THE NEW ARMENIAN MEDICAL JOURNAL
Vol.14 (2020), No 1, p.67-73

DENTAL MANAGEMENT OF THE PATIENT WITH ULCERATIVE FORM OF ORAL LICHEN PLANUS. CLINICAL CASE

Arzukanyan A.V.*, Turkina A.Yu., Novozhilova N.E., Margaryan E.G., Bagramova G.E., Arakelyan M.G.

Department of therapeutic dentistry, Institute of Dentistry, First Moscow State Medical University, I. M. Sechenova (Sechenov University), Moscow, Russia.

Received 14.03.2019; accepted for printing 03.12.2019

Abstract

Lichen planus is one of the most common chronic relapsing diseases of skin and oral mucosa. Stress is considered to be an important factor for oral lichen planus development and flare-up. An association of oral lichen planus with hepatitis has also been shown. A 59-year-old male patient hospitalized in the hepatology department was referred to a dentist with the complaints of oral mucosa pain, burning sensation and dry mouth. The hyperemia of buccal and lingual mucosa, multiple whitish popules merging into reticular pattern and painful erosions were determined. The dental diagnosis was oral lichen planus, combination of papular, reticular and erosive forms (flare-up). Associated conditions were hepatic cirrhosis of viral etiology, multinodular euthyroid goiter and stress. Systemic therapy included: pancreatic enzymes, antidepressant, hepatoprotective, bactericidal, antibacterial broad spectrum and other drugs. The topical therapy included: Bluem oral rinse, vitamin A, kenalog orabase, solcoseryl dental adhesive paste. After 21 days oral mucosa was of pale pink color. Whitish papules, regionally merging into a characteristic pattern were identified on the buccal mucosa, on the tongue dorsum several papules were defined. The 6-months follow-up demonstrated no worsening. This case report demonstrates the possibility of achieving of significant improvement with prolonged remission period of oral lichen planus in patient with hepatitis C with the use of topical corticosteroids and epithelial agents in conjunction with the treatment provided by hepatologist and psychotherapist.

Keywords: *lichen planus, oral mucosa pain, burning sensation and dry mouth, Bluem oral rinse, corticosteroids and epithelial agents.*

Introduction

Lichen planus (LP) is one of the most common chronic autoimmune diseases of skin and oral mucosa. In recent years, the prevalence of LP has increased significantly [*Rabinovich O, Rabinovich I, 2016*]. The rarely encountered and difficult to diagnose forms of it, as well as flare-ups due to stress, have been recorded [*Rabinovich O et al., 2016; Bakhtiari S et al., 2017; Nosratzehi T 2018*]. An immune-mediated pathogenesis is recognized in lichen planus, although the exact etiology is unknown. The associations with somatic diseases such as hepatitis C, diabetes mellitus, gastrointestinal tract diseases, etc was reported [*Al-Hashimi I et al., 2007; de Mattos Camargo Grossmann S et al., 2007; Nosratzehi T, 2018*]. Dysfunctions of the liver and digestive tract are thought to be of particular importance in the onset of this pathology [*Nagao Y et al., 1995; Asaad et al., 2005; de Mattos Camargo Grossmann S et al., 2007; Lodi G et al., 2010; Gerayli T et al., 2015; Misaka K et al., 2016; Nosratzehi T, 2018; Zaslansky R et al., 2018*].

The course of the disease, as well as the severity of clinical manifestations, depend on concomitant diseases, the presence of inducing factors, such as psychological stress and infectious diseases in anamnesis. In addition, lichenoid reactions associated with chronic trauma, side effects of drugs, intolerance to gluten, oral galvanism may be observed on the oral mucosa. But most often lichen planus occurs as a re-

Address for Correspondence:
Alina V. Arzukanyan, assistant professor
Department of therapeuitic dentistryThe First Moscow State Medical University, I. M. Sechenov
Mozhaysky val 11, Moscow, 121059, Russia
Tel.: +7 (964) 556 99 00
E-mail: aav0218@mail.ru

sult of chronic stress and severe commotion. This form is the one most difficult to treat [*Kalkur C et al.,2015; Rekha V et al., 2017; Nosratzehi T, 2018*].

According to the previous studies [*Asaad T, Samdani A, 2005; Al-Hashimi I. et al., 2007; Rabinovich O et al., 2016; Nosratzehi T, 2018*], stress plays a significant role in the development of OLP. It was established that stress, through the system of neurohumoral factors, exerts a systemic effect on the patient's organism suffering with LP, influencing the adaptive structures of the central nervous system, psychoemotional status, immunity, aggravating the clinical course and obviously worsening the prognosis. Treatment of such patients requires complex approach involving specialists of different profiles [*Kalkur C et al.,2015; Rekha V et al., 2017; Nosratzehi T, 2018*].

The following clinical case demonstrates the ulcerative form of OLP (flare-up), associated with hepatitis C and stress experience.

A 59-year-old male patient was observed in the hepatology department of university clinical hospital No2 of the Sechenov First Moscow State Medical University and was refered for the consultation to the Department of Therapeutic Dentistry of the university with the complaints of pain and burning sensation in the oral mucosa and dry mouth.

During questioning it was found that the diagnosis of LP was stated 2 years ago, but no specific therapy was performed that 2 months ago the patient suffered from severe commotion and experienced constant psychological stress.

Medical history represented: a gunshot injury of thorax, which required the resection of the right lung, the revision of the abdominal cavity, and blood transfusion (1997), hepatitis C (diagnosed in 2002). The patient received symptomatic therapy with a positive effect. Antiviral therapy was not prescribed. In 2017 he was hospitalized in the department of hepatology with a diagnosis: a hepatic cirrhosis of viral ethiology (virus C), class-A according to Child-Pugh score; multinodular euthyroid goiter, F43 Reaction to severe stress, and adjustment disorders.

MATERIAL AND METHODS

Clinical examination

A complete dental examination was performed. The Simplified Oral Hygiene index was 3.0 corresponding to poor oral hygiene.

The buccal mucosa and tongue dorsum were hyperemic, edematous. Multiple whitish papules were determined on the buccal mucousa and tongue, sometimes merging into a characteristic reticular pattern (Wickham's Striae). When scraping, the papules were not removed. There was a painful erosion 5x6 *mm* in diameter, covered with fibrinous plaque on the left buccal mucosa in the projection area of the tooth 3.7, the Kebner symptom was positive. There were also several erosions and ulcers covered with fibrinous plaque on the tongue mucosa (Fig.1).

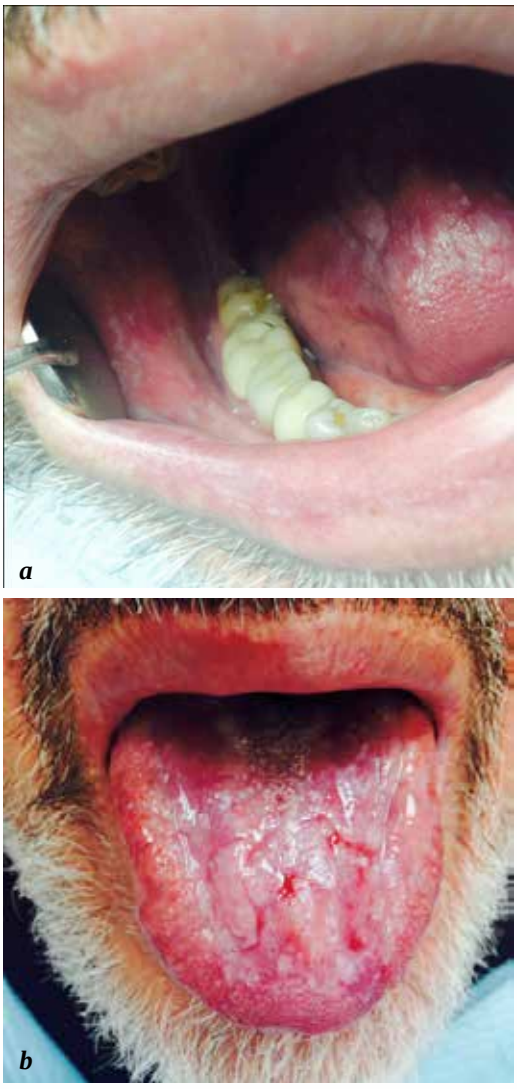

FIGURE 1. *Ulcerative form of oral lichen planus. (a) - buccal mucosa and (b) - the tongue.*

Clinical signs of xerostomia were identified: stick test (dental mirror sticks to the buccal mucosa and offers resistance while withdrawing) [*Makeeva I et al., 2013; Al-Janaby H et al., 2017*], dryness and discomfort throughout the day, the need for drinking water with food, rough mucosa. The rate of mixed unstimulated salivation in ml/min was determined by spitting method [*Makeeva I et al., 2013; Arakelian M et al. 2016*]. The rate of salivation in the patient was 0.2 *ml/min*, which indicated the presence of moderate hyposalivation.

The pH of the oral liquid was assessed using test strips. The pH value was within the normal range (6.6).

Laboratory tests:

Blood cell count: hemoglobin - 154 *g/l*, RBC - 5 x 10^12/*l*, hematocrit 47.3%, CI. 0,9*1*, leukocytes - 6.3 x 109 *l*, neutrophils - 56.2%, lymphocytes - 32%, eosinophils - 2.2%, basophils - 0.3%, monocytes - 7.2%, ESR - 20 *mm/h*. Platelets - 125 x 10 ^ 9/*l*.

Biochemistry blood test: iron - 14.5 *μmol/l*, alkaline phosphate - 164 *units/l*, triglycerides - 0.87 *mmol/l*, total cholesterol - 6.24 *mmol/l*, HDL cholesterol - 95 *mmol/l*, GGT - 73 *U/l*, AST - 30 *U/l*, ALT - 39 *U/l*, general protein - 72.7 *g/L*, albumin - 42.5 *g/l*, creatinine - 1.07 *mg/dL*, glucose - 5.5 *mmol/l*, total bilirubin 5.5 *μmol/L*, direct bilirubin 1.4 *μmol/L*, sodium 144 *mmol/L*, potassium 4.5 *mmol/L*, LDL-cholesterol 5.12 *mmol/l*, VLDL - cholesterol - 0.17, AI - 5.57, amylase - 129.1 *U/l*.

Oral mucosa microbiological test was performed to exclude oral candidiasis. Single Candida spp and Leptotrix buccalis, significant gram-positive cocci and neisseria spp were found.

The dental diagnosis was confirmed as: Oral lichen planus, combination of papular, reticular and erosive forms (flare-up).

The patient was also consulted by psychotherapist. The level of anxiety was 36 points according to the scale by J Teylor in T Nemchin modification.

Treatment

The treatment was performed by dermatologist, psychotherapist, hepatologist and dentist. The special diet was prescribed, excluding fried, smoked, fatty meat, seafood, spicy dishes, fresh bread, fatty dairy products (Table 1).

Dental treatment

Dental treatment included prescription of oral hygiene protocol, including soft toothbrush Curaprox, mono-tuft toothbrush, Curapprox Enzycal toothpaste, and topical application of the following drugs (Table 2).

During first 14 days topical treatment was performed in dental office by a dentist 3 times a day according to following protocol:

1. Bluem oral rinse
2. Gentle soft plaque removal with manual mono-tuft toothbrush
3. Vitamin A application for 10 minutes using sterile gauze swabs
4. Kenalog orabase application for 10 minutes
5. Solcoseryl dental adhesive paste

After the epithelization of erosions, professional dental deposits removal was performed and the same topical treatment protocol was continued, excluding Solcoseryl dental adhesive paste.

Spray Neolactoferrin-Denta was recommended for self-use during all treatment period 4-5 times a day.

The overall treatment period was 21 days. After the treatment a complete dental examination was repeated.

Results

Oral mucosa status after treatment:

The Simplified Oral Hygiene index was 0.5. Oral mucosa was of pale pink color. Whitish papules, regionally merging into a characteristic pattern were identified on the buccal mucosa (reticular type of OLP). The mucous membrane of the tongue was pale pink, the regeneration of the papillae filiformes was noted, and several papules (papular type of OLP) were defined. The symptom of Kebner was negative. The 6 months follow-up demonstrated no worsening.

The current dental diagnosis was confirmed as: Oral lichen planus, combination of papular and reticular types (remission).

Discussion

Oral lichen planus is a chronic disorder with the primary role of immune system [*Manousaridis I et al., 2013*]. Since OLP is an immune-related disorder, stress and anxiety and other factors in relation with immune system can be causative factors which probably trigger this disease [*Thongprasom*

TABLE 1

Drugs for systemic therapy, treatment period 21 days

Drug name	Manufacturer, Country	Active ingredient	ATX Code and Therapeutic category	Dosage
Kreon	Solvay Pharmaceuticals, Germany	Pancreatin	A09AA02 Digestive enzymes	25 000 units 3 times a day
Trimedat,	Life Pharma, Lebanon	Trimebutine	A03AA05 Spasmolytic agent	200 *mg* 3 times a day
Alfa normix	Solvay Pharmaceuticals, Germany	Rifaximin	A07AA11 Miscellaneous antibiotic	1200 *mg*.
Motilak	Vero Pharm, Russian Federation	Domperidone	A03FA03 Antiemetic agent Prokinetic agent	10 *mg* 3 times a day
Heptor	Vero Pharm, Russian Federation	Ademetionine	A16AA02 Antidepressant Hepatoprotector Antirheumatic agent	400 *mg*.
Phosphogliv	Pharmstandart, Russian Federation	Glycyrrhizic acid + Phospholipides	A05BA Hepatoprotector	2.5 *g*
Vitamin B1	Dalchimpharm, Russian Federation	Thiamine	A11DA01 Vitamin	
Vitamin B6	Pharmstandart, Russian Federation	Pyridoxine	A11HA02 Vitamin	
Aciloc	Cadila, India	Ranitidine	A02BA02 Gastric acid secretion inhibitor Histamine H_2-receptor antagonist	50 *mg*.
Solcoseryl	Valeant Pharma, Switzerland	Proteine-free extract of calf blood	B05ZA Tissue metabolism activator	2 *ml*
Delagil	ICN, Czech Republic	Chloroquine	P01BA01 Antiprotozoal agent: Antimalarial	0.25
Claritin	Novartis Consumer Health, Switzerland	Loratadine	R06AX13 Antiallergic agent Histamine H1-receptor antagonist	1 tablet 1 time a day
Vitamin PP		Nicotinic acid	C10AD02 Vitamin	0.05 2 times a day

TABLE 2

Drugs for topical application

Product name and manufacturer	Active ingredients	ATX Code and Therapeutic category	Dosage	Treatment period
Retinol acetat	Retinol	A11CA01	3.44%	21 days
Solcoseryl dental adhesive paste	Proteine-free extract of calf blood, Lauromacrogol	A01AD11 Cytoprotective, antihypoxic, regenerative, angioprotective effect		14 days
Kenalog orabase	Triamcinolone	H02AB08	0.1%	21 days
Bluem oral rinse	Mel, Sodium Perborate, Sodium Methylparaben, Lactoferrin.			21 days
Neolactoferrin-Denta				21 days

K et al., 2008]. OLP predominantly occurs among women and involves 2-5% of the general population. The onset is possible in the 4-5th decade of life. While erosive form is rare and extremely difficult to treat, it causes substantial worsening of the patient's quality of life.

The exact etiology of OLP has not been discovered, and it is mostly considered to be a multifactorial process with different triggers such as mechanical, electrochemical, traumatic and psychological, infectious factors, malnutrition, stress, overworking and allergy, as well as endocrine disorders, salivary gland disorders, genetic susceptibility and immunological illnesses [*Vincent S et al., 1990; Torrente-Castells E et al., 2010; Bombeccari G et al., 2011*].

Since OLP is an immune deficiency disease, it might be influenced by other diseases affecting immunity. Hepatitis C is an infectious disease caused by the hepatitis C virus that primarily affects the liver. Hepatitis associated with immune system disorders, and has been considered as potential disease which might enhance the risk of OLP occurrence. The association between oral LP (OLP) and HCV infection has been reported frequently [*Nagao Y et al., 1995; Asaad T et al., 2005; Mattos Camargo Grossmann S et al., 2007*]. The risk of OLP development in patients with hepatitis B and C infection is 2-fold greater than in healthy individuals, while there is no significant relation with diabetes mellitus. However, the incidence of hepatitis C in LP patients was highly variable in different countries, ranging from 8.3% in France to 62% in Japan. Many studies have shown that 2.4–8% of patients who suffer from chronic hepatic diseases (associated with hepatitis C) have LP, too with different infection rates in different countries [*Nagao Y et al., 1995; Asaad T et al., 2005; Lodi G et al., 2010; Nosratzehi T et al., 2018*].The patient in the present clinical case was diagnosed with hepatitis C 7 years prior to the occurrence of the first symptoms of OLP.

The treatment of OLP should be complex and include sedatives, antihistamines, anti-inflammatory, antifungal drugs, hypnotics, corticosteroids, as well as retinoids, cyclosporine, and phototherapy in addition to other treatment modalities [*Pigatto P et al., 2011; Nosratzehi T et al., 2018*].

Corticosteroids are common drugs to treat OLP, however their combination with other agents can be the most effective [*Jiménez Palop M et al., 2006; Al-Janaby H et al., 2017; Bakhtiari S et al., 2017*]. A systematic review of clinical trials showed that topical corticosteroids are often effective in the management of symptomatic OLP [*Jiménez PM, 2006; Al-Hashimi I et al.,2007; Makeeva I et al., 2013; Bakhtiari S et al., 2017; Zaslansky R et al., 2018]*. Systemic corticosteroids should be only considered for severe widespread OLP and for lichen planus involving other mucocutaneous sites [*Eisen D, 1993; Jiménez P et al., 2006; Al-Hashimi I et al., 2007; Nosratzehi T, et al., 2018; Zaslansky R et al., 2018*].

Antimalarials may be useful for the treatment of oral erosive lichen planus according to the study by Rivas-Tolosa N and co-autors (2016). They are easily administered and affordable, with few adverse effects [*Rivas-Tolosa N et al. 2016*]. The mechanism by which antimalarial drugs are effective in the treatment of OELP is unknown. Their usefulness is probably due to the anti-inflammatory effects of stabilizing lysosomal membranes and inhibition of prostaglandin synthesis and other hydrolytic enzymes [*Bondeson J Jiménez Palop M 1998; Rivas-Tolosa N et al., 2016*]. Moreover, it appears that an immune dysfunction mediated by T cells can play a crucial role in the development of oral lichen planus, and increased regulatory T cells in the blood and tissues of patients with oral lichen planus are significantly higher than in healthy controls; antimalarial treatment decreases the expression of these regulatory T cells, which constitute a new therapeutic target in this disease [*Bondeson J et al., 1998*]. In our clinical case the patient was prescribed a Delagili 0.25 twice a day during 1 month.

Folic acid and variants of vitamin B are also potential treatments, since they target hematological abnormalities [*Lavanya N et al., 2011*]. Antioxidants such as vitamins are widely used in treatment of OLP, because vitamin A and E inhibits the lipid peroxidation of cell membrane, whereas vitamin C plays as a cofactor for many OLP enzymes with collagen structure stabilization role and also help Vitamin E reproduction *Yang L et al., 2006; [Lavanya N et al., 2011; Azizi A et al., 2012; Yang H et al., 2016]*.

Also, with the erosive form, it is possible to use antiseptics to prevent secondary infection. In our case we used Bluem, which contains oxygen in the active form and lactoferrin, which possess anti-inflammatory and antimicrobial properties.

Immunosuppressors are also widely used in the treatment of lichen planus, but for hepatitis C these

medications are not recommended because of adverse effects on the liver [*Sharma S et al., 2008]*.

Many patients with oral lichen planus report triggers of flares, some of which overlap with triggers of other oral diseases, including oral allergy syndrome and oral contact dermatitis. According to the study by Chen H and co-authors (2017) the emotional stress was the most commonly reported trigger. Therefore, the prescription of sedative therapy is also very important in the complex treatment of OLP [*Yang H et al., 2016*]. As the patient in this case experienced severe stress which was considered to be a trigger of OLP exacerbation, psychotherapist could have positive effect on prevention of future exacerbations.

According to the results of the study by Bombeccari Gand co-authors (2017), AST and ALT concentrations were elevated in association with exacerbation of OLP [*Bombeccari G et al., 2011*]. There fore it's important to monitor the condition of liver and to control the level of liver enzymes. In our patient the condition of liver was checked each 6 months by hepathologist and the treatment included: Pancreatin 25 000 *units*, Ademetionine 400 *mg*, Glycyrrhic acid with thePhospholipides 2.5 *g*. Since our patient was under constant control of the hepatologist and complied with all the recommendations, both given by hepatologist and by dentists, the relapse was not observed for a about two years.

Because of the ongoing controversy in the literature about the possible premalignant character of OLP, periodic follow-up is recommended [*Manousaridis I et al., 2013; Bombeccari G et al., 2017*]. The patient presents for the regular checkups 2 times a year.

CONCLUSION

This case report demonstrates the possibility of achieving of significant improvement and healing with prolonged remission period of OLP in patient with hepatitis C within a month with the use of topical corticosteroids, soft antiseptic therapy with active oxygen content, application of epithelial agents together with hormonal ointments in conjunction with hepatologist and psychotherapist.

REFERENCES

1. *Al-Hashimi I, Schifter M, Lockhart PB Wray D, Brennan M, Migliorati CA, Axell T, Bruce AJ, Carperenter W, Eisenberg E, Epstein JB, Holmstrup P, Jontell M, Lozada-Nur F, Nair R, Silverman B, Thongprasom K, Thomhill M, Warnakulasuriya S, Waal I.* Oral lichen planus and oral lichenoid lesions: diagnostic and therapeutic considerations. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2007; 103 (25): 11-12.
2. *Al-Janaby H, El-Sakka H, Masood M, Mendis W, Slack-Smith M, Parsons R, Frydrych MA.* Xerostomia and Salivary Gland Hypofunction in Patients with Oral Lichen Planus Before and After Treatment with Topical Corticosteroids, Open Dent J. 2017; 95 (4): 155-163.
3. *Arakelian MG., Tambovtseva NV, Arzukanyan AV.* [The main causes and clinical manifestations of xerostomia] [Published in Russian]. Russian Dental Journal. 2016; 20 (2): 74-78.
4. *Asaad T, Samdani AJ.* Association of lichen planus with hepatitis C virus infection. Ann Saudi Med. 2005; 25: 243-246.
5. *Azizi A, Farshchi F.* Comparison of salivary and plasma antioxidant levels in lichen planus patients and healthy subjects. J Oral Pathol Med. 2012; 41 (7): 524-526.
6. *Bakhtiari S, Azari-Marhabi S, Mojahedi SM, Namdari M, Rankohi ZE, Jafari S.* Comparing clinical effects of photodynamic therapy as a novel method with topical corticosteroid for treatment of Oral Lichen Planus. Photodiagnosis Photodyn Ther. 2017; 20 (4): 159-164.
7. *Bombeccari GP, Guzzi G, Tettamanti MG.* Oral lichen planus and malignant transformation: a longitudinal cohort study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2011; 112 (3): 328-334.
8. *Bombeccari GP, Tettamanti M, Pallotti F, Spadari F, Gianni AB.* Exacerbations of oral lichen planus and elevated levels of aminotransferases. Journal Dermatology. 2017; 56 (8): 842-849.
9. *Bondeson J, Sundler R.* Antimalarial drugs inhibit phospholipase A2 activation and induction of interleukin 1beta and tumor necrosis factor alpha in macrophages: implications for their mode of action in rheumatoid arthritis. Gen Pharmacol. 1998; 30: 357-366.

10. *Davari P, Hsiao H, Fazel N.* Mucosal lichen planus: an evidence-based treatment update. Am J Clin Dermatol. 2014; 15: 181-195.

11. *de Mattos Camargo Grossmann S, de Aguiar MC, Teixeira R, do Carmo MA.* Oral lichen planus and chronic hepatitis C: a controversial association. Am J Clin Pathol. 2007; 127: 800-804.

12. *Eisen D.* Hydroxychloroquine sulfate (Plaquenil) improves oral lichen planus: an open trial. J Am Acad Dermatol. 1993; 28: 609-612.

13. *Gerayli S, Meshkat Z, Pasdar A, Banihashemi E, Khajavi MA, Rasekhi J.* The association between oral lichen planus and hepatitis C virus infection; a report from northeast of iran. Jundishapur J Microbiol. 2015; 8: 736-741.

14. *Jiménez Palop M.* Antimalarials: an update in rheumatic diseases. Reumatol Clin. 2006; 2: 190-201.

15. *Kalkur C, Sattur AP, Guttal KS.* Role of Depression, Anxiety and Stress in Patients with Oral Lichen Planus: A Pilot Study. Indian J Dermatol. 2015; 60 (5): 445-449.

16. *Lavanya N, Jayanthi P, Rao UK Ranganathan K.* Oral lichen planus: An update on pathogenesis and treatment. J Oral Maxillofac Pathol. 2011; 15 (2): 127-132.

17. *Lodi G, Pellicano R, Carrozzo M.* Hepatitis C virus infection and lichen planus: a systematic review with meta-analysis. Oral Dis. 2010; 16: 601–612.

18. *Makeeva IM, Doroshina VYu, Arakelian MG.* [Xerostomia and means that facilitate its symptoms] [Published in Russian]. Stomatologiya. 2013; 92 (5): 12-13.

19. *Manousaridis I, Manousaridis K, Peitsch WK, Schneider SW.* Individualizing treatment and choice of medication in lichen planus: a step by step approach. J Dtsch Dermatol Ges. 2013; 11: 981-991.

20. *Misaka K, Kishimoto T, Kawahigashi Y, Sata Michio, Nagao Y.* Use of Direct-Acting Antivirals for the Treatment of Hepatitis C Virus-Associated Oral Lichen Planus: A Case Report. Case Rep Gastroenterol. 2016; 10: 617–622.

21. *Nagao Y, Sata M, Tanikawa K, Iltoh K, Kameyama T.* Lichen planus and hepatitis C virus in the northern Kyushu region of Japan. Eur J Clin Invest. 1995; 25: 910–914.

22. *Nosratzehi T, Arbabi-Kalati F, Hamishehkar H Bagheri S.* Comparison of the Effects of Curcumin Mucoadhesive Paste and Local Corticosteroid on the Treatment of Erosive Oral Lichen Planus Lesions. J Natl Med Assoc. 2018; 110 (1): 92-97.

23. *Nosratzehi T.* Oral Lichen Planus: an Overview of Potential Risk Factors, Biomarkers and Treatments. Asian Pac J Cancer Prev. 2018; 19 (5): 1161-1167.

24. *Pigatto PD, Bombeccari G, Spadari F Guzzi G.* Oral lichenoid reaction, dental amalgam, and tin allergy. Am J Dermatopathol. 2011; 33 (4): 414-415.

25. *Rabinovich OF, Rabinovich IM, Guseva AV.* [Photodynamic therapy in treatment of severe oral lichen planus] [Published in Russian]. Stomatologiya (Moscow). 2016; 95(4): 27-30.

26. *Rekha VR, Sunil S, Rathy R.* Evaluation of oxidative stress markers in oral lichen planus. J Oral Maxillofac Pathol. 2017; 21 (3): 387-393.

27. *Rivas-Tolosa N, Requena C, Llombart B, Alcala R, Serra-Guillen C, Calomarde L, Nagore E, Guillen C, Sanmartin O.* Antimalarial Drugs for the Treatment of Oral Erosive Lichen Planus. Dermatology. 2016; 232: 86-90.

28. *Sharma S, Saimbi CS, Koirala B.* Erosive oral lichen planus and its management: a case series. JNMA J Nepal Med Assoc. 2008; 47 (170): 86-90.

29. *Thongprasom K, Dhanuthai K.* Steroids in the treatment of lichen planus: a review. J Oral Sci. 2008; 50: 377-385.

30. *Torrente-Castells E, Figueiredo R, Berini-Aytés L, Gay-Escoda C.* Clinical features of oral lichen planus. A retrospective study of 65 cases. Med Oral Patol Oral Cir Bucal. 2010; 15 (5): 685-690.

31. *Vincent SD, Fotos PG, Baker KA, Williams TP.* Oral lichen planus: the clinical, historical, and therapeutic features of 100 cases. Oral Surg Oral Med Oral Pathol. 1990; 70 (2): 165-171.

32. *Yang H, Wu Y, Ma H, Jiang L, Zeng X, Dan H, Zhou Y, Chen Q.* Possible alternative therapies for oral lichen planus cases refractory to steroid therapies. Oral Surg Oral Med Oral Pathol Oral Radiol. 2016; 121 (5): 496-509.

33. *Yang LL, Liu XQ, Liu W Cheng B, Li MT.* Comparative analysis of whole saliva proteomes for the screening of biomarkers for oral lichen planus. Inflamm Res. 2006; 55 (10): 405-407.

34. *Zaslansky R, Schramm C, Stein C, Guthoff C, Schmidt-Westhausen AM.* Topical application of morphine for wound healing and analgesia in patients with oral lichen planus: a randomized, double-blind, placebo-controlled study. Clin Oral Investig. 2018; 22 (1): 305-311.