

A Study of the Malignancies of the Oral Cavity with Regard to the Histopathological Types and the Clinical Presentations in Individual Sites

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Abstract

Background: In this study, we wanted to determine the histopathological types of the malignancies of the oral cavity along with the clinical presentations in individual sites.

Methods: This study was done at Travancore Medical College, Kollam, over a period of 5 years from January 2017 to December 2021, among 325 patients who presented with malignancies of the oral cavity in the depart of ENT-Head and Neck surgery. All patients were appropriately investigated.

Results: 76.6 % of patients presented in an advanced stage (stage III or stage IV). Majority of the patients presented with complaints of ulcer, pain, or local swelling. 39 % of the patients had anaemia on presentation. Tongue was the most common site involved followed by buccal mucosa. Squamous cell carcinoma was the most common type of malignancy in the oral cavity with well-differentiated SCC present in 48.62 % of the cases.

Conclusion: Most patients present in stage III or stage IV. Early diagnosis is the key to effective treatment of oral malignancies.

Keywords: Malignancies, Oral Cavity, Histopathological Types, Clinical Presentations.

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Introduction

Oral cavity cancer is largely preventable. The principal risk factors are cigarette smoking and consumption of alcohol, particularly dark spirits. In combination, alcohol and tobacco show a multiplicative relative risk. Early detection of oral cancers is important. Small lesions can be treated successfully with radiotherapy with 5-year survival rate around 80 %. Advanced tumours require radical combination therapy and have 5-year survival rates of 30 % or lower.

Objectives of the Study

1. To determine the histopathological types in each site.
2. To study the clinical presentations in individual sites.

Methods

This study was done at Travancore Medical College, Kollam over a period of 5 years from January 2017 to December 2021, among 325 patients who presented with malignancies of the oral cavity in the depart of ENT-Head and Neck surgery. All patients were appropriately investigated. Patients who presented to this hospital with

clinical features suggestive of malignancies of the lips, buccal mucosa, alveolus, tongue, floor of the mouth, hard palate, retromolar trigone were included in the study. Patients with malignancies of the salivary glands have been excluded.

The clinical staging including the tumour, nodal & metastatic patterns at the time of presentation was noted. The relevant investigations that included a complete blood profile (CBP), chest X-ray, ECG, ultrasound neck & abdomen and CT scan were routinely done on all patients. An MRI or a radio-isotope bone scan was done in relevant cases. A fine needle aspiration cytology (FNAC) was done in all palpable lymph nodes in the head & neck. A pan endoscopy was done in selected patients with oral cavity malignancies.

A proforma was designed to accommodate all the relevant data of each patient including the history, clinical examination,

investigations, diagnosis, treatment options applied and the follow up. Proformas were filled up for all the 325 patients. To ascertain the survival rates and follow up of the patients, a questionnaire was designed in a self-addressed & pre-stamped inland letter. This was posted to the patients' addresses, which was to be filled up by the patient and posted back. Another letter accompanied the inland letter explaining the nature of this study and seeking the patient's or the family's co-operation. If the patient was alive, he/she was requested to come for a check-up.

Results

325 patients with malignancies of the oral cavity presented to our hospital from the year 2017 to 2021. The sub-sites included in the study are: Lip, Buccal mucosa (BM), Alveolus (Alv), Tongue (T), Floor of mouth (FOM), Hard palate (HP), Retromolar trigone (RMT).

Table 1: Presenting Symptoms in Study Population

U	Bur	Pn	SwL	RMO	ExS	LOT	Dp/ Od	BI	RnE	SSp, Dar,	SwN	F(wk)	total	U
Lip	4	1	2	9	-	-	2	-	-	-	-	1	1	20
BM	36	11	23	22	7	-	-	-	-	-	-	-	2	101
Alv	13	-	10	10	1	1	6	-	-	-	-	-	2	43
T	93	8	76	34	4	4		27	5	20	26	15	3	315
FOM	18	-	23	9	2	-	3	6	1	3	7	5	2	79
HP	7	-	6	7	3	-	2	2	1	1	-	2	1	32
RMT	8	1	9	4	10	-	3	2	2	3	-	-	1	43
TOT	179	21	149	95	27	5	16	37	9	27	33	23	12	-

Clinical Features and Tumour Staging

Poor oral hygiene was seen in 223 cases (68.62 %). 68 patients (20.92 %) had noticeable pallor. Pre-malignant lesions along with the malignant lesions were seen only in 21 cases (6.46 %). This was present in 3 cases of RMT cancers (15.78 %) and in 8 cases of buccal mucosa cancers (13.56 %). 123 cases (37.85 %) of oral cavity malignancies presented with a T4 tumour followed by T2 (100 cases, 30.77 %). 111

cases of oral cancers (34.15 %) presented without clinically palpable lymph node followed by N1 (82 cases, 25.23 %). 175 cases (53.85 %) were stage IV at presentation and 78 cases (24 %) were in stage III. Level Ib was the most commonly involved level of nodal involvement in all the sites except the tongue where level II was most common.

Lips

- a) Tumour staging - 5 cases (38.46 %) presented with T3 tumours followed by T2 (4 cases, 30.77 %). There were 3 cases (23.08 %) of T1 lesions and 1 case (7.69 %) of T4.
- b) Nodal Pattern - 5 cases each were of N0 and N1 (38.46 % each). N2c was present in 2 cases. Level Ib was the most common level involved (5 cases, 38.46 %)
- c) TNM staging - Maximum number of cases were in stage III (6 cases, 46.15 %) followed by stage IV (3 cases, 23.08 %)

Buccal Mucosa

- a) Tumour staging - 20 cases (33.9 %) of buccal mucosa cases presented with T4 tumours followed by T2 (19 cases, 32.20 %). There were 12 cases (20.34 %) of T3 lesions and 8 cases (13.56 %) of T1.
- b) Nodal Pattern - 28 cases (47.46 %) did not have clinically palpable nodes. 14 cases (23.73 %) were N1 and 11 cases (18.64 %) were N2b. Level Ib was most commonly involved (38.98 %) followed by Level II (25.42 %).
- c) TNM staging - Maximum number of cases were in stage IV (28 cases, 47.46 %) followed by stage III (14 cases, 23.73 %)

Alveolus

- a) Tumour staging - 11 cases (50 %) presented with T4 tumours followed by 5 cases each of T2 and T3 (22.73 % each).
- b) Nodal pattern - 10 cases (45.45 %) were N1 and 8 cases (36.36 %) were N0. In 59 % (13 cases) level Ib node was palpable followed by Level II in 27.27 %.
- c) TNM staging - Maximum number of cases were in stage IV (12 cases, 54.55 %) followed by stage III (5 cases, 22.73 %)

Tongue

- a) Tumour staging - 63 cases (40.38 %) of tongue tumours presented with T4 tumours followed by T2 (46 cases, 29.49 %). There were 26 cases (16.67 %) of T1 lesions and 21 cases (13.46 %) of T3.
- b) Nodal pattern - 49 cases (31.41 %) did not have clinically palpable nodes. 39 cases (25 %) were N1, and 28 cases (17.95 %) were N2b. Level II nodes were involved in 46.15 % of the cases while Level Ib was enlarged in 37.18 %.
- c) TNM staging - Maximum number of cases were in stage IV (87 cases, 55.77 %) followed by stage III (36 cases, 23.08 %) and 19 cases (12.18 %) of stage II.

Floor of Mouth

- a) Tumour staging - 18 cases (43.9 %) presented with T2 tumours followed by T4 (15 cases, 36.59 %). There were 4 cases each of T1 and T3 (9.76 % each).
- b) Nodal pattern - 13 cases presented with N2c (31.71 %) followed by 11 cases of N2b (26.83 %) and 9 cases of N0 (21.95 %). In 60.98 % of the cases Level Ib was involved. Level II was involved in 48.78 % of the cases.
- c) TNM staging - Maximum number of cases were in stage IV (28 cases, 68.29 %) followed by stage III (6 cases, 14.63 %).

Hard Palate

- a) Tumour staging - 5 cases each presented with T2 and T3 lesions (33.33 %). There were 3 cases (20 %) of T4 lesions and 2 cases (13.33 %) of T1 lesions.
- b) Nodal pattern - 7 cases (46.67 %) did not have palpable nodes. 3 cases each were of N1 and N2b (20 % each). Level Ib was the most commonly involved nodes (6 cases, 40%) followed by Level II (5 cases, 33.33 %).

c) TNM staging - There were 5 cases each (33.33 % each) of stage III and IV followed by 3 cases (20 %) of stage II.

Retromolar Trigone

- a) Tumour staging - 10 cases (52.63 %) presented with T4 tumours followed by T3 (6 cases, 31.58 %). There were 3 cases (15.79 %) of T2.
- b) Nodal pattern - 6 cases (31.58 %) each were of N1 and N2b.5 cases (26.32 %) were N0. Level Ib was involved in 47.37 % of the cases while level II was enlarged in 42.11 % of the cases.

c) TNM staging - Maximum number of cases were in stage IV (12 cases, 63.16 %) followed by stage III (6 cases, 31.58 %) and 1 case (5.26 %) of stage II.

Site distribution in malignancies of the oral cavity

Tongue was the site with maximum involvement in our series (156 cases, 48 %) followed by buccal mucosa (59 cases, 18.15 %) and floor of mouth (41 cases, 12.61 %). Lips accounted for only 4 % of the cases.

Table 2: Site Distribution of Oral Cavity Malignancies

	Number	%
Lips	13	4.00 %
Buccal Mucosa	59	18.15 %
Alveolus	22	6.77 %
Tongue	156	48.00 %
Floor of Mouth	41	12.61 %
Hard Palate	15	4.62 %
Retromolar Trigone	19	5.85 %
Total	325	100.00 %

Subsite distribution in tongue

Of the 156 cases, 112 (71.79 %) were present in the lateral border of the tongue. 37 cases were in the dorsum of the tongue (23.72 %) and 7 cases (4.49 %) were in the

ventral aspect of the tongue. The right side was involved in 76 cases (48.72 %) and left side in 66 cases (42.31 %) of the cases. Lesions were in the midline in 14 cases (8.97 %).

Table 3: Sub-site Distribution in Tongue

	Lateral Border	Dorsum	Ventral	Total	%age
Right	61	11	4	76	48.72 %
Left	51	13	2	66	42.31 %
Middle	0	13	1	14	8.97 %
Total	112	37	7	156	
%	71.79 %	23.72 %	4.49 %		100.00 %

Histopathological variants in oral malignancies

Well differentiated squamous cell carcinoma (WDSCC) was more common histological type of carcinoma (158 cases 48.62 %) followed by moderately differentiated squamous cell carcinoma (MDSCC) (136 cases, 41.85 %). Poorly differentiated squamous cell carcinoma (PDSCC) constituted 14 cases (4.31 %).

There were 12 cases (3.69 %) of verrucous carcinoma. One case each of lymphoma of the tongue, rhabdomyosarcoma of the lip, angiosarcoma of the buccal mucosa, osteosarcoma of the alveolus, muco-epidermoid carcinoma of the hard palate was seen accounting for 1.55 % of total cases. WDSCC constituted the bulk of tumours in the floor of mouth, hard palate, retromolar trigone, alveolus, and tongue

(56.09 %, 53.33 %, 52.63 %, 50 %, 48.70 % respectively). MDSCC was more seen in the buccal mucosa and retromolar trigone (47.46 %, 47.37 % respectively). Poorly differentiated carcinoma was more seen in the floor of mouth (7.32 %) followed by the buccal mucosa (5.08 %). Verrucous carcinoma constituted 15 % of the lip cancers.

Discussion

Presenting Symptoms

Ulcer (55 %), pain (46 %) and swelling (29 %) were the commonest presenting features in our study. This was consistent with the various studies from different regions of the world. In the series by Siczka E et al. [1] ulcer was present in 52 % of the cases, swelling in 52 % of the cases and pain in 22 %.

Staging at Time of Presentation

In our series, most of the patients presented at an advanced stage (Stage IV- 53.85 % and Stage III - 24 %). Only 22.15 % of the cases presented at an early stage (Stage I - 8.92 % and Stage II - 13.23 %). This is in contrast to the studies in the developed countries where more patients presented at the early stage. The educational and the socioeconomic status may play a major role in the stage at presentation.

Tongue

In a series by Luukkaa M et al. [2] 42 % of the cases had T2 tumours at presentation followed by 29 % T3 tumours and 26 % T1. 74.19 % of the cases had no neck nodes at presentation while 19.35 were N1. El-Husseiny G et al [3] had maximum numbers in T2 (46.35%) followed by T3 (27.81 %). They also had most of their cases with N0 neck at presentation (69 %). Our study had 40.38 % presenting with T4 lesions and 29.49 % presenting with T2 lesions. We had 38.46 % of the cases with N3 neck while 31.41 % did not have any neck nodes at presentation.

Buccal Mucosa

In the study by Urist MM et al. [4] 59 % of the cases presented at an early stage (Stage I and II) while 41% of the cases presented either in Stage III or Stage IV. 37% of the cases presented at an early stage while 63 % presented at a late stage in a series by Conley J et al. In our series, 71.19 % presented at a late stage (Stage III - 23.73 % and Stage IV - 47.46 %) while 28.81 % presented at an early stage (Stage I - 10.17 % and Stage II - 18.64 %).

Floor of Mouth

In the series by Shaha AR et al. [5] 49 % presented early (Stage I and II) while 51 % presented late. Ildstad ST et al. [6] had early presentation of 57 %. In our study, 82.92 % presented at a late stage while only 17.08 % presented early. [7]

Table 4: Buccal Mucosa and FOM - Stage on Presentation

	Buccal Mucosa				FOM			
	Stage				Stage			
	I	II	III	IV	I	II	III	IV
Urist MM et al. [4]	25 %	34 %	22 %	19 %	—	—	—	—
Conley J et al. [7]	11 %	26 %	41 %	22 %	—	—	—	—
Siczka E et al.[1]	26 %	37 %	18.50%	18.50%	—	—	—	—
Shaha AR et al.[5]	—	—	—	—	27 %	22 %	26 %	25 %
Ildstad ST et al.[6]	—	—	—	—	29 %	28 %	24 %	19 %
Our study	10.17%	18.64%	23.73%	47.46%	9.76%	7.32%	14.63%	68.29%

Table 5: Tongue - Stage on presentation

	T1	T2	T3	T4
Luukkaa M et al. [2]	25.81 %	41.94 %	29.03 %	3.23 %
El-Husseiny G et al. [3]	16.48 %	46.35 %	27.81 %	9.30 %
Our Study	16.67 %	29.49 %	13.46 %	40.38 %
	N0	N1	N2	N3
Luukkaa M et al. [2]	74.19 %	19.35 %	6.45 %	–
El-Husseiny G et al. [3]	69 %	23 %	6.50 %	1.30 %
Our Study	31.41 %	25 %	38.46 %	5.13 %

Pattern of Nodal Metastasis

In a series by Li XM et al, [8] where he studied 153 cases of oral cavity cancers, the commonly affected neck nodes were the Level II (40.52 %) followed by Level I (19.60 %), Level III (18.95 %), Level IV (3.27 %) and Level V (2.61 %). In our series, level I was the most commonly affected (45.23 %) followed by Level II (39.08 %). 7.08 % had nodes in the level III, 0.31 % in level IV and 0.62 % in level IV.

Histopathological types of malignancies

Squamous cell carcinoma was the most common type of malignancy in the oral cavity. In the series by Schnetler JFC et al. [9] SCC accounted for 85.42 % of the cases. There were 3.13 % of mucoepidermoid carcinoma, adenocystic carcinoma and adenocarcinoma followed by 2.08 % each of lymphoma and osteosarcoma.

O'Brian PH et al. [10] in their series reported that 91.53 % of their cases had SCC. In our series, 98.47 % of the cases were SCC. There was one case each (0.31 % each) of lymphoma, rhabdomyosarcoma, angiosarcoma, osteosarcoma, and mucoepidermoid carcinoma.

Grading of squamous cell carcinoma

In our study, 53.13 % of the cases with SCC were well differentiated, while 42.50 % were moderately differentiated. Patel MM et al. [11] had comparable results with 60.12 % of WDSCC and 38.70 % of MDSCC. In the series by Siczka E et al. there was 69 % of WDSCC and 15 % each of moderately differentiated and poorly

differentiated SCC. Jinkun Chen et al. [12] had 54.3 % cases of MDSCC and 29.1 % of WDSCC.

Conclusion

There should be deliberate effort to make the public aware that oral cancer is largely preventable. They should be enlightened about the undeniable association of the disease with tobacco and alcohol. Early diagnosis is the key to effective treatment of oral malignancies.

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