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Oral lichen planus and diabetes mellitus. A clinico-pathological study.

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SUMMARY

A study was made of 72 patients with oral lichen planus associated (n = 28) or not with diabetes mellitus (n = 44). No significant differences were observed between both groups in terms of the location of the lichen planus lesions on the buccal mucosa, palate, gums or floor of the mouth. On the other hand, the diabetics exhibited a greater frequency of oral lichen planus on the tongue. Atrophic-erosive lesions were more common in patients with lichen planus associated with diabetes. Finally, no differences were observed between the two groups in terms of absolute inflammatory infiltrate in the connective tissue of the oral lichen planus lesions.

KEY WORDS:

Lichen planus, oral, diabetes mellitus.

RÉSUMÉ

Nous avons effectué une étude sur deux groupes de patients atteints de lichen plan buccal, le premier associé au diabètes sucré (N = 28) et le second (N = 44) sans cette association. Nous n'observons pas de différences significatives entre eux, en ce qui concerne la localisation du lichen plan dans la muqueuse buccale, le palais, les gencives ou le plancher bouche. Nous trouvons cependant une plus grande fréquence de la localisation au niveau de la langue dans le lichen plan avec diabètes. Mais en même temps, nous détectons une fréquence plus importante de lésions atrophiques-érosives dans le premier groupe que dans le second. En dernier lieu, il n'existe pas de différences entre les deux, en ce qui concerne la quantité, en valeur absolue, de l'infiltration inflammatoire dans les tissus conjonctifs des lésions buccales du lichen plan.

MOTS CLEFS:

Lichen plan, bouche, diabète sucré.

INTRODUCTION

Lichen planus (LP) is a mucocutaneous disorder with frequent and important manifestations in the oral mucosa (Andreasen, 1968; Scully and El-kom, 1985; Shklar and McCarthy, 1961; Thorn et al., 1988; Vincent et al., 1990). In terms of presentation, oral LP may be classified as reticular, atrophic or erosive (Bagán et al., 1992; Silverman and Lozada-nur, 1985). Lichen planus has frequently been associated with autoimmune diseases, including ulcerative colitis (Wyatt, 1975) and lupus erythematosus (Razzaque et al., 1982). The simultaneous presence of lichen planus and certain chronic liver diseases has also been reported and suggests a common pathogenic basis (Rebora et al., 1982; Graham-Brown et al., 1982; del Olmo et al., 1990; Gruppo Italiano Studi Epidemio-

logici in Dermatologia, 1990). A number of authors (Howell and Rick, 1973; Jolly, 1972; Lowe et al., 1976; Powell et al., 1974) have described a higher incidence of associated diabetes mellitus among LP atients than in the general population. However, this relationship could not be demonstrated in posterior studies (Silverman and Lozada-nur, 1985). We observed LP associated with diabetes in 13,9% of cases (Bagán et al., 1992), with a number of significant differences between both clinical groups studied. Thus, diabetes was much more common in association with atrophic-erosive lesions than with reticular LP.

The above observations led us to carry out a clinical study of these two groups of patients with LP (associated or not with diabetes mellitus), to identify possible significant clinical or histopathological differences between both.

MATERIAL AND METHODS

Two groups of patients were studied: (a) Group 1, consisting of 28 randomly selected patients with oral LP and associated diabetes mellitus; and (b) Group 2, involving 44 oral LP patients without diabetes. A given patient was regarded as diabetic when presenting elevated glycemia with endocrinological confirmation of the disease.
Clinically, all patients presented characteristic oral lesions of LP, with histopathologically diagnostic features, i.e., signs of basal epithelial degeneration and subepithelial band infiltration. The location and extension of the oral lesions were recorded in each case. Three consecutive surface involvement grades were considered (1: a single oral location; 2: two affected locations; 3: three or more locations). Three types of possible oral lesions were considered: reticular, atrophic and erosive. Histopathologically, three consecutive grades were employed (1 to 3) according to the intensity of the inflammatory infiltrate within the subepithelial connective tissue. Grading was performed by objective ruler measurement.

Statistically significant differences were evaluated by contrasting clinical and histopathological variables between the two groups. Thus, the Student t-test was used for quantitative variables, and the Chi-square test for qualitative parameters.

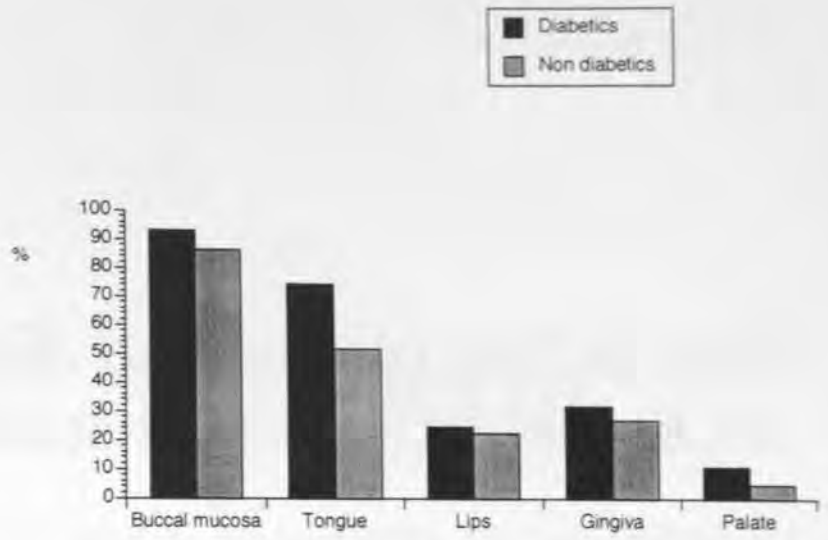

Fig. 1: Oral locations.
Fig. 1: Localisations orales.

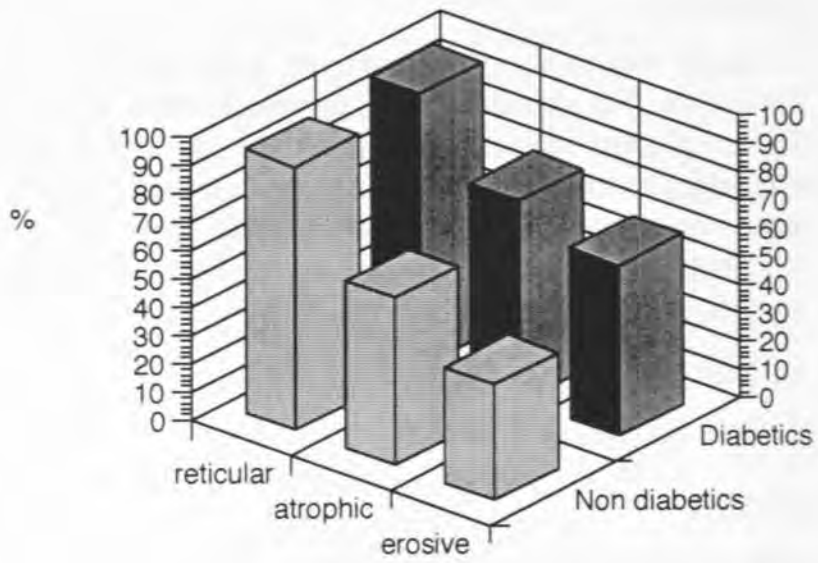

Fig. 2: Types of oral lesions.
Fig. 2: Types de lésions orales.

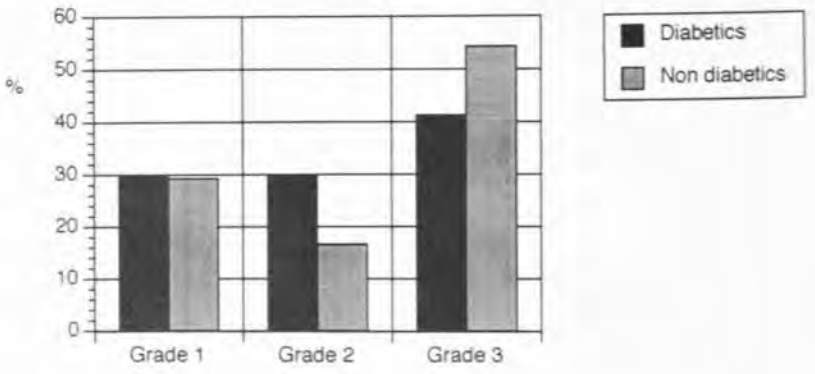

Fig. 3: Grading of chronic inflammatory infiltrate within connective tissue.
Fig. 3: Gradation de l'infiltrat inflammatoire chronique dans le tissu conjonctif.

RESULTS

Mean patient age was 60.25±8.3 and 60.15±5.73 years in Group 1 and 2, respectively ($t = 0.55$, $p > 0.05$); 21.43% of the diabetics were males, versus 29.55% among the non-diabetics ($X^2 = 0.58$, $p > 0.05$). Thus, both groups were entirely homogeneous in terms of age and sex. On studying the different oral locations, 92,86% of cases in Group 1 presented buccal mucosa involvement, versus 86.36% among the non-diabetics ($X^2 = 0.731$, $p > 0.05$). The tongue was more frequently involved in the diabetics, at 75% versus only 52.27% among the non-diabetics ($X^2 = 3.719$, $p < 0.05$). The lips were affected in 25% and 22.73% of the Group 1 and Group 2 patients, respectively ($X^2 = 0.049$; $p > 0.05$). Palate involvement was slightly greater in Group 1 (10.71% versus 4.55% in Group 2). However, as in the case of the gums, the differences were not significant ($X^2 = 1.008$, $p > 0.05$). Thus, the gums were affected in 32.14% of the diabetics and in 27.27% of the Group 2 patients ($X^2 = 0.196$, $p > 0.05$). Reticular lesions were observed in 96.43% of the Group 1 cases, versus a very similar 93.18% in Group 2 ($X^2 = 3.44$, $p > 0.05$).

Differences began to be observed between the two groups on analyzing the oral atrophic and erosive lesions. Thus, atrophic LP was seen in 71.43% of diabetics, versus 59.09% of non-diabetics ($X^2 = 1.129$, $p < 0.05$). Similar results were observed in the case of the ulcerative lesions, which were observed in 60.71% and 40.91% of patients in Groups 1 and 2, respectively ($X^2 = 2.687$, $p > 0.05$). The extension of the oral lesions was very similar in both groups; Grade 1 was observed in 11.11% of Group 1 patients, versus 23.81% in Group 2. Grade 2 was slightly greater in Group 1 (62.96% and 54.76% in Groups 1 and 2, respectively). Finally, Grade 3 was observed in 25.93% and 21.43% of Group 1 and 2 patients, respectively ($X^2 = 1.741$, $p > 0.05$). Histopathologically, and as pointed out under Material and Methods, we distinguished three correlative grades of mononuclear inflammatory infiltrate in the connective tissue. Grade 1 was observed in 29.41% and 29.17% in Groups 1 and 2, respectively, Grade 2 was in turn more frequent among the diabetics (29.41% versus 16.67% in Group 2). Finally, Grade 3 was seen in 41.18% and 54.17% of Group 1 and 2 patients, respectively. The differences between both groups were not significant ($X^2 = 1.081$, $p > 0.05$).

DISCUSSION

As pointed out in the Introduction, lichen planus is frequently associated with systemic diseases, including chronic liver diseases (Rebora et al., 1982; Graham-Brown et al., 1982; del Olmo et al., 1990; Gruppo Italiano Studi Epidemiologici in Dermatologia, 1990), which suggests a common immunological basis. A number of authors have reported an abnormal response in patients with LP following oral glucosa administration (Grinspan et al., 1966; Howell and Rick, 1973; Jolly, 1972; Lowe et al., 1976; Powell et al., 1974). Thus, Lowe et al. (1976), in a series of 40 patients with active LP observed that 42% had an abnormal tolerance to glucose overloading. The glucemia curves and insulin responses recorded were analogous to those of patients with middle age type II diabetes. Taking into account that 12-14% of the general population exhibits abnormal responses to glucose administration, the values obtained by Lowe are greatly increased. This again points to a clear association between LP and glucose intolerance, although the true nature of this relationship remains unclear. Nigam et al. (1987) studied 56 patients with histologically confirmed LP; 30.3% exhibited abnormal glucose tolerance, the pattern corresponding to that of type II diabetes. No correlations were found between these altered glucose results and the duration or distribution of the LP lesions. Similar results were reported by Hornstein et al. (1984), who upon analyzing 177 cases of oral LP and comparing them with an equal number of controls of similar age observed an abnormal glucose tolerance in 30.1% and 11.9% of his patients and controls, respectively ($p < 0.01$). Likewise, Halevy and Feuerman (1979) observed abnormal glucose tests in 36% of his 52 patients with LP. Finally, Lundström (1983) contrasted 40 cases or oral LP with 40 healthy individuals; 28% of LP patients were found to be diabetic, versus only 3% in the other group. This reflects the high incidence of diabetes mellitus among patients with LP. Contrarily, Christensen et al. (1977) studied 123 patients with LP but found no significant differences in glucose tolerance with respect to the controls. In 1985 Silverman and Lozada-nur studied 570 cases of oral LP and again observed only 33 (5.8%) diabetics. In an earlier study (Bagán et al., 1988) involving 44 patients with insulin-dependent diabetes and 44 controls, we encountered only one case of LP among the diabetics, versus two in the controls. Finally, Albrecht et al. (1992) analyzed 1600 patients with

diabetes mellitus (815 type I, and 761 type II), versus 621 controls. Lichen planus was found in 1% of the diabetics, verus none among the controls. In turn, LP was more common in type I diabetes.

In the present study we have emphasized the greater prevalence of atrophic and ulcerative lesions among LP patients with diabetes than in the LP group without diabetes. Likewise, the tongue was more commonly affected in the patients with LP and associated diabetes. Finally, no differences were observed in the intensity of inflammatory infiltrate in the connective tissue of both study groups.

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