

Received: 01st January 2016 Accepted: 04th April 2016 Conflict of Interest: None

Source of Support: Nil

Original Research

Doi: 10.2047/jioh-08-06-06

The Prevalence of Oral Mucosal Lesions among Saudi Females Visiting a Tertiary Dental Health Center in Riyadh Region, Saudi Arabia

Hessa Al Wayli^{1,2}, Bin Abdul Wahad Khalid Rashed³, Ashish Kumar⁴, Sanjay Rastogi⁵

Contributors:

¹Consultant, Department of Oral Medicine, Dental Administration, Riyadh Health, Riyadh, Saudi Arabia; ²Head, Department of Preventive Dental, Dental Administration, Riyadh Health, Riyadh, Saudi Arabia; ³Consultant, Department of Dermatology, King Salman Hospital, Riyadh, Saudi Arabia; ⁴Reader and Head, Department of Community Dentistry and Public Health, BJS Dental College, Ludhiana, Punjab, India; ⁵Reader, Department of Oral and Maxillofacial Surgery, The Institute of Dental Sciences, Bareilly, Uttar Pradesh, India.

Correspondence:

Dr. Rastogi S. Department of Oral and Maxillofacial Surgery, Institute of Dental Sciences, Bareilly, Uttar Pradesh, India. Email: docos79@gmail.com

How to cite the article:

Al Wayli H, Rashed BA, Kumar A, Rastogi S. The prevalence of oral mucosal lesions among Saudi females visiting a tertiary dental health center in Riyadh region, Saudi Arabia. *J Int Oral Health* 2016;8(6):675-678.

Abstract:

Background: The purpose of this study was to determine the prevalence and distribution of oral mucosal lesions among Saudi female patients attending oral medicine clinic at Al-Yamamah Hospital for the treatment and management during the period of 2005-2010.

Materials and Methods: The patient was selected from routine outpatient department. Sample size was determined based on the review of literature. Formula was used to calculate required sample size. A screening examination including intraoral clinical examination was performed on 5543 Saudi female patients using under strict infection control measures. Cytologic smears were obtained when necessary and lesions which required histopathological confirmation were referred to histopathology lab. After biopsy, the lesion was added to group based on the clinical appearance of the lesion and histopathology of the lesion. Descriptive statistical analysis was done using SPSS 15 and frequency distribution for lesion was obtained.

Results: The most common alterations observed were pyogenic granuloma, infection, lichen planus and aphthous ulcer.

Conclusion: The information presented in this study adds to our understanding of the common oral mucosal lesions occurring in the general population. Although most of these lesions are innocuous, the dentist should nevertheless be able to recognize and differentiate them from worrisome lesions, and decide on the appropriate line of treatment.

Key Words: Oral mucosal lesions, prevalence, Saudi females

Introduction

Oral diseases qualify as major public health problems due to their high prevalence and incidence in altogether regions

of the world, and as for all diseases, the greatest burden of oral diseases is on underprivileged and socially marginalized populations. The severe impact in terms of pain and suffering, impairment of their function, and its effect on quality of life can also be taken into consideration. Traditional ancient treatment of oral diseases is extraordinarily expensive in several industrialized countries, and not possible in most low- and middle-income countries.¹ Oral carcinomas are the sixth most common malignancies round the globe. Oral mucosal lesions could be either as a result of infection (bacterial, viral, fungal), native injury and or irritation (traumatic keratosis, irritational fibroma, burns), systemic disease (metabolic or immunological), or related to lifestyle related factors such as the consumption of tobacco, areca nut, betel quid, or alcohol.²

The oral mucosa acts as a protective barrier against trauma, pathogens, and malignant neoplastic diseases agents. It can be influenced by a wide variety of lesions and conditions, a number of which are harmless, whereas others may have crucial complications. Identification and treatment of these pathologies are a major part of total oral health care.³

In past few studies⁴⁻¹⁰ has been done on different oral mucosal lesion in various part of the globe, but no other studies were carried out for the underprivileged Saudi female dental patients. This study was designed with the aim of importance of dental diagnosis in identification of varied lesions of oral cavity in these types of patient and to understand the advantage of dental screening at the earliest in order to know them. The reason to carry out this research was to determine the prevalence and distribution of oral mucosal lesions among female Saudi patients attending oral medical clinic Al-Yamamah Hospital for treatment and management during the period of 2005-2010.

This information can work as a baseline for further studies for planning of national or regional oral health promotion programs as well as for the prevention and treatment of oral health problems.

Materials and Methods

The present cross sectional study encloses data collected from female patients who had reported to the Oral Medicine Clinic, Al-Yamamah Hospital, Riyadh, Saudi Arabia, in the time period from January 2005 to December 2010. The study protocol was reviewed and approved by the Hospital Ethical Committee and the Helsinki guidelines were followed. A total number of

5543 patients reported during this time period. All the patients were in the 1st to 8th decade of life and voluntarily participated in the study. Written informed consent was taken from all the subjects. Sample size was calculated using the formula

$$n = \{(Z_{1-\alpha})^2 P(1-P)/d^2\}$$

Patients in whom an intraoral examination was not possible as a result of decreased mouth opening were excluded from the study. About 328 patients were excluded from the study and final sample size available for screening was 5215. History was obtained from the parents or relatives for patients who were unable to communicate either due to age or disease. The patients were examined clinically by two trained examiners using artificial light, mouth mirror, gauze, etc., the diagnosis was created on the basis of history, clinical feature, and investigations, according to the WHO guidelines and color atlas. Biopsies were suggested for suspicious lesions. After biopsy, the lesion was included to group based on the clinical appearance of the lesion and histopathology of the lesion.

Simple descriptive (univariate analysis) statistics were implicated to study the data by using the Statistical Package for Social Sciences Version 15.0 software (SPSS Inc., Chicago, IL, USA).

Results

A total of 5215 female patients were examined and diagnosed with oral mucosal lesions. The present study was the only study done on Saudi female patients. The age range of the female patients was between 2 and 87 years. The mean age group of the sample was 39.3 years. Of the total sample, the most commonly affected age was between 12 and 50 years (16.88%), followed by 3-87 years, and 24-63 years (11.08%).

Oral lesions were quite prevalent among Saudi females. Pyogenic granuloma was seen in 16.88% on the free and attached gingiva and was significantly more common in females. Bacterial and viral infections were also a second common entity in Saudi Arabia females which accounts for 13.45% of the total sample size. Lichen planus is the third most common disease among the females with a prevalence rate of 11.08%, found on the buccal mucosa; among these, the reticular type of lichen planus is more common. Other lesion which is more commonly found among the Saudi females is minor aphthous ulcer (9.76%). Other pathologies detected were mucocele of the lower lip, eruption cyst, and gingival cysts of new born.

Some nonspecific swellings (4.48%) were also detected, but not statistically significant. Few other lesions which were found in the females were hyperkeratosis, fibrous hyperplasia, and irritation fibroma. Only little number of tongue abnormalities were detected, which accounts only 2.37% of total sample size. The most common tongue abnormality present was geographic tongue (Table 1).

Table 1: Descriptive distribution of soft tissue lesion.

Soft tissue lesion	Number of subjects (%)	Age distribution (in years)
Pyogenic granuloma	64 (16.88)	12-50
Infection (bacterial or viral)	51 (13.45)	3-87
Lichen planus	42 (11.08)	24-63
Aphthous ulcer	37 (9.76)	3-55
Oral ulcer (traumatic, iatrogenic)	33 (8.7)	2-59
Mucocele	31 (8.17)	31-33
Cysts (eruption cyst, gingival cysts) of newborn	26 (6.86)	2 days to 7 years
Swelling (saliva gland, extraoral abscess)	17 (4.48)	7-60
Lesion (unspecific, frictional keratosis)	14 (3.69)	22-62
Fibrous hyperplasia	13 (3.43)	16-63
Irritational fibroma	12 (3.16)	41-66
Vesiculobullous lesions	9 (2.37)	9-46
Geographic tongue	9 (2.37)	14-39
Others	29 (7.65)	6-51
Total	379	

Discussion

Oral soft tissue lesions represent a major health issue with a substantial morbidity. In spite of its notability, there are very less reports on its occurrence among Saudi female population and its association with oral habits, when comparing these to dental caries and periodontal diseases.

The objective of this research was to study the prevalence of oral mucosal lesions among Saudi females as there have been no staunch studies were performed on them in the past; it might be associated with cultural reasons, as female patients prefer to be undergo their treatment by female doctors only, so there was a necessity to conduct this study in order to screen the prevalence of oral mucosal lesions in the females.

In agreement with others,¹⁰⁻¹⁵ our results illustrated the higher prevalence of oral mucosal lesions in the Saudi females, though; this study was primarily conducted on females. Other reports, however, indicated that oral lesions tend to increase with age in relation with tobacco consumption and denture use.^{9,12-19} The age of the patient is compelling in patient assessment, treatment planning, and health education.

The present study states that the distribution pattern of oral mucosal lesions in Saudi Arabia dental patients is similar to other countries. Statistics from different regions of world explained that malignancy and precancerous lesions are more common in elderly;^{9-15,17,18,20} it might be due to excessive consumption of tobacco or its products as the age advances, lower socioeconomic status, mental illnesses, poor education, etc. On the other hand, benign lesions are more common in females at younger age. However, in our study, we have not encountered any case of premalignant lesions which may be attributing toward the females abstinence from the adverse habits.

Pyogenic granuloma is a tumor-like, exuberant tissue response to localized irritation or trauma. In this study, we found that pyogenic granuloma is the most common oral lesion, i.e., 64 cases (16.88%); this result is similar to the results reported by Wayli and Mosadomi,⁴ Buchner and Begleiter,²¹ Stablein and Silverglade,¹⁶ and Sengüven *et al.*¹¹

Viral and bacterial infections are relatively common in the oral cavity; such as herpes labialis, herpetic stomatitis, and herpangina.^{5-7,22} In our study population, its incidence decrease with age and was more prevalent in the younger age Saudi females (13.45%). This is dissimilar to the finding by Chiang Mai⁵ in Thailand (0.9%), but it is similar to the findings of Bouquot²³ and Axell⁵ (14.3%).

In our study, the prevalence rate of localized and generalized periodontitis and gingivitis inflicting the Saudi females was 20% (51 cases) and most commonly affected age group ranging from 3 to 87 years; however, in a study conducted by Wayli and Mosadomi,^{4,22} the reported prevalence was 7.14% and the age group was between 11 and 20 years.

Lichen planus was found in 11.08% of our study group, which is in contrast to that in Swedish, Japanese, and Chinese populations. In our population, lichen planus was more prevalent in the 24-63 years age group. It was more frequently seen among women than men. This is in accordance with the results obtained by Axéll and Rundquist,²⁴ Ikeda *et al.*,²⁵ and Marija⁸ (in Slovenia). It was located most frequently on the buccal mucosa followed by tongue and the alveolar ridge, these sites also commonly involved in the study of Al-Mobeeriek and Al-Dosari⁶ (0.35%); however, in the study of Saraswathi *et al.*,⁷ a prevalence rate of 0.15% was found with the mostly affected sites were tongue, labial and buccal mucosa.

The prevalence of recurrent aphthae was 9.76% and it was more prevalent in the 3-55 years age group. These results were similar to the percentage reported by Kovac-Kovacic and Skaleric⁸ (9.7%). In a study, Feng *et al.*,¹² in China, concluded that the prevalence of recurrent aphthous stomatitis was higher in students.

The prevalence of mucocele in our population was 8.17%, and it was found only in females. This prevalence is comparable with that in the study by Nartey *et al.*²⁵ (6%) and by Bouquot¹⁷ (0.2%) and less than in the population studied in Slovenia (0.9%)⁸ and Turkish population.¹¹

Shulman *et al.*²³ reported a ubiquity of oral ulcers (8.4%); these results are in agreement with the percentage reported in our study (8.7%). Majority of the cases of oral ulcers if undiagnosed would raise the suspicion of oral cancer.^{9-11,17,18,20} Worldwide, oral malignancies is the sixth most common cancer and oral malignancies represent about 2% in females, and responsible for 1% of the annual cancer deaths in females.

White lesions near rough dental restorations, a sharp tooth, or due to biting because of unsuitable prosthesis were registered as frictional keratosis.^{9,8,13-15,17-20,26} In our study, the occurrence of frictional keratosis was in 3.69% of all subjects. The highest prevalence of this lesion was in Saudi women in the 22-62 years age group. On the contrary, Nartley *et al.*²⁷ found a total prevalence rate of 57%.

The prevalence of irritational fibroma in our study was 3.16%. It was more prevalent in females than in males within the age group of 41-66 years. This is in discordance with the study done by Mansour *et al.*,¹³ where the prevalence was found to be 1%.

This study was done on Saudi female dental patients so application of finding is limited to dental patient and dental finding. Further meta-analysis is required to correlate these findings in Saudi general population.

Conclusion

The present study findings provide important information related to the prevalence of oral mucosal lesions among female patients seeking dental care in Saudi Arabia. The information presented in this study gives important and missing information about the types and prevalence of oral lesions among Saudi female patients and also can serve as a baseline data for future studies on the prevalence of varied number of oral mucosal lesions in the general population. Although most of these lesions are innocuous, the dentist should nevertheless be able to identify and differentiate them from worrisome lesions, and conclude on the appropriate line of treatment. Periodic ongoing education programs covering oral lesions will enhance the diagnostic ability of dental practitioners.

References

1. Petersen PE. The World Oral Health Report 2003: Continuous improvement of oral health in the 21st century – The approach of the WHO Global Oral Health Programme. *Community Dent Oral Epidemiol* 2003;31 Suppl 1:3-23.
2. Mehrotra R, Thomas S, Nair P, Pandya S, Singh M, Nigam NS, *et al.* Prevalence of oral soft tissue lesions in Vidisha. *BMC Res Notes* 2010;3:23.
3. Langlais RP, Miller CS, Nield-Gehrig JS. *Color Atlas of Common Oral Diseases*, 4th ed. Illinois: Lippincott Williams & Wilkins; 2009.
4. Wayli AH, Mosadomi AH. Pyogenic granuloma among Saudi females in an outpatient dental clinic. *Saudi Dent J* 2006;18(2):105-10.
5. Axéll T, Zain RB, Siwamogstham P, Tantiniran D, Thampipit J. Prevalence of oral soft tissue lesions in out-patients at two Malaysian and Thai dental schools. *Community Dent Oral Epidemiol* 1990;18(2):95-9.
6. Al-Mobeeriek A, Al-Dosari AM. Prevalence of oral lesions among Saudi dental patients. *Ann Saudi Med* 2009;29(5):365-8.
7. Saraswathi TR, Ranganathan K, Shanmugam S, Sowmya R,

- Narasimhan PD, Gunaseelan R. Prevalence of oral lesions in relation to habits: Cross-sectional study in South India. *Indian J Dent Res* 2006;17(3):121-5.
8. Kovac-Kovacic M, Skaleric U. The prevalence of oral mucosal lesions in a population in Ljubljana, Slovenia. *J Oral Pathol Med* 2000;29(7):331-5.
 9. Al-Maweri SA, Alaizari NA, Al-Sufyani GA. Oral mucosal lesions and their association with tobacco use and qat chewing among Yemeni dental patients. *J Clin Exp Dent* 2014;6(5):e460-6.
 10. Cury PR, Porto LP, dos Santos JN, Figueiredo e Ribeiro LS, de Aquino Xavier FC, Figueiredo AL, *et al.* Oral mucosal lesions in Indians from Northeast Brazil: Cross-sectional study of prevalence and risk indicators. *Medicine (Baltimore)* 2014;93(27):e140.
 11. Sengüven B, Baris E, Yildirim B, Shuibat A, Özer Yücel Ö, Museyibov F, *et al.* Oral mucosal lesions: A retrospective review of one institution's 13-year experience. *Turk J Med Sci* 2015;45(1):241-5.
 12. Feng J, Zhou Z, Shen X, Wang Y, Shi L, Wang Y, *et al.* Prevalence and distribution of oral mucosal lesions: A cross-sectional study in Shanghai, China. *J Oral Pathol Med* 2015;44:490-4.
 13. Mansour Ghanaei F, Joukar F, Rabiei M, Dadashzadeh A, Kord Valeshabad A. Prevalence of oral mucosal lesions in an adult Iranian population. *Iran Red Crescent Med J* 2013;15:600-4.
 14. Patil S, Doni B, Maheshwari S. Prevalence and distribution of oral mucosal lesions in a geriatric Indian population. *Can Geriatr J* 2015;18:11-4.
 15. Al-Maweri SA, Al-Jamaei AA, Al-Sufyani GA, Tarakji B, Shugaa-Addin B. Oral mucosal lesions in elderly dental patients in Sana'a, Yemen. *J Int Soc Prev Community Dent* 2015;5 Suppl 1:S12-9.
 16. Stablein MJ, Silverglade LB. Comparative analysis of biopsy specimens from gingiva and alveolar mucosa. *J Periodontol* 1985;56(11):671-6.
 17. Pratik P, Desai VD. Prevalence of habits and oral mucosal lesions in Jaipur, Rajasthan. *Indian J Dent Res* 2015;26(2):196-9.
 18. Villa A, Gohel A. Oral potentially malignant disorders in a large dental population. *J Appl Oral Sci* 2014;22:473-6.
 19. Do LG, Spencer AJ, Dost F, Farah CS. Oral mucosal lesions: Findings from the Australian National Survey of Adult Oral Health. *Aust Dent J* 2014;59(1):114-20.
 20. Chandroth SV, Venugopal HK, Puthenveetil S, Jayaram A, Mathews J, Suresh N, *et al.* Prevalence of oral mucosal lesions among fishermen of Kutch coast, Gujarat, India. *Int Marit Health* 2014;65:192-8.
 21. Buchner A, Begleiter A. Metastatic renal cell carcinoma in the gingiva mimicking a hyperplastic lesion. Case report. *J Periodontol* 1980;51(7):413-5.
 22. Masadomi HA, Al Cailani M, Narty NO, Al-Saif N. Tumors, cyst, cyst-like and allied lesions of the jaws and oral mucosa in Riyadh, KSA. *Saudi Dent J* 1992;4(S1):144-7.
 23. Shulman JD, Beach MM, Rivera-Hidalgo F. The prevalence of oral mucosal lesions in US. Adults: Data from the Third National Health and Nutrition Examination Survey, 1988-1994. *J Am Dent Assoc* 2004;135(9):1279-86.
 24. Axéll T, Rundquist L. Oral lichen planus – a demographic study. *Community Dent Oral Epidemiol* 1987;15(1):52-6.
 25. Ikeda N, Handa Y, Khim SP, Durward C, Axéll T, Mizuno T, *et al.* Prevalence study of oral mucosal lesions in a selected Cambodian population. *Community Dent Oral Epidemiol* 1995;23(1):49-54.
 26. Mubarak S, Hmud A, Chandrasekharan S, Ali AA. Prevalence of denture-related oral lesions among patients attending college of dentistry, university of Dammam: A clinico-pathological study. *J Int Soc Prev Community Dent* 2015;5(6):506-12.
 27. Nartley NO, Mosadomi HA, Ai-Gailani M, Ai-Mobeerik A. Localised inflammatory hyperplasia of the oral cavity: Clinico-pathological study of 164 cases. *Saudi Dent J* 1994;6(3):145-50.