

Psychologic aspects of patients with oral lichenoid reactions

Jan Bergdahl, Pär-Olov Östman, Göran Anneroth, Hjördis Perris and Annika Skoglund

Departments of Oral Pathology, Oral and Maxillofacial Surgery and Psychiatry, Umeå University, Umeå, and Department of Oral and Maxillofacial Surgery, Söder Hospital, Stockholm, Sweden

Bergdahl J, Östman P-O, Anneroth G, Perris H, Skoglund A. Psychologic aspects of patients with oral lichenoid reactions. *Acta Odontol Scand* 1995;53:236–241. Oslo. ISSN 0001–6357.

Psychologic aspects of 49 patients with oral lichenoid reactions (OLR) in contact with amalgam fillings were studied and compared with an age- and sex-matched control group. Psychologic factors such as personality, psychologic functioning, and quality of life were determined by using the Karolinska Scales of Personality (KSP), an additional Personality Scale (PS), a Psychological Functioning Scale (PFS), and a Quality of Life Scale (QLS). With regard to personality the OLR patients had significantly higher scores on the muscular tension and suspicion scales and significantly lower scores on the indirect aggression scale. In addition, the OLR patients were significantly more worried about their health and more helpful. With regard to psychologic functioning the OLR patients had significantly more sad thoughts, became dizzy more easily, found it harder to imagine themselves free from anxiety, and had more difficulty in concentrating. The results indicated that OLR patients had a tendency to be depressive. The need for a systemic investigation including odontologic, medical, and psychologic aspects was expressed. □ *Oral lichen planus; personality; psychologic functioning; psychologic tests; quality of life*

Jan Bergdahl, Department of Oral Pathology, Umeå University, S-90187 Umeå, Sweden

Lichen planus (LP) is a relatively common disorder that may affect cutaneous tissues (CLP) and/or oral mucosa (OLP) (1, 2). Although the disease was first described more than 100 years ago by Wilson (3), the etiology of lichen planus remains unknown (4). A modern view of the etiology and pathogenesis of OLP is that it is multiply determined and thus requires a simultaneous evaluation of findings from various areas (5, 6). During the last few years OLP has been correlated to diabetes mellitus (7) and candidiasis (8). Many OLP patients have also been reported to suffer from dry mouth (9) and burning mouth (4, 10). Recently, attention has been focused on OLP-like lesions in contact with amalgam and other dental materials (11–14), labeled by some authors oral lichenoid reactions (OLR) (12, 15, 16).

The psychosomatic basis of OLP and OLR has attracted interest in recent years, and the mental health of OLP patients has been mentioned and analyzed (6, 17–21). Lowenthal & Pisanti (6) stated that stressful events frequently preceded episodes of symptoms in patients with what they called erosive OLP, whereas no such relation was seen in patients with asymptomatic OLP. Hampf et al. (17) showed a significantly greater degree of psychologic disturbances in OLP patients than in a control group, and psychiatric diagnoses such as dysthymic disorder and dependent personality disorder were diagnosed. Another study, by Altman & Perry (18), found that 10% of the patients were aware of a precipitating stressful incident at the onset of their LP, such as a death in the family or divorce. On the other hand, Allen et al. (19) did not find any support

for the hypothesis that OLP patients have a greater tendency towards anxiety and more stressful life events than other individuals.

To date, no study has been published concerning the psychologic aspects of OLR patients. Therefore, the aim of the present study was to describe the psychologic profile of such patients.

Materials and methods

Subjects

The material consisted of 49 consecutive patients with clinically diagnosed OLR with a duration of 3 months or more, 10 (20%) men and 39 (80%) women. The age of the patients varied from 35 to 79 years (mean age, 53 years), 44–74 years (mean age, 54 years) in men and 35–79 years (mean age, 52 years) in women. The clinical investigations and evaluations were made by one of the authors (A. Skoglund). The clinical criteria for inclusion in the study were the presence of lace-like reticular/papular lesions with white, slightly elevated patterns and Wickham's striae somewhere in the lesions. Forty-four (90%) patients showed features of erythema somewhere in the lesion. The corresponding figures for ulcerous and bullous lesions were 6 (12%) and 3 (6%), respectively. A control group with no OLR, selected from staff or patients, consisted of 49 subjects, sex- and age-matched to the 49 patients with OLR.

Symptoms

The OLR patients' symptoms were registered with

the use of a 10-cm visual analogue scale (VAS), graded 0–10 on the back of the scale.

Psychologic inventories

The psychologic inventories administered in this study were the Karolinska Scales of Personality (KSP), the Personality Scale (PS), the Psychological Functioning Scale (PFS) and the Quality of Life Scale (QLS).

The KSP was administered to describe the personality of the patients. The KSP consists of 15 scales classified into 5 groups (22). The Impulsiveness, the Montony Avoidance, and the Detachment scales are included in the first group. High scorers in the Impulsiveness scale are described as acting in a non-planning and impulsive manner, the Monotony Avoidance scale measures routine avoidance, need for change, and action such as sensation-seeking, and the Detachment scale describes withdrawn, 'schizoid' tendencies and avoiding involvement with others. The second group consists of the Social Desirability and the Socialization scales. High scorers in the Social Desirability scale are described as socially conforming, friendly, and helpful, but high scorers can also be interpreted as 'faking good'. The Socialization scale measures positive childhood experiences, good school, and family adjustment. The third group includes five scales divided into two subgroups. The first subgroup consists of the Somatic Anxiety scale, and high scorers are described as having autonomic disturbances, being restless and panicky, and the Muscular Tension scale describes tension, stiffness, and no relaxation. The second subgroup consists of the Psychic Anxiety, Psychasthenia, and Inhibition of Aggression scales. High scorers in the Psychic Anxiety scale are described as worrying, lacking in self-confidence and sensitivity, and the Psychasthenia scale measures easily fatigued persons, with feelings of unease when urged to speed up and when facing new tasks. High scorers in the Inhibition of Aggression scale are described as sad rather than angry when scolded and having difficulty speaking up. The fourth group consists of the Suspicion and the Guilt scales. The Suspicion scale measures level of suspiciousness and distrust of people's motives, and the Guilt scale the level of remorse and shame about bad thoughts. Finally, the fifth group consists of the Indirect Aggression, the Verbal Aggression, and the Irritability scales. High scores in the Indirect Aggression scale describe behaviour such as sulking and slamming doors when angry. High scorers on the Verbal Aggression scale are described as getting into arguments and telling people off when annoyed, and, finally the Irritability scale measures level of irritation and lack of patience (22).

The PS, PFS, and QLS are especially developed by our group for the current and for other investigations. The purpose of the PS, PFS, and QLS is to cover other psychosocial aspects not covered by the KSP. The PS is derived from the Eysenck Personality Questionnaire

(23) and the Cesarek Marke Personality Schedule (24) and concerns personality factor that are relevant and not covered by the KSP. The PS consists of 29 items with scales of the Likert type graded from 1 to 15 and includes measures of calmness, extraversion, introversion, independence, level of emotionality, thoughtfulness, fatigue, and ambition. Examples of the items include: 'Are you dependent on others?', 'Are you easily fatigued?', 'Are you pedantic?', 'Are you sensitive?', 'Are you helpful to other people?', 'Do you care about your health?', 'Are you a day-dreamer?', 'Are you stubborn?', and 'Are you a leader?'.

The PFS is also a Likert-type scale, comprising 18 items, graded from 1 to 15. The PFS aims to assess the present ability to cope with different emotions, to make decisions, and to concentrate. The ability to experience sexual interest, to have a good appetite and to sleep well are also described. Examples include: 'Do you feel joy?', 'How do you get on with people?', 'Can you take the initiative easily?', 'Do you feel inferior?', 'Can you concentrate easily?', 'Do you get dizzy easily?', 'Do you feel anxiety easily?', 'Can you make decisions easily?', 'Do you get palpitations and/or indigestion easily?', 'Do you remember things?', and 'Do you think sad thoughts?'.

The QLS aims to cover various aspects of quality of living, such as relations with family, friends, and colleagues. The QLS includes 14 items with Likert-type scales graded from 1 to 15, and the items included refer to everyday activity, loneliness, and finances. The following are examples of the items: 'Are you very busy?', 'Do you have good relations with your family?', 'Do you have meaningful spare-time activities?', 'Do you have a sound personal economy?', 'Do you feel lonely?', 'Do you frequently phone other people?', 'Do you easily make contact with other people?', 'Are you satisfied with your living accommodations?', 'Do you frequently invite people home?', and 'Do you like your job?'.

A Likert-type format was chosen for the PS, PFS, and QLS, to make it easier for the participants to complete the inventories. Another reason for this choice of format is that these inventories are included in a large battery of assessment instruments used in an ongoing multifactorial study of patients with either burning mouth syndrome (BMS), presumed oral galvanism, or symptoms presumed to be caused by electricity or visual display units.

The personality of the OLR and the control group was determined by using the KSP and the PS. The PFS was administered to determine the psychologic functioning and the QLS to describe the quality of life. The personality, psychologic functioning, and quality of life of patients with OLR were determined by comparing the results of the psychologic inventories with those of the control group.

The personality, psychologic functioning, and quality of life were measured on two occasions. On the first occasion the OLR patients had to fill in the KSP, and

Table 1. The distribution of symptoms on the basis of a visual analogue scale (VAS) in 49 patients with oral lichenoid lesions in contact with amalgam fillings

Grade (VAS)	Symptoms
0	14
1-3	9
4-6	20
7-9	6
Total	49

on the second occasion they had to complete the PS, PFS, and QLS.

Statistical methods

Differences in the results of the psychologic inventories between the OLR and control group were tested by an independent two-sample *t* test on the mean scores. Differences in the result of the psychologic inventories between the subgroups of OLR patients including OLR patients with symptoms and OLR patients without symptoms and the control group were tested by a modified *t* test (Bonferroni), to check for type-I errors. The 5% level was accepted as the level of statistical significance.

Cronbach's alpha reliability coefficient (α) was measured for the PS, PFS, and QLS. The α is based on the internal consistency of the inventories. The α coefficient for the PS was 0.64, for the PFS 0.58, and for QLS 0.67. Statistical routines from the SPSS for Windows were used.

Results

Drop out

When the last follow-up was conducted two patients had died and two had moved to unknown addresses. These patients did not fill out the PS, PFS, and QLS.

Symptoms

The patients' symptoms, expressed as grades on the basis of the VAS, are presented in Table 1. Of the 49 patients, 14 (29%) had no symptoms, and the other 35 (71%) reported symptoms with a mean VAS grade of 3.5.

Personality

The significant differences in the KSP and PS scores between the OLR and the control group are presented in Table 2. In the KSP the OLR group scored significantly higher in the Muscular Tension scale ($p < 0.05$) and

the Suspicion scale ($p < 0.05$) and significantly lower in the Indirect Aggression scale ($p < 0.05$). In the PS the OLR group was significantly more worried about their health ($p < 0.05$) and more helpful to other people ($p < 0.05$).

Psychologic functioning

The significant differences in the PFS scores between the OLR and the control group are shown in Table 2. The OLR group had significantly more sad thoughts ($p < 0.001$) and became dizzy more easily ($p < 0.01$). In addition, the OLR group found it harder to imagine themselves free from anxiety ($p < 0.05$) and had more difficulty in concentrating ($p < 0.05$).

Quality of life

The QLS inventory showed no significant differences between the OLR and the control group.

Patients with and without symptoms

With regard to the KSP, PS, PFS, and QLS, there were no statistically significant differences between the patients with and without symptoms.

Discussion

Textbooks on oral pathology (25, 26) and dermatology (27, 28) mention stress and anxiety as factors that seem to be associated with patients who develop lichen planus. These associations appear, however, to be more of an anecdotal nature, and few studies have been published in which an appropriate, controlled psychologic method has been used. The present results describe OLR patients as tense, suspicious, non-aggressive, having sad thoughts, and being anxious. These findings confirm the existence of important psychologic factors that have been reported earlier in OLP patients (6, 19, 21).

von Knorring et al. (29) found that formerly depressed patients scored high in the KSP Psychasthenia, Impulsivity, Guilt, and Inhibition of Aggression scales and low in the Indirect Aggression, Socialization, and Verbal Aggression scales. In another study, using the KSP (30), the authors assumed that the main personality characteristics of depression-prone patients included anxiety, psychasthenia, suspicion, and guilt. In addition, they noticed that these patients were characterized by a high level of inhibited aggression and a low level of manifest aggression. The authors also assumed that the high levels of anxiety, psychasthenia, suspicion, and guilt represent important psychologic variables in the personality of depression-prone patients, leading to depressive breakdown when stressful external events are experienced. In the present study

Table 2. Type of inventory scale, description of high scorers, mean scores, standard deviations, and differences in the Karolinska Scales of Personality (KSP) ($n = 49$), Personality Scale (PS) ($n = 45$), Psychological Function Scale (PFS) ($n = 45$), and Quality of Life Scale (QLS) ($n = 45$) in the oral lichenoid reactions (OLR) group and the control group

Inventory/scale	Description of high scorers	OLR group		Control group		P value
		M	SD	M	SD	
KSP						
Muscular Tension	Tense and stiff, not relaxed	17.6	5.9	15.0	5.2	<0.05*
Suspicion	Suspicious, distrusting people's motives	9.3	2.3	8.2	2.3	<0.05*
Indirect aggression	Sulking, slamming doors when angry	10.3	2.8	11.5	2.7	<0.05*
PS						
	Do not care about their health	7.1	2.4	8.4	2.6	<0.05*
	Avoid helping people	3.8	1.7	4.8	2.1	<0.05*
PFS						
	Not easily dizzy	11.4	3.0	13.0	2.3	<0.01**
	Have sad thoughts	8.3	4.5	4.8	3.4	<0.001***
	Hard to imagine oneself free from anxiety	5.9	3.1	4.4	3.2	<0.05*
	Difficulty concentrating	5.3	2.8	4.2	1.9	<0.05*

Mean scores (M), standard deviations (SD), and p value compared between the OLR group and the control group.

the OLR patients scored high in the KSP Muscular Tension and Suspicion scales and low in the Indirect Aggression scale. In accordance with Perris et al. (30) this result might indicate that patients with OLR have a tendency to be depressive, and this assumption becomes more probable in face of the high level of sad thoughts in the PFS. Hampf et al. (17) referred 16 OLP patients for psychiatric consultation, 5 (31%) showing dysthymic disorder. Dysthymia is characterized as a chronic, mild depressive syndrome with the presence of, for example, insomnia, fatigue, low self-esteem, poor concentration, and feelings of hopelessness (31). Our data could be interpreted to show that OLR might be a pathophysiologic reaction caused by a depressive mood and might, therefore, be labeled a psychosomatic reaction or disease. One might assume that patients with OLR have a personality that reacts to stressful life events with a depressive mood, but the depression is masked, somatized, and established, as a manifest OLR, by means of unknown pathophysiologic mechanisms.

There was consistency between the results of the psychologic inventories administered in the present study. The high score in the KSP Muscular Tension scale could be associated with the high level of worry about personal health in the PS, and with a high level of sad thoughts, an increased ability to become dizzy, and difficulty in imagining oneself free from anxiety and in concentrating, in the PFS. In addition, the high score in the KSP Suspicion scale could be associated with the high level of sad thoughts and difficulty in imagining oneself free from anxiety in the PFS. Finally, the low score in the KSP Indirect Aggression scale could be associated with the disposition to be more

helpful to other people, indicating a non-aggressive behavior.

The high score in the KSP Muscular Tension scale, the high level of worry about personal health in the PS, the difficulty imagining oneself free from anxiety, the ability to become dizzy easily, and the difficulty in concentrating in the PFS might indicate that OLR patients suffer from anxiety or anxiousness. But these indications are inconsistent in face of the non-significant differences in the KSP Somatic Anxiety, Psychic Anxiety, and Psychasthenic scales and should therefore be interpreted with caution.

The non-aggressiveness and helpfulness could be a way of avoiding conflicts with other people, but this avoidant behavior does not ensure a conflict-free life, and, when facing an external conflict, it is possible that the patients have problems handling the situation, which could result in a depressive reaction manifested as increased tenseness, anxiousness, dizziness, difficulty in concentrating, and suspiciousness.

Our group has used the same inventories as in the present study in an investigation of patients with resistant BMS, after the diagnosed odontologic and medical diseases had been treated (32). We found that the BMS patients scored high in the KSP Somatic Anxiety, Muscular Tension, and Psychasthenia scales and low in the Socialization scale. In addition, the BMS patients were more easily fatigued and more sensitive in the PS and had more difficulty in taking the initiative, became dizzy more easily, and had more sad thoughts in the PFS. Comparing these findings with the results in the present study, we observed that both the BMS patients and the OLR patients scored high in the KSP Muscular Tension scale and became dizzy easily and had sad

thoughts in the PFS. These similarities between the BMS and OLR patients might be interpreted to show that the two groups of patients have a similar personality profile. We consider, however, that the result of the inventories used indicated that the difference between the two groups was more pronounced than the similarities and, therefore, that the BMS and OLR patients differ psychologically.

Lowental & Pisanti (6) examined 49 patients with clinically diagnosed OLP. These authors stated that stressful events frequently preceded episodes of symptoms in patients with symptomatic erosive (ulcerous) or bullous OLP, whereas no such relationship was seen in patients with asymptomatic OLP. In the present study 14 (29%) patients were asymptomatic. No difference in the psychologic profile, however, was observed between the asymptomatic and symptomatic OLR groups.

Today, we have to agree on the fact that OLR has a multifactorial etiology. One can assume that many different factors, such as hypersensitive reactions to dental fillings, stress and anxiety, poor immunologic ability, hematologic abnormalities, and some systemic diseases influence the pathogenesis of OLR. Therefore, to identify these factors clinically, one should use a treatment protocol when investigating patients with OLR. Systematic investigations focusing on odontologic and medical causative factors are recommended as a first step. When these factors are eliminated, we propose, in accordance with the current results, that a psychologic investigation should be performed to rule out underlying psychologic factors. If important psychologic factors are identified, the patients should be offered psychotherapy.

We have treated patients with resistant BMS successfully with cognitive therapy (CT) in a controlled study (33). One can assume that psychotherapy might also be a proper choice in the treatment of OLR patients with psychologic disturbances, after the exclusion of odontologic and medical causative factors.

There were no significant differences in the QLS between the OLR and the control group, which can be interpreted in two ways. First, the OLR patients could have adapted to their problem and, therefore, considered themselves to have an acceptable quality of life. Secondly, it is possible that the QLS reflects a subjective evaluation of the quality of life and an inventory with a more objective evaluation might have shown significant differences between the OLR and the control group.

It would be desirable to have higher α -values for the PS, PFS, and QLS, but we consider the reliability of the inventories to be acceptable.

Future research into the psychologic factors in OLR patients should focus on the connection between the psychologic and physiologic processes and on the effect of psychotherapy on these processes.

Acknowledgements.—This study was supported by grants from the

Swedish Dental Society and the Faculty of Odontology, Umeå University, Sweden. Special thanks go to Professor Carlo Perris, Umeå University, Sweden, for his critical evaluation of the manuscript and to Associate Professor Martin Eisemann, Umeå University, Sweden, for his valuable help with the patient material.

References

1. Scully C, El-Kom M. Lichen planus: review and update on pathogenesis. *J Oral Pathol* 1985;14:431–58.
2. Jungell P. Oral lichen planus. A review. *Int J Oral Maxillofac Surg* 1991;20:129–35.
3. Wilson E. On lichen planus. *J Cut Med Dis Skin* 1869;3:117–32.
4. Dusek JJ, Frick WG. Lichen planus: oral manifestations and suggested treatments. *J Oral Maxillofac Surg* 1982;40:240–4.
5. Walsh LJ, Savage NW, Ishii T, Seymour GJ. Immunopathogenesis of oral lichen planus. *J Oral Pathol Med* 1990;19:389–96.
6. Lowental U, Pisanti S. Oral lichen planus according to the modern medical model. *J Oral Med* 1984;39:224–6.
7. Lundström IM. Incidence of diabetes mellitus in patients with oral lichen planus. *Int J Oral Surg* 1983;12:147–52.
8. Lundström IM, Anneroth G, Holmberg K. Candida in patients with oral lichen planus. *Int J Oral Surg* 1984;13:226–38.
9. Lundström IM, Anneroth G, Bergstedt HF. Salivary gland function and changes in patients with oral lichen planus. *Scand J Dent Res* 1982;90:443–58.
10. Shklar G. Lichen planus as an oral ulcerative disease. *Oral Surg* 1972;33:376–88.
11. Lind PO. Oral lichenoid reactions to composite restorations. Preliminary report. *Acta Odontol Scand* 1988;46:63–5.
12. Bolewska J, Hansen HJ, Holmstrup P, Pindborg JJ, Stangerup M. Oral mucosal lesions related to silver amalgam restorations. *Oral Surg Oral Med Oral Pathol* 1990;70:55–8.
13. Östman PO, Anneroth G, Skoglund A. Oral lichen planus lesions in contact with amalgam fillings: a clinical, histological and immunohistochemical study. *Scand J Dent Res* 1994;102:172–9.
14. Finne K, Göransson K, Winckler L. Oral lichen planus and contact allergy to mercury. *Int J Oral Surg* 1982;11:236–9.
15. Skoglund A, Egelrud T. Hypersensitivity reactions to dental materials in patients with lichenoid oral mucosal lesions and in patients with burning mouth syndrome. *Scand J Dent Res* 1991;99:320–8.
16. Skoglund A. Value of epicutaneous patch-testing in patients with oral mucosal lesions of lichenoid character. *Scand J Dent Res* 1994;102:216–22.
17. Hampf BGC, Malmström MJ, Aalberg VA, Hannula JA, Vikkula J. Psychiatric disturbance in patients with oral lichen planus. *Oral Surg Oral Med Oral Pathol* 1987;63:429–32.
18. Altman J, Perry HO. Variations and course of lichen planus. *Arch Dermatol* 1961;84:179.
19. Allen CM, Beck FM, Rossie KM, Kaul TJ. Relation of stress and anxiety to oral lichen planus. *Oral Surg Oral Med Oral Pathol* 1986;61:44–6.
20. Lundström IM. Oral lichen planus—a clinical, odontological and medical study [thesis]. Stockholm: Karolinska Institutet, 1984.
21. Andreassen JO. Oral lichen planus. I. A clinical evaluation of 115 cases. *Oral Surg Oral Med Oral Pathol* 1968;25:31–42.
22. Schallings D, Åsberg M, Edman G, Orelund L. Markers for vulnerability to psychopathology: temperament traits associated with platelet MAO activity. *Acta Psychiatr Scand* 1987;76:172–82.
23. Eysenck HJ, Eysenck SBG. Manual of the Eysenck Personality Questionnaire. London: Hodder and Stoughton, 1975.
24. Cesarek Z, Marke S. Mätning av psykogena behov med frågeformulärsteknik. Stockholm: Skand. Testförlaget, 1968.
25. Shafer WG, Hine MK, Levy BM. A textbook of oral pathology. 4th ed. Philadelphia: W.B. Saunders, 1983.
26. McCarthy PL, Shklar G. Diseases of the oral mucosa. 2nd ed. Philadelphia: Lea & Febiger, 1980.

27. Arndt KA. Lichen planus. In: Fitzpatrick TB, Eisen AZ, Wolff K, et al., editors. *Dermatology in general medicine*. 2nd ed. New York: MacGraw-Hill, 1979.
28. Domonkos AN, Arnold HL, Odom RB. *Andrew's diseases of the skin*. Philadelphia: W.B. Saunders, 1983.
29. von Knorring L, Perris C, Eisemann M, Perris H. Discrimination of former depressed patients from healthy volunteers on the basis of stable personality traits assessed by means of KSP. *Eur Arch Psychiatr Neurol Sci* 1984;234:202-5.
30. Perris C, Eisemann M, von Knorring L, Perris H. Personality traits in former depressed patients and in healthy subjects without past history of depression. *Psychopathology* 1984;17:178-86.
31. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 3rd ed. Washington (DC): American Psychiatric Association, 1987.
32. Bergdahl J, Anneroth G, Perris H. Personality characteristics of patients with resistant burning mouth syndrome. *Acta Odontol Scand* 1995;53:7-11.
33. Bergdahl J, Anneroth G, Perris H. Cognitive therapy in the treatment of patients with resistant burning mouth syndrome—a controlled study. *J Oral Pathol Med* 1995;24:213-5.

Received for publication 15 September 1994
Accepted 10 November 1994