

Evaluation of Burden of Oral Pathologies at a Tertiary Care Hospital in Karachi, Pakistan

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ABSTRACT

Introduction: Pakistan is considered an underdeveloped country. Health-related issues should be equally addressed as economic issues of the country. Knowledge about the burden of diseases is of essential importance which helps to priorities the strategic planning of health policy in the country.

Aims and objectives: The objective of this study was to evaluate the burden of oral pathology cases reported to the Faciomaxillary OPD of Abbasi Shaheed Hospital, Karachi.

Materials and Methods: This retrospective cross-sectional study was conducted in Abbasi Shaheed hospital to analyze the Oral pathology cases. Through non-probability purposive sampling, all cases of oral pathologies reported in Faciomaxillary OPD of Abbasi Shaheed hospital in the last 5 years i.e. From July 2014 to June 2019 were included. The inclusion criteria were patients from both genders, aged between 6 months to 75 years, having complaints of oral pathological lesions. All other cases reported to the OPD, other than oral pathologies e.g., trauma, gunshot wound, etc. were excluded

Results: Males account for many patients. A total of 2000 cases were recruited. Soft tissue pathologies were 1300 while 700 were hard tissue pathologies. The p-value for gender, age, and zones of Karachi was non-significant hence there was no relation between the variables with oral pathologies.

Conclusion: The burden of oral pathology cases reported to the faciomaxillary OPD of Abbasi Shaheed Hospital, Karachi, is quite high. More adequate and comprehensive planning and patient awareness should be executed to deal with ailments.

Key words: Retrospective studies, Pathology, Oral, Tissues, Diseases, Hospitals, Neoplasms, Cancer, Tumors

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INTRODUCTION

With an increase in globalization, humans have encountered different diseases which include Diabetes, heart diseases, and other multiorgan diseases along with oral cavity diseases. The discipline of oral pathology guides and teaches the students about etiology, pathogenesis, their clinical, radiological, histological features, and outline the treatment options of various oral diseases [1]. Oral pathology is referred to as a branch of dentistry that deals with the

pathologies of the mouth including hard and soft tissues, jaws, and salivary glands [2]. It is the branch of dentistry concerned with the clinical, gross, and microscopic aspects of oral and perioral diseases [3]. The oral and maxillofacial pathologists examine and investigate the etiology, pathogenesis, clinical signs, and symptoms of oral diseases and investigate them through radiographic, histopathological, and laboratory aids. And sometimes may prescribe other investigations which may include immunohistochemistry, molecular analysis, and electron microscopy, etc. [4]. The main concern of oral pathology is related to the diseases of the oral cavity and associated structures which include teeth, tongue, bony tissue,

temporomandibular joint, lymph nodes, nerves, blood vessels, and the structures of the neck, and also pharynx and larynx [4].

For a better understanding of oral tissue diseases, dentists use knowledge of oral pathology which helps in diagnosis and treatment planning of diseases. A histopathological analysis is an important tool for diagnosing any severe and wide-spreading cases of oral pathology in all over the world. In histopathology studies, dentists took a biopsy of biological and pathological tissues and send them to histopathology's which examine it under a microscope and diagnose the abnormalities found in that tissue or cell [5]. This methodology is widely used to discover the causes of different oral diseases and includes biopsy for examining different tumors. This method is overly sensitive, and pathologists used different types of microscopes to examine the nature of the diseases, especially tumors. In the mid-20th century, different other techniques were introduced including flow cytometry, fluorescence, DNA and genetics studies, proteomics, telepathology [6].

The burden of oral pathology in different countries is variable. All these studies were conducted based on hard tissue pathology among adolescents [7]. But according to different researcher's soft tissue are most affected part from different tumors [8-10]. Abbasi Shaheed Hospital and Karachi Medical and Dental College is a tertiary care hospital also entrusted for teaching purposes. It is the third-largest hospital of Karachi, the OMFS department of Abbasi Shaheed Hospital Karachi attends many patients affected by various oral problems annually. Therefore, it is important to evaluate the burden of OMF pathologies of this hospital serving many people. A recently published study in 2019, reported that approximately 36.2 % (n=62) cases of oral and maxillofacial pathologies were reported in ASH [11]. This study will help the doctors to keep in mind the common diseases and their clinical presentation and construct the differential diagnosis. Although, after an in-depth search of data no study has been conducted to evaluate the actual burden of different types of oral pathologies. Therefore, the objective of the study was to evaluate the burden of oral pathology cases reported to the Faciomaxillary OPD of Abbasi Shaheed Hospital, and Karachi Medical and Dental College Karachi.

METHODOLOGY

This retrospective study was conducted at the Faciomaxillary OPD of Abbasi Shaheed Hospital, and Karachi Medical and Dental College. The study duration was 6 months from July 2019 to December 2019. The researcher used non-probability sampling and includes all the cases of oral pathologies reported in Faciomaxillary OPD of Abbasi Shaheed hospital in the last 5 years. The data from July 2014 to- June 2019 was collected and include gender, age, type of pathology, and distribution according to the zone. The inclusion criteria were patients from both genders, aged between 6 months to 75 years, having complaints of oral pathological lesions. All other cases reported to the OPD, other than oral pathologies e.g, trauma, gunshot wound, etc. were excluded. The anonymity and confidentiality of patients were maintained throughout the process of data collection.

The data were analyzed through SPSS version 16.0 software. Percentage and frequency were calculated for gender, and researchers also mentioned different types of lesions. While Pearson Chi-square test was conducted to evaluate the association between gender, age, and zones of Karachi with the oral pathologies. p-Value of < 0.5 was considered significant.

RESULTS

The total 2000 cases were recruited from the records of the faciomaxillary department of Abbasi Shaheed hospital belongs to different types of oral pathologies. Figure 1 show gender distribution of patients and it is evident that males account for most patients.

Table 1 represent the age group included in our studies and classified their oral and maxillofacial issues into soft and hard tissue pathology. The lesions were classified into two categories hard tissue pathologies and soft tissue pathologies. From the 2000 diagnosed cases, 1300 were soft tissue cases, and rest 700 were hard tissue cases (Table 2). A total of 15% of pre-malignant cases were reported in the last 5 years. These cases were Leukoplakia, oral lichen planus, hairy leukoplakia, oral sub mucous fibrosis, etc. Malignant cases (57.5%) were highly reported in soft tissue pathology in the last 5 years. In hard tissue cases, teeth were more affected by

hard tissues as compared to bone. The dental problems include periapical infections (12.5%), enamel defects (2.5), strains on teeth (12.5%), cavity (30%), and broken-down teeth (37.5%). In some cases, the dentist did not mention the disease type, so we classified it as others (5%). Bone pathologies include fibrous dysplasia (26%) followed by jaw cysts (23%), Osteogenesis imperfecta, Craniometaphyseal dysplasia and malignant osteoporosis (16%).

Table 3 represents the distribution of oral and maxillofacial cases diagnosed in metropolitan city Karachi. Karachi city is divided into 6 major districts which reflect the socio-economic

background of patients. Most of the the soft tissue cases were inspected from District central (25%), the next infected region was Korangi (17%), and District West (22.5%). Meanwhile, District Malir (6%), District East (2.5%), and District South (3%) were less targeted by oral and maxillofacial issues. When examining the hard tissue pathologies, our studies observed that District Korangi (12%) Malir (11.5%) were more encountered with bone and teeth pathologies as compared to District Central (10%), South (6%), East (3%) and West (1.25%).

In Table 4, the statistical values of the oral pathologies were compared with age, gender,

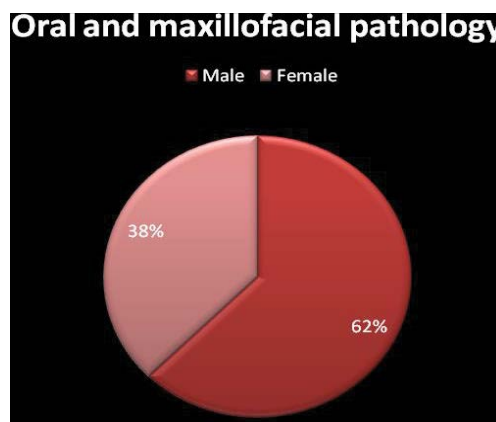


Figure 1: Percentage distribution of gender for oral pathologies.

Table 1: Showing the age range of patients with different oral and maxillofacial pathologies.

Age	Soft tissue pathology	Hard Tissue Pathology
Maximum age	72 years	65 years
Minimum age	1.5 months	1 year

Table 2: Frequency Distribution of Oral and Maxillofacial pathologies in the last five years.

Soft Tissue Pathology	Hard Tissue Pathology	
	Bone	Teeth
Cysts (150) 11.5%	Cysts (70) 23%	Cavity (120) 30%
Malignant (750) 57.5%	Fibrous dysplasia (80) 26%	Extrinsic Stains (50) 12.5%
Pre- malignant (200) 15%	Craniometaphyseal dysplasia (30) 10%	Enamel Defects (10) 2.5%
	Osteogenesis imperfecta (60) 20%	Cracked or broken teeth (150) 37.5%
	Malignant osteoporosis (50) 16%	Swelling of the face and cheek (50) 12.5%
Others (150) 11.84%	(10) 3.3%	(20) 5%
Total (1300) 65%	(300) 15%	(400) 20%

Table 3: Distribution of oral pathologies with the zones of Karachi and gender.

Area	Soft Tissue Pathology	Hard Tissue Pathology
District Central	25% (500)	10% (200)
District Korangi	17% (350)	12% (250)
District Malir	6% (120)	11.5%(230)
District South	3% (60)	6% (120)
District West	22.5% (450)	1.25% (25)
District E East	2.5% (40)	3% (60)
Total	55.75% (1115)	44.25% (885)

Table 4: Association of oral pathologies with gender, age and zones of Karachi.

s.no	Variable	p-value
1	Gender	0.757
2	Age	0.238
3	Zones of Karachi	0.224

and demography. The statistical p-value was insignificant for gender, age, and zones of Karachi. This indicates that human's internal and external environments play a vital role in his health. Those who use more tobacco concerning their age were more threatened by oral and maxillofacial issues.

DISCUSSION

In the 21st century, dental diseases are rapidly spreading throughout the world. Almost in every region, researchers conducted different studies to highlight the major maxillofacial pathologies and their etiologies. [12,13]. In Pakistan, males have more exposure to the external environment which sometimes results in accidents. Due to these accidents, they went through the surgical extractions or non-surgical extraction of teeth. From the total population of this research, 15.3% of males were more vulnerable towards the fractured crown due to accidents, violent activities, and improper protection of head during sports, parafunctional habits, and hard diet. Injuries and trauma are considered one of the major causes of hard tissue pathologies [14].

On the other hand, our studies explored that around 2.3% of females were reported for accidents, trauma, physical abuse, nutritional deficiencies, bone disorders, age factors, and physical abuse which results in the fractured of hard tissues [15,16]. Due to physical and violent activities patients all around the world also encountered trauma (30%) which ends in tooth crack at the age of 10-25 years [17-19]. From the sub-category of hard pathology, some rare cases of craniometaphyseal dysplasia (10%) were diagnosed which originate from the abnormal growth of bone thickness. Many researchers claim it as a strenuous issue of hard pathology which cannot easily cure [20-22]. When comparing the significant value of this research with previous studies, we observed that there is no significant relationship among gender patients (0.757) of oral and maxillofacial patients. This means that this issue can be observed in any age and gender due to some

genetic and external variables. Although, An Indian study claims that there is a significant relationship (0.20) between age and gender [23]. Another major issue found in our study was odontogenic cysts which are mostly found among women at 20-30 years' age. This disease usually affects the jaw and causes inflammation due to the development of cyst in the mouth [24]. While comparing with the reported statistics in Saudi Arabia, only 150 cases of cysts found in soft tissue in the last 20 years [25]. On the other hand, when these statistics compared with Indian researches (0.018), both studies showed a significant relationship between the maxillofacial issue and the external environment (both studies p-value was less than 0.5) [26].

The incidence of premalignancy and malignancy is quite high among the Pakistani population and it is constantly increasing day by day [27]. From the last 5 years, almost 62.88% of malignant cases were reported among men at Abbasi Shaheed Hospital. These cases were infected by Leukoplakia, Oral Lichen Planus, Hairy Leukoplakia. Due to smoking, there is an increased risk of tumors and HIV infection. These results can be compared with Indian researchers where 57.5% and 45.2 males respectively were exposed with malignant lesions only in the age of 25-50 years due to excessive usage of tobacco [28]. These results are in opposition to Brazilian studies where they found 52% female exposure towards oral and maxillofacial diseases [29].

It has been observed that soft tissue pathologies encounter the majority of diseases among Karachiates [30] Majority soft tissue pathologies were diagnosed from the 'central district' followed by a west zone of Karachi In contrast District Korangi including Landhi and Faisal Colony and from district Malir of Karachi reported the highest number of hard tissue pathologies The cultural habits of chewing gutka, pan and other tobacco products could be the main reason [31].

Chi-square test was used to evaluate the relationship of oral pathologies with gender, age, and zones and there was a non-significant

relationship among these variables. From all the data, our studies recommend that males involved in a lot of physical activities so they should be careful not to hurt themselves because most of the facial bones' teeth and gums may get damaged in these activities. Further individuals should use a healthy diet and must search for an early diagnosis of any unusual experience especially within the oral cavity which may protect them. We also recommend patients with long-lasting complaints of 2-4 weeks should seek advice promptly to an appropriate specialist to obtain an absolute diagnosis. If the specialist detects an obstinate oral lesion, a biopsy should be performed without delay.

LIMITATION

The Oral and Maxillofacial department of Abbasi Shaheed Hospital in Karachi's third major public sector hospital dealing with a substantial number of patients. It not only deals with major traumatic injuries but also treat and diagnose many other pathologies. Public awareness schemes and counseling programs should be planned for generating awareness about the risks of oral pathologies and the importance of early diagnosis and prevention.

CONCLUSION

The burden of oral pathology cases reported to the faciomaxillary OPD of Abbasi Shaheed Hospital, Karachi, was quite high. An adequate measure should be taken to address and treat these diseases.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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REFERENCES

1. Shamim T. The relationship of forensic odontology with various dental specialties in the articles published in the journal of forensic odonto-stomatology from 2005 to 2012. *Indian J Dent* 2015; 6:75.
2. Shamim T. The dental specialties related articles published in medical journal armed forces india from 2000 to 2014 over a 15-year period. *Med J Armed Forces India* 2015; 71:S400-S410.
3. <https://medical-dictionary.thefreedictionary.com/oral+pathology>
4. Rahman NA. Oral and maxillofacial pathologic lesion: Retrospective studies on prevalence and sociodemographic features. *Arch Orofac Sci* 2014; 9:65-75.
5. Ravikumar V, Heera R, Cherian L, et al. Hemangioendothelioma of palate: A case report with review of literature. *J Oral Maxillofac Pathol* 2017; 21:415.
6. Iacob A, Comişel S, Tilinca M, et al. Oral epithelioid hemangioendothelioma-Unusual location of a rare entity. *J Interdisciplinary Med* 2017; 2:349-353.
7. Rajendrakumar PN, Suresh JK, Wadhwa A, et al. Haemangioendothelioma of oral cavity: A rare entity with unusual location. *J College Phys Surgeons Pakistan* 2019; 29:680-682.
8. Sivapathasundharam B. *Shafer's textbook of oral pathology*: E Book. Elsevier India 2016.
9. Muruganandhan J, Govindarajan S. Oral Pathology in India: Current scenario and future directions. *World J Dent* 2017; 8:429-431.
10. Prasad L. Burden of oral cancer: An Indian scenario. *J Orofac Sci* 2014; 6:77.
11. Iqbal S, Ahmed S, Ali Z, et al. Evaluation of records of oral and maxillofacial surgery cases reported at Abbasi Shaheed Hospital and Karachi Medical and Dental College, Pakistan. *Int J Frontier Sci* 2020; 4:47-51.
12. Pessôa C, Alves T, Santos N, et al. Epidemiological survey of oral lesions in children and adolescents in a Brazilian population. *Int J Pediatr Otorhinolaryngol* 2015; 79:1865-1871.
13. Ataíde A, Fonseca F, Santos Silva A, et al. Distribution of oral and maxillofacial lesions in pediatric patients from a Brazilian southeastern population. *Int J Pediatr Otorhinolaryngol* 2016; 90:241-244.
14. Iqbal S, Aslam A, Ahmed S, et al. Spectrum of mandibular fractures in a tertiary care hospital of Karachi. *Int J Frontier Sci* 2020; 4.
15. Kashif M. Spectrum of mandibular fractures presented at Abbasi Shaheed Hospital. *Annals Abbasi Shaheed Hospital Karachi Med Dent College* 2012; 4:38-43.
16. Kashif M, Mehmood K, Taiba A, et al. Reasons and patterns of tooth extraction in a tertiary care hospital-A cross sectional prospective survey. *J Liaquat Uni Med Health Sci* 2014; 13:125-129.
17. Ahmed S. Prevalence of oral diseases in pediatric population in Karachi, Pakistan-A cross-sectional survey. *J Dent Health Oral Disorders Therapy* 2017; 6.
18. Al-Abdallah M, AlHadidi A, Hammad M, et al. Prevalence and distribution of dental anomalies: A comparison between maxillary and mandibular tooth agenesis. *Am J Orthodont Dentofac Orthop* 2015; 148:793-798.
19. Filippidi A, Galanakis E, Maraki S, et al. The effect of maternal flora on Candida colonization in the neonate. *Mycoses* 2013; 57:43-48.

20. US Department of health and human services federal panel on community water fluoridation. US public health service recommendation for fluoride concentration in drinking water for the prevention of dental caries. *Public Health Rep* 2015; 130:318-331.
21. Silva M, Barbosa K, Pereira J, et al. Prevalence of oral mucosal lesions among patients with diabetes mellitus types 1 and 2. *Anais Brasileiros de Dermatologia* 2015; 90:49-53.
22. Gundamaraju K, Kantheti L, Naga S, et al. Prevalence of oral potentially malignant and malignant lesions at a tertiary level hospital in Hyderabad, India. *J Dr NTR University Health Sci* 2014; 3:13.
23. Balaji S. Burden of oral diseases in 2016: Newer opportunities for further research. *Indian J Dent Res* 2017; 2:475.
24. Heera R, Bharathan R, Padmakumar SK, et al. Oral and maxillofacial biopsy reports of children in south Kerala population: A 20-year retrospective study. *Int J Sci Stud* 2016; 4:104-108.
25. Ikhindi NA, Sindi AM, Binmadi NO, et al. A retrospective study of oral and maxillofacial pathology lesions diagnosed at the Faculty of dentistry, King Abdulaziz University. *Clin Cosmetic Investigational Dent* 2019; 11:45.
26. Gupta J, Wesley SJ, Gupta K. Prevalence of tobacco in Darbhanga district: A hospital-based cross-sectional study. *J Cancer Res Therap* 2017; 13:576.
27. Wahab NU, Afifa R, Atif I, et al. Oral submucous fibrosis: Successful management of fifty cases with interpositioning buccal fat pad flap. *Annals Abbasi Shaheed Hospital Karachi Med Dent College* 2016; 22:25-30.
28. El-Naggar AK, Chan JK, Grandis JR, et al. WHO classification of head and neck tumours. *Int Agency Res Cancer* 2017.
29. Gheno JN, Martins MA, Munerato MC, et al. Oral mucosal lesions and their association with sociodemographic, behavioral, and health status factors. *Brazilian Oral Res* 2015; 29:1-6.
30. Xiao J, Moon Y, Li L, et al. *Candida albicans* carriage in children with severe early childhood caries (S-ECC) and maternal relatedness. *PLOS ONE* 2016; 11:164- 242.
31. Gonçalves B, Ferreira C, Alves C, et al. Vulvovaginal candidiasis: Epidemiology, microbiology, and risk factors. *Critical Reviews Microbiol* 2015; 42:905-927.