

## Prevalence of Oral Mucosal Lesions in Geriatric Patients Living in Lower Northern Thailand: A 10 Years Retrospective Study

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### Abstract

Thailand is experiencing among the most rapid rates of population aging in the developing countries. According to the demographic data, growth rate of the Thai older population is rapidly increased, resulting in an inevitable aging society in Thailand. Elderly population is at higher risk of oral mucosal lesions (OMLs) compared to younger people due to age-related changes of oral mucosa.

This study was conducted in order to investigate an epidemiological data on OMLs in patients attending Oral Diagnosis and Oral Medicine Clinic at Dental Hospital, Faculty of Dentistry, Naresuan University, Thailand based on a 10-year retrospective study. Data of 2,310 elderly dental patients were collected and analyzed. Sixty-two percent of the overall subjects had at least one systemic disease and 59.65% reported taking certain type of medications. Hypertension was the most common systemic condition reported in those patients (45.97%), followed by diabetes (15.24%) and cardiovascular disease (10.69%). One hundred and sixty-six (7.19%) patients were diagnosed with at least one oral lesion. Traumatic ulcer was the most common oral lesions with the prevalence of 1.52% (35 patients). Denture stomatitis and angular cheilitis were detected in 28 (1.21%) and 27 (1.17%) patients, respectively. Although the most common OMLs observed in this study were benign, there were particular patients with premalignant and malignant lesions.

Thus, a periodic oral examination for the detection of those lesions is strongly encouraged in elderly population.

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### Introduction

Population aging becomes a major global demographic phenomenon in the current century. The trend in an increasing number of elders is dominated by the rapid growth of the older population in the developing countries.<sup>1</sup> Recently, Thailand is experiencing among the most rapid rates of population aging in the developing countries.<sup>2</sup> According to the demographic data, the growth rate of the Thai older population is rapidly increased, resulting in an inevitable aging society in Thailand.<sup>3</sup>

Elderly population is at higher risk of oral mucosal lesions (OMLs) compared to younger people due to age-related changes of oral mucosa.<sup>4,5</sup> With advancing age, the oral epithelium has been reported to be thinner with connective tissue descending of collagen synthesis resulting in decreased of tissue regeneration and disease resistance.<sup>5,6,7</sup> A decline in the protective functions of the oral mucosa contributes to higher susceptibility to pathogens and noxious substances exposure.<sup>5</sup> Furthermore, the imbalance between the antioxidants and oxidants can also induce the appearing of oral pathological lesions.<sup>8</sup> Although many OMLs are not life-threatening in and of themselves, they still have negative impacts on the quality of life of patients due to increased difficulties in mastication, swallowing and speech, leading in functional and psychosocial deficits of individuals with oral lesions.<sup>9</sup> Thus, early

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detection of these lesions plays a key role in prognosis and treatment of the diseases. It is important for clinicians to be able to recognize, diagnose and treat pathologic oral conditions occurs in older people which will significantly improve clinical outcome and quality of life of the patients.

There have been several epidemiological studies on the OMLs of the elders from Yemen, Iran, Turkey, Brazil, Venezuela, Nigeria, Chile, Canada, Germany, India, China and Thailand.<sup>5, 6, 10-23</sup> Nevertheless, the current information on the geriatric OMLs is scarce. To our knowledge, there has been no study on the prevalence of OMLs in dental patients in lower northern region of Thailand. Hence, the present study was conducted in order to investigate an epidemiological data on OMLs in patients attending Oral Diagnosis and Oral Medicine Clinic at Dental Hospital, Faculty of Dentistry, Naresuan University, Thailand based on a 10-year retrospective review from 2005 to 2014. The finding was expected to provide more precise epidemiological data that will be useful to determine epidemiology of OMLs in patients resides in lower northern region of Thailand and will help dental professionals working in this area to promote optimal oral health care among those patients.

### Materials and methods

This retrospective study consisted a sample of 2,310 elderly dental patients (aged 60 years or above) who attended Oral Diagnosis and Oral Medicine Clinic at Dental Hospital, Faculty of Dentistry, Naresuan University, Thailand, from January 2005 to December 2014. The study samples included geriatric subjects who only lived in the lower northern region of Thailand. Data were obtained from dental records with adequate information included demographic features, medical history, medications, history of smoking, history of alcohol consumption and clinical findings with diagnoses. Exclusion criteria were those of patients aged under 60 years old, those which lived outside the area of interest and those which were incompletely recorded.

The clinical diagnosis was established according to the diagnostic criteria described in the World Health Organization (WHO) guide to epidemiology and diagnosis of oral mucosal

diseases.<sup>24</sup> Normal structures and normal variations are excluded from this study. The collected data were analyzed using the SPSS 17.0 software and reported as descriptive statistics. This study was approved by Naresuan University ethical committee (IRB No. 300/58)

Factors	Subjects (n=2,310)		
	Oral mucosal lesions (%)	No oral mucosal lesions (%)	Total (%)
<b>Gender</b>			
Male	67 (2.90)	1,090 (47.18)	1,157 (50.09)
Female	99 (4.29)	1,054 (45.63)	1,153 (49.91)
Total	166 (7.19)	2,144 (92.81)	2,310 (100)
<b>Age</b>			
60-69	89 (3.86)	1,448 (62.68)	1,537 (66.54)
70-79	62 (2.68)	575 (24.89)	637 (27.58)
80-89	14 (0.61)	118 (5.11)	132 (5.71)
90 or older	1 (0.04)	3 (0.13)	4 (0.17)
Total	166 (7.19)	2,144 (92.81)	2,310 (100)
<b>Systemic diseases</b>			
Yes	109 (4.72)	1,333 (57.71)	1,442 (62.42)
No	57 (2.47)	811 (35.11)	868 (37.58)
Total	166 (7.19)	2,144 (92.81)	2,310 (100)
<b>Current medications</b>			
Yes	104 (4.50)	1,274 (55.15)	1,378 (59.65)
No	62 (2.68)	870 (37.66)	932 (40.35)
Total	166 (7.19)	2,144 (92.81)	2,310 (100)
<b>Smoking</b>			
Yes	24 (1.04)	169 (7.32)	193 (8.35)
No	142 (6.15)	1,975 (85.50)	2,117 (91.65)
Total	166 (7.19)	2,144 (92.81)	2,310 (100)
<b>Alcohol consumption</b>			
Yes	11 (0.48)	274 (11.86)	285 (12.34)
No	155 (6.71)	1,870 (80.95)	2,025 (87.66)
Total	166 (7.19)	2,144 (92.81)	2,310 (100)

**Table 1.** The prevalence of oral mucosal lesions according to age, gender, medical history, history of smoking and alcohol consumption in 2,310 elderly patients.

### Results

Of the 2,310 elderly dental patient records, 1,157 (50.09%) were men and 1,153 (49.91%) were women. The average age for men and women were 67.39 ± 6.20 years and 68.00 ± 6.75 years, respectively. The patients can be

clustered into four age groups: 60 – 69 years, 70 – 79 years, 80 – 89 years (5.71%), and 90 years and older (0.17%). The study found that most of the subjects were piled up in 60 – 69 years age group (66.54%). Numbers of subject were decreased in higher age groups compare to the lower ages. (27.58% for 70 – 79 years age group, 5.71% for 80 – 89 years age group and 0.17% for 90 years and older respectively).

Oral mucosal lesions	Subjects (n=2,310)	
	Number	Percentage
Traumatic ulcer	35	1.52
Denture stomatitis	28	1.21
Angular cheilitis	27	1.17
Oral candidiasis	24	1.04
Lichen planus	16	0.69
Glossitis	11	0.48
Irritating fibroma	10	0.43
Squamous Cell Carcinoma	8	0.35
Recurrent aphthous stomatitis	7	0.30
Frictional keratosis	7	0.30
Leukoplakia	7	0.30
Nicotinic stomatitis	7	0.30
Other benign tumors	7	0.30
Inflammatory fibrous hyperplasia	5	0.22
Mucocele	3	0.13
Hairy tongue	2	0.08
Mucous membrane pemphigoid	2	0.08
Amalgam tattoo	2	0.08
Erythroleukoplakia	2	0.08
Lichenoid reactions	2	0.08
Median rhomboid glossitis	1	0.04
Radiation-induced oral mucositis	1	0.04
Chemotherapy-induced oral mucositis	1	0.04
Smoker's melanosis	1	0.04
Other lesions*	12	0.52

\* Other lesions included submucous fibrosis, non-specific chronic inflammation, erythema multiforme, and pyogenic granuloma.

**Table 2.** The prevalence of oral mucosal conditions in study groups.

Sixty-two percent of the overall subjects had at least one systemic disease and 59.65% reported taking certain type of medications. Hypertension was the most common systemic condition reported in those patients (45.97%), followed by diabetes (15.24%) and cardiovascular disease (10.69%), respectively. A total of 8.35% of the subjects were smokers and 12.34% reported alcohol consumption. Interestingly, 166 (7.19%) patients were diagnosed with at least one oral lesion. Table 1 demonstrates the prevalence of OMLs according to age, gender, medical history, and history of smoking and alcohol consumption. The majority of the oral lesions were reported in patients aged between 60 – 69 years (3.85%), followed by age of 70 – 79 (2.68%).

Table two illustrates the prevalence of various oral mucosal conditions observed in this study. Of 166 OMLs, Traumatic ulcer was the most common oral lesions with the prevalence of 1.52% (35 patients). Denture stomatitis and angular cheilitis were detected in 28 (1.21%) and 27 (1.17%) patients, respectively. Other lesions

included submucous fibrosis, non-specific chronic inflammation, erythema multiforme, and pyogenic granuloma were variably found in 12 patients (0.52%). There were eight reports of squamous cell carcinoma (0.35%). Histopathologic studies were performed to confirm a diagnosis of malignancy in all those cases.

## Discussion

The purpose of the present study was to evaluate the prevalence of oral mucosal lesions in geriatric population which was, to the best of our knowledge, the first study to provide data among an elderly population particularly in the lower northern region of Thailand.

The prevalence of OMLs of the subjects in this study was 7.19% with a higher prevalence in women (4.29%) compared to men (2.90%), which is consistent with several studies.<sup>6, 11, 13 - 15, 17, 19</sup> Interestingly, this study have shown a decrease in the prevalence of OMLs in advanced age patient. The highest prevalence was observed in the patients aged of 60 – 69 year old group (3.86%) as compared with other three older age groups (2.68% in 70 – 79 year old group, 0.61% in 80 – 89 year old group and 0.04% in 90 years and older group). This finding is in accordance with those studies in Yemen, Venezuela and Chile.<sup>5, 16, 18</sup> However, this result is not in line with the previous elderly Thai population study reported by Jai Kittivong *et al.*<sup>6</sup> in 2002, in which the prevalence increases with age. The plausible explanation is that there were a larger number of samples in the youngest group (66.54% of all subjects) in the present study compared with other age groups (27.58%, 5.71% and 0.17% in other three older age groups respectively).

The most frequent observed oral lesion was a traumatic ulcer (1.52%), followed by denture stomatitis (1.21%), angular cheilitis (1.17%) and oral candidiasis (1.04%). These findings may be associated with denture used, which are consistent with several studies that most mucosal changes in the elderly have been reported in the denture wearers.<sup>6, 22, 25</sup> The prevalence of traumatic ulcer and denture stomatitis in this study may be due to ill-fitting dentures and poor denture hygiene. Smoking and alcohol consumption seem to be not likely related with the occurrences of OMLs in this study.

The prevalence of oral lesions in geriatric patients in the current study, however, is more likely to be underestimated. The main limitation of this study is the fact that it is a retrospective study based on patient records, which were recorded by different dentists through several years. Besides, the diagnosis of OMLs was performed using WHO diagnostic criteria, most of the diagnosis of OMLs in this study based on clinical examination without histopathological findings which might lead to misdiagnosis in some lesions.

### Conclusions

In conclusion, the present study has provided information about the epidemiologic aspects of oral mucosal lesions in the certain geriatric population in lower northern region of Thailand. It will be beneficial for dental professionals in order to promote an optimal oral health care among those patients. Although the most common OMLs observed in this study were benign, there were particular patients with premalignant and malignant lesions. Thus, a periodic oral examination for the detection of those lesions is strongly encouraged in elderly population.

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### Declaration of Interest

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