup> on “Oral ulceration at primary care” the estimated point prevalence of oral ulcer is 4% worldwide. Coming to Indian scenario, Mathew et al (2015)<sup>4</sup> had conducted a study on prevalence of oral mucosal lesions among the patients who visited their dental clinic. As per their study 41.2% of the study population had one or more oral mucosal lesions. Byakodi et al. (2011)<sup>5</sup> studied prevalence of oral soft tissue lesions among 24,422 subjects belonging to a semi-urban district of Sangli in Western Maharashtra (India). About 623 cases showed soft tissue lesion that is about 2.5% of the study population had one or more oral lesions. Study at Himalayan Institute of Medical Sciences, Dehradun in between April 2008 to march 2009 by Roy S and Varshney S consisting of 11,840 patients attending the ENT and Dermatology department showed the incidence of oral cavity dermatoses 1.26 %.<sup>6</sup> Sarswathi et al. (2004)<sup>4</sup> conducted a study among the OPD patients attending to a dental college from suburban area of Chennai and as per their study 4.1% of study subject had oral soft tissue lesion.

## METHODS

In Department of Otorhinolaryngology, Darbhanga Medical College and Hospital, patients attending ENT OPD of Darbhanga Medical College and Hospital, with oral ulcers will undergo proper epidemiological, clinical and histopathological evaluation.

**Study Period:** Aug 2018 to March 2019.

### Study Variable:

- Clinical examination findings
- Demographic profiles
- Detailed history
- Histopathological findings of ulcers

**Inclusion Criteria:** All patients of oral ulcer attended in ENT OPD of Darbhanga Medical College and Hospital, with proper consent for the study.

### Exclusion Criteria

- Patients not willing to participate in the study.
- Previously detected of oral carcinoma.

**Sample Size:** 50 Cases were included.

**Methodology:** From August 2018 to March 2019, patients attending ENT OPD of Darbhanga Medical

College and Hospital, with oral ulcer were selected for the study and informed consents were taken. After the relevant history taking, clinical examinations, and histopathological examinations were performed. Statistical Analysis was performed with the help of Epi Info (TM) 3.5.3. EPI INFO is a trademark of the Centre for Disease Control and Prevention (CDC). Using this software, basic cross-tabulation, inferences and associations were performed. Percentage (%) was calculated of different factors. Test of proportion was used in age distribution of the patients. P-value was considered for significance level.  $p \leq 0.05$  was statistically significant.

## RESULTS

**Table 1: Age distribution**

Age (years)	Frequency	Percent
≤ 20	12	24.0%
21 -40	16	32.0%
41 – 60	13	16.0%
>60	9	18.0%
Total	50	100.0%

The mean age (mean ± s. d.) of the patients was 36.22 ±18.54 years with range 10 - 70 years and the median age was 35.0 years. Most of the patients were in the age group 21-40 years (32.0%) which was higher than others ( $Z=1.5214$ ;  $p=0.1022$ ).

**Table 2: Sex Distribution**

Sex	Frequency	Percent
Male	30	60%
Female	20	40%
Total	50	100.0%

30(60.0%) patients were male and 20 (40.0%) patients were female. The p-value was 0.1042.

**Table 3: Demographic status of all patients**

Residence	Frequency	Percentage
Urban	28	56.0%
Rural	22	44.0%
Total	50	100.0%

28(56.0%) patients were from urban area whereas and 22 (44.0%) patients were from rural area.

**Table 4: Educational Status**

Education	Frequency	Percentage
Illiterate	03	6.0%
Primary	12	24.0%
Mid School	15	30.0%
Secondary	14	28.8%
Higher Secondary	05	10.0%
Graduate	01	2.0%
Total	50	100.0%

15 (30.0%) patients were educated up to Mid school and graduate level and remaining were secondary and below secondary level.

**Table 5: Occupational Status**

Occupation	Frequency	Percent
Unemployed	30	60.0%
Unskilled labor	8	16.0%
Skilled labor	4	8.0%
Clerical	6	12.0%
Executive	1	2.0%
Professional	1	2.0%
Total	50	100.0%

Majority (60%) of the patients were from unemployed and unskilled labor group.

**Table 6: Different types of Addiction in oral ulcer**

Addiction	Number of patients
Smoking	22(44.0%)
Alcohol	12(24.0%)
Pan masala	9(18.0%)
Betel quid	14(28.0%)

Smoking (44.0%) and Betel quid (28.0%) were the most prevalent addiction in the study group.

**Table 7: Status of Oral hygiene**

Oral hygiene	Frequency	Percent
Poor	32	64.0%
Good	18	36.0%
Total	50	100.0%

32 (64.0%) had poor oral hygiene and 18 (36.0%) had good oral hygiene.

**Table 8: Main Site of involvement of oral ulcer**

Site of involvement	Frequency	Percent
Labial mucosa	22	44.0%
Lateral border tongue	05	10.0%
Dorsum tongue	01	2.0%
Gingiva	05	10.0%
Gingivo- labial mucosa	05	10.0%
Gingivo-buccal mucosa	05	10.0%
Retro molar trigone	04	8.0%
Palate	03	6.0%
Total	50	100.0%

Labial mucosa (44.0%) and lateral border of tongue (10.0%) and retro molar trigone (8.0%).

**Table 9: Distribution of benign and malignant ulcers**

	Frequency	Percentage
Benign	42	84.0%
Malignant	8	16.0%

8(16.0%) patients were diagnosed as malignant oral ulcers.

**Table 10: Distribution of all patients according to clinicopathological diagnosis (Final diagnosis)**

Final diagnosis	Frequency	Percent
RAS	12	24.0%
Erosive LP	9	18.0%
Drug induced ulcer	2	4.0%
Acute gingivo Stomatitis	2	4.0%
Bullous pemphigoid	1	2.0%
Herpes simplex	6	12.0%
Oral candidiasis	7	14.0%
Mucoepidermoid carcinoma	1	2.0%
Squamous Cell Carcinoma of Lip	1	2.0%
Squamous Cell Carcinoma of tongue	3	6.0%
Traumatic ulcer	2	4.0%
Verrucous carcinoma tongue	2	4.0%
LE	2	4.0%
Total	50	100.0%

Recurrent aphthous stomatitis (RAS), erosive lichen planus (LP), and oral malignancy were the most prevalent oral ulcers in the study population.

## DISCUSSION

In India, cancer of the oral cavity and oropharynx is the commonest cancer in men and third commonest cancer in women.<sup>17</sup> Oral cancers are more common in males than females. However, there is a rise in the incidence of these malignancies in females. In our study, majority (60.0%) were males with a male to female ratio of 1.5:1. This ratio is seen in most of the published studies in India. The corresponding prevalence's of malignancy reported in a similar study by Muwonge *et al.* in Kerala, were 57.8% in males and 42.2% in females.<sup>8</sup> Patel *et al.* from Gujarat reported 75% of oral cancer patients were males.<sup>4</sup> Bhat *et al.* found that oral cancers have higher preponderance for males (77%).<sup>9</sup> Foreign studies indicate that the prevalence noted are not different from Indian scenario. Durazzo *et al.* from Brazil, reported that 68.2% of the study subjects were males, females accounted for 31.8% of cases.<sup>10</sup> The higher incidence of oral and oropharyngeal malignancies in males may be due to the increased rate of tobacco and alcohol consumption. Moreover, tobacco is consumed by males in both smoking and chewing form, whereas native Indian females usually do not indulge in smoking. This difference can also be attributed to more males seeking early medical consultation.<sup>9</sup> Most of the current study participants were between <20 (24.0%) years of age group, followed by 21-40 (32.0%) years and 41-60 (16.0%) years. Brandizzi *et al.* in their study found that 28% of oral cancer patients were between 60-69 years, followed by 27% between 70-79 years and 18% between 50-59 years of age.<sup>11</sup> According to Abhinandan *et al.*, the commonest age group affected was 6th decade (31.13% cases); 22.8% cases were in the 4th and 18% in 5th decade.<sup>12</sup> In a study by Ahluwalia *et al.*, the peak

incidence was noted among males in 6th decade of life (40.89%), while in females it was 5th decade comprising 37.31% case.<sup>13</sup> Patel *et al.* reported that 12.9% of oral and oropharyngeal malignancies were below 35 years of age, 23.8% between 35 and 45, and 63.3% cases over 45 years of age.<sup>14</sup> Among 22 (44.0%) subjects who had history of smoking in the present study, 14(28.0%) were gutkha or pan (betel quid). Alcohol consumption was found in 12 (24.0%). In a study by Dias *et al.*, 57.8% were tobacco users, 50% were alcoholics, 43.8% were both alcoholics and smokers.<sup>15</sup> The study by Durazzo *et al.* reported tobacco smoking in 80.8% of the patients. Alcohol consumption history was retrieved in 56.6% of the patients.<sup>10</sup> In Western world, HPV is emerging as a common etiological factor for oral and oropharyngeal malignancies, mostly as a result of oral sex. In India, alcohol and tobacco use is still the strongest culprit. Oral cancer risk is seen to be significantly increasing with both quantity and duration of alcohol use. Risk of oral and oropharyngeal malignancy is higher for hard liquor and beer.<sup>13</sup> Alcohol may act as a solvent to enhance mucosal exposure to carcinogens, apart from being a direct carcinogen. Acetaldehyde, an alcohol metabolite, can form DNA adducts that interfere with DNA synthesis and repair.<sup>16</sup> Oral lesion was the most common presenting symptom in the current study (69.3% of cases). This finding is in line with that of Durazzo *et al.* (88%).<sup>10</sup> Any growth or ulcer in the oral cavity should have a high index of suspicion and should be further investigated. In the present study the data from fifty oral ulcer patients were analyzed both clinically and histopathologically. The present study showed: 24.0% of patients were suffering from RAS, followed by oral malignancy 10.0%, erosive LP 18.0%, Herpes simplex 12.0%, and oral candidiasis 14.0%. Some other entities beside above mentioned common disorders also presented to the study setting like, Erythema multiforme (EM), traumatic ulcers, drug induced ulcer, and bullous pemphigoid. One case which initially we diagnosed as erosive LP, in histopathology. After performing tissue biopsy, histopathological report was obtained and it showed out of total nine malignant cases seven were SCC, one mucoepidermoid carcinoma and one verrucous carcinoma. Squamous cell carcinoma was the most common histological type note in the present study (8.0% cases). There were 2 cases each of sarcomatoid squamous cell carcinoma and undifferentiated nasopharyngeal type carcinoma. Verrucous carcinoma was encountered in 7.9% cases, majority were seen in the tongue in the age group range of 50-60years. The study by Bhat *et al.* found squamous cell carcinoma in 92%, 4% verrucous carcinoma, 3% adenoid cystic carcinoma, and 1% basal cell carcinoma.<sup>9</sup> Durazzo *et al.* reported squamous cell

carcinoma in 90.3% and glandular carcinoma in 4%.<sup>10</sup> Ahluwalia *et al.* found squamous cell carcinoma in majority (89.9%) of cases.<sup>13</sup> Wahid *et al.* found squamous cell carcinoma in 94%, and 2% each of melanoma, adenocarcinoma, and acinar cell carcinoma.<sup>17</sup> Iype *et al.* reported squamous cell carcinoma in 72%, minor salivary gland tumors in 3.8%, and 1.9% with soft tissue sarcomas.<sup>18</sup>

## CONCLUSION

Oral ulcerations were more prevalent in age group of 21-40 years. Males were more commonly affected than females with a male: female ratio of 1.5:1. Recurrent aphthous stomatitis, erosive lichen planus, and oral squamous cell carcinoma were most frequently encountered entity followed by infective disorders such as oral candidiasis and herpes simplex stomatitis. To diagnose some of life threatening conditions like lupus erythromatosus - high degree of clinical suspicion along with some timely done special investigations were done. This study reflects that there is an urge to raise awareness and educate people regarding detrimental effects of alcohol and tobacco consumption, importance of dental hygiene, oral self-examination and the availability of preventive health care services.

## REFERENCES

1. Petersen PE, Bourgeois D, Ogawa H, Day SE, Ndiaye C. The global burden of oral diseases and risks to oral health. Bulletin of the World Health Organization. 2005; 83 (9): 661-669.
2. Shulman J, Beach M, Hidalgo F. The prevalence of oral mucosal lesions in U.S adults: data from the third national health and nutrition examination survey, 1988-1994. J Am Dent Assoc. 2004;135(12):1279-86.
3. Mathew A, Pai K, Sholapurkar A, Vengal M. The prevalence of oral mucosal lesions in patients visiting a dental school in Southern India. Indian J Dent Res. 2008; 19(2):99-103.
4. Ahmed M., Uddin N N. Oral ulceration at primary care-A Review. Bangladesh Journal of Plastic Surgery. 2010; 1 (2): 23-29.
5. Byakodi R, Shipurkar A, Byakodi S, Marathe K : Prevalence of oral soft tissue lesion in Sangli, India . J Community Health 2011. 36(5):756-9.
6. Roy S, Varshney S. Oral Dermatological Conditions: A Clinical Study. Indian J Otolaryngol Head Neck Surg. 2013; 65(2):97-101.
7. Balam P, Sridhar H, Rajkumar T, Vaccarella S, Herrero R, Nandakumar A, et al. Oral cancer in Southern India: The influence of smoking, drinking, paan-chewing and oral hygiene. Int J Cancer 2002; 98: 440-445.
8. Muwonge R, Ramadas K, Sankila R, Thara S, Thomas G, Vinoda J, et al. Role of tobacco smoking, chewing and alcohol drinking in the risk of oral cancer in Trivandrum, India: A nested case-control design using incident cancer cases. Oral oncol 2008; 44: 446-454.



9. Bhat SP, Ramesh NCN, Swetadri GK, D'souza H, Jayaprakash CS, Bhat V. Clinicopathological spectrum of malignancies of oral cavity and oropharynx – our experience in a referral hospital. *World articles in Ear, Nose and Throat*. 2010; 3(2).
10. Durazzo MD, Araujo CEN, Neto JSB, Potenza AS, Costa Pedro, Takeda F et al. clinical and epidemiological features of oral cancer in a medical school teaching hospital from 1994 to 2002: increasing incidence in women, predominance of advanced local disease, and low incidence of neck metastases. *CLINICS* 2005;60(4):293-298.
11. Brandizzi D, Gandolfo M, Velazco ML, Cabrini RL, Lanfranchi HE. Clinical features and evolution of oral cancer: A study of 274 cases in Buenos Aires, Argentina. *Med Oral Patol Oral Cir Bucal*.2008; 13(9):544-548.
12. Abhinandan B, Chakraborty A, Purkaystha P. Prevalence of head and neck cancers in the North East-An institutional study. *Indian J Otolaryngol Head Neck Surg* 2006; 58: 15-19.
13. Ahluwalia H, Gupta SC, Singh M, Gupta SC, Mishra V, Singh PA, et al. Spectrum of Head -Neck cancers at Allahabad. *Indian J Otolaryngol Head Neck Surg* 2001; 53(1):16-21.
14. Patel MM, Pandya AN. Relationship of oral cancer with age, sex, site distribution and habits. *Indian J Pathol Microbiol* 2004; 47(2):195-197.
15. Dias GS, Almeida AP. A histological and clinical study on oral cancer: Descriptive analysis of 365 cases. *Med Oral Patol Oral Cir Bucal*.2007;12(7):474-478
16. Brooks PJ, Theruvathu JA. DNA adducts from acetaldehyde: implications for alcohol-related carcinogenesis. *Alcohol* 2005;35: 187–193.
17. Wahid A, Ahmad S, Sajjad M. Pattern of carcinoma of oral cavity reporting at dental department of ayub medical college.2009.
18. Iype EM, Pandey M, Mathew A, Thomas G, Sebastian P, Nair MK. Oral cancer among patients under the age of 35 years. *J Postgrad Med* 2001; 47(3):171-176.

Source of Support: None Declared  
Conflict of Interest: None Declared

