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ORIGINAL ARTICLE

The Pattern of Distribution of Biopsied Oral Lesions in Basrah Province- A 20 Year Retrospective Study

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ABSTRACT

Objectives: This study aimed to evaluate the prevalence of oral lesions in Basrah province and compare with other reviews.

Methods: A retrospective study, data obtained from the oral biopsy reports seen in the histopathology laboratory of Al Sadder Teaching Hospital and private laboratories in Basrah from 1981-2000. Following variables were analyzed: type of oral lesion, age, sex and site of distribution. Oral lesions classified into five major categories: inflammatory lesions, cystic lesions, neoplastic lesions, white lesions and tumour-like lesions. The age of patients grouped as follows: 1-15, 16- 30, 31-45, 46-60, and above 61 years. Site of distribution lesions includes palate, the floor of mouth, lips, tongue, gingiva, buccal mucosa, maxilla and mandible.

Results: Among the 743 oral biopsy reports, 475 (63.9%) found in males and 268 (36.1%) were in females. Neoplastic lesions were the commonest oral lesions 514 (69.2%) followed by tumour-like lesions 116 (15.6%), cystic lesions 54 (7.3%), inflammatory lesions 35 (4.7%) and then white lesions 24 (3.2%). The first site was tongue 140 (18.8%), followed by lips 118 (15.9%) and the floor of the mouth 115 (15.5%) meanly between 46-60 years 205 (27.6%).

Conclusion: The majority of oral lesions were in males, and it is of a neoplastic and tumour-like type. This will highlight the importance of prevention, early detection and diagnosis of such lesions.

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INTRODUCTION

Oral cavity consists of the gingiva, tongue, buccal mucosa, two lips at its entrance. The major and minor salivary glands opened up into the oral cavity via various ducts ¹. Oral lesions can be seen in any oral cavity

structure and cause discomfort or pain that affects, swallowing, chewing and, speech. Oral lesions may cause symptoms such as xerostomia, halitosis that interfere with daily social activity. Also, poor oral hygiene, sharp teeth,

and poorly fitted dentures thought to play a role in the emergence of oral lesions ². It is not surprising to find gross evidence of oral lesions since the oral cavity is a portal of entry of all tension relieving remedies like smoking, alcohol and, chewing habits ³. The oral mucosa regarded as a mirror of general health. It can be affected by infections, reactionary lesions, cystic lesions, and tumours. Some of which could pose a significant health problem ^{4,5}. While the majority of the none neoplastic oral lesions are limited and harmless, specific lesions are considered premalignant, and others may lead to severe consequences, including death, if untreated ⁶. Many systemic disorders have exhibited similar appearance to oral lesions, which is why a proper diagnosis is difficult to establish ⁷. Oral lesions management starts with history, physical examinations, and investigations, including biopsies, to achieve an accurate diagnosis ⁸. Oral lesions may range from a single minute ulcer to a large malignant lesion. Identifying such lesions and rendering treatment at a premalignant stage could prevent their malignant transformation. Studying the prevalence of oral lesions at a community level will help in understanding the magnitude of problems of the particular region ⁹.

There is a great need in Basrah City for clinical studies to oral lesions to create baseline data. To my knowledge, there are few studies on the prevalence of oral lesions that performed. This research aims at determining the prevalence of oral lesions in the province of Basrah for over 20 years (1981-2000).

MATERIALS AND METHODS

This retrospective study carried out from 1981-2000 with a record of 743 biopsies from patients with oral lesions diagnosed in the histopathology laboratories in Al Sadder teaching hospital and private laboratories in Basrah. The data analyzed regarding the age, sex of the patients, the type of lesions, and sites of distribution. The oral lesions grouped into five main categories: inflammatory lesions, cystic lesions, neoplastic lesions, white lesions, and tumour-like lesions.

Statistical analysis: Statistical analysis was done by SPSS version 20. Statistical significance was defined as $P \leq 0.001$ to assess the influence of sex, age and site of distribution of oral lesions.

RESULTS

Among the 743 recorded oral biopsies, 475 (63.9%) found in males and 268 (36.1%) in females. Neoplastic lesions found to be the commonest lesions 514 (69.2%) followed by tumour-like lesions 116 (15.6%), cystic lesions 54 (7.3%), inflammatory lesions 35 (4.7%) and then white lesions 24 (3.2%). For both genders, the neoplastic lesions found to be the commonest lesions, (75.4%) for males, and (58.2%) for females, while the white lesion were the lowest lesions encountered both in

male and female (3.2%, 3.4% respectively). Concerning the distribution of different oral lesions among genders, we found that all lesions were more common in males than females except tumour-like lesions were common in females, with highly statistically significant differences as shown in **Table 1**.

Regarding the distribution of lesions to the sites, the most common site was tongue 140 patients (18.8%) followed by lips 118 (15.9%) and then the floor of the mouth 115 (15.5%). The commonest site for inflammatory lesions was the floor of the mouth 30 (85.7%). Cystic lesions mostly seen in the mandible 22 (40.7%). The tongue was the most common site of the neoplastic lesions 126 (24.5%), White lesions mostly diagnosed in the buccal mucosa 22 (91.7%) and tumour-like lesions in the gingiva 64 (55.2%) as shown in **Table 2**, with highly statistically significant differences.

Concerning the distribution of the biopsied oral lesions according to the age of patients, we found that the age group (46-60 years) to be the more affected with oral lesions, about 205 (27.6%) from total patients, followed by the older age group (above 61 years), in which 183 (24.6%). The age group (1-15) was the least affected by oral lesions in general, in which the lesion is seen only in 81 (10.9%). The inflammatory lesion, cystic lesions, and tumour-like lesions were seen more frequently in younger age groups (16-30 years) seen in (45.7%, 44.4%, and 37.1% respectively). While as expected, the neoplastic lesions are more encounter in elderly patients (above 61 years) seen in 170 (33.1%). The white lesion was more in the age group (46-60 years) in which 14 (58.3%). These differences found to be statistically significant, as shown in **Table 3**.

We noticed that the malignancy was higher than benign lesions. In a neoplastic lesion group; it comprised 365 (71%) malignant cases compare to benign 149 (29%). Among malignant lesions, squamous cell carcinoma was the most frequent malignancy seen, it found in 315 patients, and among tumour-like lesions, the pyogenic granuloma was the common one. At the same time, the dentigerous cyst was commonest cystic lesions, and leukoplakia found to be commonest white lesions.

Table 1. Distribution of oral lesions according to the gender

Types of Oral Lesions	Male	Female	Total
Inflammatory lesions	21 (60%) (4.4%)*	14 (40%) (5.2%)*	35 (4.7%)
Cystic lesions	32 (59.3%) (6.7%)*	22(40.7%) (8.2%)*	54 (7.3%)
Neoplastic lesions	358 (69.6%) (75.4%)*	156(30.4%) (58.2%)*	514 (69.2%)
White lesions	15(62.5%) (3.2%)*	9 (37.5%) (3.4%)*	24 (3.2%)
Tumor- like lesions	49(42.2%) (10.3%)*	67 (57.8%) (25%)*	116 (15.6%)
Total	475 (63.9%)	268 (36.1%)	743 (100%)

$P < 0.001$ * percent within the gender

Table 2. The Distribution of oral lesions according to the site

Type of lesions	Palate	The floor of the mouth	Lip	Tongue	Gingiva	Buccal mucosa	Maxilla	Mandible	Total
Inflammatory lesions	0	30(85.7%)	2(5.7%)	2(5.7%)	0	0	0	1(2.9%)	35
Cystic lesions	7(13%)	10(18.5%)	4(7.4%)	2(3.7%)	0	0	9(16.7%)	22(40.7%)	54
Neoplastic lesions	57(11.1%)	75(14.6%)	104(20.2%)	126(24.5%)	6(1.2%)	54(10.5%)	31(6%)	61(11.9%)	514
White lesions	0	0	0	2(8.3%)	0	22(91.7%)	0	0	24
Tumor like lesions	2(1.7 %)	0	8(6.9%)	8(6.9%)	64(55.2%)	13(11.2%)	3(2.6%)	18(15.5%)	116
Total	66 (8.9%)	115 (15.5%)	118 (15.9%)	140 (18.8%)	70 (9.4%)	89 (12%)	43 (5.8%)	102 (13.7%)	743 (100%)

P < 0.001

Table 1. The Distribution of oral lesions according to the age group

Type of lesion	1-15 years	16-30 years	31-45 years	46-60 years	61 years and above	Total
Inflammatory lesions	7 (20%)	16 (45.7%)	5 (14.3%)	6 (17.1%)	1 (2.9%)	35
Cystic lesions	9 (16.7%)	24 (44.4%)	12 (22.2%)	5 (9.3%)	4 (7.4%)	54
Neoplastic lesions	34 (6.6%)	61 (11.9%)	84 (16.3%)	165 (32.1%)	170 (33.1)	514
White lesions	0	1 (4.2%)	5 (20.8%)	14 (58.3%)	4 (16.7%)	24
Tumor like lesions	31 (26.7 %)	43 (37.1%)	23 (19.8%)	15 (12.9%)	4 (3.5%)	116
Total	81 (10.9%)	145 (19.5%)	129 (17.4%)	205 (27.6%)	183 (24.6%)	743 (100%)

P < 0.001

DISCUSSION

This study sought to conduct an epidemiological survey in the histopathological department of Al Sadder teaching hospital and other private laboratories in Basrah through the retrospective analysis of oral lesions, biopsies for 20 years (1981-2000). The current study showed a significant increase (P 0.001) in the frequency of oral lesions in males 475 (63.9%) compared to females 268 (36.1%), which was consistent with studies in Iraq^{9,10}, Sudan¹, Brazil¹¹, Iran¹², but inconsistent with studies in Iraq², Saudi Arabia¹³. This prevalence of harmful oral habits among males than females, such as tobacco and alcohol abuse.

This study showed that the most prevalent oral lesions were neoplastic lesions and tumour-like lesions, which disagreed with a study in Brazil¹⁴, which found that inflammatory lesion was common, but agreed with a study in India¹⁵, which found that among 4013 male and female patients, oral tumours and tumour-like lesions accounted for 59.7% of cases.

The tongue was the most common site of oral lesions in this study 140 (18.8%) followed by lips 118 (15.9%) and floor of the mouth 115 (15.5%), this was inconsistent with¹⁵, which consider buccal mucosa to be the most common site, also incompatible with¹⁶, which confided that mandible was the most frequent site—this variability in the location of oral lesions attributed to the social habits and heritable pattern.

It noted that oral lesions increased with age, and the peak was 205 (27.6%) in the age group of (46-60 years), which was compatible with¹⁴. Followed by an older age group (61 years and above), 183 (24.6%) with highly

statistically significant differences, this might attribute to the fact that chronic and neoplastic diseases occur most commonly in older adults. In our study, the inflammatory lesions were more frequent in males 21(60%) than females 14 (40%), which is consistent with¹⁴. This indicates that this group needs to be given more attention to their oral health. The low - level of male search for health care is mainly due to the social characteristics of manliness, for example, predominance, independence, and strength, which constitute a barrier to search health care^{17,18}.

Cystic lesions showed a more frequent presentation in age groups (16-30 years) 24(44.4%) than other age groups; this was in agreement with¹⁹, who reported that this most likely identified with the way that during the pediatric age time frame the jaws are engaged with significant developmental procedures, that include maxillofacial growth and the development of the primary and secondary dentition, which can all related with cyst development, especially the developmental cysts. Besides, our study presents that cystic lesions showed a higher frequency in males 32(59.3%) than females 22(40.7%), which may be because that adult males are bound to disregard their teeth, or they are bound to sustain trauma to their teeth, contrasted with females, which may all be the aetiology for cyst formation²⁰. Moreover, cystic lesions were more common in mandible 22(40.7%), which agree with study in France²¹ and Brazil²² but disagrees with study in Iran²³. In the current study, the dentigerous cyst was the most prevalent cyst, same as²³, while others considered radicular cyst as the most common cystic lesion^{5,21,24}.

Concerning neoplastic lesions, malignant lesions were more common than benign lesions, and squamous cell carcinoma was the most generally recognized malignant lesion, this would be consistent with ^{1,16,25,26}. Oral squamous cell carcinoma usually observed in older males ^{24,27,28,29}, which was predictable with the discoveries revealed. This may be due to long-term risk exposure as tobacco, suspends alcohol consumption, betel quid chewing, solar radiation, nutritional factors, genetic predisposition, high-risk HPV type ^{30,31,32}. White lesions were more frequent in (46-60 years) age group 14(58.3%) and leukoplakia was the commonest type, this was also mentioned by ³³, that leukoplakia mostly seen in 4th to 7th decade of life. Besides ³⁴, mentioned that oral leukoplakia seen in men over 40 years of age. The leading site for white lesions reported in this study was buccal mucosa which was like ^{35,36}. This study showed a high prevalence of tumour-like lesions in the gingiva since this site is generally affected by reactive and non-neoplastic oral lesions, such as pyogenic granuloma, fibroma, peripheral giant cell granuloma, and inflammatory fibrous hyperplasia ¹⁰. Pyogenic granuloma was the most prevalent of these gingival lesions in younger adults in the age group (16-30 years) which was compatible with ^{37,38}. Sex distribution of tumour-like lesions show females predominance; the way might clarify this that hormonal influence may play a role in the growth of the lesion as accelerated their growth and it's recurrence occur during pregnancy and the postpartum period ³⁹.

CONCLUSIONS

In general, oral lesions are more in males than females, which were similar to other studies. Neoplastic and tumour-like lesions are the most widely recognized pathological finding in the oral cavity, highlighting the importance of prevention and early diagnosis of such lesions. Oral lesions evolved along with the increase in age, due to less health care centre attendance. Thus, we believe that there is an importance of establishing new conduct with great emphasis on the detection of oral lesions, expecting to help the foundation of a primary prevention action.

REFERENCES

- Badie H., Abdelbadie A., Munsoor M. and Ahmed W.A.M. "Histopathological Patterns of Oral Lesions among Sudanese Patients". *Clin Med J*. 2015;1(2): 52–5.
- Mohammad A.F., Ahmad H.S. and Jamel A.M. "Prevalence of Oral Mucosal Lesions in Patients Attending Oral Diagnosis Clinic at School Of Dentistry, University Of Sulaimani". *IOSR J Dent Med Sci*. 2015; 14(6) :2279–861. DOI:[10.6084/M9.FIGSHARE.1473039.V1](https://doi.org/10.6084/M9.FIGSHARE.1473039.V1).
- Gadodia P., Hazare V., Ganvir S. and Sahuji S. "Prevalence of Oral Lesions in Pan Vendor". *J Indian Acad Oral Med Radiol*. 2011; 23(5): S347–50. DOI:[10.5005/JP-JOURNALS-10011-1166](https://doi.org/10.5005/JP-JOURNALS-10011-1166).
- Saha A. and Robertson E.S. "Epstein-Barr virus-associated B-cell lymphomas: pathogenesis and clinical outcomes". *Clin Cancer Res*. 2011; 17(10): 3056-3063. DOI: [10.1158/1078-0432.CCR-10-2578](https://doi.org/10.1158/1078-0432.CCR-10-2578).
- Jones A.V. and Franklin C.D. "An analysis of oral and maxillofacial pathology found in adults over a 30-year period". *J Oral Pathol Med*. 2006; 35(7): 392–401. DOI: [10.1111/j.1600-0714.2006.00451.x](https://doi.org/10.1111/j.1600-0714.2006.00451.x).
- Ali M., Sundaram D. "Biopsied oral soft tissue lesions in Kuwait: A six-year retrospective analysis". *Med Princ Pract*. 2012; 21(6): 569–75. DOI: [10.1159/000339121](https://doi.org/10.1159/000339121).
- Fierro-Garibay C., Almendros-Marqués N., Berini-Aytés .L and Gay-Escoda C. "Prevalence of biopsied oral lesions in a Department of Oral Surgery (2007 - 2009)". *J Clin Exp Dent*. 2011; 3(2): e73–7. DOI: [10.4317/jced.3.e73](https://doi.org/10.4317/jced.3.e73).
- Gambhir R.S., Veerasha K.L., Sohi R., et al. "The prevalence of oral mucosal lesions in the patients visiting a dental school in northern india in relation to sex, site and distribution: A retrospective study". *J Clin Exp Dent*. 2011; 3(1): 7–10. DOI: [10.4317/jced.3.e10](https://doi.org/10.4317/jced.3.e10).
- Najm M.J. "Prevalence of oral mucosal lesions in patients attending college of dentistry – Basrah University". *Mustansira Dent J*. 2013; 10(1):116–23.
- Aljazeera S., Qudsi G. Al., Jaber H., et al. "Biopsy records to the oral lesions in Basrah between 2012-2017". *Journal of Oral Medicine Oral Surgery Oral Pathology and Oral Radiology*. 2020; 6(2):74-8. DOI: [10.18231/j.joo.2020.018](https://doi.org/10.18231/j.joo.2020.018).
- Correa M.B., Tarquinio S.B.C., Oliveira L.J.C. de., et al. "Factors associated with prevalence of oral lesions and oral self-examination in young adults from a birth cohort in Southern Brazil". *Cad Saude Publica*. 2013; 29(1):155–64. DOI: [10.1590/S0102-311X2013000100018](https://doi.org/10.1590/S0102-311X2013000100018).
- Jahanbani J., Sandvik L., Lyberg T. and Ahlfors E. "Evaluation of Oral Mucosal Lesions in 598 Referred Iranian Patients". *Open Dent J*. 2009; 3: 42–7. DOI: [10.2174/1874210600903010042](https://doi.org/10.2174/1874210600903010042).
- Al-Mobeerik A. and Aldosari A.M. "Prevalence of oral lesions among Saudi dental patients". *Ann Saudi Med*. 2009; 29(5):365–8. doi: [10.4103/0256-4947.55166](https://doi.org/10.4103/0256-4947.55166).
- Vasconcelos A.C., Aburad C., Lima I.F.P., et al. "A scientific survey on 1550 cases of oral lesions diagnosed in a Brazilian referral center". *An Acad Bras Cienc*. 2017; 89(3): 1691–7. <https://doi.org/10.1590/0001-3765201720170006>.
- Mohan U.R.H. and Padmakumar S.K.R. "Pattern of Distribution of Biopsied Oral Lesions In A Tertiary Health Care Centre – A 10 Year Retrospective Study". *IOSR-JDMS*. 2017; 16(9): 77–83. DOI:[10.9790/0853-1609097783](https://doi.org/10.9790/0853-1609097783).
- Moridani S.G., Shaahsavari F. and Adeli M.B. "A 7-year retrospective study of biopsied oral lesions in 460 Iranian patients". *RSBO Rev Sul-Brasileira Odontol*. 2014; 11(2):118–24.
- Courtenay W.H. "Engendering Health: A Social Constructionist Examination of Men's Health Beliefs and Behaviors". *Psychol Men Masculinity*. 2000; 1(1): 4–15. <https://doi.org/10.1037/1524-9220.1.1.4>.
- Mahalik J.R., Good G.E. and Englar-Carlson M. "Masculinity scripts, presenting concerns, and help seeking: Implications for practice and training". *Prof Psychol Res Pract*. 2003; 34(2): 123–31. DOI:[10.1037/0735-7028.34.2.123](https://doi.org/10.1037/0735-7028.34.2.123).
- Manor E., Kachko L., Puterman M.B., et al. "Cystic lesions of the jaws - A clinicopathological study of 322 cases and review of the

- literature". *Int J Med Sci.* 2012; 9(1): 21–6. DOI: [10.7150/ijms.9.20](https://doi.org/10.7150/ijms.9.20).
20. Shear M. and Speight P. "Cysts of the Oral and Maxillofacial Regions". 4th ed. Blackwell Munksgaard 2008.
 21. Meningaud J.P., Oprean N., Pitak-Arnop P. and Bertrand J.C. "Odontogenic cysts: a clinical study of 695 cases". *J Oral Sci.* 2006; 48(2): 59–62. DOI: [10.2334/josnusd.48.59](https://doi.org/10.2334/josnusd.48.59).
 22. Avelar R.L., Antunes A.A., Carvalho R.W.F., et al. "Odontogenic cysts: a clinicopathological study of 507 cases". *J Oral Sci.* 2009; 51(4): 581–6. DOI: [10.2334/josnusd.51.581](https://doi.org/10.2334/josnusd.51.581).
 23. Baghaei F., Zargaran M., Najmi H. and Moghimbeigi A. "A clinicopathological study of odontogenic cysts and tumors in hamadan, Iran". *J Dent (Shiraz, Iran)*. 2014; 15(4):167–72.
 24. Abdul S., Aljazaeri W., Hashim G., et al. "Biopsy records to the oral lesions in Basrah between 2012-2017". *J Oral Med Oral Surgery, Oral Pathol Oral Radiol.* 2020; 6(2):74–80. DOI: [10.18231/j.jooo.2020.018](https://doi.org/10.18231/j.jooo.2020.018).
 25. Sawair F.A., Al-Mutwakel A., Al-Eryani K., et al. "High relative frequency of oral squamous cell carcinoma in Yemen: Qat and tobacco chewing as its aetiological background". *Int J Environ Health Res.* 2007; 17(3):185–95. DOI: [10.1080/09603120701254813](https://doi.org/10.1080/09603120701254813).
 26. Lei F., Chen P.H., Chen J.Y., et al. "Retrospective study of biopsied head and neck lesions in a cohort of referral Taiwanese patients". *Head Face Med.* 2014; 10:28. doi: [10.1186/1746-160X-10-28](https://doi.org/10.1186/1746-160X-10-28).
 27. Al-Mobeeriek A. and AlDosari A.M. "Prevalence of oral lesions among Saudi dental patients". *Ann Saudi Med.* 2009; 29(5) :65–368. doi: [10.4103/0256-4947.55166](https://doi.org/10.4103/0256-4947.55166).
 28. Al-Rawi N.H., Talabani N.G. "Squamous cell carcinoma of the oral cavity: A case series analysis of clinical presentation and histological grading of 1,425 cases from Iraq". *Clin Oral Investig.* 2008; 12(1):15–8. DOI: [10.1007/s00784-007-0141-0](https://doi.org/10.1007/s00784-007-0141-0).
 29. Algazaeri S.A.W., Al Qudsi G.H., Jaber H.K., et al. "Incidence of Oral malignancy in Basrah Southern Iraq between 2005-2017". *Int J Oral Heal Dent.* 2020; 6(2):110–5. DOI: [10.18231/j.ijohd.2020.025](https://doi.org/10.18231/j.ijohd.2020.025).
 30. Kumaraswamy K.L., Vidhya M. "Human papilloma virus and oral infections: An update". *J. Cancer Res. Ther.* 2011; 7(2): 120–7. DOI: [10.4103/0973-1482.82915](https://doi.org/10.4103/0973-1482.82915).
 31. Pires F.R., Ramos A.B., de Oliveira J.B.C., et al. "Oral squamous cell carcinoma: Clinicopathological features from 346 cases from a single oral pathology service during an 8-year period". *J Appl Oral Sci.* 2013; 21(5): 460–7. DOI: [10.1590/1679-775720130317](https://doi.org/10.1590/1679-775720130317).
 32. Al-Jaber A., Al-Nasser L. and El-Metwally A. "Epidemiology of oral cancer in Arab countries". *Saudi Med. J.* 2016; 37(3): 249–55. DOI: [10.15537/smj.2016.3.11388](https://doi.org/10.15537/smj.2016.3.11388).
 33. Pawar U. and Souza C. de. "Precancerous Lesions of Oral Cavity". *An Int J Otorhinolaryngol Clin.* 2010; 2: 7–14.
 34. Mirza D., Karim Z., Marath M., et al. "Frequency and Distribution of Oral Mucosal Lesions: a Cross-Sectional Study". *Pakistan Oral Dent J.* 2017; 37(1): 45–8.
 35. Mathew A., Pai K., Sholapurkar A., et al. "The prevalence of oral mucosal lesions in patients visiting a dental school in Southern India". *Indian J Dent Res.* 2008; 19(2): 99–103. DOI: [10.4103/0970-9290.40461](https://doi.org/10.4103/0970-9290.40461).
 36. García-Pola Vallejo M.J., Martínez Díaz-Canel A.I. and García Martín J.M. "Risk factors for oral soft tissue lesions in an adult Spanish population". *Community Dent Oral Epidemiol.* 2002; 30(4): 277–85. DOI: [10.1034/j.1600-0528.2002.00048.x](https://doi.org/10.1034/j.1600-0528.2002.00048.x).
 37. Al-rawi N.H. and Pathology O. "Localized Reactive Hyperplastic Lesions of the gingiva: A clinico-pathological study of 636 lesions from Iraq". *Internet J Dent Sci.* 2012; 7: 213–8. DOI: [10.5580/143f](https://doi.org/10.5580/143f).
 38. Salum F.G., Yurgel L.S., Cherubini K., et al. "Pyogenic granuloma, peripheral giant cell granuloma and peripheral ossifying fibroma: retrospective analysis of 138 cases". *Minerva Stomatol.* 2008; 57(5): 227–32.
 39. Subhe N., Ali E. and Hassawi B.A. "Tumor and tumor like lesions of the oral cavity A study of 303 cases". *The Medical Journal of Tikrit University.* 2010; 1(161): 177–83.