IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 17, Issue 7 Ver. 13 (July. 2018), PP 24-29
www.iosrjournals.org

Reactive Hyperplasia of the Oral Cavity in Southeast Anatolia: A Clinicopathological Study

Metin Calisir[1], Bilal Ege[2], AhmetCemilTalmac[3], Yusuf Ziya Yuncu[4]
[1]*Department OfPeriodontology, Faculty Of Dentistry, Adiyaman University, Adiyaman, Turkey*
[2]*Department OfOral And Maxillofacial Surgery, Faculty Of Dentistry, Adiyaman University, Adiyaman, Turkey*
[3]*Department OfPeriodontology, Faculty Of Dentistry, YuzuncuYilUniversity, Van, Turkey*
[4] *DepartmentOf Periodontology, Faculty Of Dentistry, Harran University, Sanliurfa, Turkey*
Corresponding author: Metin Calisir[1]

Abstract: *The purpose of this study is to determine the prevalence, gender balance, age of onset and localization of RHL in Southeast Anatolia. In addition, the rate of recurrence of RHL, which has not been well-studied in the literature was also investigated in the present study. 180 histopathologically diagnosed RHL cases were examined retrospectively. The incidence and localization of lesions, their recurrence rates, as well as the age and gender of the patients were analyzed statistically. The ratio of male to female patients was 1:1.95. Lesions were mostly found in the gingiva(94.5%). The highest incidences of lesions were observed in the pyogenic granuloma(25.6%); peripheral giant cell granuloma(18.9%); inflammatory papillary hyperplasia(16.7%); fibroepithelial polyp(13.9%); peripheral ossifying fibroma(12.2%); irritation fibroma(6.7%); papilloma(4.4%) and finally juvenile psammomatoid fibroma(1.7%), respectively. Although recurrence was not observed in 88.33% of the lesions, the recurrence rates in the following 0-3months, 3-6months and 6-12months were 1.11%, 2.78% and 7.78% respectively. While providing demographic and histopathological information on RHL in Southeast Anatolia, the present study also presents important information on recurrence rates of RHL within a 1-year period. However, studies with larger sample sizes and longer durations of follow-up can provide more information on the subject in the future.*
Keywords:*Histopathology; Reactive hyperplastic lesions; Recurrence*

Date of Submission: 10-07-2018 Date of acceptance: 27-07-2018

I. Introduction

Reactive hyperplastic lesions of the oral cavity (RHL) are lesions of fibrous connective tissue that develop in response to chronic and recurrent tissue damage[1].These tumor-like lesions are formed due to excess tissue production during wound healing after local injury.However, RHLs are not actually neoplasticfrom a clinical and histopathological point of view.Their proliferative characteristics are usually initiated by iatrogenic causes, such as cheek biting,food impaction, local irritants such as broken teeth and calculus, inadequate interproximal restoration and excessively long prosthetic edges[2,3].In addition, hormonal levels and puberty are known to play important roles in the etiology of some of these lesions. For example, peripheral giant cell granulomas and pyogenic granulomas were shown to be associated with hyperparathyroidism and pregnancy, respectively[3,4].

Reactive enlargements of the gingival were initially referred to as epulis, however, they were later classified based on their histological features.The most common reactive lesions of the oral cavity are pyogenic granuloma (PG), irritation fibroma (IF), peripheral ossifying fibroma (POF), peripheral giant cell granuloma (PGCG) and inflammatory gingival hyperplasia(IGH) [1].Clinically, RHLs can be observed assessile or pedunculated masses. In terms of appearance, the lesion color can be either pale pink, red or purple.While they may be present as smooth surfaces, they may also have ulcerated lobular appearance.They usually do not show any radiological signs, however, in some lesions, there may be a resorption and radiolucent area in the underlying bone[3,5].

RHLs are generally benign and are mostly treated by surgical excision[6].However, in some cases, the lesion may not be completely removed or recurrence may be observed due to continued local irritation after excision. Therefore, the recurrence risk and the possibility that different systemic diseases affect the recurrence rate make these lesions even more important.Since the incidence, distribution and clinical appearance of RHL may vary depending on environmental factors and patient lifestyles as well as genetic factors[3],the findings of studies on RHLs in different societies differ and cannot be applied to all patient groups. This is also evidenced by the studies in the literature. We believe that this variation also applies to similar societies living in different regions.

The southeastern region of Turkey, is reviewing a considerable amount of immigration from Middle East especially from Syria and Iraq.Although there are many studies in the literature that analyze the distribution of oral reactive lesions in terms of gender, age and localization, the number of regional studies in this population is limited.Also, in these studies, the information showing the rate of recurrence of the lesions is insufficient.Therefore, the aim of this study is to evaluate histopathological data obtained from RHL patients living in Southeast Anatolia in terms of demographic, clinical and recurrence rates.

II. Methods

2.1 Study Population and Clinical Parameters

Thisretrospectivecross-sectionalstudywasperformed on thearchives of theDepartment of Periodontology at AdiyamanUniversityFaculty of DentistrybetweenDecember 2014andNovember 2016. Patientrecordswereassessedtoselectthosewiththediagnosisof RHL in the oral cavity. HistopathologicaldiagnosisandsomemicroscopicalparametershavebeenanalyzedaccordingtothecriteriabyPeralles et al.[7].Thelesionswereclassifiedintoeightgroups based on thehistopathological data: fibroepithelialpolyp (FP), inflammatorypapillaryhyperplasia (IPH), IF, juvenile psammomatoidossifyingfibroma(JPOF), papilloma (P), PGCG, POF, and PG. Clinicaldataregardingage, gender, location ofthelesion, andrecurrence of thelesions wereanalyzedforeachcase.Unfinishedregisteredreports and patients who missed the 3. 6. and12-month visits wereexcludedfromthestudy.Thelocations of lesionswere grouped into three as maxilla, mandible, andtheotherparts of mouth (upperandlowerlips, hardandsoftpalate, tongue,floor of the mouth, andbuccalmucosa). Recurrence of lesionsweredividedinto fourgroups as below:

1. No recurrence
2. Recurrencewithin 0-3 months
3. Recurrencewithin 3-6 months
4. Recurrencewithin 6-12 months

All the lesions were treated by excisional biopsy and local irritants were also concurrently removed.

2.1 Statistical Analysis

The total number of localizedgingivaland oral tissuelesionswasdeterminedboth as an absolutenumberand as a percentage of the total number of thelesions.Data wereanalyzedusing SPSS software version 16.0 (SPSS Inc., Chicago); andpresented in descriptiveand tabular forms.

III. Results

In the current study, we analyzed 180 histopathologically diagnosed RHL cases and the recurrence rate of these lesions.Among these patients, 61 (33.9%) were males and 119 (66.1%) were females, and the ratio of male/female was 1:1.95. Incidence rate of the lesions were found to be PG (n=46, 25.6%); PGCG(n=34, 18.9%); IPH (n=30, 16.7%); FP(n=25, 13.9%); POF (n=22, 12.2%); IF (n=12, 6.7%); P (n=8, 4.4%);and finally, JPOF (n=3, 1.7%)(Table 1).

In the present study, 47.8% of the lesions are in maxilla, 46.7% are in mandible, and 5.6% are in the other parts of the mouth. Although recurrence was not observed in 88.33% of the cases, the recurrence rates in the following 0-3 months, 3-6 months and 6-12 months were 1.11%, 2.78% and 7.78%, respectively (Table 1).

The age of patients ranged from 8 to 68 years with a mean age of 30.99 years. The mean age of patients with FP, IPH, IF, JPOF, P, PGCG, POF and PG was 33.8, 27.4, 35.17, 18.33, 26.87, 31.61, 27.27 and 33.56 years, respectively. The mean age of male and female patients was 29.29 and 34.49 years, respectively (Table 2).The mean ages of subgroups such as localization and recurrence of these lesions are given in Table 2.

FP rates were higher among males (72%); however,prevalence of IPH, PGCG, POF, and PG were higher among women(86.67%, 64.71%, 100%,and 67.39%, respectively).Although only fibroepithelial polyps were observed in the other parts of the mouth, allpapillomaswere found in the maxilla. The recurrence rate of the RHLswere 14.71% for PGCG, 13.33% for IPH, 13.04% for PG, 12.5% for P, 12% for FP, and9.09% for POF. No recurrence was observed for the IF and JPOF groups. We observed one recurrence case within the first 3 months in both IPH and PGCG groups. Between 3-6 months, while one recurrence case was observedin IPH, PGCG and PG groups and 2 recurrence caseswere observed in the FP group. Furthermore, between 6^{th} and 12^{th}months, we observed 5 recurrence cases in PG, 3 cases in PGCG, 2 cases in IPH, 2 cases in POF, 1 case in FP,and 1 recurrence case in P groups (Table 3).

When the recurrence rate was analyzed according to the localization of lesions, the number of recurrent cases was 11 out of 86 lesions in the maxilla (12.80%), 9 out of 84 lesions in the mandible (10.71%) and 1 out of 10 lesions in the other parts of the mouth (10%). The total recurrence rate was found to be 11.67%among all cases(Table 4).The distribution of the lesions according to age are given in Table 5. The incidence of the lesions especially increases in the $2^{nd}$and the 3^{rd}decade of the life(Table 5).

IV. Discussion

RHLs are a group of fibrous connective tissue lesions observed in the oral mucosa and are usually formed by minor chronic trauma and injury in the gingiva. Following chronic trauma, endothelial, inflammatory and fibroblast cells proliferate forming granulation tissue, and this excessive tissue growth is called reactive hyperplasia[1].Other than tooth decay, periodontal &periapical inflammatory diseases, these lesions are among the most prevalent oral diseases[8]. To the best of our knowledge, there are only a limited number of studies in the literature about the formation, distribution and especially the recurrence rate of reactive gingiva in the oral cavity.Therefore, in the current work, we studied the population in the Southeast Anatolian region who were referred to our clinic with localized gingival enlargement. We analyzed the histopathological records and examined the prevalence, distribution and recurrence rate of RHL among 180 patients.

In the literature, the male/female ratio of RHL patients were reported to be 1:1.3[9], 1:1.4 [10], 1:1.4 [11], 1:1.4 [12], 1:1.5 [3], 1:1.5 [13], 1:1.63 [14], 1:2.4 [15], 1:2.47 [16] and 1:5.3 [17], and it was suggested that disease prevalence is higher in women. This information is in line with the results of the current study, where we observed this ratio to be 1:1.95. The reason for the higher prevalence in females may be hormonal influences, which are important predisposing factors during the formation of lesions[18].

In previous studies, the average age of the patients was found to be 31.56[13], 33.95 [11], 36 [19], 36 [3], 40.5 [17], and 41.9 years [9]. In the present study, the average patient age is 30.99, which is younger than many of the previous studies. In addition, while other studies showed that the lesions are formed in the 2^{nd}, 3^{rd} and 4^{th} decades of the lives of the patients, our results showed higher prevalence of lesions in 2^{nd} and 3^{rd}decades.

The RHL of the oral cavity is usually observed in the gingiva. The rate of occurrence in the gingiva was found to vary among different studies, where it was reported to be 50.34%[14], 64%[3], 64.8%[16], 78.23%[9], and 81.8%[13]. In the current study, this rate is 94.5%, which is higher than the rates in the literature. This higher rate may be caused by the originating of the reactive lesions from the periodontal ligament and connective tissue, and prolonged exposure to chronic inflammation due to food accumulation in interdental areas and formation of bacterial plaques[20,21].In terms of localization of the lesions, Hunasgi and colleagues [17] reported 49% of the lesions were in maxilla and 51% were in mandible, whilewe found 47.8% of the lesions were in maxilla and 46.7% in mandible.

The incidence rate of RHL in terms of the lesion types has varied among distinct populations. For example, the incidence rate of PG was reported to be 23.13% [14], 19.76% [12], 26.3% [16], 27.6% [17], 29.1% [21], 18.7% [13], 26.16% [3], and 41% [11]in different studies.In Turkish population, this rate was previously reported to be 26.53% [9] and 36.67% [15], whereas in the present study, the incidence rate of PG was observed to be 25.6%.

The rate of PGCG was reported to be 12.93%[14], 1.52%[12], 3% [16], 18.7%[21], 6.22% [13], 18.6% [3], and 12%[11]in other populations, whereas it was reported to be38.09%[9]and 22%[15]in Anatolian population. In the present study, the rate of PGCG was observed to be 18.9%, which is lower than the other studies in Turkish population, but is still within the overall range from different studies.The differences in the distribution of incidence rates between the other studieson Turkish population and our study further support the idea that the distribution of lesions may be different in different regions in the same country.

The incidence rate of POF in the present study, which is 12.2%, is also different from the other studies on Anatolian population, where it was observed to be 4.76% [9] and 6% [15], but within the range of other studies in diverse populations, where it was reported to be 17.67%[12], 9.5%[16], 4%[17], 20.4%[21], 17.7%[13], 10.47%[3], and 1%[11]. The rate of IF that was observed in the present study, which is 6.7%, however, is lower than the most of the reported rates, some of which were 10%[17], 20%[11], 6.8%[9], and 9.33%[15]. The rate of FP, which is 13.9%, is also lower than most of the reported values for this rate in the literature, some of which were 41.16% [14] and 20.67%[15]. On the other hand, the incidence rate of IPH in the current study, which is 16.7%, is much higher than most of the reported values, some of which were 1% [11] and 0.68%[9].

Buchner and colleagues [21] found that PG and POF were more prevalent in women, but not PCGG, which showed similar prevalence rates in both gendersin a study with 106 patients. Similar to Buchner et. al.[21], we found that incidence rates of PG and POF were higher in women, however, unlike them, we found that PCGG incidence rate was higher in women.

The mean age of the patient subgroups also varies among different studies on distinct populations. For example, Hunasgi and colleagues [17] reported the mean age of the patients for the lesion subgroups were 33.3 years for PG, 37.3 years for IF, 34.5 years for IGF, 21.8 years for POF, and 30 years for PGCG in a study with 460 patients. In a study with 209 cases, Reddy et al.[13]observed the mean age of patients with PG, POF and PGCG were 28.04, 32.49 and 29.16, respectively. In a study by Kadehand colleagues [11], the mean age of patients for lesion subgroups were 42.5 years for IF, 30.4 for PG, 41.3 for POF and 25.6 for PCGG among a patient group of 91 people.In the present study, the mean age of the patients for these subgroups were 33.56 years for PG, 35.17 years for IF, 27.4 years for IPH, 27.27 years for POF, and 31.61 years for PGCG.

Although several studies have reported on the histopathological characteristics, and age and gender association for RHL, thenumber of studies that investigate the recurrence rate of oral RHL is insufficient. While the recurrence rate of PG after excision could be as high as 16% [22],we found this rate to be 13.04%, and the recurrence was observed to be mostly between 6-12 months after excision.

The recurrence rates for the POF were found to be different in various studies.Cundiff[23]reported this rate to be 16%, while Eversole and Rovin[24]reported it to be20%. Eversole and colleagues [25] observed the rate of recurrence for POF to be between 8-20%. Cuisia and Brannon [26] suggested a 12 month follow up for identifying the recurrence rate, and found it to be 8%. We found the recurrence rate of POF to be 9.09% and the recurrence cases were predominantly between 6-12 months.

PGCG lesions are more likely to recur, the recurrence rate for this type of lesions was found to be around 10%[27].In another study, Mighell and colleagues [28]found this rate to be 9.9%, while in our study, we found the PCGG recurrence rate to be 14.71%.

While the recurrence rate for the oral squamous cell papilloma was reported to be very low [2], we found a recurrence in 1 out of 7 patients (12.5%) between 6-12 months. On the other hand, in the present study, the recurrence rate for fibroepithelial polyp was 12%, and the recurrence rate of inflammatory papillary hyperplasiawas 13.3%. We didn't observe recurrence in IF and JPOF groups in the 12 months follow up period.

V. Conclusions

While providing demographic and histopathological information on RHL in Southeast Anatolia, the present study also presents important information on recurrence rates of RHL within a 1-year period. However, studies with larger sample sizes and longer durations of follow-up can provide more information on the subject in the future.

Acknowledgment

We would like to thank Adiyaman University Faculty of Medicine Department of Pathology for fruitful assistance about the study.

References

[1]. J.A. Regezi, J.J. Sciubba, and R.C.K. Jordan,*Oral Pathology: Clinical Pathologic Correlations*,(5th ed. China: Saunders; 2008) 156–160.
[2]. B.W. Neville, D.D. Damm, C.M. Allen, and J.E. Bouquot,*Oral and Maxillofacial Pathology*,3rd Ed. China: Saunders; 2009. pp. 510–523.
[3]. M.R. Zarei, G. Chamani, andS. Amanpoor, Reactivehyperplasia of the oral cavity in Kerman province, Iran: A review of 172 cases,*British Journal of Oral and Maxillofacial Surgery,45(4),* 2007,288‑292.
[4]. S.B. Whitaker, J.E. Bouquot, A.E. Alimario, and T.J. Whitaker Jr, Identificationandsemiquantification of estrogenandprogesteronereceptors in pyogenicgranulomas of pregnancy,*Oral Surgery, Oral Medicine, and Oral Pathology,78(6),* 1994,755–760.
[5]. M.A. HashemiPour, M. Rad, and A. Mojtahedi, A survey of softtissuetumor‑likelesions of oral cavity: A clinicopathologicalstudy,*Iranian Journal of Pathology,3(2),* 2008,81‑87.
[6]. N.W. Savage, andC.G. Daly, Gingival enlargements and localized gingival overgrowths,*Australian Dental Journal,55(1),* 2010,55–60.
[7]. P.G. Peralles, A.P. Viana, A.L. Azevedo, and F.R. Pires, Gingivalandalveolarhyperplasticreactivelesions: Clinicopathologicalstudy of 90 cases,*Brazilian Journal of Oral Sciences,5(18),* 2006,1085-1089.
[8]. T. Esmeili, F. Lozada-Nur, andJ. Epstein, Common Benign oral soft tissue masses,*Dental Clinics of North America,49(1),* 2005,223-240.
[9]. A. Altan, İ. Damlar, S. Yanık, O.F. Arpağ, and M. Demirkol,Reactive Lesions of the Oral Cavity: A Retrospective Study on147 Cases, The *Journal of Dental Faculty of Atatürk University,24(3),* 2014,373-377.
[10]. A.A. Aghbali, S.V. Hosseini, B. Harasi, M. Janani, andS.M. Mahmoudi, Reactive hyperplasia of the oral cavity: A survey of 197 cases in Tabriz, Northwest Iran,*Journal of Dental Research, Dental Clinics, Dental Prospects,4(3),* 2010,87-89.
[11]. H. Kadeh, S. Saravani, andM. Tajih, Reactive hyperplastic lesions of the oral cavity,*Iranian Journal of Otorhinolaryngology,27(79),* 2015,137-144.
[12]. W. Zhang, Y. Chen, Z. An, N. Geng, andD. Bao, Reactive gingival lesions: a retrospective study of 2,439 cases,*Quintessence International,38(2),* 2007,103-110.
[13]. V. Reddy, S. Saxena, S. Saxena, andM. Reddy, Reactive hyperplastic lesions of the oral cavity: A ten year observational study on North Indian Population,*Journal of Clinical andExperimental Dentistry,4(3),* 2012, 136-140.
[14]. A. Bataineh, andZ.N. Al-Dwairi, A survey of localized lesions of oral tissues: a clinicopathological study,*The Journal of Contemporary Dental Practice,6(3),* 2005,30-39.
[15]. A. Kurt,Histopathologic Analysis of the Intraoral Focal ReactiveLesions,*The Journal of Dental Faculty of Atatürk University,21(3),* 2011,226-230.
[16]. S. Vidyanath, P.M. Shameena, D.A. Johns, V.Y. Shivashankar, S. Sudha, and S. Varma, Reactive hyperplasic lesions of the oral cavity: A survey of 295 cases at a Tertiary Health Institution in Kerala,*Journal of Oral and MaxillofacialPathology,19(3),* 2015,330-334.
[17]. S. Hunasgi, A. Koneru, M. Vanishree, andV. Manvikar, Assessment of reactive gingival lesions of oral cavity: A histopathological study,*Journal of Oral and MaxillofacialPathology,21(1),* 2017,180.
[18]. S. Seifi, andK. Nosrati,Prevalence of Oral Reactive Lesions and their Correlation with Clinico-pathologic Parameters,*RaziJournal of Medical Sciences,17(76),* 2010,36–44.

[19]. B. Kashyap, P.S. Reddy, andP. Nalini, Reactive Lesions of Oral Cavity: A Survey Of 100 Cases in Eluru, West Godavari District,*ContemporaryClinical Dentistry,3(3),* 2012,294-297.
[20]. N.J. Naderi, N. Eshghyar, andH. Esfehanian, Reactive lesions of the oral cavity: A retrospective study on 2068 cases,*Dental Research Journal (Isfahan),9(3),* 2012,251-255.
[21]. A. Buchner, A. Shnaiderman-Shapiro, andM. Vered, Relative frequency of localized reactive hyperplastic lesions of the gingiva: a retrospective study of 1675 cases from Israel,*Journal of Oral Pathology & Medicine,39(8),* 2010,631-638.
[22]. J.W. Taira, T.L. Hill, andM.A. Everett, Lobular capillary hemangioma (pyogenic granuloma) with satellitosis,*Journal of the American Academy ofDermatology,27(2),* 1992,297-300.
[23]. E.J. Cundiff, Peripheral ossifying fibroma a review of 365 cases,(Bloomington: Indiana University;1972).
[24]. L.R. Eversole, andS. Rovin, Reactive lesions of the gingival,*Journal of Oral Pathology,1(1),* 1972,30-38.
[25]. L.R. Eversole, W.R. Sabers, andS. Rovein, Fibrous dysplasia: A nosology problem in the diagnosis of fibro-osseous lesion of the jaw,*Journal of Oral Pathology,1,* 1972,189-220.
[26]. Z.E. Cuisia, andR.B. Brannon, Peripheral ossifying fibroma-A clinical evaluation of 134 pediatric cases,*Pediatric Dentistry,23(3),* 2001,245-248.
[27]. C.M. Flaitz, Peripheral giant cell granuloma: A potentially aggressive lesion in children,*Pediatric Dentistry,22(3),* 2000,232-233.
[28]. A.J. Mighell, P.A. Robinson, W.J. Hume,Peripheral giant cell granuloma, A clinical study of 77 cases from 62 patients, and literature review,*Oral Diseases,1(1),* 1995,12-19.

Tables

Table 1. Frequency and percentage values of data

n=180	Frequency	Percentage %
Gender		
Female	119	66.1
Male	61	33.9
Groups		
Fibroepithelial polyp	25	13.9
Inflammatory papillary hyperplasia	30	16.7
Irritation fibroma	12	6.7
Juvenile psammomatoid fibroma	3	1.7
Papilloma	8	4.4
Peripheral giant cell granuloma	34	18.9
Peripheral ossifying fibroma	22	12.2
Pyogenic granuloma	46	25.6
Location of the lesion		
Maxilla	86	47.8
Mandible	84	46.7
Other	10	5.6
Recurrence		
None	159	88.33
0-3 months	2	1.11
3-6 months	5	2.78
6-12 months	14	7.78

Table 2. Mean patient age in different pathology groups, gender, lesion location and recurrence subgroups

Groups	Mean age ± SD	95% CI
Fibroepithelial polyp	33.8 ± 15.77	27.28 – 40.31
Inflammatory papillary hyperplasia	27.4 ± 8.29	24.30 – 30.49
Irritation fibroma	35.17 ± 18.59	23.35 – 46.98
Juvenile psammomatoid fibroma	18.33 ± 1.15	15.46 – 21.20
Papilloma	26.87 ± 8.60	19.67 – 34.07
Peripheral giant cell granuloma	31.61 ± 13.04	27.06 – 36.17
Peripheral ossifying fibroma	27.27 ± 7.56	23.92 – 30.62
Pyogenic granuloma	33.56 ± 12.19	29.94 – 37.18
Gender		
Female	29.29 ± 11.65	27.07 – 31.30
Male	34.49 ± 13.33	31.07 – 37.90
Location of Lesion		
Maxilla	31.06 ± 11.90	28.51 – 33.62
Mandible	30.14 ± 12.31	27.47 – 32.81
Other	37.40 ± 17.43	24.92 – 49.87
Recurrence		
None	31.37 ± 11.92	29.50 – 33.24
0-3 months	34.50 ± 33.23	26.4 – 33.30
3-6 months	20.20 ± 6.68	11.89 – 28.50
6-12 months	29.92 ± 16.27	20.53 – 39.32
Overall	30.98 ± 12.46	29.15 – 32.82

Table 3. Distribution of gender, localization of the lesion and recurrence rate within different pathological subgroups.

Groups		FP	IPH	IF	JPOF	P	PGCG	POF	PG
		n=25 (%)	n=30 (%)	n=12 (%)	n=3 (%)	n=8 (%)	n=34 (%)	n=22 (%)	n=46 (%)
Gender	Female	7 (28.0)	26 (86.67)	6 (50.0)	1 (33,33)	4 (50.0)	22 (64.71)	22 (100)	31 (67.39)
	Male	18 (72)	4 (13.33)	6 (50.0)	2 (66,67)	4 (50.0)	12 (35.29)	0 (0.0)	15 (32.61)
Location	Maxilla	8 (32.0)	13 (43.33)	5 (41.67)	1 (33,33)	8 (100.0)	17 (50.0)	10 (45.45)	24 (52.17)
	Mandible	7 (28.0)	17 (56.67)	7 (58.33)	2 (66.67)	0 (0,0)	17 (50.0)	12 (54.55)	22 (47.83)
	Other	10 (40.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Recurrence	No	22 (88.0)	26 (86.67)	12 (100)	3 (100)	7 (87.50)	29 (85.29)	20 (90.91)	40 (86.96)
	0-3 months	0 (0.0)	1 (3.33)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.94)	0 (0.0)	0 (0.0)
	3-6 months	2 (8.0)	1 (3.33)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.94)	0 (0.0)	1 (2.17)
	6-12 months	1 (4.0)	2 (6.67)	0 (0.0)	0 (0.0)	1 (12.50)	3 (8.82)	2 (9.09)	5 (10.87)

Table 4. The recurrence rates and gender distribution within subgroups of lesion localization.

Group		Maxilla	Mandible	Other
		n=86 (%)	n=84 (%)	n=10 (%)
Gender	Female	59 (68.60)	56 (66.67)	4 (40.0)
	Male	27 (31.40)	28 (33.33)	6 (60.0)
Recurrence (months)	No	75 (87.21)	75 (89.29)	9 (90.0)
	0-3 m	2 (2.33)	0 (0.0)	0 (0.0)
	3-6 m	2 (2.33)	3 (3.57)	0 (0.0)
	6-12 m	7 (8.14)	6 (7.14)	1 (10.0)

Table 5. Distribution of lesions according to the age groups

Age	FP		IPH		IF		JPOF		P		PGCG		POF		PG		Total (%)
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	
0-9	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 (0.55%)
10-19	2	3	7	0	2	1	1	2	2	0	6	2	5	0	3	1	37 (20.55%)
20-29	1	3	8	0	2	1	0	0	2	0	5	3	8	0	14	3	50 (27.78%)
30-39	0	5	11	3	0	2	0	0	0	4	5	4	7	0	10	4	55 (30.55%)
40-49	2	3	0	1	0	0	0	0	0	0	5	1	2	0	1	3	18 (10%)
50-59	1	3	0	0	0	2	0	0	0	0	0	2	0	0	2	3	13 (7.22%)
>60	1	0	0	0	2	0	0	0	0	0	1	0	0	0	1	1	6 (3.33%)
Total	7	18	26	4	6	6	1	2	4	4	22	12	22	0	31	15	180 (100%)

Metin Calisir[1]"Reactive Hyperplasia of the Oral Cavity in Southeast Anatolia: A Clinicopathological Study."IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 7, 2018, pp24-29.