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Oral Lichen Planus: A Retrospective Comparative Study between Thai and Croatian Patients

Kobkan Thongprasom[1], Marinka Mravak-Stipetić[2], Pimporn Luckprom[3], Ivana Canjuga[2], Dolores Biočina-Lukenda[2], Danica Vidović-Juras[2], Miroslav Sikora[4], Vlaho Brailo[2], Supachote Jirawechwongsakul[3]

[1]Oral Medicine Department, Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand; [2]Department of Oral Medicine, School of Dental Medicine, University of Zagreb, Zagreb, Croatia; [3]Research Unit in Oral Diseases, Chulalongkorn University, Bangkok, Thailand; [4]Department of Maxillofacial Surgery, Osijek University Hospital, Osijek, Croatia

Corresponding author:
Professor Kobkan Thongprasom, MD, PhD
Oral Medicine Department
Faculty of Dentistry
Chulalongkorn University
Bangkok 10330
Thailand
kobkan.t@chula.ac.th

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SUMMARY Oral lichen planus (OLP) is a common oral mucosal disease that affects middle age patients. However, there are few reports about the incidence of OLP in different ethnic groups. The purpose of this study was to compare the characteristics of OLP in Thai and Croatian patients. Retrospective data were taken from medical records of 175 patients referred to the Oral Medicine Department of Chulalongkorn University and 175 patients referred to the School of Dental Medicine, University of Zagreb during the 1997-2007 period. In all patients the diagnosis of OLP was clinically and histopathologically confirmed. In Thai and Croatian OLP patients, females were predominant (the female to male ratio was 3.5:1). Croatian OLP patients were older with a significant age difference between female Thai and Croatian OLP patients ($p<0.05$). Atrophic-erosive type of OLP was common in Thai patients, whereas reticular OLP was predominant in Croatians ($p<0.001$). Burning sensation was the most common chief complaint in both ethnic groups. Significant differences between the two ethnic groups were found in the sites of OLP lesions as well as in the occurrence of pain, roughness and white patches, systemic diseases and use of medication ($p<0.05$). Croatian patients had more systemic diseases and took more medications than Thai. Three cases showed dysplasia in either group, whereas only one Thai patient developed squamous cell carcinoma. Although Thai and Croatian patients differed significantly according to the clinical type of OLP, the rate of malignant transformation was very low.

KEY WORDS: lichen planus, mouth, ethnic groups

INTRODUCTION

Oral lichen planus (OLP) is the most common oral mucosal disease in middle aged persons (1-3). Many previous epidemiological studies from various parts of the world have described clinical characteristics of OLP (4-12), whereas European OLP studies from Italy investigated the disease

association particularly with hepatitis C virus infection (13-15). Recently, general features and clinical presentations have been reported from a study in the largest cohort of patients with OLP in the United Kingdom (16). Large clinical studies of OLP in patients from China and Japan have also been published (12,17). Multicenter clinical trials of OLP patients were also performed in Singapore, South Korea, India and Thailand (18), however, there are no studies on the incidence of OLP patients in Asians. Furthermore, to our knowledge, comparative studies of OLP characteristics between different ethnic groups of Asians and Caucasians have never been conducted.

Hence, this is the first study to retrospectively compare the characteristics of OLP in Thai and Croatian patients.

METHODS

Patient groups

Data were obtained from medical records of 175 patients with clinically and histopathologically confirmed diagnosis of OLP and referred to oral medicine specialist at Department of Oral Medicine, Faculty of Dentistry, Chulalongkorn University and Department of Oral Medicine, School of Dental Medicine, University of Zagreb each. Relevant retrospective data included demographic and clinical features (main symptoms, medical history, history of medications, family history and dental history, histopathologic and blood studies) and were recorded in the same data form especially designed for this study, and evaluated by several oral medicine specialists using the same criteria (16). Clinical and histopathologic data of OLP patients were reviewed by the first and second author. Since OLP almost always displays more than one clinical type, the diagnosis of OLP was established according to the prevailing clinical presentation.

Clinical criteria for OLP

On establishing OLP diagnosis, five clinical diagnostic criteria from the International Consensus Meeting in Chamonix, France, 2003 (19) and Ingafou *et al*. from 2006 (16) were used as follows:

Reticular type = keratotic white striae arranged in reticular pattern only

Papular type = keratotic white elevated pinhead sized papules

Plaque type = white patch with or without erythematous area

Atrophic-erosive type = erythematous and/or erosive with or without keratotic white striae
Ulcerative type = well defined ulceration with bleeding with or without white striae

Other forms:

Bullous type = presence or development of bullous areas

Pigmented type = brown-black pigmented areas around white striae

Patients with the diagnosis of lichenoid lesions, clinically similar to OLP but of unilateral distribution or in direct topographic relationship to the suspected causative agent, most commonly amalgam, or possibly related to systemic drug use known to cause lichenoid reaction (2,20-22) were excluded from the study. Data on concurrent skin lesions were noted in the records of each patient and analyzed.

Data analysis

All recorded data were reviewed and double checked between the two institutions. Data processing by SAS 9.1 for Windows was completed (SAS Institute Inc., Cary, NC, USA). The χ^2-test and Fisher exact test were used to test differences between the Thai and Croatian OLP patient data. Statistical significance was set at the level of $p<0.05$.

RESULTS

Patient sex and age at OLP onset

The majority of OLP patients in both ethnic groups were females. In Thais, 77.71% of OLP patients were female and 22.29% were male, yielding a female to male ratio of 3.5:1, almost identical to Croatian patients (female 77.14% and male 22.85%). Age comparison of OLP patients between the two ethnic groups showed the Croatian OLP patients to be generally older than Thais and females to be older than males. The mean age of Thai OLP patients was 50.40±13.67 (mean ± SD) years, age range 17-80 (median 48.5) years. The mean age of Croatian patients was 61.16±12.7 years, age range 19-87 (median 53.0) years. There was a statistically significant age difference between Thai and Croatian female OLP patients ($p<0.05$) (Fig. 1).

Regarding OLP occurrence in young adults, the youngest Thai patient was aged 17 and 14 Thai patients developed OLP before age 29. In the Croatian group, only two females developed OLP at a young age, i.e. one at age 19 and 21 each.

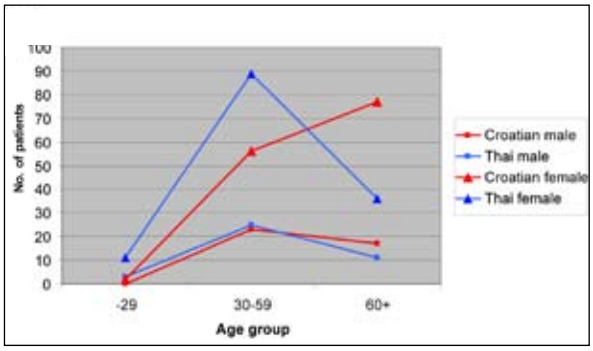

Figure 1. Age and sex of Thai and Croatian patients with oral lichen planus.

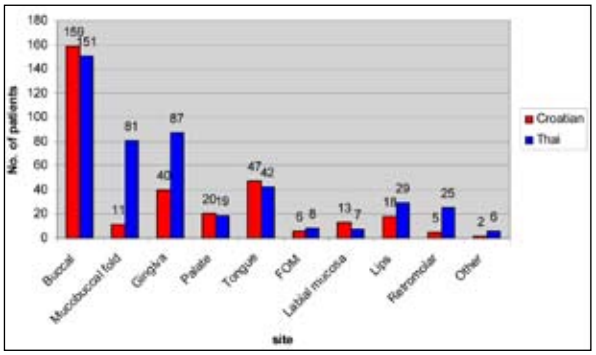

Figure 2. Site of oral lichen planus lesions in Thai and Croatian patients.

The duration of OLP varied from 3 days to 300 months (26.70±43.05 months) in Thai patients and from 1 to 240 months (42.4±51.40 months) in Croatian patients.

Three pairs of OLP Thai patients were from the same family and in the Croatian group only one had a positive family history confirmed by clinical and histopathologic analysis. Skin lesions were present with OLP lesions only in three Thai and five Croatian patients. These patients were followed-up by a dermatologist.

The main symptoms in OLP

Burning sensation was the most common main complaint in both ethnic groups (Table 1). Patients with keratotic white lesions complained of asymptomatic roughness, whereas patients with erosive, atrophic or ulcerous or mixed forms complained of symptoms that varied from discomfort and burning sensation to severe pain.

The site and type of the OLP lesions

Buccal mucosa was the most commonly affected site in both groups (Fig. 2), although differences were noted in the occurrence of lesions at other oral sites. Regarding the type of OLP, predominant lesions in Thai patients were atrophic-erosive, found in 84% of cases, while reticular lesions were most common in Croatian patients (66.9%). Uncommon types were bullous and papular OLP lesions in both groups (Fig. 3). Desquamative gingivitis was found in 24 Croatian patients with confirmed diagnosis of OLP. Statistically significant differences were found in all types of OLP between Thai and Croatian patients ($p<0.05$).

Systemic diseases and conditions in OLP

The incidence of various systemic diseases in Thai and Croatian OLP patients is shown in Table 2. The majority of OLP patients in both groups had more than one systemic disease and took more than one medication (Tables 2 and 3). Liver disease (including hepatitis and cirrhosis) was detected in 42 Croatian OLP patients and all these patients had atrophic-erosive type of OLP. Croatian and Thai OLP patients differed significantly according to the prevalence of systemic diseases except for diabetes mellitus, thyroid and heart diseases ($p<0.05$). Since hypertension was the most common disease found in both Thai (25.1%) and Croatian (43.4%) OLP patients, antihypertensive drugs were also most frequently used in both groups, i.e. 22.9% and 42.3% patients, respectively. Most Croatian patients with gastrointestinal disease (36.6%) had a history of taking NSAIDs, commonly used medications (Table 3). There were

Table 1. Symptoms in Thai and Croatian patients with oral lichen planus

Chief complaints	Thai (%)***	Croatian (%)***	χ^{2*}	p
Burning sensation	133 (76%)	129 (73.7 %)	0.243	0.622
Pain	65 (37.1%)	105 (60 %)	18.301	<0.001
Roughness	5 (2.9%)	76 (42.4 %)	77.296	<0.001
White patch	4 (2.3%)	81 (46.3 %)	91.630	<0.001
Others**	2 (1.1%)	8 (4.5 %)	3.706	0.054
No symptoms	10 (5.7%)	5 (2.9 %)	1.653	0.199

*DF=1; **bleeding, dryness, dysgeusia; ***simultaneous occurrence of several chief complaints in one patient

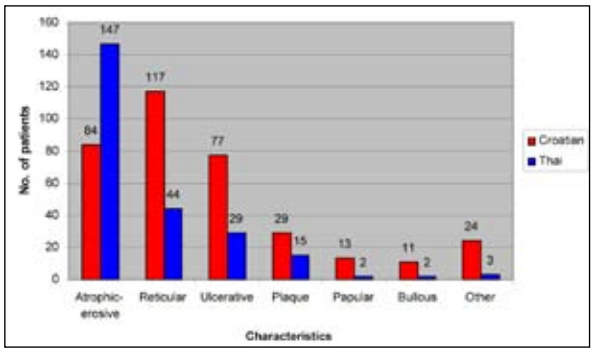

Figure 3. Type of oral lichen planus lesions in Thai and Croatian patients.

statistically significant differences in medications used between Thai and Croatian OLP patients.

Dysplasia and malignant transformation

Three Thai OLP patients showed dysplasia and one patient with long-standing atrophic-erosive type for more than 25 years developed squamous cell carcinoma. In Croatian OLP patients, three showed dysplasia but none of these lesions transformed to carcinoma during the observation period.

DISCUSSION

Our study confirmed previous findings that OLP is typically a middle aged female disease (2,9,16,18). Female predominance was also noted in many other studies from Italy and the UK (13-16,23). A study of 674 patients with OLP in China showed a female to male ratio of 1.9:1, which is different from Thai patients belonging to the same Asian ethnic population (12).

According to ethnic background, OLP affects all racial groups (16,24). Previous studies have reported that up to 2.4% of Caucasians (7,24,25) as compared to 0.02% to 1.5% of the Indian population developed OLP (26).

OLP in younger patients is uncommon. Although a rare finding, the occurrence of OLP in young persons should alert one to rule out the possible mechanical trauma (Koebner phenomenon), underlying systemic diseases associated with other autoimmune diseases, or even a paraneoplastic process (27).

Regarding the site of OLP lesions, buccal mucosa was the most common site of OLP in both groups, which is similar to previous reports (9,16,18). However, mucobuccal fold, gingiva and retromolar region were significantly more frequently affected in Thai than in Croatian patients.

Surprisingly, there were statistically significant differences in almost all types of OLP between Thai and Croatian patients. Atrophic-erosive type of OLP was the most common finding in Thais, whereas reticular type was predominant in Croatians, as also shown in a previous Croatian study (28) and studies from Spain, China and Japan (9,12,17). On the other hand, the ulcerative type of OLP was more commonly found in Croatian than in Thai patients. Since some previous studies provide evidence for differences in the expression of class II major histocompatibility antigens (HLA-DR/Ia) in lichen planus in comparison to nor-

Table 2. Systemic diseases and conditions in Thai and Croatian patients with oral lichen planus

Systemic diseases/ conditions	Thai *(%)	Croatian *(%)	χ^{2**}	p
No systemic disease	52 (29.7%)	28 (16.0 %)	9.333	0.002
Allergy	57(32.6%)	30 (17.1 %)	11.151	0.001
Hypertension	44 (25.1%)	76 (43.4 %)	12.986	<0.001
Diabetes mellitus	17 (9.7%)	26 (14.9 %)	2.148	0.143
Hyperthyroidism	15 (8.6%)	6 (3.4 %)	4.103	0.043
Liver diseases	13 (7.4%)	42 (24.0 %)	18.142	<0.001
Heart diseases	11 (6.3%)	26 (14.9 %)	6.800	0.009
Gastrointestinal diseases	7 (4.0%)	64 (36.6 %)	57.406	<0.001
Arthritis	6 (3.4%)	27 (15.4 %)	14.755	<0.001
Blood diseases	2 (1.1%)	18 (10.3 %)	13.576	<0.001
Sexually transmitted diseases	2 (1.14%)	0 (0%)	-	-
Others	44 (25.1%)	74 (42.3 %)	11.506	<0.001

*One patient had more than one disease or systemic condition; **DF=1

Table 3. Medications used in Thai and Croatian patients with oral lichen planus

Medication	Thai * (%)	Croatian (%)*	χ^{2**}	p
No medication	69 (39.4%)	37 (21.1 %)	13.857	<0.001
Antihypertensive	40 (22.9%)	74 (42.3 %)	15.039	<0.001
Antilipemics	14 (8%)	5 (2.9 %)	4.508	0.034
Antidiabetics	12 (6.9%)	14 (8.0%)	0.166	0.684
Antithyroid	12 (6.9%)	3 (1.7 %)	5.642	0.018
NSAIDs	10 (5.7%)	48 (27.4 %)	29.842	<0.001
Antibiotics	2 (1.1%)	41 (23.4 %)	40.327	<0.001
Others#	55(39.43%)	72 (41.1 %)	3.572	0.059

*One patient was taking more than one medication; #miscellaneous drugs that OLP patients were taking occasionally and at the time of first visit, e.g., vitamin, hormone, antianxiety agent, muscle relaxant, antihistamine, antineuralgic, anticoagulant, herbal, antidepressant; **DF=1

mal epithelium and lichenoid drug eruptions (29), probably HLA analysis could provide an explanation for differences in various clinical types of OLP between the two different ethnic groups.

Among all symptoms described, burning sensation was the most common main complaint of Thai and Croatian patients with OLP. As Thai patients eat hot and spicy food, they may detect lesions earlier than Croatian patients, which could explain why Thai patients come to seek oral medicine specialist at a younger age.

Interestingly, pain was present in 60% of Croatian and only 37% of Thai patients. Significant differences in pain, roughness and white patches between the Croatian and Thai populations were determined by differences in the clinical types of OLP.

Considering systemic diseases, hypertension was the most common disease in both Croatian and Thai OLP patients. The association of OLP with diabetes mellitus and hypertension has been previously well-documented (2,30). However, our study did not support this observation. Although some of our patients had diabetes mellitus, when compared with the general population the prevalence of diabetes in our groups was within the limits (14.9% in Croatian and 9.7% in Thai patients with OLP). According to the published national epidemiological data (31,32), the incidence of systemic diseases in Croatian and Thai OLP patients does not differ from the prevalence of these diseases in the respective general population.

As shown, Croatian OLP patients take significantly more medications than Thais. Antihypertensive drugs were the most common medications in both groups, although Croatians took these drugs almost twice as often as Thais.

Three Thai OLP patients showed mild dysplasia, one of them heavy smoker for 15 years. One patient with long-standing atrophic-erosive type for more than 25 years developed squamous cell carcinoma of buccal mucosa. This finding was similar to a previous report regarding the site at highest risk of cancer in OLP, i.e. buccal mucosa (33). However, this association is still controversial in many studies (6,11,34-37). Close follow-up is recommended in case of long-standing atrophic-erosive OLP as well as in other types of OLP, particularly due to the long-standing nature of OLP and, unlike cutaneous lichen planus, the possible neoplastic transformation. A study conducted in Italy showed that OLP patients had a significantly higher risk of oral cancer in comparison to the general population and this risk was higher in women (38). Although the rate of malignant transformation in Thai and Croatian OLP patients was found to be low, similar to previous studies (16,39), follow-up OLP patients is mandatory and patients should be informed on the potential link of OLP and oral cancer, especially in those with risk habits such as smoking.

Although the results of this study reflect the findings in two selected ethnic groups of OLP patients, clinical characteristics and demographic profiles of our OLP patients were in agreement with other population studies. Also, the prevalence of systemic diseases among our OLP patients did not differ from those in the general population; therefore it cannot be concluded about etiologic association between OLP and a particular systemic disease or medication.

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