ABSTRACT

A study of oral lichen planus on 150 extending over 30 years was undertaken, a female predominance was noted. Most patients (47.3%) were from the intermediate and non manual worker class. The buccal mucosa (89.3%) followed by the gingival (39.3%) were found to be the most commonly affected sites. Soreness featured as the most common presenting complaint (56.6%). The keratotic lesion was the most frequent type. A history of chronic disease was noted in 79 patients while 22 of 91 patients (53%) investigated for surgical episodes gave a history of surgical episode within one year of onset. History of prolonged use of drugs was noted in 73 patients. Use of tobacco was noted in 43. Alcohol consumers totaled 79. Stress at onset was recorded in 105 patients. Denture wearers were noted at 38. Heavily restored teeth were recorded in 48 of 111 patients. Biopsy report was found to be consistent with clinical diagnosis in 108 patients out of 123 investigated while 15 reported non diagnostic lesions. Candidal infection was investigated in 68 patients (45%) and 34 (50%) were noted positive. Sideroperia was detected in 16 female patients (24.6%) out of a total of 65 patients in whom 65 were females. No iron deficiency was noted in males. Vitamin B12 deficiency was noted in 4 (5.3%) out of 75. Remission was noted in 4 patients and familial lichen planus was noted on two occasions. Malignant transformation was recorded at 2 percent.

INTRODUCTION

Natural History

Lichen planus is a relatively common dermatosis that occurs on the oral mucous membrane as well. It was first described on the skin by Erasmus Wilson in 1869 who also recorded oral lesions in several patients. The classical description of papules, striations and plaques was provided by Unna in 1882. The striations are commonly called Wickhams striae although due credit to Wickhams original contribution is difficult to find in the literature. Further cases were reported by Crocker. The first description, of the now classical histological appearance was published by Dubreuilh in 1906 in which he also noted the similarity of oral and dermal lesions.

The first independent oral lesions were reported by Audry in 1894 while Poor in 1905 was the first to describe a bullousvesicular lesion. A malignant transformation was first noted by Hallopeau in 1910. In a review of the literature Trautman noted that the buccal mucosa was the most commonly affected site. Millan and Fouquet in 1929 first described ulcerative lesions while Lortal – Jacob et al. in the same year described atrophic lesions. A variant from the classical appearance of lichen planus in the form of lichen sclerosus et atrophicus on the skin was described by Hallopeau. Darier confirmed these findings in 1892 and since then the lesion is called lichen planus sclerosus et atrophicus. The natural history on the skin is one of spontaneous remission (Samman, Scully and E1 Kom1,) although lesions on the oral mucosa were reported to be persistent while specific types like the erosive variety may resolve (Samman 1972). One case of erosive lichen observed by Andreasen (1968) reportedly persisted for twenty five years.

CLINICAL FEATURES

Skin Lesions

These are small angular, flat topped papules only a few millimeters in diameter (Schafer et al²). The papules are umbiliated, well demarcated and the primary
lesion progresses over a variable period from red to purplish and finally brownish in colour. Fine grayish white lines covering the surface are called Wickham's striae. The papules may coalesce to form plaques which tend to become hypertrophic in chronic cases and the striae of Wickham may no longer be apparent (Shklar, Hall and Terezhalmy, Weaver et al., 1985).

**Oral Lesions**

These are almost bilateral consisting of pinhead papules 1mm in diameter with a flattened surface with hyperkeratotic and appears white in colour. Varying numbers of papules with radiating striae of Wickham give a lacy or reticular pattern whereas numbers of papules may coalesce to form a plaque (Scully and El-Kom, 1985).

The classification described by Jardinski and Shklar for gingival lesions also holds good for other oral lesions.

He categorized these in four groups:

1. While papular keratotic lesions
2. Vesiculobullous lesions
3. Erosive or ulcerative lesions
4. Atrophic lesions

The clinical features of oral lichen planus can be summed up as white keratotic lesions which may be rough as well as ulcerative, vesiculobullous or atrophic (Shklar 1972). The non erosive (white, keratotic) type is usually non-symptomatic and discovered accidentally. The erosive types are painful and patients complain of pain, irritation and burning sensation (Tyldesley, 1974).

**Epidemiology**

Lichen planus is a disease of adulthood (Schafer et al. 1983) and though the youngest reported case was that of an infant less than 6 months old (Pusey 1929) it is extremely rare in children. Nally and Ubaidy (1973) in a review of 120 patients noted the age of onset between 20 and 80 years and 60 percent of their patients were females.

**Aetiology**

No specific aetiology can, as yet, be attributed to lichen planus in spite of the voluminous literature. Nervous, tense people are reportedly more prone. A triad of diabetes mellitus, lichen planus and hypertension were described by Grinspan and later termed Grinspans' Syndrome of Grupper who confirmed these findings. Christensen et al, reported higher arterial blood pressure values in lichen planus patients with diabetes mellitus when compared to a general section of adult population. Sarkany and Gaylarde proposed a pathogenesis based on an autoimmune response.

**Complications**

Malignant transformations have been extensively reported in the literature (Gougerot and Burnier, and although there is little doubt malignant transformation occurring in a lichen planus lesion this eventuality appears rare in view of the reported literature. Shklar and Tyldesley suggested a possibility that patients reporting with leukoplakia or frank carcinoma were oblivious to the presence of lichen planus. Andreasen and Pindborg on the other hand observed that carcinoma most frequently arose from the erosive lesions followed in frequency by plaque lesions of lichen planus. Erythroplakia is often reported in lichen planus lesions and might be one of the reasons for a malignant transformation (Holmstrup and Pindborg).

**Management**

No specific or generally feasible treatment pattern emerges from the review of the literature. Local corticosteroids are of limited value and although stress appears to be a precipitating factor elevation is not curative (Jardinski and Shklar). Hall and Terezhalmy recommended one of the following: hydrocortisone ointment 0.5 percent, triamcinolone acetonide ointment 0.1 percent and betamethasone valerate ointment 0.1 percent three times a day. The beneficial effects of vitamin A were noted when used either topical or systemically (Gunther and Schuppli). It was found to enhance the dividing capacity of the cells in the stratum germinativum while simultaneously inducing cytolyis in the upper strata. Vitamin A may also increase the endogenous production of corticosteroids while local therapy improves hypertrophic and some erosive lesions as well (Regeszi et al.).

Urata et al showed the therapeutic efficacy of B-interferon in lichen planus. They recommended human interferon FN—beta in gel $1.4 \times 10^5$ to $4.9 \times 10^4$ i.u. applied locally for one hour twice a week. They reported a disease free group one year after treatment which showed a drop in gamma interferon serum levels. The cases which showed a recurrence presented with a rise in serum gamma interferon levels. There were a noted drop in the number of Langerhans cells in the epithelium of the treated disease free group.

The varied therapies and equally diverse results form most of the literature on the management of lichen planus.

**Objective of the study**

There remain many matters of contention relating to aetiology, clinical findings, prognosis and management. The records of a large number of patients were available for study at the Institute of Dental Surgery and it was decided to carry out a retrospective study.
together with a smaller prospective study on epidemiology, aetiology, haematological and histological evaluation and complications in the hope that it would contribute to a better understanding of the nature of oral lichen planus and enable certain recommendations to be made.

MATERIALS AND METHODS

A random selection of 110 patients was made to these 40 patients were added which were currently under investigation and treatment between October 1986 and May 1987. A proforma was designed after a review of the literature and was redesigned after a pilot study of 20 cases. A problem arose in the classification of white striated lesions particularly when, in the same patients once a period of a few weeks, different clinicians described specified lesions as variably as reticular, lacy, striated, annular white patch and linear. In this instance recourse was made to description of white lesions in Burket’s Oral Medicine which states "Those (white lesions) that resist rubbing and scraping are considered to involve thickening of the mucosal epithelium, possibly as a result of increased thickness of the keratinized layers (hyperkeratosis), and are referred to as keratotic". This term was retained and used in this study while the erythematous lesions were found less confusing to designate and retained as such like atrophic erosive and bullous lesions.

The biopsies were all performed at the Institute and diagnosed in the Oral Pathology Department.

Haematological investigations were performed at St. Marys Hospital. These included indices, haemoglobin, differential count, vitamin B 12 status, serum folate arid red blood corpuscle floatae.

RESULTS

Distribution According to age and Sex

Out of a total of 150 patients 55 were males (37%) and 95 were females (63%). The distribution according to age is shown in Fig 1. The highest prevalence for males was found to be in the age group 41 to 50 years (30.9%) and for women in the age group 51 to 60 years (26.3%).

Distribution According to Social Status

The highest incidence was thus noted in the non manual intermediate class, the highest number among these being housewives.

Distribution of Presenting Complaints

The most frequent presenting complaint was noted to be soreness which featured in 85 patients (56.6%). Ulceration was the main complaint in 41 patients (27.3%), white patches were noted by 45 patients (30%) which drew attention by occasional irrigation and 10 patients (606%) were totally asymptomatic, the lesion being detected by their dentists on routine examination.

Distribution According to Sites

The buccal mucosa was found to be most commonly affected, (89.3%) followed by the gingiva, (39.3%), tongue (36%) and the skin was affected concomitantly in 14.6 Percent of the cases.
Distribution According to Types

The keratotic type of lesion was noted in 107 patients, (71%) the atrophic type presented in 27 patients, (18%) and the erosive type featured in 72 patients, (48%). The keratotic lesion was found concomitantly with the atrophic type in 26 cases, (17.3%) whereas with the erosive it presented in 43 cases, (28.6%).

Association of Chronic Diseases

No particular chronic disease could be implicated as a vast variety of diseases. The most common being sideropenia, (16 patients) arthritis, (15 patients) diabetes, (10 patients) hyperacidity, (7 patients) peptic ulcers, ulcerative colitis and asthma among others, like thalassemia, porphyria and haemochromatosis.

Association of General Surgery

Episodes of surgical treatment was noted in 22 patients (53%) as having taken place within one year of onset of the oral lesions, while 19 of the rest (46%) had a history of surgical episode within ten years of onset of the lichen planus. For the rest, of the 109 patients no evidence was formed regarding investigation into previous episodes of surgical treatment.

Association of Drug Therapy

A possible relationship of lichen planus to prolonged use of drugs was investigated in 122 patients and 73, (59.8%) were found to have been taking some drug for a prolonged period at onset yet in 49 patients, (40.1%) there was no evidence of protracted drug use prior to onset.

Association of Tobacco Smoking

Relationship of oral lichen planus to smoking habits was investigated in 97 patients. Of these 43, (44.3%) smoked at onset while 54, (55.6%) were non smokers.

Association of Alcohol Consumption

On general basis 79 patients, (52.6%) were alcohol users while 24, (16%) were teetotalers and 47, (31.3%) had not been investigated regarding drinking habits.

Association of Stress

(70%) of these agreed that a period of stress, like divorce, family problems, financial difficulties, stress at work and bereavement were positive during the time of onset.

Association of Candidal Infection

Of these equal numbers 34, (50%) were noted as positive and negative for candidal infection.

Association of Sideropenia

Indidentally all 15 cases of sideropenia were noted in females amounting to 24.6% of female patients so investigated.

Association of Vitamin B12 and Folate Deficiency

Out of these 4 patients, (5.3%) were found to be deficient in vitamin B12. No patient was found to be folate deficient.
Biopsy

Out of 150 patients 123 were biopsied within one year of first visit of whom 45 (36.5%) were males and 78 (63.4%) female. A total of 107 (87%) were diagnostic or consistent with a diagnosis of lichen planus while 16 (13%) were reported non-diagnostic and were noted to be associated with erosive lesions in 7 patients.

Remissions

Regarding true remission only 4 cases of significance were noted.

Familial Lichen Planus

Familial cases were noted in two instances.

Malignant Transformations

Frank malignant changes were noted in three cases of histologically confirmed lichen planus. All 3 were females.

Report on follow up

Of the cases included in the study, 56 (37.3%) were followed from 6 years to 35 years.

DISCUSSION

The diagnosis of oral lichen planus is one of ambiguity, clinically as well as histopathologically (Axell and Rundquist). The truth of this statement is borne out by a plethora of clinical records noting, at different visits, the same lesions as reticular, lacy, striated, annular and linear. Similar overlap is also common regarding the atrophic and erosive lesions. The confusion in histopathology is evident from the dearth of reports reading 'diagnostic of lichen planus' and a profusion of 'suggestive' and 'consistent' results. Supplemented adjectives like "moderately", "slightly", "highly" and "indicative of", added in the histological report hamper rather than aid a definite diagnosis.

Relationship to Sex and Age

All authors are in agreement that lichen planus is a disease of adulthood (Shklar, Tyldesley, Weaver et al.) and this was confirmed in this investigation where only one patient was below 20 years old. The findings in this study coincide with the last mentioned at an age range of 20 to 80 years with one patient 11 years old and one 86 years old.

Distribution According to Social Status

There was a predominance (71%) among intermediate personnel class. This agrees with Shklar and Nally and Al-Ubaidy.

Distribution of Presenting Complaints

Among authoritative literature, a break up of presenting complaints according to different symptoms at sex are not recorded. Soreness was the main presenting complaint in a majority of the patients (56.6%) while in others ulceration noted by the patient was a feature (27.3%).

Distribution According to Sites

This study agrees as far buccal mucosa is concerned where 89.3% of the lesions were reported in bilateral symmetry, but the gingiva was the next most frequent site to be affected, (39.3%), followed by the tongue (36%), the floor of the mouth, (5-3%) with the palate least affected (2.6%). These figures are in conflict with those of Muri et al., who reported buccal lesions in 96 cases and lingual lesions in 13% and as well as those of Jardinski and Shklar where they reported only 20% lesions on gingiva.

Distribution According to Types

The present finding agree with Cooke's earlier report (1957) and with the Andreasens as well with 71.1% keratotic and 18 percent atrophic lesions as well.

Association with Chronic Diseases

Grinspan noted a triad of diabetes, hypertension and lichen planus in a number of patients. This finding could not be corroborated by Gilmore. Among our patients, no direct relationship with high blood glucose levels could be detected nor could hypertension be detected in 57 (38%) of our patients which had been routinely tested except for 7 patients which were already hypertensive prior to onset. These findings negate the so-called Grinspan syndrome.

Association of Drug Therapy

Tyldesley noted 18 percent patients giving a history of a prolonged use of drugs prior to onset and noted lichenoid reactions caused by various drugs. The present study showed that 48.6 percent of the patients used drugs at onset while 32.6 percent did not and 18.6 percent had not been specifically investigated. These findings though indicating a cautious approach to prolonged use of drugs are in themselves not significant without a controled study but do suggest a possible relationship of the prolonged use of drugs and lichen planus.

Association of Tobacco

Pindborgt et al noted higher incidence of lichen planus in smokers while Neaman-Jensen et al noted a negative relationship to smoking. The current study
though distorted by lack of proper investigation notes a lower incidence of lichen planus in smokers than in nonsmokers even after deleting the unrecorded cases.

**Association of Stress**

Shklar noted aggravations in symptoms and appearances of lichen planus within two weeks of emotional upsets and this is generally accepted Schafer9 Allen et al.10, however, using a questionnaire reported no evidence of the role of stress in onset of lichen planus.

However, current study supports a definite role of stress in the onset of lichen planus when 70 percent of patients agreed that stress was present for a prolonged period at onset, only 10 percent denied stress and 20 percent were not properly investigated. No significant difference was noted between sexes. (Chi squared test being 2.95 at 1 df).

**Association of Candidal Infection**

In the present study 50 percent of the 68 patients investigated for candidal growth were positive while an equal number were negative. The negative reports when considered with the observation of Lynch et al. that the use of an antiseptic mouthwash or use of similar prior to evaluation may result in a false negative result, suggests that candidal infection should be investigated with prior planning and that treatment may reduce severity of the symptoms.

**Biopsy**

The findings in the present report support the fact that most lesions of oral lichen planus can be confirmed by biopsy (87%). This substantiates the recent report by Axell and Rundquist who found that in 97 percent of patients the clinically diagnosed lesions could be confirmed on biopsy.

**Remissions**

Andreasen reported 41 percent reticular oral lesions regressing spontaneously over a varying period while resolution in the atrophic variety was noted at 12 percent and for erosive 7 percent. In the present study documented resolution occurred in only 2 patients. It is reasonable to assume that oral lichen planus is a persistent lesion which rarely, if ever, resolves spontaneously.

**Familial Lichen Planus**

Mahood11 described familial lichen planus as rare, affecting young people and being more severe. In the present study two patients were noted and in the mother and her eleven year old son were affected. The present study does not show a positive familial tendency in lichen planus.

**Malignant Transformations**

Squamous cell carcinoma as a complication of lichen planus has been extensively discussed in the literature but the percentage of transformation has been controversial. Grinspan reported a 7 percent malignant transformation in oral lichen planus, Warm reported 9.4 percent in 53 patients, while Murti et al., (1986) noted a figure of 0.4 percent after observing 772 patients over a mean period of 5.1 years in India. In the present study a finding of 2 percent malignant transformation is close to the findings of Silverman12 et al. who noted a 1.2 percent but definite transformation in a study of 570 patients over a mean period of 5.6 years.

**REFERENCES**