

# A 15-year retrospective study of 160 cases of benign lip lesions

S ARSLAN<sup>1</sup>, B ÇOBANOĞLU<sup>2</sup>, A URAL<sup>1</sup>, İ SAYĞIN<sup>3</sup>, A Ü IŞIK<sup>1</sup>

Departments of <sup>1</sup>Otorhinolaryngology and <sup>3</sup>Pathology, School of Medicine, Karadeniz Technical University, Trabzon, and <sup>2</sup>Department of Otorhinolaryngology, Kamuni Training and Research Hospital, Trabzon, Turkey

## Abstract

**Objective:** This study aimed to describe the results of a retrospective analysis of a specific cohort of patients with benign lip lesions encountered in the last 15 years in the School of Medicine at Karadeniz Technical University.

**Method:** A total of 312 patients were managed for lip lesions during the period 2000–2014. Data from 160 samples of benign lip biopsies were retrieved from the pathology laboratory records.

**Results:** The study group included 20 different histopathological types of lesions, with mucocele being the most frequent lesion (43.13 per cent). The other frequent lesions were chronic inflammatory infiltrate (11.25 per cent), intradermal naevus (5.63 per cent), pyogenic granuloma (5.63 per cent), fibroma (5 per cent) and papilloma (5 per cent). Mucocele was significantly more common in younger patients ( $p < 0.001$ ).

**Conclusion:** Knowledge of the epidemiology and distribution of oral mucosal lesions is essential to promote early diagnosis and treatment. Further epidemiological studies exploring the causal relationships and risk factors for lip lesions are necessary for a better understanding of lip diseases.

**Key words:** Lip Diseases; Oral Mucosa; Benign Neoplasms; Epidemiology

## Introduction

Miscellaneous benign and malignant lesions can occur at the lips, which form the border between the exterior skin of the face and the interior mucous membrane of the oral cavity. The lips are soft and mobile, and serve as the first barrier to the oral cavity, as well as aiding in the articulation of sound and speech. Because of their anatomical site, the lips are constantly exposed to various irritants such as ultraviolet light, chemicals, cold and heat, and minor trauma. These factors play a substantial role in the aetiology of some specific groups of lesions. Furthermore, manifestations of systemic diseases can appear as lip lesions. The lips are a site of presentation for benign and malignant lesions of various histopathological types because of the diversity of tissue types they comprise. In this respect, the lips, which are commonly grouped and analysed as part of the oral cavity, should be considered as a distinct anatomical site.

Knowledge of the epidemiology, distribution and aetiology of oral mucosal and lip lesions as a subset of oral pathologies is of great importance, in order to establish early diagnosis, and to promote primary prevention and prompt treatment. However, few retrospective studies have focused on benign lip lesions,<sup>1,2</sup> and the volume of literature in this area is largely composed of case reports of rare pathologies and case series.

This study aimed to describe the results of a retrospective analysis of a cohort of patients with benign lip lesions managed over the last 15 years at the Department of Otorhinolaryngology of Karadeniz Technical University School of Medicine.

## Materials and methods

Data from 312 oral biopsy samples taken during the period 2000–2014 were collected from the histopathology report database. A total of 160 benign lip lesion cases were included in the study. The remaining 152 cases of malignant histopathology were excluded from the present analysis. Patient records of demographic variables, such as age, sex and occupation, and related features, such as lesion size, lesion site and recurrence state, were retrieved for all cases.

Data were analysed using the SPSS statistical software program, version 15.0 (SPSS, Chicago, Illinois, USA). The Kolmogorov–Smirnov test was used to check the age dataset for normality of distribution. Differences between groups were evaluated using the Student's *t*-test, one-way analysis of variance and Tamhane's post hoc tests. The study protocol was approved by the Committee of Ethics of Karadeniz Technical University.

## Results

Analysis of the histopathology reports revealed 160 cases of benign lip lesions. The study group included 83 women (51.9 per cent) and 77 men (48.1 per cent). The ages of the patients ranged from 4 to 82 years, with an average of 38.18 years. The mean age of males was 38.8 (standard deviation (SD) = 21.6) years and that of females was 37.6 (SD = 19.7) years. There was no statistically significant difference between the mean ages ( $p = 0.181$ ).

A total of 20 different histopathological types of lesions were recorded, with mucocele being the most frequent lesion (43.13 per cent). The other frequent lesions were: chronic inflammatory infiltrate (11.25 per cent), intradermal naevus (5.63 per cent), pyogenic granuloma (5.63 per cent), fibroma (5 per cent) and papilloma (5 per cent).

The lesions mainly presented in the lower lip (85 per cent), followed by the upper lip (10.6 per cent) and the commissure (4.4 per cent). It was observed that mucoceles (66 out of 69; 95.6 per cent) and actinic keratosis (6 out of 6; 100 per cent) have a higher predilection for involving the lower lip. The most frequent lesions of the upper lip were papilloma and intradermal naevus.

According to age distribution, mucoceles were found to be more prevalent in the second and third decades of life (Figure 1). The other group of lesions showed a relatively more homogeneous distribution across age groups. Between-group comparisons revealed that mucoceles were significantly more common in younger patients (mean, 25.10 years;  $p < 0.001$ ), whereas chronic inflammatory infiltrate presented in significantly older patients (mean, 57.94 years;  $p < 0.005$ ). The vast majority of mucoceles involved the lower lip ( $n = 66$ ), with only three cases presenting in the upper lip.

Lesion size ranged from 0.3 to 2.8 cm. All lesions were totally excised under local anaesthesia, with the exception of five cases where general anaesthesia was performed because of large lesion size and the need for subsequent reconstruction.

No significant association was found between lesion type and sex. However, it is noteworthy that all patients

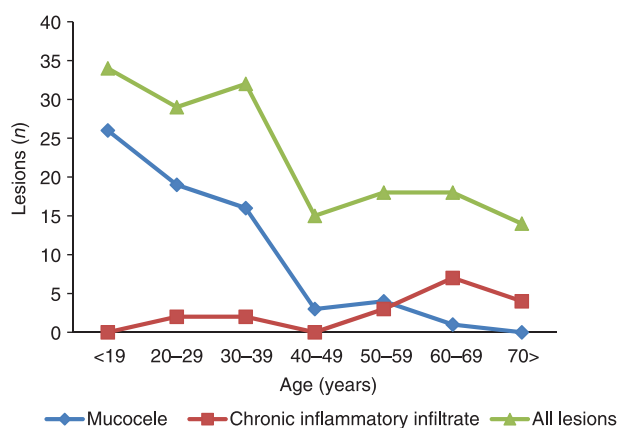


FIG. 1

Distribution of lesions according to age.

with hyperkeratosis (five out of five), and five of six patients with actinic keratosis, were male.

Only one case of pyogenic granuloma and two cases of mucocele recurred after one month. The patients were re-operated on and remained disease-free thereafter.

The average post-operative follow-up period was 3 months, with a range of 1–16 months. The data regarding the distribution of lesion types, lesion site, age and sex are shown in Table I.

## Discussion

Oral cavity lesions are encountered mostly by dental and oral health professionals as a part of their practice. Knowledge of the characteristics and distribution of lip lesions of various histological types is essential in establishing early diagnosis and treatment. The lips, which form the border between facial skin and oral mucosa, constitute a special anatomical site of the oral cavity because of the diverse tissue types of which they consist; they are a site of presentation for a wide variety of benign and malignant lesions.

The data obtained from the pathology laboratory archives do not necessarily reflect the prevalence of any type of lip lesion in the general population. However, prevalence studies are important for knowledge of health status and treatment requirements.<sup>3</sup> The World Health Organization has recommended encouraging more research on the epidemiology of oral mucosal lesions; nevertheless, the literature in this area is limited.<sup>4</sup>

Most previous retrospective studies have described lip lesions in the context of oral cavity lesions. Very few studies have focused solely on benign lip lesions, and presented their prevalence and distribution according to variables such as age, sex and lesion site.<sup>1,2</sup> The current study investigated the distribution of lesions in a specific cohort of patients with benign lip lesions, and in our opinion the data presented contribute to the previous literature in this area.

Lips are one of the main sites of presentation for oral cavity lesions according to general epidemiological studies. Shulman *et al.* reported a prevalence of 15.4 per cent for lip lesions among 6003 oral lesions clinically detected in 17 235 adults by oral examination.<sup>5</sup> The authors found that the lips were the third most common location. Similar results were described by Torres-Domingo *et al.*,<sup>6</sup> who showed a prevalence of 11.7 per cent in 300 patients, and by Al-Khateeb,<sup>7</sup> who revealed that 16.6 per cent of 818 cases presented in the lips.

In our retrospective study, mucocele was the most frequent lesion encountered in patients referred to our department (as confirmed by histopathological examination), followed by chronic inflammatory infiltrate, intradermal naevus, pyogenic granuloma, fibroma and papilloma. The finding that mucocele was the most frequent benign lesion found in the lips is in agreement with the study of Osterne *et al.*<sup>1</sup> They performed a retrospective analysis of 1034 lip biopsies, and categorised the

TABLE I  
CLINICAL DATA OF STUDY GROUP PATIENTS

Lesion/condition	Patients (n (%))	Sex (n)		Age (years)		Lesion site (n)		
		Male	Female	Range	Average	Upper lip	Lower lip	Commissure
Acanthosis	2 (1.25)	1	1	43–82	62.5	–	2	–
Actinic keratosis	6 (3.75)	5	1	45–70	61.16	–	6	–
Actinomycetoma	1 (0.63)	1	–	75	75	–	1	–
Papilloma	8 (5.00)	3	5	28–80	47.62	4	4	–
Fibroma	8 (5.00)	3	5	23–80	40.75	1	6	1
Fordyce granules	1 (0.63)	1	–	45	45	–	1	–
Cheilitis	4 (2.50)	1	3	30–65	49.75	–	3	1
Chronic inflammatory infiltrate	18 (11.25)	10	8	21–82	57.94	2	13	3
Haemangioma	6 (3.75)	4	2	27–78	46	1	5	–
Hyperkeratosis	5 (3.13)	5	–	41–66	50.8	1	4	–
Intradermal naevus	9 (5.63)	2	7	16–60	30.77	4	5	–
Cornu cutaneum	1 (0.63)	–	1	79	79	–	1	–
Mucocele	69 (43.13)	32	37	4–66	25.10	3	66	–
Lichen planus	4 (2.50)	2	2	54–75	59.5	–	3	1
Leukoplakia	2 (1.25)	–	2	45–60	52.5	–	2	–
Pemphigus vulgaris	3 (1.88)	–	3	25–60	46	–	3	–
Pyogenic granuloma	9 (5.63)	4	5	10–81	29.77	1	7	1
Schwannoma	1 (0.63)	1	–	32	32	–	1	–
Verruca vulgaris	1 (0.63)	1	–	10	10	–	1	–
Foreign body granuloma	2 (1.25)	1	1	66–78	72	–	2	–
Total (n (%))	160 (100)	77 (48.1)	83 (51.9)			17 (10.6)	136 (85)	7 (4.4)

lesions into 3 groups: non-malignant dysplastic lesions or malignant tumours, benign neoplasms, and reactive inflammatory lesions. Mucocele was the most common condition encountered among the inflammatory lesions (48 per cent) and in the whole study group (28.4 per cent). Other authors have also reported mucocele as being the most frequently occurring lesion of the lips.<sup>8,9</sup> In contrast, an epidemiological study by Bouquot and Gundlach, in which 23 616 adults aged over 35 years were examined, reported haemangioma as the most frequent benign lip lesion, followed by reactive fibroma and mucocele.<sup>10</sup> Despite the methodological differences, the retrospective study of Ntomouchtsis *et al.*<sup>2</sup> found haemangioma to be the most common lesion among 140 cases, similar to the findings of Bouquot and Gundlach.<sup>10</sup>

In our study, mucoceles were significantly more common in younger patients; the majority of those affected were in the second or third decade of life, and there was no sex predilection. This observation is in agreement with the review of Chi *et al.*, which included 1824 oral mucocele cases.<sup>11</sup> We observed three cases of mucocele in the upper lip (4.3 per cent); this is in contrast with the findings of Chi *et al.*<sup>11</sup> and Cohen,<sup>12</sup> who reported no upper lip involvement. Our findings reveal a slightly higher percentage of upper lip mucoceles when compared to some studies in the literature, which describe an estimated prevalence of 1 per cent and 3 per cent.<sup>13–15</sup>

In this study, chronic inflammatory infiltrate was the second most frequent lesion, and it presented significantly more frequently in older patients. Ntomouchtsis *et al.* reported only 1 case of chronic inflammatory infiltrate among 140 cases, which occurred in a 61-year-old

patient.<sup>2</sup> We are not able to compare this finding as the literature lacks data related to the prevalence and age distribution of the lesion, possibly because of the scarcity of cases.

No statistically significant sex predominance was found for any type of lesion, but it should be noted that all hyperkeratosis patients (five cases), and five of six actinic keratosis patients, were male. Though the sample sizes are too small to make comparisons, the finding related to actinic keratosis is in agreement with the study of Ntomouchtsis *et al.*, where all 24 actinic keratosis patients were male.<sup>2</sup>

The most frequent lesions of the upper lip were papilloma and intradermal naevus, and the most frequent lesion of the commissure was chronic inflammatory infiltrate.

It was not possible to differentiate the haemangiomas as cavernous, capillary or mixed, as lesion sizes were small.

The present study involved a retrospective analysis of benign lip biopsy samples of patients from all age groups who were referred to our hospital during a specific time period. It provides valuable data on the distribution of lesions according to age, sex and site of lesion. However, studies with this methodology are not capable of examining the prevalence of benign lip lesions in the general population. Another important issue is that the prevalences of lip lesions in adults are different from those for children and adolescents; therefore, studies of adult populations may have limited applicability for children, and vice versa. In this respect, good quality epidemiological surveys, including samples representing the general population and different age groups, may yield more valid and

reliable data regarding the prevalence and distribution of lip lesions.

- Knowledge of benign lip lesion distribution and epidemiology is essential for early diagnosis and prevention
- A retrospective analysis was conducted of benign lip lesions managed over 15 years at Karadeniz Technical University School of Medicine
- Mucocele was the most common lesion of 20 different histopathological types and was more common in younger patients

Although epidemiological surveys of oral mucosal lesions comprise a well-designed sampling methodology and involve trained examiners, they nonetheless have some limitations. Examiners can identify many lesions without additional diagnostic aids, but the diagnosis of some lesions is less certain, and other non-specific lesions cannot be diagnosed at all without histological confirmation. Another limitation of cross-sectional studies is that they explore associations, not causal relationships. Finally, the prevalence of lip lesions that present as acute conditions may be understated in prevalence studies.

## Conclusion

Knowledge of the distribution, aetiology and epidemiology of oral mucosal pathologies is essential to promote primary prevention, early diagnosis and treatment. Future studies should be directed at multivariate models that include potentially clinically significant risk factors such as tobacco use, race and ethnicity, socioeconomic status, and climate.

## References

- 1 Osterne RL, Costa FW, Mota MR, Vidal Patrocínio RM, Alves AP, Soares EC *et al.* Lip lesions in a Brazilian population. *J Craniofac Surg* 2011;**22**:2421–5

- 2 Ntomouchtsis A, Karakinaris G, Poulolpoulos A, Kechagias N, Kittikidou K, Tsompanidou C *et al.* Benign lip lesions. A 10-year retrospective study. *Oral Maxillofac Surg* 2010;**14**:115–18
- 3 Espinoza I, Rojas R, Aranda W, Gamonal J. Prevalence of oral mucosal lesions in elderly people in Santiago, Chile. *J Oral Pathol Med* 2003;**32**:571–5
- 4 Furlanetto DL, Crighton A, Topping GV. Differences in methodologies of measuring the prevalence of oral mucosal lesions in children and adolescents. *Int J Paediatr Dent* 2006;**16**:31–9
- 5 Shulman JD, Beach MM, Rivera-Hidalgo F. The prevalence of oral mucosal lesions in U.S. adults. Data from the Third National Health and Nutrition Examination Survey, 1988–1994. *J Am Dent Assoc* 2004;**135**:1279–86
- 6 Torres-Domingo S, Bagan JV, Jimenez Y, Poveda R, Murillo J, Díaz JM *et al.* Benign tumors of the oral mucosa: a study of 300 patients. *Med Oral Patol Oral Cir Bucal* 2008;**13**:E161–6
- 7 Al-Khateeb TH. Benign oral masses in a Northern Jordanian population—a retrospective study. *Open Dent J* 2009;**28**:147–53
- 8 Bermejo A, Aguirre JM, Lopez P, Saez MR. Superficial mucocele: report of 4 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1999;**88**:469–72
- 9 Yamasoda T, Tayama N, Syoji M, Fukuta M. Clinicostatistical study of lower lip mucoceles. *Head Neck* 1990;**12**:316–20
- 10 Bouquot JE, Gundlach K. Oral exophytic lesions in 23,616 white Americans over 35 years of age. *Oral Surg Oral Med Oral Pathol* 1986;**62**:284–91
- 11 Chi AC, Lambert PR 3rd, Richardson MS, Neville BW. Oral mucoceles: a clinicopathologic review of 1,824 cases, including unusual variants. *J Oral Maxillofac Surg* 2011;**69**:1086–93
- 12 Cohen L. Mucoceles of the oral cavity. *Oral Surg Oral Med Oral Pathol* 1965;**19**:365–72
- 13 Robinson L, Hjorting-Hansen E. Pathologic changes associated with mucous retention cysts of minor salivary glands. *Oral Surg Oral Med Oral Pathol* 1964;**18**:191–205
- 14 Harrison JD. Salivary mucoceles. *Oral Surg Oral Med Oral Pathol* 1975;**39**:268–78
- 15 Oliveira DT, Consolaro A, Freitas FJ. Histopathological spectrum of 112 cases of mucocele. *Braz Dent J* 1993;**4**:29–36

Address for correspondence:

Dr Selçuk Arslan,  
Tıp Fakültesi,  
Karadeniz Teknik Üniversitesi,  
KBB AD,  
Kalkınma M. 61080,  
Trabzon, Turkey

Fax: +90 462 325 0518

E-mail: [selcukars@yahoo.com](mailto:selcukars@yahoo.com)

---

Dr S Arslan takes responsibility for the integrity of the content of the paper

Competing interests: None declared

---