Prevalence of oral manifestations in patient with Systemic Lupus Erythematosus (SLE)

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Abstract :: Systemic Lupus Erythematosus (SLE) is an autoimmune disease that characterized by producing lots of antibodies. 5-25 percent of patients have oral lesions, however in some studies reported up to 80 percent. The purpose of this study was to determine the oral manifestations prevalence in patient with SLE. In this study 70 SLE patients attending to Zahedan rheumatology clinic were included. SLE patient's mouths were examined under appropriate light by tongue blades after a rheumatologist confirmation. Regarding questionnaires were filled out. Any lesions in these patients were recorded in the questionnaires after oral medicine specialist confirmation. Then necessary treatments were performed. In this study 70 patients (63 male, 7 female) with the SLE disease were selected, with the age range of 15-70 years. 61.4% of patients had oral lesions. The most common lesions were red lesions (35.08%), white lesions (21.05 %), pigmentations (19.29%), ulcers (10.52%), angular cheilitis (10.52%) and white and red lesions (3.52%). 51.4% of patients had xerostomia. Posterior area of hard palate and lower lip were the most involved sites. There was no significant difference between oral manifestations with age, sex and duration of disease activity ($p > 0.05$). As oral manifestations are one of the first SLE features, it shows the necessity of mouth follow up Physician examination in order to early diagnosis and better treatment of oral lesions in the patients with SLE disease.

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Introduction

Systemic Lupus Erythematosus (SLE) is perfect example of autoimmune disease which is characterized by producing lots of antibodies. 15-17% of lupus cases occur before age of 16, while the highest prevalence of this disease is between ages of 20 to 40. SLE mostly occurs in women but it is more prevalent in blacks(1). Its prevalence is 0.1 percent in the world(2). In 40 to 50 percent of cases, a particular model of Beech butterfly pattern appears in nose and cheeks of patients in which exposure to sunlight may worsen lesions in these areas(3). Blood, liver and kidney failure and heart disease is almost prevalent in this disease too. Although some studies have shown 80 percent of oral lesion's occurrence in SLE patients, oral lesions occur up to 5 to 25 percent in SLE patients(4). SLE causes mouth ulcers or nasopharynx, which usually cause no pain afterwards(5). Lesions generally involve hard and soft palate, buccal mucosa and gingiva . Involvement of lower lip vermilion areas might sometimes occur too. Other oral problems had been explained before, including xerostomia, stomatodynia, candidiasis, periodontal disease, but direct association of these problems with SLE is not clear yet(3).

DLE is discoid type of lupus erythematosus, which occur in approximately 25% of patients with SLE and could lead to disfigurement of patient, because its lesions have central atrophy and scarring, which could be recognized by an erythematous leading edge, scaling and telangiectasia. These lesions occur in sun-exposed areas of body, scalp, ears, face, back, chest and specific areas of the arms –which are exposed to sun. DLE lesions can cause redness, atrophy and depigmentation of lips. While 25% of patients with SLE have DLE too, only 10% of SLE patients would later develop SLE(1).

Dentists should be more careful in treatment of patients with SLE, because on one hand some specific body members would be affected in this disease, which needs to be specifically observed before and also during treatment. On the other hand oral manifestations, which

are one of symptoms of identifying this disease, need to be fully diagnosed too. This is due to the fact that some oral lesions are very similar to lichen planus's one. Moreover, oral ulcers in patients with lupus sometimes impose specific diet. Furthermore, some patients initially visit doctors for oral lesions which subsequently need further consultation in order to be diagnosed correctly. Therefore, in order to achieve this goal, we determined to take an effective step in process of diagnosis and treatment of this disease by examining mouths of patients who visited private clinic of rheumatology in city of Zahedan.

Material and methods

This study is typically cross-sectional study or descriptive study. It was carried out on all patients with lupus erythematosus whether SLE or DLE, who were admitted to private rheumatology clinic in Zahedan city, from beginning of January 1385 (2006) until end of June 1386 (2007). Lupus diagnosis in these patients was based on criteria approved by rheumatology's specialist of American college of Rheumatology (ACR) in 1997. A special form was prepared for patients and then was completed. Personal information of each one of patients with lupus erythematosus whether SLE or DLE was filled out in questionnaire form. Personal information which was recorded included: age, sex, medical history, illness duration, and medications used for treatment. Oral lesions were diagnosed based on clinical features as well as diagnosis of specialists in oral diseases. Oral mucosa's examinations of patients were performed with help of a mirror through appropriate light. In this study, in order to determine prevalence of oral lesions in lupus erythematosus whether SLE or DLE based on classification made in reference books, lesions were classified and reviewed as follows:

Exophytic lesions: any pathological growth beyond natural limits of oral mucosal surfaces would be considered as exophytic lesion.

Non-wear off white lesion: it is a white lesion which would not wear off by scrubbing. It is in shape of exophytic white plaques with irregular shapes or silvery white scars which is formed because of increased production of keratin (hyperkeratosis) or abnormal benign thickening of stratum spinosum (acanthosis), and intercellular and extracellular accumulation of fluid in oral epithelium.

Red lesions: any lesion with red velvet feature which could be inseparable from normal tissue. it is formed because of epithelium atrophy or increasing and scholarozation.

White and red lesions: any lesion in red and white color which could be separable from surrounding normal tissue.

Grooves and fissures: Any gaps or cracks or dents in tissue that had been formed pathologically.

Injury: a lesion with erythematosus context in which epithelium continuity had destroyed completely and lesion had penetrated into connective tissue deeply.

Hard palate includes rugae and posterior palate, soft palate. Lip includes upper lip and lower lip. Tongue includes dorsal surface , side and underside of tongue, right and left buccal mucosa. Depth of vestibule includes upper and lower jaw. Gingiva includes buccal and lingual and bottom of mouth.

Data were analyzed by using statistical software SPSS-15 after extraction of questionnaire forms. Then results were reported as central and dispersion statistical indexes. X^2 tests was used for analyzing data and $p<0.05$ were considered significant.

Results

In this study, 70 patients, who were referred to rheumatology clinic in city of Zahedan, were examined during winter of 2006 till late spring of 2007. Out of these patients, 7 (10%) of them were men and 63 (90%) of them were women, who were 10 to 70 years old. Their mean age was 32.75. They were divided into three groups as follows: under 20 years, between 20 to 40 years old and over 40 years. Out of 70 patients with SLE, 43 patients (% 61.4) had oral presentations and 27 patients (38.6%) had no oral presentations. There were one or more than one oral presentations in 43 patient of who had oral presentations. In population under study, most prevalent lesions were in group of patients who were between 20 to 40 years old, which was 54%, but statistical tests shown no significant relationship between age and oral lesions (p=0.3) (Table 1).

Table 1.frequency distribution of age groups and its relationship with oral presentations in SLE patients who were referred to private rheumatologists in city of Zahedan in 2006 and 2007

age	Oral presentation		sum
(percent)	have	Have not	(percent)
Below 20 years old	2 (40)	3 (60)	5 (100)
Between 20 to 40 years old	35 (64.8)	19 (35.2)	54 (100)
Over 40 years old	6 (54.5)	5 (45.5)	11 (100)
sum	43 (61.4)	27 (38.6)	70 (100)

In field of relationship of sex with oral presentations, out of 43 patients with oral presentations, 6 males and 37 females had oral presentations, that based on x^2tests no significant relationship between sex and incidence of oral lesions were observed (p=0.35) (table 2).

Table 2: frequency distribution of sex and its relationship with oral presentations in SLE patients who were referred to private rheumatologists in city of Zahedan in 2006 and 2007

Sex	Oral presentations		Sum (percent)
	have	Have not	
Female (percent)	37 (58.7)	26 (41.3)	63 (100)
Male (percent)	6 (85.7)	1 (14.3)	7 (100)
Sum (percent)	43 (61.4)	27 (38.6)	70 (100)

Table 3 shows relationship between oral presentations and time passed since beginning of Lupus disease, which is divided into 3 groups as follows: Time passed since beginning of disease was less than 12 months in first group, 36-12 months in second group and more than 36 months in third group. Results showed no significant association between oral presentations and time passed since beginning of Lupus disease (p<0.05). Those patients with xerostomia were examined too. Out of 70 patients with SLE, 36 (51.4%) patients had xerostomia and 34 (48.6%) patients had not xerostomia. The most prevalent lesions regions were reported in posterior hard palate (% 27.9) and lower lips (% 14.2). Other regions were as follows:

1 - soft palate, 2 - right cheek, 3 - left cheek, 4 - buccal gingiva, 5 - lingual gingiva, 6 – side and Sub lingual, 7 - upper lip

Out of 57 patients diagnosed with oral lesions, most diagnosed oral lesions were 20 cases of red lesions (35.08%) and 12 cases of white lesions (21.05%) and 11 cases of pigmentation (19.29%). No exophytic lesions were reported. In white lesions, the highest ones were number of keratosis plaques (hyper keratinization) (50%) (Table 4) and in red lesions, highest ones were erosion (95%, n = 19) and other ones were multi formed erythema.

Table 3- frequency distribution of time since beginning of disease and its relationship with oral presentations in SLE patients who were referred to private rheumatologists in city of Zahedan in 2006 and 2007

time since beginning of disease	Oral Presentations		Sum (percent)
	Have (percent)	Have not (percent)	
1-12 months (percent)	18 (58.1)	13 (41.9)	31 (100)
12-36 months (percent)	15 (62.5)	9 (37.5)	24 (100)
Over 36 months (percent)	10 (66.7)	5 (33.3)	15 (100)
Sum (percent)	43 (61.4)	27 (38.6)	70 (100)

Table 4- frequency distribution of white lesions types in SLE patients who were referred to private rheumatologists in city of Zahedan in 2006 and 2007

white lesions frequency	No (percent)
Linea Alba	3 (25)
Hyper keratinization	6 (50)
Lichen Planus	2 (16.7)
Candidiasis	1 (8.3)
Sum	12 (100)

Discussion:

In this study of 70 patients with Lupus Erythematosus admitted to a private clinic Rheumatology in city of Zahedan, who all had SLE, 43 aptients (61.4%) had oral lesions in which 15 patients of them had two oral lesion. In total 57 lesions (81.4%) were diagnosed. 61.4% oral lesions in this study were similar to study done by Chavarria in 2005 in which 61 percent oral lesions were reported(6). Moreover, our study is very similar to study of M. Schiodt in 1988 in which 32 patients with Lupus were examined and 75% of patients were reported having oral lesions, that most of lesions were lichen plannus and loco plannus. Prevalent region of lesions

were in buccal mucosa, gingiva and lower lip vermilion(7).

In study of Johnson Rhdus which was done in 1984, 51 mouths of patient with Lupus were examined and analyzed. In this study, oral lesions in 45% of patients involved irregular exophytic white plaques and silvery white scars and ulcers and hemorrhage. Regions where these lesions occurred were in soft and hard palate and buccal mucosa, respectively. Dispersion of lesions' regions was the same as our study. Although in this study xerostomia were reports 75%-87.5%, in our study xerostomia were lower, i.e. 51.4% (8). Probably, this lower reported number of xerostomia in our study was due to lack of using methods for diagnosing patients with xerostomia, involving specific diagnostic tests of xerostomia, because diagnosis of xerostomia in our study was just based on self-reported statements. Moreover, both types of medications as well as types of patients' diets influenced occurrence of xerostomia. Meanwhile, a number of patients were not aware of their xerostomia and it should be noted that diagnosis of xerostomia was just based on self-reported statements.

The highest prevalence of oral presentations in this study were erosion, hyperkeratosis
(keratosis plaques) pigmentation and oral aphthous. These presentations were observed in prevalent order in hard palate, soft palate and lower lip vermilion. Dispersion of lesion's regions is similar to above-mentioned study as well as J.D. Urman study. J.D. Urman studied 182 patients with Lupus in 1978 in which although prevalence of oral lesions were lower than our study (26%), 89% percent of patients had lesions in their hard palate(9). Furthermore, Urman studied 40 patients with Lupus in 1999 in which he reported oral lesions in 40% of patients. Out of this 40%, 45% of lesions were quasi lichen planus. These lesions were mostly occurred in hard palate, mucus buccal, gingival tissue, which was similar to our study in this regard(10).

In contrast with our study, a study was performed by K. Jarallh in which 108 patients with Lupus were studied in a past-oriented way. He reported that oral lesions were 33% which involved erythema and hyperkeratosis in mucus and buccalmucosa(11).

Moreover, number of oral lesions in our study were more than study done by M.A. Nazarinia in Shiraz in 2008 in which prevalence of oral lesions were reported in 28% of patients(12). Furthermore, in a study performed by C.A. Villamin on Philippine patients with Lupus in 2008, oral lesions' prevalence was reported 33%(13).

S.V. Lourenco et al reported oral lesions' prevalence 9% to 45% in patients with Lupus in 2006(14).

Comparing findings of this study about oral lesion' prevalence with other studies showed different and sometimes similar rate of prevalence. In this study, most of oral lesions' prevalence was related to red lesions, white lesions and pigmentation in which most of these people were not aware of lesions in their mouths. Almost half number of patients complained from xerostomia that could be result of using medications like nerves medications subsequently (or after xerostomia), who had numerous oral cavities lesions(15). But of course relationships of this disease with other lesions such as candidiasis and similar clinical lesions like lichen planus and leukoplanus with Lupus should be identified too.

Meanwhile most of new patients with Lupus had oral presentations and others who had not oral lesions announced that they had no oral lesions before they began to use medications.

Our limitations and constrains in this study was that we were not able to study all patients with Lupus who had been diagnosed both in chronic and new cases. Since impairment in immune system and using medications which weakens immune system, are important factors for occurrence of oral lesions in patients with Lupus(16), and on the other hand most of oral lesions react to treatment with steroidal anti-inflammatory medications, then it might be possible that lack of oral lesions in some patients could be result of using anti-inflammatory and rheumatoid modulators. Therefore, it might be possible that these reported statistics are even lower than actual number of oral lesions.

Other shortcoming of our study was lack of identifying relationship between oral lesions according to severity of disease activity.

Since in a number of studies relationship of oral lesions with incidence of some complications such as lupus nephritis have been reported(17).Investigating relationship between oral lesions and other systematic presentations, specifically skin lesions, could be effective in predicting procedure of this disease(18).

Other shortcoming of our study, that needed invasive measures to be taken, involved non-performance of biopsy on oral lesions and lack of using histological, immunofluorescence, immunohistochemical techniques to determine nature of oral lesions accurately. Because based on some histological studies, these lesions could change criteria, which are just oral ulcers, for diagnosing Lupus oral lesions(19).

Conclusion:

Therefore it is recommended that since mucus skin lesions are oral presentations of prevalent ones, and could also be initial symptoms of occurrence of disease and also representative of underlying systematic situation, then dentists and doctors should be more careful in examining mouths of patients with non-specific complaints, and if they found oral lesions, make sure to make aware patients of importance of these lesions and be persuasive of other symptoms of this

disease. Thereby an effective step is taken in procedure of early diagnosis as well as in-time treatment of Lupus disease which prevents invasive diagnosis measures and also imposed additional costs as well as incorrect treatment measures.

Since Lupus oral lesions could affect initial health and hygiene of mouth and could result in serious periodontal complaints, in-time diagnosis and treatment of this disease is an imperative step for preserving health and hygiene of tooth and mouth. Furthermore, it is recommended that other than paying close attention to oral lesions in Lupus disease, considering other findings in mouth such as anemia and mucosal pallor, atrophic glossitis, candidiasis of periodontal inflammation in disease complications like diabetes, reflux, hyperpigmentation, which may be the first symptom of Addison's disease in these patients is imperative too.

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