INTRODUCTION

Cancer of the mouth and throat is the sixth most frequent form of the disease worldwide. As the prevalence of cancer in India continues to climb, it has become the leading cause of cancer.[1,2] Tobacco and alcohol are two of many potential root causes of oral cancer,[3] but they are the most significant. Due to the convenience of having oral locations readily available for regular screening evaluation by healthcare providers or by mouth self-examination, most malignancies in the oral cavity are susceptible to early diagnosis.[4] Oral cancer is more likely to develop in morphologically changed tissue, such as a precancerous lesion, than in seemingly normal tissue. In contrast, a precancerous condition refers to an overarching condition that is connected with a very high risk of cancer. These lesions not only foretell cancer at the region where they are found, but also portend an elevated risk of cancer elsewhere in the (apparently healthy) oral mucosa. The World Health Organization’s working committee on oral cancer listed the following as PMDs,[5]: Oral cancers (including leukoplakia and erythroplakia), palate lesions from inverted cigar use, lichen planus, Oral Submucous fibrosis (OSMF), and discoid lupus erythematosus. A worrying new trend has emerged in recent years, with younger age groups showing a larger inclination to oral PMDs.[6] There has been a notable increase in substance addiction among young people, and this is mostly responsible for this trend. Since most PMDs don't cause any noticeable symptoms, treating them often involves trying to stop or at least detect cancer in its early stages. By determining what causes cancer, doctors may forewarn their patients. Even after long-term usage, the chance of getting cancer is greatly reduced by
giving up cigarettes and alcohol. Cancer risk information should be disseminated to the general public via educational campaigns and media reports. Cancer rates, particularly among the young and the working class, may be reduced with the aid of early detection thanks to the presence of oral PMDs, which can be seen as a gift in disguise.\cite{6,7}

**MATERIALS AND METHODS**

The study was carried out in oral pathology department & was conducted after consulting with the concern authorities with permission from ethical committee approval. In all, 120 OPMD patients participated in the research. A detailed history was taken including the personal history & habits of the patient. Patients were kept under observation for 2 weeks of medication. After 2 weeks if the lesion did not subsided & persisted despite providing the treatment a biopsy was recommended & performed to diagnose underlying lesion. By the time report comes, patient was instituted oral antioxidants & multivitamins. Patient were counselled about the ill effects of the usage of tobacco & alcohol. They were followed up for 1 year with minimum 3 follow-up. Documentation of lesion before was done for better assessment for every visit. Excluded from the analysis were laboratory records missing clinical information, specimens that were not representative, or cases in which the OPMD diagnosis could not be confirmed.

Patient age and sex, lesion location, size, and clinical presentation, as well as smoking and alcohol use status, were all gleaned in the lab's patient records. Slides were examined for hematoxylin and eosin staining, and the degree of dysplasia was graded using established standards.\cite{8, 9} Different degrees of dysplasia were assigned to each lesion: normal, mild, moderate, and severe. In SPSS 25.0, we used a significance threshold of 5% (p<0.05) to tabulate and compare data using chi-square and T student tests.

**RESULTS**

Overall, the sample included 120 people with OPMD, with 65 females (57%) and 55 men (43%). Patients had a mean age of 59.85±8.36, with a statistically significant gap between the sexes (mean ages of male patients being 57.85±7.52 years and mean ages of female patients being 61.52±9.66 years; p<0.001). Nearly half (41.67%) of the patients were in their forties.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>%</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>65</td>
<td>54.17</td>
<td>0.22</td>
</tr>
<tr>
<td>Female</td>
<td>55</td>
<td>45.83</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>below 30</td>
<td>15</td>
<td>12.5</td>
</tr>
<tr>
<td>30-40</td>
<td>20</td>
<td>16.67</td>
</tr>
<tr>
<td>40-50</td>
<td>50</td>
<td>41.67</td>
</tr>
<tr>
<td>50-60</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Above 60</td>
<td>17</td>
<td>14.17</td>
</tr>
</tbody>
</table>

The predisposing risk factors included predominantly smokeless tobacco (50%) form followed by betel chewing with betel nut (10%). In female a form of tobacco called "tambaku" was found exclusively which they consume while doing their work mixed with slaked lime. 50% of patient has habit of consuming smokeless tobacco, 11.66% percent of the patients smoked or had smoked in the past, betel chewing with betel nut (10%), Dental abnormalities 10%, Multiple factors (12.5%), khaini (5.84%).

<table>
<thead>
<tr>
<th>risk factors</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smokeless tobacco</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Cigarettes</td>
<td>14</td>
<td>11.66</td>
</tr>
<tr>
<td>Betel chewing with betel nut</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Dental abnormalities</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Multiple factors</td>
<td>15</td>
<td>12.5</td>
</tr>
<tr>
<td>Khaini</td>
<td>7</td>
<td>5.84</td>
</tr>
</tbody>
</table>

Tobacco use was reported by 60% of men and 40% of women (p=0.001), while alcohol use was recorded by 50% of men and 10% of women (p<0.0001). Of the patients examined, 50% (60) had
no dysplasia, whereas 30% (36), 10% (12), and 10% (12) had mild, moderate, and severe epithelial dysplasia, respectively. Patients of different sexes exhibited statistically significant variations in the anatomical distribution of lesions (p<0.0001). Other predisposing factor include dental abnormalities like the sharp cusp, ill-fitting dentures.

Table 3: Anatomical location

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Number</th>
<th>Percentage</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Border of the tongue</td>
<td>27</td>
<td>22.5</td>
<td></td>
</tr>
<tr>
<td>Lower lip</td>
<td>25</td>
<td>20.83</td>
<td>0.003</td>
</tr>
<tr>
<td>Buccal mucosa/Vestibule</td>
<td>24</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Mandibular alveolar mucosa</td>
<td>13</td>
<td>10.83</td>
<td></td>
</tr>
<tr>
<td>Maxillary alveolar mucosa</td>
<td>11</td>
<td>1.77</td>
<td></td>
</tr>
<tr>
<td>Palate/tonsillar pillar</td>
<td>10</td>
<td>8.33</td>
<td></td>
</tr>
<tr>
<td>Floor of mouth/Ventral tongue</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Upper lip</td>
<td>4</td>
<td>3.33</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

In the oral cavity the most prominent clinical presentation was a white patch on oral mucosa (70%) other manifestation includes mixed presentation of white & red patch. Among the oral mucosal areas, the lateral border of the tongue (22.5%) [Figure 1] was the most often afflicted region, followed by the lower lip (20.83%), buccal mucosa/vestibule (20%), mandibular alveolar mucosa (10.83%), and maxillary alveolar mucosa (9.17%). There were no instances of pure erythroplakia in this group. Thirteen people reported having ulcers. Leukoplakia was the commonest underlying pathology comprising of the study population followed by speckled leukoplakia Oral submucous fibrosis, actinic cheilitis, lichenplanus [Figure 2], lichenoid reaction. [Figure 3].

Patients’ mean age did not vary significantly by lesion site (p=0.36). There was a statistically significant difference between leukoplakia and speckled leukoplakia in the anatomical distribution of the lesions as determined by the final diagnosis [Table 1]. Forty (72.73%) of the 55 cases of OPMD in male patients were leukoplakia, three (5.45%) were speckled leukoplakia, and twelve (21.82%) were actinic cheilitis. There was a statistically significant difference between female and male patients (p<0.001), with 57 instances (87.69%) identified as leukoplakia, 4(6.15%) as speckled leukoplakia, and 4(6.15%) as actinic cheilitis. Ulceration was found in 10% of patients with leukoplakia, 12.5% with speckled leukoplakia, and 20% with actinic cheilitis (p=0.02). There was a statistically significant difference (p=0.003) in the distribution of dysplasia severity across different anatomical areas. Few cases reported were mild dysplasia, Most instances of moderate and severe dysplasia (Figure 4) were found at the anatomical areas of the floor of the mouth and the ventral tongue. Among cases of leukoplakia and speckled leukoplakia, moderate or severe dysplasia was found in 17.5% and 40%, respectively (p<0.0001). Moderate and severe dysplasia were seen in 26%, 33.33%, and 17.65% of the lesions, respectively, in patients aged 40-50 years, 50-60 years, and longer than 60 years, in contrast to the patients younger than 30 years old.

Table 4: The dysplasia’s are located anatomically and severity

<table>
<thead>
<tr>
<th>Location</th>
<th>Absence of dysplasia</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Total</th>
<th>P value *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Border of the tongue</td>
<td>15</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>27</td>
<td>0.002</td>
</tr>
<tr>
<td>Lower lip</td>
<td>14</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Buccal mucosa/Vestibule</td>
<td>13</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Mandibular alveolar mucosa</td>
<td>9</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>
Table 5: Degrees of dysplasia based on age group

<table>
<thead>
<tr>
<th>Location</th>
<th>Degree of dysplasia</th>
<th>Total</th>
<th>P value *</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absence of dysplasia</td>
<td>Mild</td>
<td>Moderate</td>
</tr>
<tr>
<td>below 30</td>
<td>14</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>30-40</td>
<td>10</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>40-50</td>
<td>21</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>50-60</td>
<td>66</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>Above 60</td>
<td>11</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>36</td>
<td>12</td>
</tr>
</tbody>
</table>

Figure 4: The dysplasia’s are located anatomically and severity

Figure 5: Degrees of dysplasia based on age group

Discussion

As a whole, OPMD have a global prevalence of 4.4%, whereas the prevalence of leukoplakia alone is 4.1%.[10] Around the last several years, researchers all over the globe have undertaken a plethora of studies on OPMD.[11] Understanding the most frequent risk factors and detailing preventative and early diagnostic techniques relies on familiarity with the basic profile of individuals with OPMD in a specific group. Approximately half (54.7%) of the participants in this analysis were female patients. Brazilian populations,[9,10] and other international research,[14] have also shown a female preponderance; nevertheless, this trend has not been
shown in a number of studies including other
communities.[8-10] There may be more women than
men that are getting affected by this disorder since
more women are starting to consume tobacco in
both smoke & smokeless form and alcohol also.[12]

Because of the additive effects, tobacco and alcohol
use contribute to single most important risk factor
for both OPMD and oral malignancies globally.[13,14]

In the current study male consuming tobacco and
alcohol is more prevalent than female consuming
the same. In our study Lesions in women are
identified and treated than lesions in men, which
may help explain why OPMD is more often
diagnosed in women than in men. Another reason
for this which could be attributed is female’s
orientation & concern about any changes occurring
in oral cavity or for that matter on face. Porter Set et
of the patients were over the age of 40, supporting
the link between ageing and OPMD risk reported in
the literature. The current research’s findings on age
distribution were consistent with those of a
descriptive study carried out by above mention
studies author’s that analysed the cases.

In studies carried on this potentially malignant
lesions cane put with this observation that the
etiology factors were found to be this tobacco
abuse & alcohol abuse. Alcohol abuse has a
synergistic effect along with the tobacco consume
both in smoke & smokeless form, by degrading the
oral mucosal cells & creating a pathway between
cell through which the carcinogens of the tobacco
swipe through causing its ill effect on the oral
epithelial cells & underlying connective
tissue(OSMF). With a focus on Etiological factors
both smoke form like cigarettes, bidi & smokeless
tobacco was most common substances misuse in
different forms like supari, mishi, gutkha wit slaked
line, tobacco with betel nut, khaini. In fames supari,
tobacco with betel nut slaked lime & plain tobacco
was the common abuse. In males both smoke &
smokeless form was seen largely with females
consuming predominantly smokeless form of
tobacco habit along with dental factor like sharp
cusp, ill-fitting denture. Our findings are in
accordance with the existing literature. Mello FW
(2018).[16] reported that 55% of patients with
OPMDs were habituated to tobacco habit & alcohol
while Pires FR (2013).[17] observed that 72% of
having these habits. Incidence rates for leukoplasias, the most frequent kind of oral OPMD,
rangep from 2% to 4% globally.[10] The prevalence of
leukoplasia comparable between the current
research and the previous one, with 80.83 percent
of patients being diagnosed.[16] Pure erythroplakia was
not detected in any of the instances in our sample,
which may be owing to the fact that the clinical
correlation necessary to characterize a lesion as such
was lacking. Due to the challenges in identifying its
clinical symptoms from other OPMD, we did not
include cases with oral lichen planus in our sample.

Dysplastic oral lichen planus has been included in
several previous research, but individual histology
data documenting the malignant transformation
process in these lesions was lacking.[14] Leukoplakia
and speckled leukoplakia were more common in
females than men in our sample, with the exception
of the lips. Actinic cheilitis occurred more often in
male patients (21.82%), perhaps because to the
greater frequency of occupational exposure to UV
radiation and the lower incidence of sunscreen usage
among males.[18] Untreated actinic cheilitis, as
showed by the findings of the current investigation,
may progress to an ulcerated lesion in 10.83% of
patients. Consistent with prior research, we found
that moderate to severe dysplasia was more common
in lower lip lesions than in lesions of any other
anatomical region.[19]

There was no statistically significant difference
between the average size of leukoplakia’s and that
of speckled leukoplakia’s. Based on these results,
it seems that erythroplakia is not a typical progression
for OPMD. Therefore, the size of the lesion is not a
reliable predictor of whether or not it would become
cancerous. Nonetheless, lesion size more than 200
mm2 was cited by Speight et al.[20]

In accordance with the studies carried out Liu W
(0211) 14 Pires FR (2013) 17 earlier the most
common location of injury was the tongue, namely
its lateral border. According to a previous research
conducted on the same population, this location was
also where SCC was diagnosed most often. However,
research studies done by Pereira JS (2011).[12] Mello FW (2018).[16] has shown that
the buccal mucosa and the alveolar mucosa are more
often be the affected site.[12,16]

The degree of dysplasia, which is based on
structural and cytological features of the epithelium,
have been used as a reliable indicator of the potential
of malignant transformation in OPMD.[8,12-14,20]
Although histological investigation failed to reveal
epithelial dysplasia in half of the lesions in this
research, they were nevertheless classified as
OPMD since their clinical presentation was
consistent with leukoplakia or leukoerythroplakias
and they were indistinguishable from these
conditions. The majority of lesions on the lateral
border of the tongue in the current research were
either completely dysplasia-free (55.56% of cases)
or only mildly dysplastic (29.53% of instances), as
determined by a comparison of anatomical location
and degree of dysplasia. The highest rates of
moderate (33.33%) and severe (16.67%) dysplasia
were seen on the floor of the mouth and ventral
tongue, respectively. These findings corroborate the
findings of some earlier research of Pereira JS
(2011).[12] and provide support to the idea that
OPMD found on the tongue and the floor of the
mouth are more likely to undergo malignant
transformation.[20] Due to the prevalence of
squamous cell carcinoma (SCC) in various areas,
particular consideration must be given to them.[17]
Severe epithelial dysplasia was more common in
CONCLUSION

In conclusion, the current research found that female patients accounted for the majority of OPMD diagnoses. Lesions were more common in women than in men, and they occurred everywhere except the lips. Leukoplakia and actinic cheilitis were the most common OPMD diagnoses, respectively. The lower lip, the buccal mucosa/vestibule, and the lateral edge of the tongue were all impacted. Lesions on the floor of the mouth/ventral tongue, as well as older individuals, showed the highest frequency of severe epithelial dysplasia.

REFERENCES


