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Clinico-Pathological Study of Oral Cancer- A Review of 73 Cases

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Abstract
Background : *Oral cancer is one of the most common malignancies in India. In the present study, a total number of 73 patients were included to find out the various clinical and pathological manifestations of the oral cancer*
Methods :*This study was carried out in the Department of Otorhinolaryngology and Head & Neck Surgery, Gauhati Medical College, Guwahati during period of one year from 1st July, 2015 to 30th June, 2016.In this series, oral cancer cases with lesions in lip, alveolus, and buccal mucosa, anterior two-third of tongue, retromolartrigone, hard palate and floor of mouth were included irrespective of age and sex.Proforma was filled. It included- patients's details, presenting complaints, history of present illness, history of past illness etc. Personal habits like smoking, betel quid chewing, tobacco use, alcohol intake were analysed in depth. Detailed examination was done on the primary lesion and nodal status. Biopsy was taken from the lesion and sent for histopathological examination. FNAC of clinically palpable cervical lymph nodes was done to know the nodal status.*
Results :*Most common site to be involved was buccal mucosa(35.62%). Most common age-group affected was 51-60 yrs (27.40 %).Male-female ratio of 2.1:1.90.41 % of patients had the history of chewing betel quid followed by 83.56 % of patients with tobacco use. 58.90% of the patients were found to have ulcerative type of growth.82.19% had cervical neck node metastases where unilateral involvement was seen in 68.49% and bilateral in 13.69%. In majority of them, Level Ib neck nodes were involved.Majority of the patientspresented in stage III (64.38%). The histopathological type of majority of the cases showed squamous cell carcinoma (95.89%) out of which well differentiated type is the most common variety.*
Conclusion: *Oral cancer is commonly seen in the 5th-6th decade but a change in this trend is noted with gradually increasing incidence noted in the younger age group. Substance abuse like tobacco, betel quid, and alcohol hasan important role in causation of oral cancer. More than 90% patients had one or the other forms of addictions. Thus, the deleterious effects of these substances should find a place in proper health education programme to make people aware of their ill-effects.Buccal mucosa was found to be involved in highest number of cases. Majority of the cases came at a later stage when cervical nodes were already involved. Community awareness regarding the disease may help in the prompt diagnosis and management, and thereby its long term prognosis.*
Keywords: *Oral cancer, squamous cell carcinoma, buccal mucosa, betel quid*

I. Introduction

Oral cancer is a major problem in India where it ranks among the top three types of cancer in the country. Age-adjusted rates of oral cancer is high, that is 20 per 100,000 population in India and accounts for over 30% of all cancers in the country. Oral cancer is a type of heterogeneous group of cancers developed from different parts of the oral cavity, with different predisposing factors, prevalence, and treatment outcomes. The two major known risk factors for oral cancer are alcohol and tobacco. Factors like the high usage of different forms of tobacco, inability to recognize cancer in early stage, and insufficient treatment options, are responsible for the high mortality rate associated with oral cancer. Early detection of oral cancer provides the best opportunity for long term survival and raises the possibility of treatment outcomes and makes healthcare affordable.

II. Aims And Objectives

- To study the various sites of oral cancer and its relation to the local habits.
- To see the pattern of neck node metastasis on the basis of the site of malignancy.
- To determine the patterns of age and sex specific incidence of malignant lesions of oral cavity in the affected population.

III. Materials And Methods

This prospective study on distribution of oral cavity malignancy was carried out in the Department of Otorhinolaryngology and Head & Neck Surgery, Gauhati Medical College, Guwahati during the study period of one year from 1st July, 2015 to 30th June, 2016. Selection criteria – All patients presenting in the Department of Otorhinolaryngology and Head & Neck Surgery, Gauhati Medical College within the study period with swelling, ulcer or disease pathology involving oral cavity were included which were either clinically apparent malignancy or biopsy proven.

Exclusion criteria

- Non malignant swelling or ulcer of oral cavity
- Pre-malignant lesions of oral cavity like leukoplakia, erythroplakia, lichen planus
- Recurrent cases of malignancy of oral cavity

All patients were evaluated by documenting the history, thorough clinical examination and some specific investigations. Specific investigations like biopsy from lesion was done for all cases in the study. FNAC was done in clinically palpable neck nodes.

IV. Results And Observations

1. Incidence of carcinoma at different sub-sites of oral cavity:

	No. of Cases	Percentage (%)
Buccal mucosa	26	35.62
Tongue	9	12.33
Angle of mouth	5	6.85
Lip	6	8.22
Gingivobuccal sulcus/Gingiva	10	13.70
Hard palate	4	5.48
Alveolus	4	5.48
Retromolar trigone	5	6.85
Floor of mouth	4	5.48

From the table it is seen that buccal mucosa is the commonest site of oral cancer

2. Age incidence

Age group(in years)	No. of cases	Percentage (%)
0-10	0	0.00
11-20	0	0.00
21-30	4	5.48
31-40	12	16.44
41-50	14	19.18
51-60	20	27.40
61-70	15	20.55
71-80	6	8.22
Above 80	2	2.74

In this study, maximum number of patients were within the age group 51-60.

3. Sex incidence:

Out of the total 73 csases there 50 males and 23 females with a male: female ratio of 2.1:1

Sex	No. of cases	Percentage(%)
Male	50	68.49
Female	23	31.51

4. Incidence of addiction in the study group:

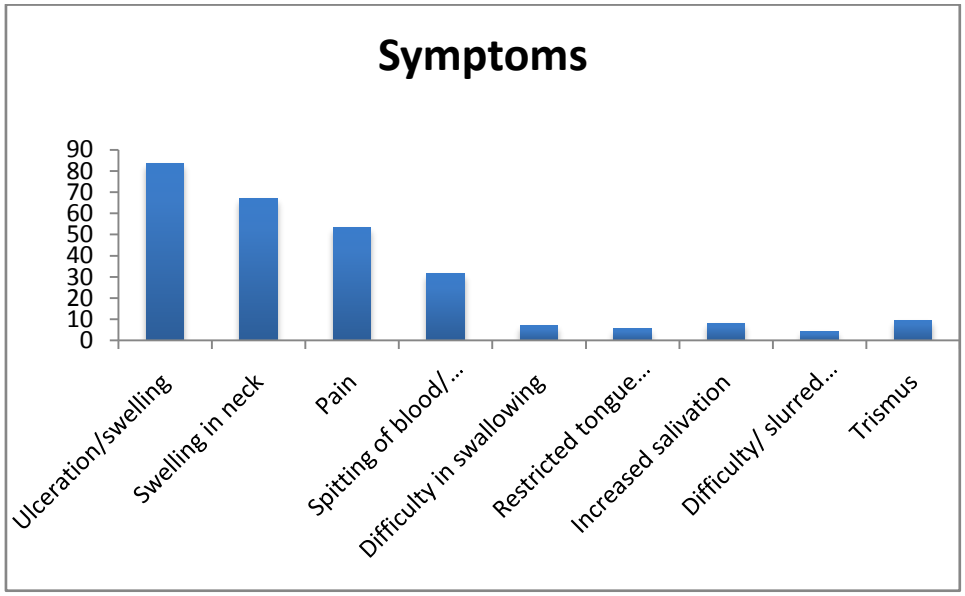
Various forms of addictions are seen among the cases like betel quid chewing, tobacco use, smoking, alcoholism etc.

Addiction	**No. of cases**	**Percentage (%)**
Betel quid	66	90.41
Tobacco (smokeless)	61	83.56
Smoking	42	57.53
Alcohol	39	53.42
None	5	6.85

5. Presenting symptoms:

Patients may present with a varied range of symptoms like ulceration or swelling in oral cavity, discomfort in oral cavity, neck swelling, difficulty in swallowing etc.

Symptoms	**No. of cases**	**Percentage (%)**
Ulceration/swelling	61	83.56
Swelling in neck	49	67.12
Pain	39	53.42
Spitting of blood/ bleeding	23	31.51
Difficulty in swallowing	5	6.85
Restricted tongue movement	4	5.48
Increased salivation	6	8.22



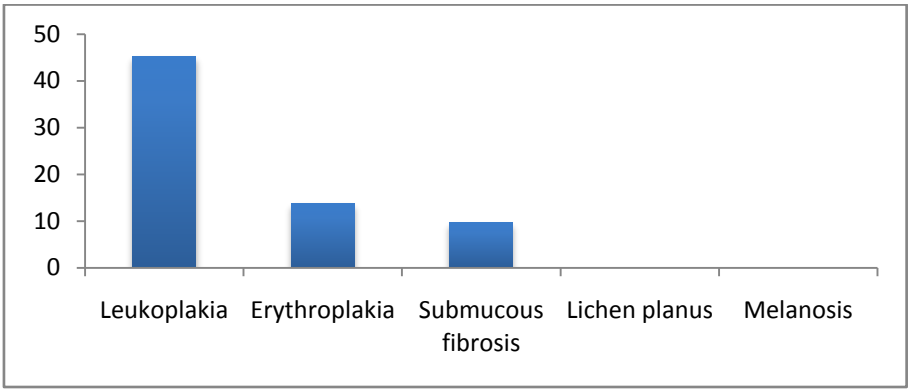
6. Type of lesion: Over 50% of the patients presented with ulcerative type of lesion.

Type of lesions	**No. of cases**	**Percentage (%)**
Ulcerative	43	58.90
Proliferative	11	15.07
Ulcero-proliferative	14	19.18
Infiltrative	5	6.85

7.Pre-malignant lesion:

Various pre-malignant lesions were seen among the patients.

Pre-malignant lesions	No. of cases	Percentage (%)
Leukoplakia	33	45.21
Erythroplakia	10	13.70
Submucous fibrosis	7	9.59
Lichen planus	0	0.00
Melanosis	0	0.00



8. Status of neck node metastasis

82.19% of the cases were presented with neck node metastasis.

Neck node metastases	No of cases	Percentage(%)
Yes	60	82.19
1.Unilateral	50 (Ia-4, Ib-39, II 4, III-3)	68.49
2.Bilateral	10 (Ib-8,II-2)	68.49
No	13	17.81

9.Staging of cases Most of the cases presented in stage III as per the T. N. M system

Stage	No. of cases	Percentage (%)
I	13	17.81
II	3	4.11
III	47	64.38
IV	11	15.07

10.Histopathological differentiation: Well differentiated SCC was found to be most common HPE finding in the study period

Differentiation	No. of cases	Percentage (%)
Squamous cell carcinoma(SCC)	70	95.89
a) Well differentiated	45	61.64
b) Moderately differentiated	12	16.44
c) Poorly differentiated	13	17.81
Verrucous	3	4.11

V. Discussion

In the present study, a total number of 73 patients were included to find out the various clinical and pathological manifestations of the oral cancer. The results and observations made here have been discussed in relation to the observations made by other authors with a view to find any comparison between them According to World Health Organisation, 40% of the oral cancers which were diagnosed worldwide occurs in India, Pakistan, Bangladesh and Sri Lanka Incidence of malignancy in various sites of oral cavity has been studied. Buccal mucosa was found to be the most common site for oral cancer by various studies like Wahi et.al (1965)[1], Bhattacharjee et.al (2004)[2], Nitin Gangane et.al (2007)[3], Bhat et.al (2010)[4]. Khanna et.al (1975)[5] reported carcinoma gum (32.7%) to be the most common site. According to Neville et.al (2002)[6], tongue is the most common site for oral cancer accounting for 40% of total cases. . A study conducted by Talabani et.al (2012)[7] in Sulaimani noted that cancer cases of the lip represented the highest affected site for oral cancer (43.84%). In the present study, buccal mucosa was found to be the most common site to be involved (35.62%) followed by gingiva (13.70%) and tongue (12.33%) which is in consistence with most of the previous studies.

Incidence of age

In a study conducted by Baruah et.al (1964)[8] in Assam, he found the common age group to be 40-50 yrs. Some other studies by Bhattacharjee et.al (2004)[2], U.S. National Cancer Database (2006)[9], Dennis Laronde et.al (2007)[10] reported 6th decade to be the commonest age group. In India, the peak age frequency of occurrence was found to be at least a decade earlier than that of the Western World.

In the present study also, maximum numbers of cases were within the age group of 51-60 yrs.

Incidence of sex

In Indian population, as per the study of Varshitha, 2015, males are more commonly affected by oral cancer as compared to female. A study by Cancer Research UK reported oral cancer to be the 12th most common cancer among men and 16th most common among women with a male to female ratio being 19:10. Bhattacharjee et.al (2004) [2] , and Dennis Laronde et.al (2007) [10] also reported male preponderance in their respective studies. The present study noted that oral cancer was seen to be 68.49% in males and 31.51% in females, with a male-female ratio of 2.1:1 which is concurrent with the literature

Incidence of addictions

It is a well accepted fact that various forms of substance abuse like tobacco, betel quid, and alcohol have an impact on incidence of oral cancer. Use of tobacco is the strongest risk factor identified in the cancer of oral cavity.In the study of Gangane et.al, 2007[3] , oral tobacco use, smoking and alcohol consumption- was more commonly seen in cases when compared to controls. A study in 1911 by Couch et.al[12] pointed out that direct action of heat and irritant action of nicotine act as major causative factors. Likewise, in a study conducted by V.C. Rodrigues et.al (1998) [20], he commented that both smokes and smokeless tobacco are etiologically linked to oral cancer. Apart from active smoking, patients who were exposed to passive smoking were also at a higher risk of developing the disease. In a study by Michigan Cancer Society, tobacco smoking constitutes about 75% of all oral cancer cases. Talat Mirza et.al (1997) [14] found that in India and South-East Asian countries, tobacco smoking and chewing has a synergestic effect on oral carcinogenesis. Similar findings have also been reached by a study by Md. Salauddin et.al (2012) [15]. According to the Annual I.C.M.R. report (1986) Field JK et.al. in Assam, the areca nut (tamool) contains very high level of arecholine and is strongly associated with oral cancer incidence. Alcohol consumption with prolonged use of tobacco also plays an important role in the development of cancer in oral and oropharyngeal region, which have been reported in various previous studies (V.C.Rodrigues, 1998[20]; Bhattacharjee, 2006[2]).

The present study also found a positive correlation between oral cancer and various forms of substance abuse. In the study group of 73 patients, 66 cases (90.41%) had the habit of chewing betel quid, 61 cases (83.56%) used tobacco (smokeless form), and smoking was seen in 42 cases (57.53%) and alcohol consumption in 39 patients (53.42%). The tradition of betel quid chewing among Assamese population may be a reason for its higher incidence seen in this study group.

Chief complaints

The patients came with multiple complaints at the time of presentation. The most common presenting symptom was ulcer/swelling in oral cavity found in 61 cases (83.56%) followed by neck swelling in 49 patients (67.12%), pain in oral cavity in 39 (53.42%). P.N. Wahi et.al (1965)[1] in their series mentioned that pain was a rare symptom in patients with oral malignancy. Most of the patients complained of soreness or ulcer in the mouth. Tumours of the oral cavity quite often ulcerate. According to J Bagan et.al (2010)[16], pain is the most frequent presentation and the tongue and the floor of the mouth have the highest occurrence.

Type of lesion

In the present series, 58.90% of the patients were found to have ulcerative type of growth followed by proliferative type (15.07%), ulcero-proliferative type (19.18%) and infiltrative type (6.85%).
Ariel et.al (1959)[17] mentioned that 40% of his lingual cancer patients had painless ulcer. Nayak et.al (1979)[18] reported 83% of their carcinoma cheek cases having ulceration on presentation. According to Scott-Brown, 5th edition (1987), the main types of squamous cell carcinoma are exophytic and ulcero-proliferative.

Pre-malignant lesions---

Various pre-malignant lesions are found to be associated with oral cancer which might be co-existent or may be precursor lesion for malignancy. Paymaster et.al (1957)[19] reported leukoplakia in 32% of his cases of carcinoma anterior two third of the tongue . V.C.Rodrigues (1998)[20] found that erythroplakias constituted only 0.09% of the total pre-malignant lesions. P.N.Sinor et.al (1990)[21] found oral submucous fibrosis to be a precancerous condition with 7.6% cases. Pindborg et.al (1972)[22] found that 5% of lichen planus was associated with erythroplakia and one such lesion showed carcinoma. In the study series, leukoplakia was seen in 45.21% cases, erythroplakia in 13.70% and submucous fibrosis in 9.59% cases.

Cervical neck node metastases

Out of the total study series of 73 patients, 60 cases (82.19%) had cervical neck node metastases where unilateral involvement was seen in 50 cases (68.49%) and bilateral in 10 patients (13.69%). In majority of them, Level Ib neck nodes were involved.

Earlier study by Wahi et.al (1965)[1] found clinical involvement of cervical lymph nodes in 70.6% cases of oral cancer. They observed 60.9% patients had unilateral and 9.7% had bilateral involvement of lymph nodes. This result was similar to that achieved in the present series. Nayak et.al (1979)[18] found submandibular lymphadenopathy (Level Ib) clinically in 74.5% out of their 840 cases of buccal mucosa cancer patients.

Staging of the disease

The stage of the disease at presentation showed considerable variation as evident by previous studies. Wahi et.al (1968)[1], in his series of 750 cases, found 110 patients to be in stage I, 136 in stage II, 342 in stage III and 162 cases in stage IV. Tripathi et.al (1977)[23] in his study did not find a single case in stage I; most of their cases were in stage III and IV. However, Cheng Hui Huang et.al (2007)[24] reported 33.3% in stage I, 24.7% in stage II and 12% in stage III and 30% in stage IV. The present study found majority of the patients in stage III (64.38%); 17.81% in stage I, 4.11% in stage II and 15.07% in stage IV which was comparable to the reports by Wahi et al [1], Tripathi et al[23].

Histopathological differentiation

Martin et.al (1942) [25] from the Mayo clinic reported that in his series the majority of hard palate cancers were adenocarcinoma. Ballenger (1985)[26] reported more than 90% new oral cancer cases to be squamous cell carcinoma. Abiose et.al (1991) [27] studied 89 cases of oral cancer and found most of them to be squamous cell carcinoma. Bhattacharjee et.al (2004) [2] reported Squamous cell carcinoma (SCC) to the commonest histological comprising of 93.29% cases. In his series, verrucous carcinoma constituted 2% of total cases. According to National Cancer Registry Project of the Indian Council of Medical Research 2010, Squamous cell carcinoma was the commonest histological variety. Majority of the tumours were well differentiated. The histopathological type of majority of the cases in the present series too showed squamous cell carcinoma (95.89%) out of which well differentiated type is the most common variety. This finding was similar to some of the previous studies. But the incidence of verrucous carcinoma (4.11%) was found. The tradition of betel quid chewing among Assamese population may be a reason for its higher incidence seen in this study group. From the study, it has been noted that a single habit may not be the sole cause of cancer in oral cavity. Various factors play a role in it. Still, the ill effects of various substances abuse products like tobacco, alcohol, and betel quid cannot be overlooked.

VI. Conclusion

1. Oral cancer is commonly seen in the 5^{th}-6^{th} decade but a change in this trend is noted with gradually increasing incidence noted in the younger age group.
2. Substance abuse like tobacco, betel quid, and alcohol has an important role in causation of oral cancer. More than 90% patients had one or the other forms of addictions. Thus, the deleterious effects of these substances should find a place in proper health education programme to make people aware of their ill-effects.
3. Buccal mucosa was found to be involved in highest number of cases. Majority of the cases came at a later stage when cervical nodes were already involved clinically. Community awareness regarding the disease may help in the prompt diagnosis and management, and thereby its long term prognosis.
4. The most common presenting symptom was ulcer/swelling in oral cavity seen in 83.56% cases followed by neck swelling in 67.12% and pain in oral cavity in 53.42% patients.
5. Associated pre-malignant lesions are also noted in the study. Leukoplakia was seen in 45.21% cases, erythroplakia in 13.70% and submucous fibrosis in 9.59% cases.
6. Around 57% patients presented within 6 months of the onset of symptoms.
7. 58.90% of the patients were found to have ulcerative type of growth followed by proliferative type (15.07%), ulcero-proliferative type (19.18%) and infiltrative type (6.85%). Cervical nodal metastases were noted in 82.19% cases. In majority of them, Level Ib neck nodes were involved.

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