Systemic Lupus Erythematosus Presenting with Oral Mucosal Lesions – A Case Report

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Systemic Lupus Erythematosus (SLE) is an autoimmune rheumatic disease, principally affecting women during child bearing years and is characterized by the presence of auto antibodies against a variety of auto antigens such as double-stranded DNA, intracellular ribonuclear proteins and membrane phospholipids. The presentation of lupus erythematosus ranges from a skin rash unaccompanied by extracutaneous stigmata to a rapidly progressive lethal multiorgan disease. A wide spectrum of oral mucosal lesions is found in the cutaneous and systemic forms of lupus erythematosus. We report a 11-year-old female child with classical features of Systemic Lupus Erythematosus associated with oral mucosal lesions.

Keywords: *Systemic lupus erythematosus, Palatal ulcer, Oral mucosal lesions, Butterfly rash, Discoid lesion, Malar rash*

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INTRODUCTION

The word 'lupus' used first in 1817, comes from Latin, meaning wolf (lykos is the word in Greek). However, at that time it was used in the context of what is now known as lupus vulgaris. The word lupus conveyed the image of 'tearing apart' or 'pulling or stripping off' and as a result all diseases of various origin characterized by ulceration or necrosis were labelled as lupus prior to mid-19th century.[1] The word lupus gets quoted in 1828,[2] without any mention regarding erythema (the Latin word erythematosus referred to 'redness'). Ten years later, the term érythème centrifuge was used,[1,3] which became lupus érythémateux (in French) in 1850.

Systemic Lupus Erythematosus (SLE) is a prototypical autoimmune rheumatic disease, which is characterized by production of autoantibodies against nucleoproteins, erythrocytes, leukocytes, platelets, coagulation factors and organs such as liver, the kidneys or the heart. Organ injury is secondary to either the direct binding of autoantibodies to self-antigens or the deposition of immunocomplexes in vessels or tissues. Its prevalence has been estimated between 40 and 200 *per* 1,00,000 in Caucasian and Afro-Caribbean population.[4] This non-infectious, non-contagious, non-malignant and unpredictable disease is referred to as the great masquerader.[5] It is estimated that 15 to 17% of lupus cases occur prior to the age of 16 years[6] in women about 10 times more often than in men with the peak incidence being in the age range of 20 to 40 years.

The precise patho-etiology of this chronic, multisystem disease remains an enigma. SLE is regarded as a complex disease with an etiology that appears to be the interplay of environmental, hormonal, and genetic factors.[7] Clinical disease manifestations are diverse and may range from non-specific symptoms, such as fatigue and musculoskeletal complaints (arthralgia, myalgia) to life threatening renal or cerebral disease. There are various kinds of lupus: 1) Systemic Lupus Erythematosus; 2) Discoid lupus erythematosus (characterized by inflammation and scarring type skin lesions); 3) Subacute cutaneous lupus erythematosus (SCLE) (characterized by non-scarring, non-atrophy-producing photosensitive dermatosis); and 4) Drug-induced lupus (DIL). The American College of Rheumatology (ACR) has proposed revised classification criteria for this condition. SLE is likely if four or more of the 11 criteria[8] listed in Table 1 is met over any time frame. We report a 11-year-old female child who presented with classical features of SLE associated with oral mucosal lesions.

CASE REPORT

An 11 year old female child was referred from Dept. of Dermatology, Osmania Medical College and Hospital, Hyderabad, India for the opinion regarding recurrent oral ulceration. Detailed history revealed that the patient had developed oral ulcers 1.5 years ago initially, and then followed by cutaneous involvement. She also gave a history of

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Table 1. Classification based on the criteria of American College of Rheumatology (ACR) for Systemic Lupus Erythematosus

Criteria
1. Malar rash
2. Discoid rash
3. Photosensitivity
4. Oral ulcers
5. Arthritis
6. Serositis-pleuritis or pericarditis
7. Renal disorder
8. Neurological disorder
9. Hematological disorder
10. Antinuclear antibody
11. Serological/Immunological - antiphospholipid antibody, false-positive VDRL, anti-Sm, anti-double stranded DNA

photosensitivity to sunlight. The patient presented with a persistent, confluent, dusky erythematous skin eruptions on the face, extremities and back region along with scattered hyper pigmented areas. She also had diffuse pain of the proximal muscles and small joints. Medical records suggested that patient was diagnosed as SLE on the basis of ACR criteria with features of photosensitivity, butterfly malar rash, discoid lesions, oral ulcers, arthritis, hematological (Anemia, Leukopenia, Thrombocytopenia, Positive rheumatoid factor) and renal (Protenuria) disorders. On detailed intraoral examination she presented with cheilitis, an erythematous palatal ulcer (Fig. 1) and multiple carious lesions in relation to maxillary & mandibular teeth. Histopathological examination of the skin revealed acanthosis of prickle cell layer, epidermis with liquefactive degeneration of basal layer , vesicle formation at the dermo-epidermal junction and focal aggregates of lymphocytes around the dermal vessels indicating vasculitis (Fig. 2). Based on history, clinical examination, laboratory and histopathological examination, this was a typical case of SLE fulfilling 7 of the 11 criteria as described by ACR

Medical management included avoidance of exposure to sunlight, antimalarial, corticosteroid and immunosuppressive therapy. Dental treatment was aimed at symptomatic

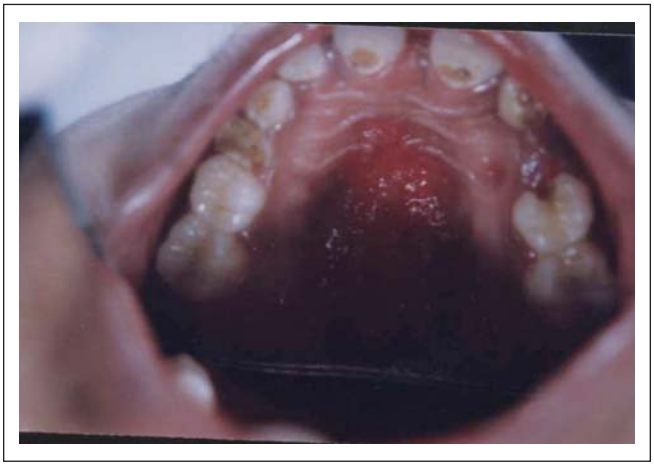

Figure 1. Photograph showing well circumscribed erythematous ulceration of the palate

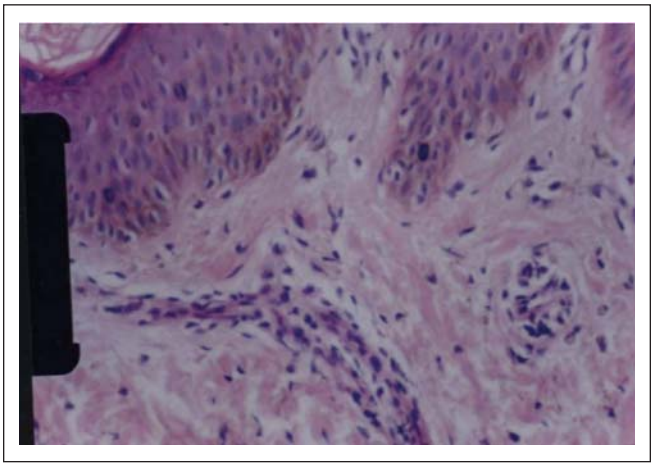

Figure 2. Photomicrograph of the skin showing focal aggregates of lymphocytes around the dermal vessels indicating chronic perivasculitis (Hematoxylin and eosin stain. Original magnification X 200)

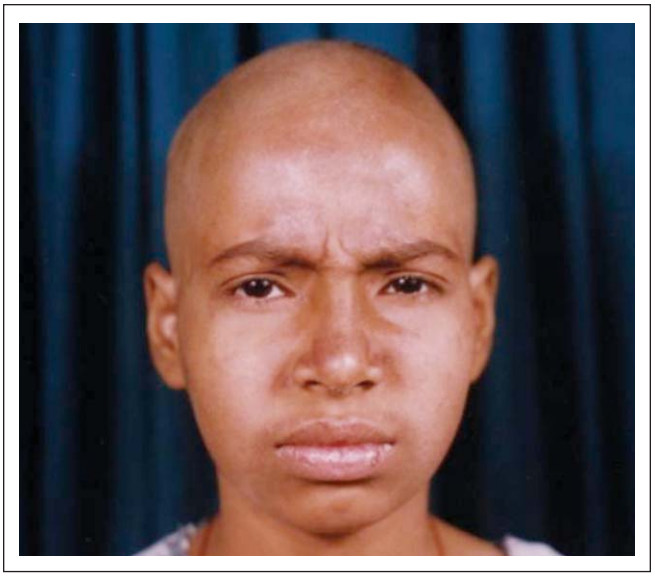

Figure 3. Post inflammatory hyper pigmentation over the bridge of the nose

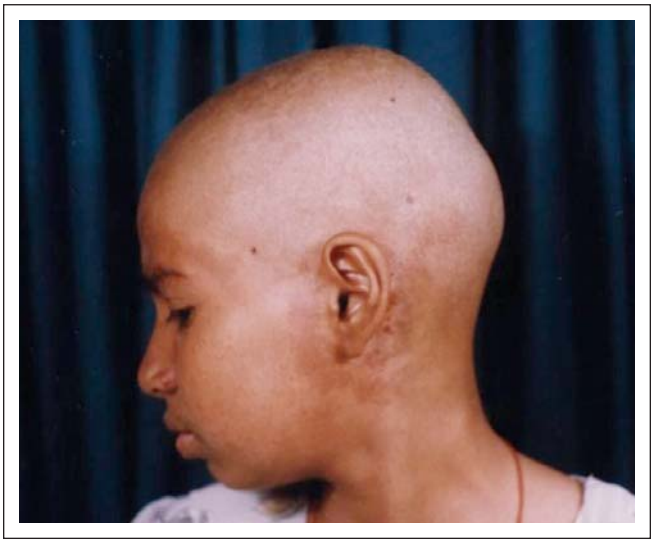

Figure 4. Post inflammatory hyper pigmentation near pre-auricular and post-auricular region

Table 2. Clinical characteristics of oral lesions seen in lupus erythematosus

Type of lesion	Appearance	Commenst site
Chelitis	Erythema and scaling	Lower lip, vermilion border
Erythematous patches	Poorly demarcated with or without telangiectasia and oedema	Hard palate
Honeycomb' plaques	Well-circumscribed white lacy hyperkeratosis and erythema	Palatal mucosa
Discoid lesions	Red atrophic centre and peripheral radiating white hyperkeratotic striae and telangiectasia	Buccal/labial mucosa and gingiva (often at sites of missing teeth)
Lichen planus like lesions	Reticulate leukokeratosis	Buccal mucosa
Discrete ulcers	Red/grey base and hyperkeratotic borders	Palatal mucosa

relief of palatal ulceration and cheilitis with antiseptic gels and multivitamin therapy. During 10 month follow-up period, patient had experienced advancing hair loss (Alopecia), periods of exacerbations and remissions of cutaneous lesions (Figs. 3 and 4) but the palatal ulcer persisted. Later the patient expressed her unwillingness for further follow-ups.

DISCUSSION

Lupus erythematosus (LE) is a relatively uncommon disease that can affect almost any part of the body, at any time. Traditionally, LE has been subdivided into systemic and localized types, the latter being confined to the skin and/or mucous membrane, whereas the former is a syndrome characterized by a wide spread involvement of various organ systems.[9-13] The relationship between the two remains controversial, many believe it is the same basic disease with a differing degree of organ involvement and severity. Others consider them to be separate entities that happen to share common features etiologically and pathologically.[9,10] In the present case the patient had presented with cutaneous, musculoskeletal, oral, hematological and renal manifestations indicating multiorgan involvement.

The course of Lupus disease is one of exacerbation and relative quiescence. The skin is affected in about three-fourth of patients, in the form of butterfly rash, photosensitivity rash, mucous membrane lesions, alopecia, Raynaud's phenomenon, purpura, urticaria or vasculitis. Oral mucosal lesions are seen in patients with systemic disease as well in those who show only skin involvement.[14-19] SLE produces oral lesions in approximately 20% of cases, but there are few data on the figure for discoid LE.[20] It is difficult to ascertain the true incidence with which SLE presents with oral manifestations because of relative lack of symptoms and different referral pathways. Symptomatic patients may present early to dentists, oral surgeons or physicians, where as asymptomatic patients may not present until much later when they develop cutaneous or systemic manifestations. Wide spectrums of oral mucosal lesions that are found in cutaneous and systemic forms of lupus erythematosus have been described in Table 2.[14,21,22,23] The oral lesions are caused by vasculitis and appear as frank ulceration or mucosal inflammation. The lip lesions often have a central atrophic and occasionally ulcerated area with small white dots, surrounded by a keratinized border composed of small radiating white striae. The intra oral mucosal lesions of LE most frequently affect the buccal mucosa or the palate.[14,24,25] They are composed of a central depressed red atrophic area surrounded by a 2 to 4 mm elevated keratotic zone that dissolves into small white lines in the buccal or labial mucosa. The classic appearance of the palatal lesion is that of central erythema with white spots surrounded by a white border of radiating striae (Honeycomb plaques) or poorly demarcated erythematous patches with or without telangiectasia.[9,14,23] Oral mucosal lesions are frequently chronic, with a mean duration of 4.2 years,[14] and may be asymptomatic in 50-80% of patients.[23,26] SLE is characterized by the production of numerous autoantibodies including ANAs, anti-native DNA, rheumatoid factor, antibody to Smith (Sm) antigen, antibody to RO (SS-A) antigen, and antibody to LA (SS-B) antigen. The most important diagnostic laboratory test for SLE is the test for antinuclear antibody (ANA) in the serum, which is positive for 96-100% of patients .The main differential diagnoses are lichen planus (LP) and oral leukoplakia, but distinguishing between oral LE, LP and oral leukoplakia can be difficult, both clinically and histopathologically even when established histopathological criteria are used.[27,28] Karjalainen and Tomich[29] compared 17 cases of SLE with 17 cases of lichen planus and described five histological criteria to distinguish these two disorders by light microscopy: (1) Vacuolization of keratinocytes, (2) subepithelial presence of patchy periodic acid-Schiff (PAS)–positive deposits, (3) PAS-positive thickening of blood vessel walls, and (5) severe deep or perivascular inflammatory infiltration. Sanchez and colleagues[30] demonstrated that the inflammatory infiltrate in the oral lesions of SLE consists primarily of helper or inducer T lymphocytes.

Direct fluorescent antibody staining of biopsy specimens has become an important aid in the diagnosis of the mucosal lesions of SLE. More than 90% of patients with SLE show granular deposition of complement fractions, usually C3 and immunoglobulin's at the basement membrane zone (lupus band test). Normal epithelium distant from the lesion is positive in SLE, whereas only the lesion is positive in discoid LE.[31] This lupus band test is an excellent means of differentiating lupus lesions from lichen planus, which is often clinically and histologically indistinguishable from other forms of leukoplakia. Immunoglobulin deposits are detected in oral lesions of SLE and of DLE whereas those deposits are rare in lichen planus or leukoplakia.

Treatment of SLE is multi-factorial and includes education, such as avoidance of ultraviolet light, general management of infections, cardiovascular risk factors and treatment complications including osteoporosis, in combination with pharmacological therapies tailored to the individual's disease. The efficacy of gold,[21] dapsone[32] and methotrexate[33] is described in isolated cases and small series. Initial therapy in the management of SLE consisted of antimalarials, corticosteroids, immunosuppressives and non steroidal anti inflammatory agents. This regimen is not universally successful and thus newer therapeutic options like mycophenolate mofetil that suppresses T and B lymphocytic proliferation, B cell depletion, biologic agents and hemotopoietic stem cell transplant are being considered.[34] The survival of patients with SLE has improved tremendously in the past few decades. While the 5-year mortality of SLE patients was above 50% in the 1950s,[35] however, it seems to have plateaued to 95% since the 1980s.[36] This is probably because of combination of earlier disease diagnosis and due in part of the availability of multiple serological tests for SLE, use of steroids and other immunosuppressive agents and availability of renal dialysis and transplantation. One out of six to seven SLE patients is still at risk of death 10 years after SLE diagnosis.[37] A substantial proportion of patients who survive suffer from significant organ damage such as renal failure, premature menopause, osteoporotic fractures and avascular bone necrosis that leads to impairment of the quality of life. LE should always be considered as a diagnosis in patients with oral lesions, thus early diagnosis of the disease and referral to specialized centers is essential.

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