ANALYSIS OF ORAL AND MAXILLOFACIAL PATHOLOGIES AT THE DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY HAYATABAD MEDICAL COMPLEX, PESHAWAR

Fahim ud din, Muhammad Mushtaq, Khadim Shah, Yasir Rehman Khattak, Nadia Ashraf

ABSTRACT

Objective: To determine the frequency of oral pathological lesions at the department of Oral and Maxillofacial Surgery at Hayatabad Medical Complex, Peshawar and to compare the results with regional and international studies.

Material and methods: Ethical approval was obtained from the ethical committee of the institution before commencing with the study. The data was retrieved from the record room from 2013 to 2018. Variables comprising age, gender distribution, histological diagnosis of pathologies. The data was analyzed through SPSS version 17.

Results: A total of 296 patients are included in our study. Among these, there were 161 males and 135 females with male to female ratio of 1.19:1. Most of the patients were found in the third decade followed by second decade of life in the present study. Oral squamous cell carcinoma, trigeminal neuralgia, denture induced fibroma and basal cell carcinoma were found to occur in the elderly population while mucocele, ranula, central giant cell granuloma, temporo mandibular joint (TMJ) ankylosis were found mostly in the first and second decade of life. The commonest pathology belonged to dental and periodontal origin with 20.27% frequency while the rarities included various syndromes and fibro osseous lesions each with 1.35% frequency. Radicular cyst was frequent finding among the odontogenic cysts with 5.7% cases and ameloblastoma had been the commonest odontogenic tumor with 4.4% cases. Squamous cell carcinoma had been the frequent most malignant tumor in the present study with 6.8% cases of the total.

Conclusion: Majority of the patients belonged to the young age group. The most common pathology belonged to dental and periodontal origin while the rarities included various syndromes and fibro osseous lesions. Radicular cyst was frequent finding among the odontogenic cysts and ameloblastoma had been the most common odontogenic tumor. Squamous cell carcinoma had been the most frequent malignant tumor in the present study.

Key Words: Oral and maxillofacial pathology, audit. oro-facial lesions, odontogenic cyst and tumors.

INTRODUCTION

The Department of Oral and Maxillofacial Surgery at Hayatabad Medical Complex is located in the provincial capital of Khyber Pakhtoonkhwa Peshawar. Peshawar is considered to be the gateway to Central Asia, as it is situated at the border of Pakistan and Afghanistan. There is considerable diversity in the patients received at our center because it is a tertiary care hospital and covers a much wider area including northern areas of Pakistan and major area of Afghanistan.

Geographic distribution of oral lesions varies slightly. This variation may be due to diversity in culture, habits, environment and genetic make up.[1-3] Malignant lesions reported by Olivera e Silva et al and Moridani et al were 6.32% and 2.32% respectively.[3,4] In contrast, a high prevalence of malignancies i.e. 67.28% was reported by an East African study, which was due to a selective inclusion of neoplastic lesions only.[5] Environmental factor like chewable tobacco and betel quid may increase the incidence of oral tumors.[6,7]

There is a higher risk of oral cancer in South Asian subcontinent with etiology mostly attributed to frequent use of pan and areca nut in younger people.[8] Aim of this study was to determine the frequency of oral pathological lesions at the department of Oral and Maxillofacial Surgery at Khyber Girls Medical College/ Hayatabad Medical Complex, Peshawar and to compare the results with regional and international studies.

MATERIAL AND METHODS

Ethical approval was obtained from the ethical committee of the institution before commencing with the study. The data was retrieved from the patient's treatment charts in the record room from January 2013 to December 2018. Variables comprised age, gender, histological diagnosis of the biopsied specimens and other pathologies. The data was analyzed through SPSS version 17.

Department of Oral and Maxillofacial Surgery, Khyber Girls Medical College/Hayatabad Medical Complex, Peshawar.

Address for correspondence:
Dr. Fahim ud din
Department of Oral and Maxillofacial Surgery, Khyber Girls Medical College/Hayatabad Medical Complex, Peshawar.
Contact: 00923219693326
Fahim79pk@yahoo.com

RESULTS

DISCUSSION

A total of 296 patients were foud in this study from January 2013 to December 2018. There was a minimal difference in the gender i.e. 161 males and 135 females with male to female ratio of 1.19:1.

Most of the patients were found in the third decade followed by second decade of life in the present study. Epithelial malignancy like oral squamous cell carcinoma was found to occur in the elderly population and so were the trigeminal neuralgia, denture induced fibroma and basal cell carcinoma respectively. On the other hand mucocele and ranula of salivary gland origin and central giant cell granuloma, temporo mandibular joint (TMJ) ankylosis were found mostly in the first and second decade of life.

Results showed a higher frequency of the dental

Table 1: Male to female ratio

Total	Male	Female	M:F
296	161	135	1.19

Table 2: Age and Gender

Age (years)	Gender		Total
	Male	Female	
1-10	18	14	32
11-20	31	20	51
21-30	45	54	99
31-40	22	17	39
41-50	21	15	36
51-60	23	15	38
61-70	1	0	1
Total	161	135	296

Table 3: Number of diagnosis by category

Diagnostics Category	Number of patients	Male	Female	M:F	Percentage of total
Dental and Periodontal Pathologies	59	28	31	0.9	20.27 %
Odontogenic cysts/tumors	57	31	26	1.1	19.25 %
Tumors of maxillofacial region other than odontogenic origin	52	36	16	2.2	17.56 %
Salivary gland pathology other than salivary gland tumors	28	15	13	1.1	9.45 %
Trigeminal neuralgia	22	10	12	0.8	7.43 %
Fistulas	19	10	9	1.1	6.41 %
TMJ pathology	17	11	6	1.8	5.74 %
Potentially malignant disorders	9	5	4	1.2	3.04 %
Vascular lesion	9	4	5	0.8	3.04 %
Developmental pathologies	8	4	4	1	2.70 %
Giant cell lesion	8	4	4	1	2.70 %
Fibro-osseous lesion	4	1	3	0.3	1.35 %
Syndromes	4	2	2	1	1.35 %
Total	296	161	135	1.19	100%

and periodontal pathologies and were found to have 20.2% cases of the total. These consisted of dental impactions with 8.7% cases and periapical granulomas with 7.8% cases. Periapical granuloma had been the common finding in various other studies and its prevalence ranges from 2.8% to 18.1% [9,10,11]. Periodontal pathology consisted of gingival epulis with 2.7% cases and pyogenic granuloma with 1% of cases.

Odontogenic cysts and tumors were the second most common pathologies with frequency of 19.26%. The radicular cyst was the commonest one with frequency of 5.7% and the follicular cyst was having a frequency of 5.1%. The kertocyst with a frequency of 3.37% fell on the third number among the odontogenic cysts. Cysts in our study were put according to the revised WHO classification 2017 according to which keratocyst is included in the odontogenic cysts and is no more considered an odontogenic tumor. Prevalence of the odontogenic cysts in our study is in accordance with various other studies in which the radicular cyst being the commonest one. [9,12,13,14,15,16,17,18,19] However, according to some of the studies the dentigrous cyst is more common finding than the radicular cyst contradicting our results.[20,21]Among the odontogenic tumors in our study, ameloblastoma with 4.4% frequency was the commonest entity followed by adenomatoid odontogenic tumor with 0.7% frequency. Ameloblastoma is found to be the commonest among the odontogenic tumors in some other studies and the prevalence ranges from 14.02% to 73%.[14,22,23,24] However, adenomatoid odontogenic tumor is less frequent and ranges from 2.8% to 9.8%.[22,25,26]

Tumors of the maxillofacial region other than odontogenic origin comprised of 17.4% cases. Oral squamous cell carcinoma was the frequent most among malignancies in our study with 6.8% cases. Jones and Franklin[9] had also documented squamous cell carcinoma to be the most common malignancy with 66.1% cases. Skinner and Weir[27] showed a frequency of 5.4%, a higher value than the results documented in some other studies,[10,28,29] while frequency of 2% was reported by Mujica et al[30]. Chewable tobaaco or snuff might be considered as a significant factor in bringing higher prevalence of oral squamous cell carcinoma in the present study as also evidenced by the study conducted by Gupta PC[6] and Warnakulasuryia.[7] Basal cell carcinoma showed a frequency of 1%. Denture induced fibromas constituted 2% of cases while fibromas were reported as 1% of cases both from connective tissue origin. Fibromas with 11.4% was recorded by Requeijo RS[9] while Torres et al[31] had shown a frequency of 53.3%. Malignant Melanoma, Chondrosarcoma, Lymphoma, Leukemia, Ewings sarcoma and Merkle cell carcinoma all had a frequency of 0.3% each. Rhabdomyosarcoma and osteosarcoma were found to have 0.7% frequency. Pleomorphic adenoma was reported with 1.4% cases while mucoepidermoid carcinoma and adenoid cystic carcinoma each comprising 0.7% of cases all from salivary gland origin. Prevalence of pleomorphic adenoma ranges from 42% to 80%.[32,33,34]Among the salivary gland malignancies, mucoepedermoid carcinoma with prevalence of 58.53% and 5.12% is the commonest one followed by adenoid cystic carcinoma with frequency of 33.33% and 1.28% in studies conducted by kalburge et al[34] and Ochicha et al[35] respectively. Prevalence of 0.3% was recorded for neurofibromatosis. Frequency of 0.3% was noted for peripheral exostosis of the jaw bones.

Salivary gland pathologies other than salivary gland tumors had presented with 9.2% of cases. In the present study, mucocele with 6.8 % frequency was the most common pathology followed by Ranula with 1.4% cases and salivary calculus as 1% cases. Prevalence of salivary gland mucocele ranges from 4.3% to 17% according to various studies.[10,36,37,38]

The frequency of trigeminal neuralgia was 7.4%. Fistulas in the orofacial region were reported with 6.4% of cases. Among these, the oroantral fistulae were 4.4% and oronasal fistulae were 2%.

A frequency of 5.6% was reported for TMJ pathologies. These include 4.2% cases of TMJ ankylosis and 0.7% cases each for chronic TMJ dislocation and condylar chondroma.

Frequency recorded for potentially malignant disorders was 3.1% of the total. Leukoplakia was noted in 1% of cases while oral submucous fibrosis was found in 0.7% of cases. Leukoplakia of 15.5% was reported by Requeijo RS[9]. Lichen plannus was found to have a frequency of 1.4% in our study. Requeijo RS[9] had reported lichen plannus with 14.1% frequency while a frequency as high as 61.29% was recorded by Correa et al[39].

Vascular lesions were comprised of 3.1% cases among all the pathologic lesions. Out of this hemangioma was found to be the most frequent with 1.4% of cases followed by 0.7% of cases each for venous malformation and lymphatic malformation, and 0.3% cases for AV malformation.

Frequency of 3% was noted for developmental lesions. Among these, cleft alveolus and mandibular tori each comprised of 1% cases. Hemifacial microsomia was counted as 0.3% cases and epidermoid cyst as 0.7% cases.

Giant cell lesions were counted as 3% among all the pathologies. Out of these, 1.7% cases were reported for central giant cell granuloma, 1% cases for aneurysmal bone cysts and 0.3% cases for giant cell tumor.

Fibro osseous lesions had a frequency of 1.4%. Frequency of 0.7% was recorded each for fibrous dysplasia and ossifying fibroma.

Various syndromes were encountered in our study which comprised of 1.2% of all the cases in this study

group. Frequency of 0.3% each for Sjogrens syndrome, Gardner syndrome, Pierre Robin Syndrom and Nevoid Basal Cell Carcinoma were highlighted.

CONCLUSION

Majority of the patients belonged to the young age group and there difference in the gender was not too high. The commonest pathology belonged to dental and periodontal origin while the rarities included various syndromes and fibro osseous lesions. Radicular cyst was frequent finding among the odontogenic cysts and ameloblastoma had been the commonest odontogenic tumor. Squamous cell carcinoma had been the frequent most malignant tumor in the present study.

REFRENCES

1. Franklin CD, Jones AV. A survey of oral and maxillofacial pathology specimens submitted by general dental practitioners over a 30-year period. Br Dent J. 2006;200:447–450.
2. Jones AV, Franklin CD. An analysis of oral and maxillofacial pathology found in adults over a 30-year period. J Oral Pathol Med. 2006;35(7):392–401.
3. Moridani SG, Shaahsavari F, Adeli MB. A 7-year retrospective study of biopsied oral lesions in 460 Iranian patients. RSBO. 2014;11(2):118–124.
4. Oliveira e Silva KR, Siqueira ALL, Caldeira PC, Guimarães de Abreu MHN, Ferreira de Aguiar MC. Profile of usage of a reference diagnostic service on oral pathology: a 10-year evaluation. BMC Health Serv Res. 2014;14:653–657.
5. Kamulegeya A, Kalyanyama BM. Oral maxillofacial neoplasms in an East African population a 10 year retrospective study of 1863 cases using histopathological reports. BMC Oral Health. 2008;8:19. doi: 10.1186/1472-6831-8-19.
6. Gupta PC1, Ray CS. Smokeless tobacco and health in India and South Asia. Respirology. 2003 Dec;8(4):419-31.
7. Warnakulasuriya KA1, Ralhan R. Clinical, pathological, cellular and molecular lesions caused by oral smokeless tobacco--a review. J Oral Pathol Med. 2007 Feb;36(2):63-77.
8. Rasool S, Bashir F, Gardezi S. Biopsy Audit At Government University Oral Health Facility. J Pak Dent Assoc 2013;22(2):84-88.
9. Requeijo RS, Freitas MD, Lorenzo JCT, Garcia AG, Rey JMG. An analysis of oral biopsies extracted from 1995 to 2009 in an oral medicine and surgery unit in Galicia Spain. Med Oral Patol Oral Cir Bucal. 2012 Jan; 17(1): e16-e22.
10. Jones AV, Franklin CD. An analysis of oral and maxillofacial pathology found in adults over a 30-year period. J Oral Pathol Med. 2006;35:392–401.
11. Satorres Nieto M, Faura Solé M, Brescó Salinas M, Berini Aytés L, Gay Escoda C. Prevalence of biopsied oral lesions in a service of oral surgery. Med Oral. 2001;6:296–305.
12. Butt FM, Ogeng'o J, Bahra J, Chindia ML. Pattern of odontogenic and non odontogenic cysts. J Craniofac Surg. 2011;22:2160-2.
13. Al Sheddi MA. Odontogenic cysts. A clinicopathological study. Saudi Med J. 2012;33:304-8.
14. Akram S, Naghma, Ali MA, Shakir MM. Prevalence of odontogenic cysts and tumors in Karachi, Pakistan. J Dow Uni Health Sci. 2013;7(1):20-4.
15. Núñez-Urrutia S, Figueiredo R, Gay-Escoda C. Retrospective clinicopathological study of 418 odontogenic cysts. Med Oral Patol Oral Cir Bucal 2010; 15:767-73.
16. Ledesma-Montes C, Hernández-Guerrero JC, Garcés-Ortíz M. Clinico-pathologic study of odontogenic cysts in a Mexican sample population. Arch Med Res 2000;31:373-6.
17. Ochsenius G, Escobar E, Godoy L. Odontogenic cysts: analysis of 2,944 cases in Chile. Med Oral Patol Oral Cir Bucal 2007; 12:85-91.
18. Mosqueda-Taylor A, Irigoyen-Camacho ME, Diaz-Franco MA. Odontogenic cysts. Analysis of 856 cases. Med Oral 2002; 7:89-96.
19. Sarmiento LV, Robertson JP, Ocampo AM, Cepeda LAG, Huerta ERL. Prevalence and distribution of odontogenic cysts in a Mexican sample. A 753 cases study. J Clin Exp Dent. 2017 Apr; 9(4): e531–e538.
20. Oji CH. Statistical observations on jaw cysts in Enugu, Nigeria 1987-1996. Odo Stomat Tropi. 1999;22(85):33-36.
21. Iyogun CA, Ochicha O, Sule AA, Adebola RA. Jaw cysts in kano: Northern Nigeria. Int J Oral and Maxillofac. 2013:4(3):8-12.
22. Ebenzer V, Ramalingam B. A cross sectional survey of prevalence of odontogenic tumors. J Maxillofac Oral Surg. 2010 Dec;9(4):369-374.
23. Tawfik MA, Zyada MM. odontogenic tumors in Dakahlla, Egypt, Analysis of 82 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2010;109(2):57-73.
24. Sriram G, Shetty RP (2008) Odontogenic tumors: a study of 250 cases in an Indian teaching hospital. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 105(6):e14–21 Epub 2008 Apr 16
25. Arotiba JT, Ogunbiyi JO, Obiechina AE. Odontogenic tumors. A 15years review from Ibadan, Nigeria. Br J Oral Maxillofac Surg. 1997;35:363-367.
26. Ladeide AL, Ajayi OL, Ogunlewe MO, et al. Odontogenic tumours: A review of 319 cases in a Nigeria teaching hospital. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2005;99(2):191-195.
27. Skinner RL, Weir JC. Histologic diagnoses of oral lesions in geriatric dental patients: a survey of biopsied lesions. Gerodontics. 1987;3:198–200.

28. Bhaskar SN. Oral pathology in the dental office: survey of 20,575 biopsy specimens. J Am Dent Assoc. 1968;76:761–766.

29. Bouquot JE. Common oral lesions found during a mass screening examination. J Am Dent Assoc. 1986;112:50–57.

30. Mujica V, Rivera H, Carrero M. Prevalence of oral soft tissue lesions in an elderly venezuelan population. Med Oral Patol Oral Cir Bucal. 2008;13:E270–E274.

31. Torres-Domingo S, Bagan JV, Jiménez Y, Poveda R, Murillo J, Díaz JM. Benign tumors of the oral mucosa: a study of 300 patients. Med Oral Patol Oral Cir Bucal. 2008;13:E161–E166.

32. Sando Z, Fokouo JV, Mebada AO, Djomou F, NDjolo A, Oyono JL. Epidemiological and histopathological patterns of salivary gland tumors in Cameroon. Pan Afr Med J. 2016;23:66.

33. Subhashraj K. Salivary gland tumors: A single institution experience in India. Br J Oral Maxillofac Surg. 2008;46:635–8.

34. Kalburge JV, Kalburge V, Latti B, Kini Y. Salivary gland tumors: Clinicopathologic analysis of 73 cases. J Cranio Max Dis. 2014;2:111–5.

35. Ochicha O, Malami S, Mohammed A, Atanda A. A histopathologic study of salivary gland tumors in Kano, Northern Nigeria. Indian J Pathol Microbiol. 2009;52:473–6.

36. Lima Gda , Fontes ST, de Araujo LM, Etges A, Tarquinio SB, et al. (2008) A survey of oral and maxillofacial biopsies in children: a single-center retrospective study of 20 years in Pelotas-Brasil. J Appl Oral Sci 16: 397-402.

37. Maia DM, Merly F, Castro WH, Gomez RS. A survey of oral biopsies in Brazilian pediatric patients. ASDC J Dent Child. 2000;67:128–131.

38. Das S, Das AK. A review of pediatric oral biopsies from a surgical pathology service in a dental school. Pediatr Dent. 1993;15:208–211.

39. Correa L, Frigerio ML, Sousa SC, Novelli MD. Oral lesions in elderly population: a biopsy survey using 2250 histopathological records. Gerodontology. 2006;23:48–54.