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CLINICOEPIDEMIOLOGICAL STUDY OF ORAL MUCOSAL LESIONS : A CROSS SECTIONAL STUDY AT TERTIARY CARE CENTRE IN HADOTI REGION, RAJASTHAN

Dermatology

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ABSTRACT

Introduction: Oral mucosa provides a physical and immunological barrier to the outside world. Despite its anatomical and functional similarities with skin, the mucosa of oral cavity is incredibly unique. Its distinct lining and the unique role of saliva and its biomarkers have been described in the literature for diagnostic testing and disease monitoring.**Aims and objectives:** To study the clinicoepidemiological profile of the patients presenting with oral mucosal lesions, prevalence of oral lesions and clinical features of oral mucosal lesions in Dermatology patients. **Materials and Methods:** It was an observational, cross-sectional study of patients who were present with oral lesions in Dermatology, venereology & leprosy department of Govt. Medical college hospital Kota for a period of one year between July 2018 to June 2019. **Results:** A total of 311 patients with oral lesions were encountered in our study. Prevalence of oral lesion in this study was 3.04%. In our study out of 311 patients, 161(51.77%) were male and 150(48.23%) were female with male to female ratio of 1.07:1. The oral lesions were most commonly observed in the age group of 31-40 (22.18%) and mean age was 35.56 ±16.07 years. In our study 206 (66.24%) of the patients complained of symptomatic lesions and 105(33.76%) the lesions were asymptomatic. LP was most common dermatosis with oral lesions in 79(25.40%) in papulosquamous category followed by Pemphigus vulgaris in 58(18.65%) Vesiculobullous diseases (18.65%), DLE in 31(9.98%) autoimmune etiology and in miscellaneous condition smokers melanosis was most common found in 7(2.25%) cases. In our study 167(53.70%) patients had only oral manifestation and 144(46.30%) had oral and cutaneous manifestation. **Conclusion:** Mass health education programs need to be undertaken to educate the population regarding oral health and care. Early diagnosis of the precancerous and cancerous conditions is the key factor for their effective and timely management.

KEYWORDS

Oral lesions, Oral lichen planus, aphthous ulcer, Melkerson Rosanthal syndrome, Premlatha sign

INTRODUCTION

The skin and oral mucosa provide a physical and immunological barrier to the outside world. The outermost layer of both skin and oral mucosa is covered with stratified squamous epithelium. Despite its anatomical and functional similarities with skin, the mucosa of oral cavity is incredibly unique[1].

Oral or Buccal cavity is derived from both ectodermal and endodermal regions. The oral cavity is divided into two parts, the vestibule and oral cavity proper. The oral cavity proper includes the lips, floor of mouth, labial and buccal mucosa, tongue, hard and soft palates, gingiva, and teeth. Oral cavity consists of a smaller vestibule outside the teeth and an inner larger oral cavity proper. Vestibule is a slit like space bounded externally by lips and cheeks and internally by gums and teeth. Oral cavity proper is bounded antero-laterally by alveolar arches, teeth and gums, behind it communicates with pharynx at the oropharyngeal isthmus, between the palatoglossal folds. Roof is formed by the hard and soft palates, most of its floor by anterior region of tongue and the rest by reflection of mucosa from the sides and inferior surface to the gum or internal mandibular surface.

Dermatological diseases may involve the oral cavity in addition to skin and its appendages and usually manifest as ulcers, swellings, erythema, pigmentation, blisters and white patches.[2]The lesions of oral cavity in dermatological disorders deserve special attention, considering that they may be the presenting clinical feature or the only sign of inherited or systemic disorders.

Oral mucosal lesions can be recognised based on their characteristic site, size, colour, distribution and symptoms. Clinical examination of oral mucosa is difficult because of the anatomical and functional peculiarities[3].

Clinical diagnosis in certain cases may be difficult due to overlapping clinical presentation (for example erosive lichen planus& erosions of oral pemphigus). In such cases, confirmation of diagnosis requires histopathology and special investigations like immunohistochemistry, desmoglein1&3, [antigen and antibody] assay etc.

MATERIALS AND METHODS

It was a Observational, cross-sectional study included all patients with oral mucosal lesions in outpatient and inpatient department of Dermatology, Venereology and Leprology, Kota Medical college , irrespective of age and gender. Patients were excluded who denied giving consent for the study and only lip involvement not extending to oral mucosa.Out of total 10,220 patients included in our study 311 had oral lesions in the duration ofone year between July 2018 to June 2019. The data was entered into SPSS software version 19.0. Appropriate statistical tools were used when required. Mean and standard deviation were calculated wherever needed.

Patients presenting with oral manifestations were examined thoroughly for lesionalcharacterstics [size, shape, location, configuration etc] and recorded as per proforma. Informed consent was taken from patient after explaining them about the nature study. Previous and current medical record of the patient was checked and recorded. Relevant Investigations like CBC, urine routine, microbiology, LFT, RFT, etc were done in required cases.

RESULTS

The study was done in one year duration during which 10220 patients with dermatological disease were examined of these 311 patients had oral lesions.Prevalence of our study was 3.04%.In our study out of 311 patients, 160(51.44%) were male and 151(48.55%) were female with male to female ratio of 1.07:1. Mean age of our study was 35.56±16.07 years (2-75 years) (table1).The Patients with Oral lesions were placed into 8 sub groups (Table 2). The lesions were most commonly observed in the age group of 31-40years 69(22.18%) followed by patients in 21-30 year age group65 (20.90%),11-20yr 59(18.97%). Least number of the Patients belonged to age group >70 years and they were 4(1.28%).In our study total 98(31.51%) person had tobacco consumption out of which 29(9.32%) taking tobacco in both smoking and non smoking form and 33(10.61%) taking tobacco in smoking form and 36(11.58%) taking tobacco in non smoking form (Figure 1).In our study206 (66.24%) patients complained of symptomatic lesions and 105(33.76%) the lesions were asymptomatic. The most common complaints found in our study were burning 109(35.04%) followed by Soreness and pain while Consuming food 43(13.82%), oral pain 42(13.50%), bleeding 4(1.28%), foreign body sensation 2(0.64%), altered tongue texture 2(0.64%), swelling 2(0.64%), inability to open mouth 1(0.32%), and dryness of mouth 1(0.32%) (table3). In our study 167(53.70%) patients had only oral manifestation and 144(46.30%) had oral and cutaneous manifestation(table 4,5). In our study Ten category of Oral lesions were found(figure2). Most common Oral lesion were found in papulosquamousdermatosis in 81(26.04%)cases followed by Vesiculobullous73(23.47%),Autoimmune 46(14.79%), Aphthous stomatitis in 44(14.15%),Infective 18(5.79%),Drug induced 13(4.18%),Premalignant 11(3.54%),involving tounge 10(3.22%), Genodermatoses 2(.64%), and in miscellaneous in 26(8.36%). A total of 81(26.04%) cases were found in the category of papulosquamous. Lichen planus was commonest dermatosis with oral lesions found in 79(25.40%) cases followed by psoriasis found in two cases. 60(19.19%) cases were found in vesiculobullouscategory.Pemphigus vulgaris was commonest found in 58(18.65%) cases followed BP in two(0.64%) cases.A total of 46(14.79%) cases were found in this autoimmune category.DLE was the most common dermatosis with oral lesions in this category found in Thirty-one (9.98%) cases followed by SLE found in 7 cases,Behcet in two, Kawasaki in two cases, SCLE in one, MCTD in one mucosal LSA in one, mucosal vitiligo in one case. Aphthous stomatitis was found in 44(14.15%) cases of apthous stomatitis was found in this category. In Aphthous stomatitis most common variant Minor apthae34(10.93%) cases followed by Major aphthae 9(2.89%)cases,Herpeticaphthae in one(0.32%).A total of 18(5.79%) cases found in infective category.Candidal stomatitis was most common in 7 cases followed by HFMD found in 6 cases,Varicella in 3 and Secondary syphilis in two cases. A total of 13(4.18%) cases of drug induced dermatosis with oral lesions were found .5(1.61%) cases of TEN,4(1.29%) cases of EM major,3(0.96%) of SJS,and one(0.32%) case of FDE were found.A total of 11(3.54%)cases ofpremalignant/malignant were presented .Oral Leukoplakia was most common found in 5(1.61%)cases followed by oral submucosal fibrosis found in three(0.97%) cases and Squamous cell carcinoma found in two(0.64%)cases,Leukoedema in one(0.32%)case.A total of 10 cases were found which was involving tounge.Geographic tounge was most common in this category found in 6(1.93%) cases followed by Fissured tongue in two(0.64%)cases,Black hairy tounge in one (0.32%) and melkerson Rosenthal syndrome in one(0.32%) case**.** Two case(0.64%) of genodermatosis found, one case of AV malformation and one case of Nevus of Ota.A total of 26(8.36%) cases were found in miscellaneous category. Nutritional deficiency was most common in this category found in 7(2.25%) cases followed by Smokers melanosis in 7(2.25%) cases ,Traumatic ulcer in 4(1.29%)cases,BMS in two(0.64%) cases, Mucocele in 2(0.64%) cases,Fordyce spot in 2(0.64%) cases,ABH in two(0.64%) cases**.**

Lichen planus was commonest dermatosis with oral lesions found in 79(25.40%)followed by Pemphigus vulgaris in 58(18.65%) cases,DLE in 31(9.98%). In various pattern of Oral Lichen Planus Reticular was most common found in 21 cases(6.76%) followed by Plaque in 15(4.82%),Papular 8(2.57%), Erosive in 3(0.96%), Atrophic in one case1(0.32%).

DISCUSSION

In the present study, the prevalence was 3.04%. which is similar to Ramírez-Amador *et al*[4]. reported that the prevalence of oral conditions was 2.8% in 2133 patients. While in Babu et al this was 1.82%[5] Prevalence of oral mucosal lesion was found to be higher in the study of Zain et al. (9.7%)[6] and Saraswathi et al.[7] (4.1%). Thus, the variation in the prevalence of OMLs may be influenced by sample size, geographic distribution, biologic, genetic profile of the patients, and study design.In our study, oral mucosal lesions were common in men 160 (51.44%) than women 151(48.55%) with male to female ratio1.07:1 which was similar with Abu et al[8]and Avcu and Kanli[9]. This may be related to higher prevalence of smoking among men.

In females the most common disease was Oral LP 45(14.47%) followed by PV 27(8.68%) and aphthous stomatitis 20(6.43%) cases.In male the most common dermatosis with oral lesion were PV 31(9.97%) , DLE 18(5.79%). These results were slightly contrasting from Goyal et al[13]who had observed aphthous ulcers to be the most common disease in females (50 %) while leukoplakia (13.6 %) and oral lichen planus (8.6 %) were the commonest in males, probably due to addiction habits.

In our study oral lesions were most commonly observed in the age group of 31-40 (22.18%) which was similar to Babu et al study[5] .In present study total 98(31.51%) person had tobacco consumption in Goyal et al study majority of patients who presented with oral mucosal lesions had association with addiction (68 %)[13].In our study 79(25.40%) patients of Lichen Planus were found with female predilection. While in in Babu et al[5] study this was observed in 2.06% dermatological patients. Oliveira Alves *et al*. stated that the prevalence of oral lichen planus was 6% with female predilection.[10]

In our study, out of 58(18.65%) pemphigus patients, 32 Male (56.14%) and 26(43.86%)were females.Male was predominant . Pemphigus vulgaris was seen in the fourth and fifth decade. Kumar et al reported incidence of pemphigus was 4.4/million in Kerala population of India and disease exposure was high between 40 and 50 years age group[11].In Babu et al study, pemphigus was observed in 7/3,500 dermatological patients[5].

In this study, three (0.98%) case of Stevens Johnson syndrome were found while in Babu et al study[5]this was found in 0.4% dermatological patients . In our study, five(1.61%) case of toxic epidermal necrolysis were found. While in Babu et al[5] study it was .08% dermatological patients. Cattelan et al[12]was reported two cases of toxic epidermal necrolysis induced by nevirapine therapy. Patient presented with multiple ulcerations and erosive areas in the oral mucosa.Aphthous stomatitis was found in 44(14.15%) 24 male and 20 female cases and observed in the second and the third decade in our study which was different from Goyal et al[13] al study. Our study concluded that aphthous ulcers are more common in younger age group and their prevalence decreases as age advances. This was similar to the studies done by Davatchi et al[14]. Discoid Lupus Erythematosus was reported in 31(9.98%)cases in our study. Discoid lupus erythematosus was observed in 1.5% (1/65) according to ArvindBabu *et al*[5], which was different to our study.

The oral ulcers in behcets disease were seen more commonly on the buccal mucosa and on the mucosal surface of lips, which was similar to Mc Carty *et al*[15]. In Systemic lupus erythematosus, all the patients are female, belonging to the second and third decade of life in our study. Prevalence was 2.25%. while in Babu et al this was 0.05%. YacoubWasef[16] stated that increased prevalence of systemic lupus erythematosus was observed in female patients and the cause was attributed to differences in the metabolism of sex hormones and or gonadotrophin releasing hormone.

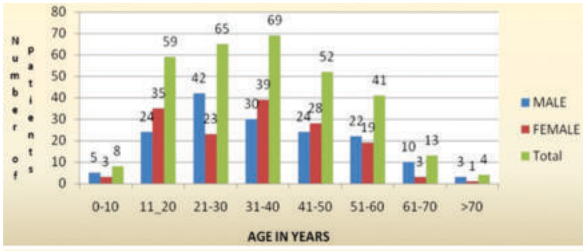
The prevalence of leukoplakia in our study was 1.62%, which was comparable with Preeti et al , Mathew et al (1.59%), Reichert et al (1.1%) and Banoczy et al (1.3%) [17-20]The presence of Leukoedema was seen in1(0.32%) of the cases, which was less when compared with Mathew et al (3.7%)[18]The presence of oral sub mucous fibrosis (OSMF) was noted in 3(0.96%) of the population, which was far below than Mathew et al (2.01%)[18]. Fissured tongue2 (0.64%) Which was nearer to 0.7% in Preeti et al study[17] and less than Shulman et al (0.85%)[21].In our study 2(0.64%) case of mucocele were found but Kovac-Kovacic and Skaleric[22] showed that oral mucocele was found in 0.9% of the patients. In this study two (0.64%)case of Fordyce spot were found in third decade. In El Hamd study[8] 3.2% of the patients were diagnosed with Fordyce granules.

CONCLUSION

Oral lesions are encountered commonly in Indian population

secondary to various systemic diseases, addictions and low socio-economic state. Mass health education programs must be carried out to educate the population regarding oral health and care so as to maximize the utilization of oral health care services. This aids the population to maintain good oral health in the long run. Any patient with oral mucosal lesion must always be examined thoroughly in order to reach to an early diagnosis of the precancerous and cancerous conditions. An early and prompt diagnosis is the key factor for effective and timely management in such cases.

Our study was limited by a small sample size and absence of histopathological confirmation of diagnosis.



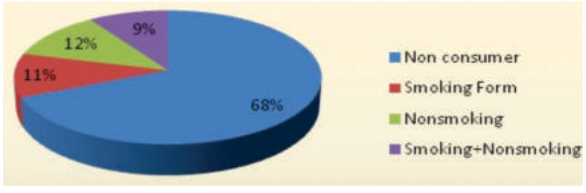


Table 1-previous Studies

Author	Prevalence/sample size	Result (most common dermatoses)
1.Goyal et al. 2015, India[13]	Oral Lesions-1280	Aphthous ulcers (44.5 %), leukoplakia (12.9 %).
2.El-Hamd et al. 2018, Egypt[8]	Total-4800 Oral lesions-125 Prevalence-2.6%	aphthous stomatitis (n=28, 22.4%), oral candidiasis (n=15, 12%), Behcet's disease (n=12, 9.6%)
3.Babu et al. 2014, India[5]	Total- 3500 Oral lesions- 65 Prevalence- 1.8%	psoriasis 32.3% (21/65), lichen planus 18.4% (12/65), Stevens Johnson Syndrome 18.4% (12/65),
4. PreetiSethi Bakshi et al 2016,India[17]	Total- 3960 Oral lesions-1449. Prevalence-36.59%	206 traumatic lesions, 224 tobacco induced and 238 miscellaneous conditions.
5.Present study	Total-10,220 Oral Lesions-311 Prevalence-3.04%	Lichen planus was the most common.found in 79(25.40%) Followed by Pemphigus vulgaris in 58(18.65%), Aphthous stomatitis 44(14.15%), DLE 31(9.98%). Most common site in our study buccal mucosa.

Table 2- Baseline Demographic data of study of Oral lesions

Age in years (all study participant)	
Mean	35.56 years
Std deviation	±16.07
Median	35 years
Age in years (Lichen Planus)	
Mean	36.19 years
Std deviation	±15.86
Age in years (DLE)	
Mean	40.54 year
Std deviation	±16.54
Age in years (Pemphigus Vulgaris)	
Mean	39.06
Std deviation	±14.15
Age in years (Aphthous stomatitis)	
Mean	30.86
Std deviation	±14.07

Table 3-Age/Sex distribution of patients with oral lesions(n=311)

Age in years	Male No. of patients(%)	Female No. of patients(%)	Total No. of patients
0-10	5(1.60%)	3(0.96%)	8(2.57%)
11-20	24 (7.71%)	35(11.25%)	59(18.97%)
21-30	42(13.5%)	23(7.39%)	65(20.90%)
31-40	30(9.64%)	39(12.5%)	69(22.19%)
41-50	24(7.71%)	28(9.00%)	52(16.72%)
51-60	22(7.07%)	19(6.10%)	41(13.18%)
61-70	10(3.21%)	3(0.96%)	13(4.18%)
>70	3(0.96%)	1(0.32%)	4(1.29%)
Total	160(51.44%)	151(48.55%)	311(100%)

Table 4-The complaints in patient with symptomatic oral lesions

Chief Complaints	Number of patients	Percentage
Burning	109	35.04%
Soreness+Pain while Cosuming food	43	13.82%
Oral Pain	42	13.50%
Bleeding	4	1.28%
ForignBody Sensation	2	0.64%
Altered Tounge Texture	2	0.64%
Swelling	2	0.64%
Inability to Open Mouth	1	0.32%
Dryness of Mouth	1	0.32%

Table 5- Disease with only Oral Lesions

Diseases with only Oral lesions	Total number of Patients	Total percentage out of 167 patients with only oral lesions	Total Percentage out of 311
1.Oral LP	48	28.74%	15.43%
2. .Oral Apthae	44	26.35%	14.16%
3.PV	14	8.38%	4.50%
4 Smokers melanosis.	7	4.19%	2.25%
5. Candidal Stomatitis	7	4.19%	2.25%
6.Geographic Tounge	6	3.59%	1.94%
7.Leukoplakia	5	2.99%	1.62%
8.Nutritional deficiency	4	2.40%	1.29%
9.Traumatic Ulcer	4	2.40%	1.29%
10.Submucosal fibrosis	3	1.79%	0.96%
11.Oral DLE	3	1.79%	0.96%
12.Burning Mouth Syndrome	2	1.20%	0.64%
13.Fissured Tounge	2	1.20%	0.64%
14.Fordyce Spot	2	1.20%	0.64%
15.Mucosal Cyst	2	1.20%	0.64%
16.Secondary Syphilis	2	1.20%	0.64%
17.ABH	2	1.20%	0.64%
18.SCC	2	1.20%	0.64%
19.Leukoedema	1	0.60%	0.32%
20.FDE	1	0.60%	0.32%
21.Behcets disease	1	0.60%	0.32%
22.AV Malformation	1	0.60%	0.32%
23.Black Hairy Tounge	1	0.60%	0.32%
24.Mucosal LSA	1	0.60%	0.32%
25.Melkerson Rosenthal Syndrome	1	0.60%	0.32%
26.Mucosal Vitiligo	1	0.60%	0.32%
Total	167	100%	53.70%

Table 6- Diseases with oral and cutaneous manifestations

Cutaneous+Oral Disease	Total no	Percentage Out of 144	Percentage out of 311
1.Pemhigus	44	30.57%	14.16%
2.LP	31	21.54%	9.97%
3.DLE	28	19.44%	9.00%
4.SLE	7	4.86%	2.25%
5.HFMD	6	4.17%	1.94%
6.TEN	5	3.47%	1.61%
7.EM Major	4	2.78%	1.29%
8.SJS	3	2.08%	0.96%
9.Varicella	3	2.08%	0.96%
10.Nutritional deficiency	3	2.08%	0.96%
11.Kawasaki disease	2	1.39%	0.64%
12.Bullous Pemphigoid	2	1.39%	0.64%
13.Psoriasis	2	1.39%	0.64%
14.MCTD	1	0.69%	0.32%
15.Behcets disease	1	0.69%	0.32%
16.Nevus of Ota	1	0.69%	0.32%
17.SCLE	1	0.69%	0.32%
Total	144	100%	46.30%

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