Spectrum of Histopathological Diagnosis of Oral Lesions in a Tertiary Care Hospital at Miraj in Maharashtra State, India

Rahul Y. Sakpal1, Bhushan M. Warpe2, Shweta Joshi-Warpe3

ABSTRACT

Introduction: Oral cavity is a common site for many types of benign, precancerous conditions and malignant tumours as well as development of congenital and acquired lesions. Oral cancers are the most common type of cancer in Indian men and actually accounted for 40% of all forms of cancers due to tobacco addiction, representing 4% of total body cancers. In Indian females, 2% of all cancers are of oral cavity. The knowledge of aetiological factors for the development of oral cancers can make the disease preventable.

Aim: To study histopathological spectrum of various oral lesions.

Materials and Methods: This was a prospective observational study done, during the period from November 2013 to June 2017, 150 cases of oral lesions were studied at a tertiary care hospital in Miraj. All the cases were studied and histopathological diagnosis was correlated with clinical findings. The Microsoft Excel 2010 sheet was filled as per case proforma of patients. Analysis was done manually like age wise, gender wise, site wise and sex wise distribution based on the Excel sheet data.

Results: The age of study population ranged from 6-80 years. Most oral cavity lesions were found in the age group 51-60 years of age group with 46/150 (30.67%) cases. Male to female ratio was 1.78:1. Malignant epithelial tumours of oral cavity comprised 100/150 cases (66.67% cases). Amongst malignant tumours, Squamous Cell Carcinoma (SCC) comprised 92/100 cases (92% cases). There was history of addiction in 96/100 cases (96% cases) with 52/100 cases as tobacco chewers (52% cases). 4/100 cases did not have history of addiction (4% cases).

Conclusion: The clinical examination of the oral pathological lesions does not lead to appropriate diagnosis. The clinical diagnosis must be supplemented by ‘gold standard’ histopathological examination for confirming the malignant tendency of oral lesions.

INTRODUCTION

Oral cavity being a common site for benign and malignant tumours are also associated with the development of congenital and acquired lesions. The benign tumours do not invade other tissues and do not spread to other parts of the body whereas the malignant tumours can penetrate into surrounding tissues and spread to other parts of the body. There are also some oral precancerous conditions that start off harmless but can later develop into cancer [1].

Congenital lesions include dermoid cyst, odontogenic cyst, lingual thyroid. The majority of acquired, localised overgrowth of the oral mucosa is reactive rather than neoplastic in nature [2]. The likelihood of benign oral tumours and tumour-like conditions to recur are rare. Surgical removal helps in its treatment [2].

Malignant tumours of oral cavity include Squamous Cell Carcinoma (SCC), verrucous carcinoma, basaloid SCC, spindle cell carcinoma, acantholytic SCC, adenosquamous carcinoma, carcinoma cuniculatum, lymphoepithelial carcinoma, salivary gland carcinomas, malignant soft tissue tumours, malignant mucosal tumours like melanoma as well as haematolymphoid tumours [2,3].

Oral cancer is the eighth most common cancer in men and ranks 14th among women worldwide. Two-thirds of this burden is borne by developing countries and over 30% by India only alone [3]. Oral cancers are the most common type of cancer in India in men which accounted for 40% of all forms of cancers. In Indian males, oral cancers represent 4% of total body cancers whereas in Indian females it accounts for 2% of all cancers [4].

The knowledge of aetiological factors for the development of oral cancers can make the disease preventable by avoidance of risk factors like tobacco consumption, betel-quid chewing and alcohol abuse. Betel-quid and areca-nut chewing were major risk factors.

Keywords: Oral cavity, Precancerous lesions, Squamous cell carcinoma, Tobacco

MATERIALS AND METHODS

The present prospective, observational study of three years and seven months was conducted on 150 cases of oral lesions with simple random sampling. The study was conducted after obtaining the...
DISCUSSION

Oral tumours are common tumours of India. This changing pattern of malignancy in developing India is due to higher consumption of tobacco in the form of chewing as well as smoking.

A variety of oral lesions summing up to 150 cases, both non-neoplastic and neoplastic were analysed for the purpose of studying the clinical aspect as well as histopathological patterns of oral tumours.

Age incidence of all lesions of oral cavity ranged from 6 to 80 years with 30.67% of cases occurred between 51-60 years of age group. Zaib N et al., in their study found most common age group as 51-60 years with 35.96% cases [9]. This finding is comparable with the present study as per [Table/Fig-4] [7-16].

In the present study, as per [Table/Fig-4], oral lesions showed male preponderance with male to female ratio of 1.78:1 and this is in accordance with most of the studies; especially; Muhsen HJ et al., with male to female ratio of 1.89:1 [8]. The present study as per [Table/Fig-4] shows that majority of cases occurred in buccal mucosa (35.33%) which is in accordance with the result in the study conducted by Ali M and Sundaram D (26.8%), Mehta NV et al., (32%) and Mishra V et al., (54.5%) in which the most common site was buccal mucosa [13-15]. In the present study as per [Table/Fig-5] [8,11,14,16-18], malignant epithelial tumours of oral cavity were the most common oral cavity lesions (66.67%) which is in accordance with the result in the study conducted by Parikh S et al., in which the most common lesion was malignancy (61.83%) [11]. Ulcerative lesion was the most common gross finding for malignancies [Table/Fig-6].

Most oral SCC was well-differentiated SCC with 66 cases out of 92 cases [Table/Fig-7]. This was followed by moderately differentiated SCC with 21 cases out of 92 cases [Table/Fig-8]. Only five cases out of 92 cases were poorly differentiated SCC.

As per [Table/Fig-9] [19-22], the present study findings of reactive hyperplastic lesions were comparable to study done by Reddy V et al., and Kashyap B et al., [21,22]. In both studies, females were common than males. Just like study by Kashyap B et al., pyogenic granuloma was the most common reactive hyperplastic lesion of oral cavity which is comparable with the present study [Table/Fig-10] [22].

As per [Table/Fig-9], the most common age group affected in study by Awange DO et al., was 20-29 years which is similar to that found in the present study [19]. Most common site was gingiva, as studied

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Reactive, inflammatory, and tumour-like lesions</th>
<th>Benign epithelial tumours</th>
<th>Epithelial precursor lesions</th>
<th>Malignant epithelial tumours</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of cases</td>
<td>19</td>
<td>23</td>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>Most common age group affected</td>
<td>21-30 years of age with 6 cases (31.58%)</td>
<td>21-30 years of age with 8 cases (34.78%)</td>
<td>51-60 years of age with 3 cases (37.5%)</td>
<td>51-60 years of age with 39 cases (39%)</td>
</tr>
<tr>
<td>Male to female ratio</td>
<td>1:1.37</td>
<td>1.4:1</td>
<td>1.67:1</td>
<td>2.3:1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location of lesions</th>
<th>Gingivo with 8 cases (42.11%)</th>
<th>Buccal mucosa with 6 cases (31.58%)</th>
<th>Retromolar trigone with 5 cases (25.32%)</th>
<th>Tongue with 8 cases (34.78%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of lesions</td>
<td>Buccal mucosa with 7 cases (30.43%)</td>
<td>Gingivo-buccal sulcus with 6 cases (28.09%)</td>
<td>Gingivo-buccal sulcus with 3 out of 8 cases (37.5%)</td>
<td>Tongue with 5 out of 8 cases (62.5%)</td>
</tr>
<tr>
<td>Location of lesions</td>
<td>Lip with 2 cases (8.7%)</td>
<td></td>
<td></td>
<td>Gingivo-buccal sulcus with 20 cases (20%)</td>
</tr>
<tr>
<td>Location of lesions</td>
<td></td>
<td></td>
<td></td>
<td>Retromolar trigone with 15 cases (15%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Histopathological diagnosis</th>
<th>Pyogenic granuloma with 9 cases (47.37%)</th>
<th>Fibrous epulis with 7 cases (36.84%)</th>
<th>Peripheral giant cell granuloma with 2 cases (10.53%)</th>
<th>Fibrous hyperplasia with 1 case (5.26%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histopathological diagnosis</td>
<td>Squamous papilloma with 14 cases (60.87%)</td>
<td>Haemangioma with 7 cases (30.43%)</td>
<td>Mucocele with 2 cases (8.7%)</td>
<td>Mid dysplasia with 3 cases each (37.5%)</td>
</tr>
<tr>
<td>Histopathological diagnosis</td>
<td>Moderate dysplasia with 3 cases each (37.5%)</td>
<td>Severe dysplasia with 1 case (12.5%)</td>
<td>Carcinoma in-situ with 1 case (12.5%)</td>
<td>Squamous Cell Carcinoma (SCC) with 92 cases (92%)</td>
</tr>
<tr>
<td>Tobacco chewers</td>
<td>-</td>
<td>-</td>
<td>4 out of 8 cases (50%)</td>
<td>52 out of 100 cases (52%)</td>
</tr>
<tr>
<td>All addictions (smoking, pan-chewers, alcoholism, gutkha)</td>
<td>-</td>
<td>-</td>
<td>All 8 cases (100%)</td>
<td>96 out of 100 cases (96%)</td>
</tr>
</tbody>
</table>

[Table/Fig-1]: Spectrum of various histopathological categorisations of oral lesions with respect to age group, gender distribution, addiction status, location and histopathological diagnosis (n=150).
by Awange DO et al., Naderi NJ et al., and Reddy V et al., which is comparable with the present study [19-21].

In the present study, the most common benign epithelial tumour of oral cavity was squamous papilloma (58.34%) [Table/Fig-11]. This is in

by Awange DO et al., Naderi NJ et al., and Reddy V et al., which is comparable with the present study [19-21].

In the present study, the most common benign epithelial tumour of oral cavity was squamous papilloma (58.34%) [Table/Fig-11]. This is in
In accordance with the study conducted by Muhsen HJ et al., Parkh S et al., Mehta NV et al., and Agrawal R et al., [8,11,14,16], this study found that tongue was the most common site for benign epithelial tumours in people over 50 years of age. Hence, screening programs targeting men over 50 years, would help in early diagnosis of oral cancers and therefore improve the treatment outcome.

Most of the studies found maximum incidence of oral malignant epithelial tumours in people over 50 years of age. However, according to the study reported by Durazzo MD et al., [29], the highest incidence of malignant epithelial tumours in 5th decade, a decade earlier compared to the present study. For example, Atram MA et al., reported highest incidence of malignant epithelial tumours in 5th decade, a decade earlier compared to the present study.

In this study, mean age for malignant epithelial tumours was 49.82 years. Maximum numbers of patients were in the age range 51-60 years (39%). The youngest and oldest patient in our study was 29 years and 80 years respectively.

In the present study as per [Table/Fig-12] [24-26], dysplasia is the most common epithelial precursor lesion which was in accordance with the result in the study conducted by Prithal G [26]. Gross photograph of leukoplakia and microphotograph of mild oral squamous dysplasia are displayed in [Table/Fig-13,14], respectively.

In this study, mean age for malignant epithelial tumours was 49.82 years. Maximum numbers of patients were in the age range 51-60 years (39%). The youngest and oldest patient in our study was 29 years and 80 years respectively. The present study is in concordance with Mehrotra R et al., Shivasheety BS, Prithal G, Dhar PK et al., and Abhinandan B [7,17,26-28], according to these studies, malignant epithelial tumours were commonly seen in 6th decade. Atram MA et al., reported highest incidence of malignant epithelial tumours in 5th decade, a decade earlier compared to the present study.

Most of the studies found maximum incidence of oral malignant epithelial tumours in people over 50 years of age. Hence, screening programs targeting men over 50 years, would help in early diagnosis of oral cancer and therefore improve the treatment outcome.

From [Table/Fig-15] [17,26,29-32], it can be observed that most of the authors found a male preponderance in their studies. In the present study, 70% were males and 30% patients were females which is similar with the study reported by Durazzo MD et al., [29], with relatively higher incidence in male population. Gender is not a risk factor per se in oral cancers [29].
The difference may be due to the high rate of tobacco, smoking and alcohol consumption in males compared to Indian females [33]. Buccal mucosa (40%) was the commonest site for oral malignancies. Similar findings were observed by various authors like Shrivshetty BS, Prithal G, and Bhat SP et al., [17,26,32]. Tongue was the most common site involved in Mehrotra R et al., and Bhattacharjee A et al., studies [7,34]. This can be attributed to cultural difference in the use of tobacco which has led to the variation in the geographic and anatomic incidence of oral cancers in accordance with dose response principle [7].

From [Table/Fig-16], it was observed that with 92%, SCC was the most common malignancy in the present study [17,26,30,34,35].

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Squamous cell carcinoma</td>
<td>98.76</td>
<td>92.87</td>
<td>72.5</td>
<td>85.12</td>
<td>95.5</td>
<td>92</td>
</tr>
<tr>
<td>Verrucous carcinoma</td>
<td>0.62</td>
<td>5.94</td>
<td>27.5</td>
<td>7.14</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Spindle cell carcinoma</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Acantholytic SCC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.75</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Basaloid carcinoma</td>
<td>0.62</td>
<td>1.19</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Mucoepidermoid carcinoma</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.75</td>
<td>2</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

As per [Table/Fig-17] [11,17,26,36], out of 100 patients of oral malignant epithelial tumours, in the present study, 52% patients were tobacco chewers, 15% were smokers, 2% were alcoholics, 12% were habituated to pan, 15% had combined habit of tobacco chewing with either smoking or alcohol. Only 4% did not have any habit. This finding is comparable with Parikh S et al., and Shrivshetty BS [11,17].

In the present study, most common age group of SCC was 51-60 years with 42.39%. This finding is comparable with Shrivshetty BS, Prithal G and Bhattacharjee A et al., [17,26,34]. According to these studies, SCC was commonly seen in 6th decade. Male to female ratio of SCC of oral cavity was 2.5:1. This finding is comparable with Bhattacharjee A et al., and Akram S et al., [34,36]. Buccal mucosa (43.48%) was the most common site for oral SCC. Similar findings were observed by authors like Shrivshetty BS, Prithal G, Akram S et al., and Wahid A et al., [17,26,36,37].

The studies conducted by Shrivshetty BS, Prithal G, Atram MA et al., and Kiran G et al., [17,26,38,39], found well-differentiated SCC as the most common histological grade among all cases of invasive SCC, which is in accordance with present study (71.74%).

Dragomir LP et al., study, however, showed majority of the tumours as well-differentiated SCC but showed an almost equal percentage of poorly differentiated SCC [40], whereas a study conducted by Bhashra A et al., showed majority of cases of moderately differentiated SCC of oral cavity [35].

**Limitation(s)**

Pathological Tumor-Node-Metastasis (pTNM) staging was not discussed as primary focus of the study was on histopathological pattern providing basic diagnostic pattern of malignant oral lesions. The follow-up of patients was not done as our study is an observational prospective research article and not an analytical study. Clinicopathological correlation for concordance rate and discordance rate was not the aim of the study.

**CONCLUSION(S)**

Oral and oropharyngeal cancers are the one of the most common malignancy in developing countries. The incidence of oral SCC remains high due to the bad habits like pan and tobacco chewing in Miraj region. Any mass lesions especially in the oral cavity should be biopsied to rule out malignancy. A detailed clinical workup with histopathology study can help in diagnosing most of the oral cavity epithelial precursor lesions. This potentially reduces the morbidity and mortality arising out of subsequent malignant transformation.

**REFERENCES**


[4] Dragomir LP et al., study, however, showed majority of the tumours as well-differentiated SCC but showed an almost equal percentage of poorly differentiated SCC [40], whereas a study conducted by Bhashra A et al., showed majority of cases of moderately differentiated SCC of oral cavity [35].

**CONCLUSION(S)**

Oral and oropharyngeal cancers are the one of the most common malignancy in developing countries. The incidence of oral SCC remains high due to the bad habits like pan and tobacco chewing in Miraj region. Any mass lesions especially in the oral cavity should be biopsied to rule out malignancy. A detailed clinical workup with histopathology study can help in diagnosing most of the oral cavity epithelial precursor lesions. This potentially reduces the morbidity and mortality arising out of subsequent malignant transformation.

**REFERENCES**


[4] Dragomir LP et al., study, however, showed majority of the tumours as well-differentiated SCC but showed an almost equal percentage of poorly differentiated SCC [40], whereas a study conducted by Bhashra A et al., showed majority of cases of moderately differentiated SCC of oral cavity [35].
Rahul Y Sakpal et al., Histopathological Spectrum of Oral Lesions

3. Associate Professor, Department of Pathology, B.K.L Walawalkar Rural Medical College, Sawarde, Maharashtra, India.
2. Associate Professor, Department of Pathology, B.K.L Walawalkar Rural Medical College, Sawarde, Maharashtra, India.
1. Assistant Professor, Department of Pathology, B.K.L Walawalkar Rural Medical College, Sawarde, Maharashtra, India.

PaRtiCulaRS oF ContRiButoRS:
• For any images presented appropriate consent has been obtained from the subjects. Yes
• Was informed consent obtained from the subjects involved in this study? Yes

authoR DeClaRation:
• iThenticate Software: Mar 25, 2021 (16%)
• Manual Googling: Feb 17, 2021
• Plagiarism X-checker: Nov 01, 2020

PlaGiaRiSM CheCkinG MethoDS:


PARTICULARS OF CONTRIBUTORS:
1. Assistant Professor, Department of Pathology, B.K.L Walawalkar Rural Medical College, Sawarde, Maharashtra, India.
2. Associate Professor, Department of Pathology, B.K.L Walawalkar Rural Medical College, Sawarde, Maharashtra, India.
3. Associate Professor, Department of Pathology, B.K.L Walawalkar Rural Medical College, Sawarde, Maharashtra, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Shweta Joshi Warpe, Associate Professor, Department of Pathology, B.K.L.- Walawalkar Rural Medical College and Hospital, Shree-kshetra Dervan, Dist-Ratnagiri, Sawarde, Maharashtra, India. E-mail: shwetajoshi4422@yahoo.com

AUTHOR DECLARATION:
• Financial or Other Competing Interests: None
• Was Ethics Committee Approval obtained for this study? Yes
• Was informed consent obtained from the subjects involved in this study? Yes
• For any images presented appropriate consent has been obtained from the subjects. Yes