INTRODUCTION

Lupus erythematosus is a classic example of an immunologically mediated condition and is one of the most common of the so called “collagen vascular” or connective tissue diseases. Lupus erythematosus was first described by Biett in 1828 and Kaposi in 1872.

Lupus erythematosus is described as having two distinct forms:
1. The chronic discoid type in which the lesion remains localized to the skin or mucosa.
2. The systemic type which can involve almost any organ of the body.

Oral lesions may be present in each of these two types of lupus erythematosus.

Discoid lupus erythematosus has more specific histopathological features, but initially it can be confused with lichen planus and a diagnosis is best based on the combination of clinical and histopathological findings.

Oral manifestations of discoid lupus erythematosus are referred as “Oral discoid lesions” and they occur in about...
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20% of patients. These may occur without involvement of skin lesions or before the skin lesions develop.[2] Oral discoid lesions most commonly occur on the labial mucosa, vermillion border and buccal mucosa.

Typical cases of oral discoid lesions are characterized clinically by the presence of white papules, central erythema, a border zone of irradiating white striae and peripheral telangiectasia.[3]

This study was undertaken to analyze the histopathological findings of oral discoid lupus erythematosus with conventional light microscopy for early diagnosis of the oral lesions that would aid in prompt treatment.

MATERIALS AND METHODS

Material

The study group consisted of 21 diagnosed patients of discoid lupus erythematosus with oral lesions. The patients were examined by the Department of Dermatology, Civil hospital, and referred to Government Dental College and Hospital, Ahmedabad. The oral lesions were mostly from 0.5 cm to 2 cm in size with a round, oval or irregular shape [Figure 1]. Most of the patients had associated skin lesions mostly present on the zygomatic malar process, nose, scalp and back. Some of the patients also showed butterfly configuration on the face [Figure 1]. The oral lesions were mostly from 0.5 cm to 2 cm in size with a round, oval or irregular shape [Figure 2].

Methods

A detailed clinical proforma was used for thorough clinical examination and incisional biopsies were taken and the specimens were put immediately in 10% formal saline solution for fixation, for at least 24 hours and then embedded in paraffin after routine processing. Blocks were prepared and sections of 5-6 µm thickness were cut using a rotary microtome. Sections were stained with both.

1. Routine hematoxylin and eosin for histopathological study and
2. Periodic Acid Schiff’s (PAS) stain for the demonstration of mucopolysaccharides and basement membrane.

The lesions were diagnosed on the following histopathological criteria. [Gisslen and Heyden (1975), WHO (1978), SchiØdt (1984)]

1. Hyperkeratosis with keratotic plugs.
2. Normal or decreased thickness of stratum granulosum.
3. Irregular acanthosis alternating with atrophy of the stratum spinosum.
4. Focal liquefaction degeneration of the stratum basale.
5. Migration of inflammatory cells into the epithelium.
6. Thickening of the basement membrane forming a focal homogenous, eosinophilic and PAS-positive band.
7. Perivascular accumulation of chiefly lymphocytes even deep into the connective tissue.
8. Vasodilatation and edema.
9. Fibrinoid degeneration of the blood vessel walls with PAS-positive reactions.

RESULTS

The P-values are suggestive that the study conducted does not have a sexual predilection; lesions can be seen orally as well as on the skin without any particular site predilection. The epithelial, connective tissue and basement membrane changes can be seen in labial and buccal mucosa both.

DISCUSSION

The oral manifestations of dermatological diseases have been the focus of numerous studies and reports. The present study

Figure 1: Discoid lupus erythematosus lesions in a male patient on nose and malar process forming typical butterfly pattern and also on forehead and vermillion border

Figure 2: Discoid lupus erythematosus lesions of oral mucosa involving the vermillion border and lower labial mucosa showing white and erythematosus areas with white spots and white borders
Aims to portray the fact that the diagnosis of these lesions should not be based only upon the clinical appearance, but the histopathological appearance must constitute a fundamental cue for the final diagnosis.

Rothfield et al. (1963) and Hough (1966) had mentioned the age range at onset of 21-40 years in more than half of the patients in the study of chronic lupus erythematosus. Schiödt et al. (1978) studied oral discoid lupus erythematosus and reported the age range at onset from 6 to 75 years with a mean of 41 years. In the present study, the age range of patients was 21-75 years with the mean being 39 years. The maximum patients (66.66%) were observed between the age range of 26-45 years.

Davis and Marks (1977) reported the female to male ratio to be 4:1, Anderson (1980) and Schiödt et al. (1978) studied oral discoid lupus erythematosus and found the female to male ratio of 4:1 and 50:1, respectively. In the present study of 21 patients of oral discoid lupus erythematosus, the female to male ratio was 1:16 showing greater involvement of males.

Although discoid lupus erythematosus is mainly a dermatological disease, it may have associated oral lesions and these may occur without skin lesions. Schiödt and Andersen reported 30% patients with only oral lesions. In the present study 9.52% patients had only oral lesions, while 90.47% patients had oral lesions along with skin lesions.

Marten and Blackburn (1961) showed the duration of lupus erythematosus to be between 5-31 years. Schiödt et al. (1981) reported an average duration of 4.1 years, and the range between 0.2 and 23 years. In the present study, the duration of the lesion in majority of the cases was found to be 2-10 years, and in the remaining cases duration was found to be 1-6 months.

Schiödt et al. (1978) observed that the onset of oral lesions occurred before the skin lesions in 14.28% and after the skin lesions in 71.42% patients; and in 14.28% patients the lesions developed simultaneously. The present study also showed that 14.28% cases showed initial oral involvement while 85.71% showed initial skin lesions.

Schiödt et al. (1978) reported the symptoms of burning sensation (56.25%), tenderness (21.87%), dryness (6.25%) and pain (3.12%). The symptoms observed in the present study were burning sensation (66.66%), photosensitivity (57.14%), dryness (23.80%), tenderness (14.28%) and pain (4.76%).

Schiödt also observed that oral discoid lupus erythematosus were most often seen on the buccal mucosa, gingiva, labial mucosa and vermilion border. In this study, the most common site of oral involvement was labial mucosa (66.6%), vermilion border (0.1%) and buccal mucosa (33.3%).

According to Schiödt and Pindborg 42% of oral discoid lupus erythematosus lesions showed white papules or spots, 83% showed central erythema, 77% showed irradiating white striae and 73% showed peripheral telangiectasia. In the present study, white spots were present in 28.6%, ulcers in 19% and central erythema in 52.4% lesions.

Regarding the histological criteria of oral discoid lupus erythematosus, hyperorthopa and/or parakeratosis (hyperparakeratosis), liquefaction degeneration of the basal layer, focal or perivascular infiltrates of lymphocytes were described by Shklar and Meyer. In the present study hyperkeratosis was observed consisting of orthokeratosis (47.16%) and/or parakeratosis (57.14%), liquefaction degeneration of basal layer was observed in 76.19% and focal or perivascular infiltrates of lymphocytes in 61.90% lesions.

In this study, atrophy was present in 66.66% cases, acanthosis in 66.66% and acanthosis alternating with atrophy in 33.33% cases. Keratotic plugging were found by Edwards and Gayford (1978), Schiödt and Andersen (1980). In the present study keratotic plugs were present in 14.28% cases.

Degeneration of connective tissue collagen directly adjacent to the epithelium was observed by Monash (1931), Komori et al. (1966) and Schiödt (1984). In the present study, degeneration of collagen directly adjacent to the epithelium was noted as juxtaepithelial cell-free zone in 76.19% cases.

Decreased thickness of stratum granulosum was found by Edward and Gayford, Gissler and Heyden. In the present study stratum granulosum was thin in 38.09% cases and thick in only 9.52% cases.

PAS staining for the mucopolysaccharide appears to be of great value in diagnosing the oral lesions of chronic lupus erythematosus. The characteristic finding is an extremely intense reaction beneath the stratum germinativum of the epithelium and around small blood vessels. In the present study, with PAS stain, the basement membrane appeared thin and homogenous in 66.7% and partially destroyed in 83% cases.

**Table 1: Clinical appearance**

|                | White spots | Ulcer | Central erythema |
|----------------|-------------|-------|------------------|
| Labial         | Count       |       |                  |
| N = 14 (%)     | 28.6        | 21.4  | 50.0             |
| Buccal         | Count       |       |                  |
| N = 7 (%)      | 28.6        | 14.3  | 57.1             |
| Total          | Count       |       |                  |
| N = 21 (%)     | 28.6        | 19.0  | 52.4             |

P value – 0.932 (Chi-square test)
WHO (1978) reported PAS-positive deposits juxtaepithelially, which resembles a thickening of the basement membrane. The present study also revealed the same in 84.21% cases.

Grisslen and Heyden (1975) included fibrinoid degeneration of the blood vessel walls with PAS-positive reactions in the histopathological criteria for oral discoid lupus erythematosus. In the present study, PAS-positive thickening of blood vessel...
walls were recorded in 26.13% cases [Figure 8].

Thus, from this study it was found that a diagnosis of oral discoid lupus erythematosus was based on the combination of clinical and histopathological findings.

**CONCLUSION**

It is especially important for the dentist to recognize not only that some dermatoses exhibit concomitant lesions of the oral mucous membranes, but also that manifestation of some diseases may be preceded by oral lesions. Thus the dentist may be in an important position to establish the diagnosis with the aid of clinical and histopathological findings before the cutaneous lesions become apparent.

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