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## Prevalence of Oral Precancerous Lesions in a Selected Turkish Population

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**Abstract:** Oral cancers are malignancies that have high metastasis potential and thus survival rate of the patients is low. Today, epidemiological studies are being widely conducted on precancerous lesions, defined as predecessor lesions. In order to investigate the prevalence of oral precancerous lesions among Turkish people, 2000 consecutive outpatients who referred to our clinic for routine dental treatment, were examined. The proportion of lesions with potential to transform into cancer was 4.0%. It was concluded that leukoplakia and lichen planus

were the most commonly observed precancerous lesions. All lesions had male propensity and the most affected site was the buccal mucosa. Smoking, in particular, was found to play an important role in the development of precancerous lesions. The findings of this study provide information about the prevalence of lesions that have potential to transform into oral cancer in a selected Turkish population.

**Key Words:** Precancerous lesions, oral mucosa, epidemiology, prevalence

### Introduction

Cancer is a major cause of disease and death throughout the world (1). Oro-pharyngeal cancer is one of the six most frequently occurring cancers. Oral cancer is often preceded by specific lesions and conditions that are called precancerous (2-5). Different lesions have been reported to have potential to transform into cancer. Among these, the most frequently mentioned are leukoplakia, lichen planus, erythroplakia, oral submucous fibrosis and nicotine stomatitis. There are a number of studies about oral lesions, but to our knowledge, there is no epidemiological study on oral precancerous lesions in Turkey. The aim of this study was to investigate the prevalence of oral precancerous lesions in a selected population in Turkey to obtain pilot data useful in planning an oral health database for the country.

### Materials and Methods

In the period July 1998-February 2001, 2000 consecutive outpatients who visited Ankara University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, for routine dental treatment were included. Patients consisted of 1073 women (53.6%) and 927 men (46.4%), age range 9 to 80 with a mean of 25.2.

The patients were examined in a dental chair, using artificial light and mouth mirrors. The examinations were carried out by the same investigator. Clinical criteria for the diagnosis of precancerous lesions and conditions were based on widely accepted international criteria and WHO codes. Participants, after receiving detailed information about the procedure, filled out a precoded questionnaire about tobacco and alcohol use, dietary habits with respect to spicy food, denture wearing and subjective complaints. Suspected lesions were biopsied after the informed consent of the patients had been obtained.

### Results

The age and sex distributions of the participants are shown in Table 1. In 80 of the 2000 individuals (4.0%), oral precancerous lesions were detected. Oral leukoplakia was found in 50 patients (2.5%). Forty-three were men (86%) and seven were women (14%) with a mean age of 37. Forty-four of the lesions were homogeneous type (88%) and six were non-homogeneous type (12%). Candidal infection was found in the palatal and buccal mucosa of four patients (8%). The most frequent site of oral leukoplakia was the buccal mucosa (62.5%) followed by the hard palate (14.2%), retromolar region (8.5%),

Table 1. Age and sex distribution of the 2000 individuals examined.

Age	Male		Female		Total	
	n	%	n	%	n	%
≤ 19	148	7.4	196	9.8	344	17.2
20-29	272	13.6	355	17.7	627	31.3
30-39	131	6.5	144	7.2	275	13.7
40-49	162	8.1	220	11	382	19.1
50-59	114	5.7	89	4.4	203	10.1
60 ≤	100	5	69	3.4	169	8.4

tongue (8.5%) and gingiva (5.7%). Analyzing the etiological factors, mechanical factors (chronic cheek biting, and bad fitting removable and fixed dentures) were found in four patients (30.7%). Tobacco and alcohol use, and spicy food consumption were found in 61.5% of the patients.

Lichen planus was detected in 22 patients (1.1%) of whom eight were men (36.3%) and 14 were women (63.7%) with a mean age of 33. Lesions were localized in buccal mucosa in ten patients (45.4%), retromolar region in five patients (22.7%), tongue in five patients (22.7%) and hard palate in two patients (9.09%). Fifteen of the detected lichen planus lesions were reticular form (68.1%), five were atrophic form (22.7%) and two were plaque form (9.09%). Lesions in the retromolar and buccal regions were symmetrical in five patients. Smoking was the suspected etiological factor in 12 patients, whereas in ten patients no obvious causative factor could be found.

Erythroplakia was detected in three patients (0.15%). It was in plaque form in the buccal mucosa of one female patient, and in two male patients it was seen as a reddish white region (erythroleukoplakia) in the gingiva.

Stomatitis nicotina was diagnosed in three male patients, of whom two were smoking pipe and one cigarette. Oral submucous fibrosis was not detected in any of the examined patients. The detected precancerous lesions did not cause any subjective symptom and they were first diagnosed in the clinic. Locations of the detected lesions are given in Table 2.

Of the 2000 individuals examined, 148 (7.4%) were smoking tobacco, ten (0.5%) were regularly drinking

Table 2. Localization of the detected precancerous lesions.

	Buccal mucosa	Tongue	Hard palate	Retromolar region	Gingiva
n (lesion)	50	8	10	8	4
%	62.5	10	12.5	10	5

alcohol and 12 (0.6%) were doing both. Forty-five of the 80 patients diagnosed with oral precancerous lesions (56.2%) were smoking tobacco, four (5.0%) were regularly drinking alcohol and five (6.2%) were doing both.

**Discussion**

Prevalence studies in dentistry are mostly based on either the examination of total population samples or dental outpatients (6,7). There are few studies reporting oral precancerous lesions in a general population due to the difficulties of the method. Examination of dental outpatients is easier to perform but it does not give information about the whole population.

Oral leukoplakia is one of the most frequently encountered white lesions in clinics. It is generally seen at ages between 50 and 70 with a male preponderance. The prevalence of oral leukoplakia based on epidemiological data from different countries over the last 30 years varies from 1% to 13% with a mean value of 3% (1). The buccal mucosa, floor of the mouth, lateral tongue and soft palate have the highest rate of localization (5,6,8). In our study 62.5% of the oral leukoplakia was located in the buccal mucosa, which is quite a high rate when compared to those of previous studies. Erythroplakia is seen less frequently than leukoplakia but it is more life threatening (4). Waldron and Shafer (9) studied 58 cases and found that 51% were early invasive carcinoma in situ or severe dysplasia. In our two patients displastic changes were detected on microscopic examination. Erythroleukoplakia is a lesion with a high malignant potential (4). In this study the prevalence was low but many of them may progress to cancer in a short time, which necessitates a close follow-up of patients.

Oral lichen planus, considered a precancerous condition, is generally located bilaterally and its etiology is not fully understood (7,10,11). Axell and Rundquist (12) found a prevalence of 1.9% among Swedish people and

Axell et al. (13) reported rates of 3.8% and 2.1% in Thai and Malaysian outpatients respectively.

One of the lesions caused by nicotine use is stomatitis nicotina (14). It has a characteristic clinical feature in cigarette and pipe smokers. Recession may be seen if the patient stops smoking.

Oral submucous fibrosis is commonly seen in India and Southeast Asia but it can be encountered all over the world due to high migration rate (15). We did not see any cases, possibly because the habit of areca nut chewing, which is considered the major causative factor, is not common in Turkey.

The relative risk of oral cancer is increased between ten and 15-fold in smokers and fivefold in those who chew tobacco. Those who stop smoking can halve their risk of developing oral cancer within a decade. Alcohol and nicotine consumed together develop a synergistic affect on carcinogenesis and multiply the risk of oral cancer. It has been estimated that such cancers in tobacco and alcohol users develop about 15 years earlier than in people who neither smoke nor drink (16-20). In Turkey, alcohol and tobacco consumption rates are increasing,

especially among young people; however, the low rate of alcohol and tobacco use in our study may be attributable to hesitation of patients to report it to a doctor.

Today, cancer is one of the leading threats to human life. Studies on precancerous lesions are very important since it is known that oral cancers still cannot be diagnosed adequately in early stages. The role of the dentist in detecting oral carcinomas and premalignant lesions is crucial. The prevalence of oral precancerous lesions varies from 2% to 4% according to the investigated population. In our study, the prevalence rate of 4.0% does not reflect the whole population but provides information on the epidemiological aspects of oral precancerous lesions, which may prove valuable in planning future oral health studies and implementing preventive programs in Turkey.

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