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ORIGINAL ARTICLE

A CLINICAL AUDIT OF ORAL PATHOLOGIC LESIONS AT A TEACHING HOSPITAL IN KARACHI

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ABSTRACT

Clinical audits can be conducted globally, nationally or locally depending on where oral healthcare is offered. The aim of the study was to report oral pathologic lesions presented in the outpatient department at Fatima Jinnah Dental College & Hospital in the period of four years from Jan 2017 to- Dec 2020. To find its association with gender, age, intra-oral site, year of presentation, mouth opening, and clinical diagnosis. This is a descriptive study which was conducted at Fatima Jinnah Dental College & Hospital, Karachi, Pakistan. The researcher used a nonprobability sampling method. The ethical approval was taken from the Ethical review committee of the Institute. The data were analyzed through SPSS version 20.0 software. P-value of < 0.05 was considered significant.

Out of 651 patients, there were 362 (55.6%) men and 289 (44.4%) women. The average age was 35.3±14.4. The peak age group was between 20 and 40 years (56.4%). Oral submucous fibrosis was the most commonly diagnosed pathologic condition (28.6%) followed by traumatic ulceration (8.4%), oral squamous cell carcinoma (6.5 %), oral lichen planus (4.8 %) and fibrous epulis (4.5 %). The buccal mucosa (51.92%) appeared to be the most prevalent site. Tobacco use in one way or another was linked to the most prevalent oral pathologic lesions (31.2%). The most frequent oral pathologic lesions among female patients were immune-mediated lesions (70.9%) and reactive hyperplastic lesions (58.4%). It entails educating and empowering individuals to utilize the best practices for optimal oral health care in order to prevent oral disease as much as possible.

KEYWORDS: *Oral mucosa, diagnosis, clinical audit, oral health, Mouth diseases, pathologic conditions*

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INTRODUCTION

Among the most common oral conditions affecting people worldwide are orodental infections, ulcerative lesions, hyperplastic lesions, white and red lesions, and oral cancer.[1] Furthermore, common oral conditions make it challenging for patients to perform their daily tasks at home, or at work.[2] Intractable pain that prevents people from speaking, smiling, chewing, or swallowing has a significant negative impact on people's overall health.[3] Numerous oral disorders are related to chronic illnesses, and having poor oral health may make the underlying conditions worse.[4] It is essential to keep up with the most pressing oral issues in the local context if you want to provide patients with the best oral care available.

The term "clinical audit," according to the UK's Altman Committee, refers to "sharing by a group of peers of information gained from personal experience and/or medical or dental records".[5] This is conducted to evaluate the dental care given to their patients in order to enhance their learning and contribute to the knowledge of dentistry.[6] It enable quality improvement

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where it will be most beneficial and will enhance patient outcomes. Clinical audits can be conducted globally, nationally or locally (in dental hospital set-up, or private clinics), depending on where oral healthcare is offered.[7] Because the work of clinical departments involves varying degrees of inquiry, diagnosis, investigation, and patient management, the primary goals of the clinical audit are to assess and monitor the outcomes of these activities.[8]

However, there haven't been many current clinical audit studies on oral diseases published worldwide.[5-9] Similar to this, there are discrete clinical audit reports that give us a comprehensive overview of the most prevalent oral diseases in our context.[10, 11] Also find their correlation with various age groups, genders, location of the lesions and year of presentation. In this study, we reported maximum oral pathologic lesions that were reported to the Department of Oral Diagnosis, Oral Pathology, Oral Medicine and Oral Surgery at Fatima Jinnah Dental College & Hospital. Additionally, categorize oral pathologic lesions clinically, etiologically, gender-wise, age predominance, intra-oral site of the lesion, year of presentation, mouth opening, and diagnosis in order to comprehend its prevalence. Which would provide crucial data for developing a future strategic plan, increasing the focus of attention, enhancing clinical care, and expanding the horizon of research.

MATERIALS AND METHODS

This is a descriptive study which was conducted at Fatima Jinnah Dental College & Hospital, Karachi, Pakistan. The study included all patients who presented with oral pathologic lesions to the Departments of Oral Pathology, Oral Medicine, and Oral Surgery in the period of four years from Jan 2017 to- Dec 2020. The researcher used a nonprobability sampling method. Because of the retrospective nature of the study sample size could not be calculated. Permission was obtained from the hospital management, and patients' confidentiality was protected in the study. After receiving approval, data was obtained from patient record forms. The patients' record forms were thoroughly evaluated by the researchers to extract all the required information. The anonymity of patients was maintained throughout the process of data collection. The data for 2020 was less than other years, but it was still included in the study. The study duration was 6 months from Jan 2022 to June 2022. In contrast to other years, patient turnover in 2020 was noticeably lower.

The following information was collected: the year of presentation, gender, age, presenting complaint, site, etiological classification, clinical classification, and mouth opening. The ethical approval was taken from the Ethical review committee of the Institute (SEP-2021-ORP01). The inclusion criteria were patients from both genders, aged between 6 months to 85 years, having complaints of oral and maxillofacial lesions. All cases of dental caries, pulpitis, periodontitis, dental abscess, fracture, gunshot wound, and accidents were not included in the study.

The data were analyzed through SPSS version 20.0 software. Percentage and frequency were calculated for age group, site of oral lesions, and diagnosed cases of oral pathologic lesions. A bar graph was representing the distribution of gender and age group in percentage. A pie-chart was showing site distribution of oral pathologic lesions. The clinical category of oral pathologic lesions was compared with years of presentation. Pearson Chi-square test was used to assess the association between etiological category of oral pathologic lesions and gender and age. P-value of < 0.05 was considered significant.

RESULTS

Between January 1st, 2017 and December 31st, 2020, the Fatima Jinnah Dental College Hospital outpatient Department (OPD) of Oral Diagnosis, Oral Pathology, Oral Medicine and Oral Surgery provided specialist treatment to 651 patients who presented with oral pathologic lesions. There were 362 (55.6%) men and 289 (44.4%) women among them. There was a male to female ratio of 1.2:1. The patients ranged in age from three to eighty-five years. The average age was 35.3±14.4. Figure 1 shows the age distribution of all patients. The peak age group was between the ages of 20 and 40 years (367, 56.4%), with a male predominance.

The yearly distribution of reported oral pathologic lesions in secondary care hospitals is shown in Table 1. Oral submucous fibrosis was the most commonly diagnosed condition (186, 28.6% of all cases). It is followed by traumatic ulceration (55, 8.4%), oral squamous cell carcinoma (42, 6.5 %), oral lichen planus (31, 4.8 %) and fibrous epulis (29, 4.5 %) (table. 3). Table 3 shows all the diagnosed cases. The buccal mucosa (51.92%) appears to be the most prevalent site, followed by the alveolar mucosa (11.21%) and the dorsal surface of the tongue (6%) (Figure 2).

In the female population, immune-mediated lesions, infective lesions, and reactive lesions were prevalent oral diseases. (Table 2). Malignant lesions, white lesions and traumatic lesions were associated with males in our population (table 2). Limited mouth opening (186, 28.6%), exophytic mass (123, 18.9%), burning sensation (89, 15.7%), and painful ulceration (103, 15.8%) were the most common complaints that brought such patients to the hospital for treatment. The average mouth opening of the patients who complained of lim-

TABLE 1: ORAL PATHOLOGIES PRESENTED AT THE OUTPATIENT DEPARTMENT OF FATIMA JINNAH DENTAL HOSPITAL

Oral Pathologies	Years of Presentation				Total N%
	2017 N%	2018 N%	2019 N%	2020 N%	
Bacterial infection	2 (0.3 %)	5 (0.7 %)	8 (1.2%)	5 (0.7 %)	20 (3.1%)
Cystic lesion	2 (0.3%)	7 (1.1%)	7 (1.1%)	2 (0.3%)	18 (2.7%)
Dental Disorders	2 (0.3%)	3 (0.4%)	5 (0.7%)	2 (0.3%)	12 (1.8%)
Dermatological lesions	8 (1.2%)	10 (1.5%)	10 (1.5%)	3 (0.4%)	31 (4.7%)
Functional disorders	2 (0.3%)	3 (0.4%)	5 (0.7 %)	1 (0.1%)	11 (1.6%)
Fungal infection	6 (0.9%)	9 (1.3%)	5 (0.7 %)	1 (0.1%)	21 (3.2%)
Giant-cell lesions	2(0.3%)	2 (0.3%)	4 (0.6%)	0 (0%)	8 (1.2%)
Gingival hyperplasia	9 (1.3%)	26 (3.9%)	25 (3.8%)	2 (0.3%)	62 (9.5%)
Malignant lesions	14 (2.1%)	15 (2.3%)	17 (2.6%)	5 (0.7 %)	51 (7.8%)
Miscellaneous lesions	15 (2.3%)	8 (1.2%)	18 (2.7%)	8 (1.2%)	49 (7.5%)
Neurological disorders	3 (0.4%)	4 (0.6%)	6 (0.9%)	2 (0.3 %)	15 (2.3%)
Odontogenic tumors	1 (0.1%)	1(0.1%)	1 (0.1%)	0 (0%)	3 (0.4%)
Oral Submucous fibrosis	86 (13.2%)	43 (6.6%)	47 (7.2%)	10 (1.5%)	186 (28.5%)
Reactive lesions	1 (0.1%)	3 (0.4%)	1 (0.1%)	0 (0%)	5 (0.7%)
Red-blue lesions	1 (0.1%)	1 (0.1%)	2 (0.3 %)	1 (0.1%)	5 (0.7 %)
Salivary gland diseases	3 (0.4%)	2 (0.3 %)	2 (0.3 %)	0 (0%)	7 (1.1%)
Soft-tissue tumors	11 (1.6%)	31 (4.7%)	37 (5.6%)	3 (0.4%)	82 (12.5%)
Ulcerative lesions	23 (3.5%)	24 (3.6%)	28 (4.3%)	6 (0.9%)	81(12.4%)
Vesiculobullous lesions	2 (0.3 %)	1 (0.1%)	1 (0.1%)	0 (0%)	4 (0.6%)
Viral infection	5 (0.7 %)	3 (0.4%)	3 (0.4%)	1 (0.1%)	12 (1.8%)
White lesions	11 (1.6%)	12 (1.8%)	9 (1.3%)	3 (0.4%)	35 (5.3%)
Total	199 (30.5%)	184 (28.3%)	215 (33%)	53 (8.2%)	651 (100%)
p-value			0.04*		

Chi-square was used to find the statistical association between variables and *p-value <0.05 considered as significant.

TABLE 2: REPRESENTS THE RELATIONSHIP BETWEEN AN ETIOLOGICAL PARAMETER AND GENDER AND AGE GROUP

Etiological Categorization	Gender		Total N%	Age group				Total N%
	Female N%	Male N%		≤20 N%	21-40 N%	41-60 N%	>60 N%	
Benign tumors	1 (0.1%)	0 (0%)	1 (0.1%)	0 (0%)	1 (0.1%)	0 (0%)	0 (0%)	1 (0.1%)
Congenital	0 (0%)	1 (0.1%)	1 (0.1%)	1 (0.1%)	0 (0%)	0 (0%)	0 (0%)	1 (0.1%)
Developmental	19 (2.95)	16 (2.4%)	35 (5.3%)	14 (2.1%)	16 (2.4%)	5 (0.7%)	0 (0%)	35 (5.3%)
Drug-induced	2 (0.3%)	7 (1.1%)	9 (1.3%)	0 (0%)	4 (0.6%)	5 (0.7%)	0 (0%)	9 (1.3%)
Functional	9 (1.3%)	3 (0.4%)	12 (1.8%)	0 (0%)	5 (0.7%)	6 (0.9%)	1 (0.1%)	12 (1.8%)
Idiopathic	8 (1.2%)	2 (0.3%)	10 (1.5%)	1 (0.1%)	6 (0.9%)	2 (0.3%)	1 (0.1%)	10 (1.5%)

Immune-mediated	40 (6.1%)	16 (2.4%)	56 (8.6%)	5 (0.7%)	30 (4.6%)	15 (2.3%)	6 (0.9%)	56 (8.6%)
Infective	33 (5%)	34 (5.2%)	67 (10.2%)	6 (0.9%)	35 (5.3%)	20 (3%)	6 (0.9%)	67 (10.2%)
Malignant Neoplastic	19 (2.9%)	32 (4.9%)	51 (7.8%)	0 (0%)	16 (2.4%)	33 (5%)	2 (0.3%)	51 (7.8%)
Neurological	11 (1.6%)	4 (0.6%)	15 (2.3%)	0 (0%)	7 (1.1%)	8 (1.2%)	0 (0%)	15 (2.3%)
Obstructive	3 (0.4%)	4 (0.6%)	7 (1.1%)	2 (0.3%)	4 (0.6%)	0 (0%)	1 (0.1%)	7 (1.1%)
Reactive lesions	66 (10.1%)	47 (7.2%)	113 (17.3%)	16 (2.4%)	52 (7.8%)	37 (5.6%)	8 (1.2%)	113 (17.3%)
Tobacco associated	56 (8.6%)	147 (22.5%)	203 (31.1%)	24 (3.6%)	141 (21.6%)	36 (5.5%)	2 (0.3%)	203 (31.1%)
Traumatic	22 (3.3%)	49 (7.5%)	71 (10.9%)	11 (1.6%)	50 (7.6%)	10 (1.5%)	0 (0%)	71 (10.9%)
Total	289 (44.4%)	362 (55.6%)	651 (100%)	80 (12.3%)	367 (56.3%)	177 (27.3%)	27 (4.1%)	651 (100%)
p-value		<0.001*				<0.001*		

Chi-square was used to find the statistical association between variables and *p-value <0.05 considered as significant.

TABLE 3: SHOWS THE CASES OF ORAL PATHOLOGIC LESIONS THAT HAVE BEEN DIAGNOSED AND TREATED AT THE FATIMA JINNAH DENTAL HOSPITAL

Diagnosed cases	**Frequency (n)**	**%**	**Diagnosed cases**	**Frequency (n)**	**%**
OSF	186	28.6	Cellulitis	1	0.2
OSCC	42	6.5	Hematoma	1	0.2
Lichen planus	31	4.8	Ameloblastoma	2	0.3
Leukoplakia	12	1.8	Sialolith	2	0.3
Oral candidosis	12	1.8	Mucocele	4	0.6
RAS	24	3.7	Aspirin burn	2	0.3
Traumatic ulceration	55	8.4	Erythema Multiforme	1	0.2
Fibroma	20	3.1	Angular Cheilitis	1	0.2
Fibrous Epulis	29	4.5	Fordyce's Granules	2	0.3
Pyogenic granuloma	11	1.7	Sialorrhea	1	0.2
PGCG	6	0.9	Odontome	1	0.2
Denture induced hyperplasia	6	0.9	Radicular cyst	8	1.2
Oral pigmentation	19	2.9	Ranula	1	.2
BMS	6	0.9	GGH	7	1.1
TMJPD	11	1.7	Eruption cyst	1	0.2
Trigeminal Neuralgia	15	2.3	Pregnancy epulis	6	0.9
Herpes infection	13	2.0	Verrucous SCC	1	0.2
Sailadenitis	5	0.8	Traumatic Nerofibroma	1	0.2
Lichenoid reaction	8	1.2	CHC	4	0.6
Residual cyst	1	0.2	Amelogenesis Imperfecta	9	1.4

Desquamative gingivitis	3	0.5	Osteomyelitis	1	0.2
Fibrous dysplasia	1	0.2	Erythroplakia	5	0.8
Atrophic tongue	10	1.5	OKC	1	0.2
Denture induced stomatitis	6	0.9	Cellulitis	16	2.5
Geographic tongue	7	1.1	OSF-Ca	8	1.2
Frictional keratosis	15	2.3	Tetracycline staining	3	0.5
Black Hairy tongue	4	0.6	CGCG	1	0.2
Odontogenic Keratocyst	2	0.3	Total	651	100.0

PGCG: peripheral giant cell granuloma, GGH: generalized gingival hyperplasia, CHC: chronic hyperplastic candidiasis, CGCG: central giant cell granuloma, SCC: squamous cell carcinoma

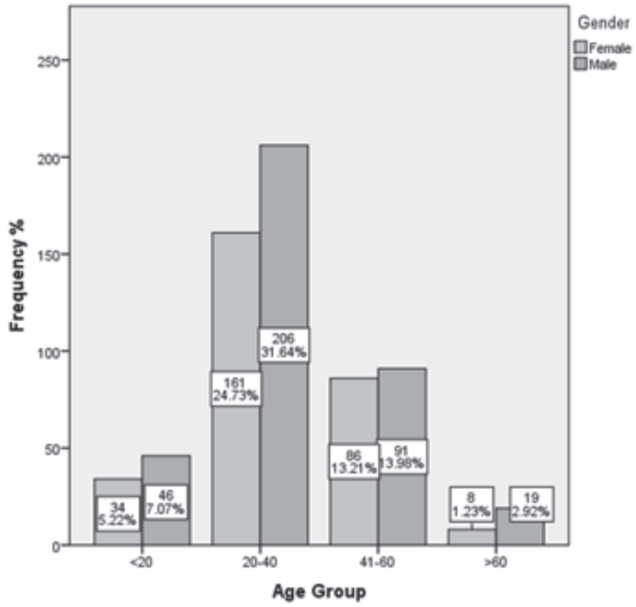

Fig 1: Distribution of Gender and Age Group

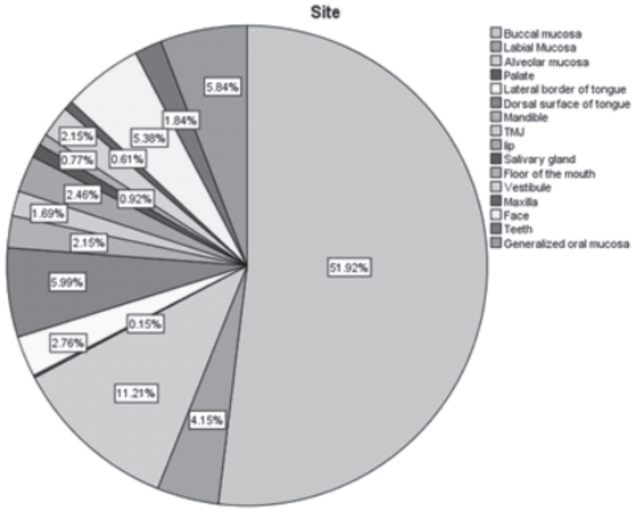

Fig 2: Site Distribution of Oral Diseases

ited mouth opening was 19.9±6.3. There were 339 oral lesions involving the oral mucosa bilaterally (52.1%), and 312 unilaterally (47.9%).

DISCUSSION

Auditing could be done on a small scale in several domains of dentistry. Audits can range from record keeping to diagnosis and treatment, as well as postoperative follow-up.[6-8] In this study, we audited the diagnosis of oral and maxillofacial diseases at Karachi's private teaching hospital. We observed that the most common oral lesions were related to tobacco consumption (31.2%) in one form or another. This habit was significantly (p-value <0.001) found in male patients (72.4%) as compared to females (27.6%). The large number of patients presenting to the Outpatient Department (56.4%) were in their second and third decades of life. According to Hasan et al, the majority of cases of oral pathologies are reported in the third and fourth decade (45.6%) of life in a public sector health facility of Karachi.[12]

Overall, the most common condition reported in the study was oral submucous fibrosis (OSF), which accounted for 28.6% of all cases. Similarly, Akhlaq et al. reported 29% cases of oral submucous fibrosis in their clinical setting.[13] Moreover, other studies in Pakistan found a high prevalence of OSF in various clinical setups.[14-17] In the study, 72.6% of the 186 OSF cases were male and 27.4% were female, for a 2.6:1 gender ratio. Males had a mean age of 29.9±10.8, while females had a mean age of 33.5±9.9. The average mouth opening found in the OSF patients was 20.58±5.9. Correspondingly, Salam et al reported that 83.33% of study participants were men and only 16.67% were women, for a 4.8:1 ratio.[16] They found mean age at presentation for males was 27.08±10.43, while women's mean age was 20.3±35.0.[16] According to Chandramani More et al (2011)[16], 61.8% of OSF patients in the study were diagnosed at clinical stage II. Limited mouth opening was the most common presenting complaint followed by ulceration, burning sensation, or an incidental finding during a dental examination.

The study includes 6.7% cases of traumatic ulceration caused by biting the cheek, lip, or tongue, or using an orthodontic appliance or ill-fitting prosthesis. The lesion was more common in men (57.8%) and on the

buccal mucosa (76.3%). Our findings are consistent with the incidence of traumatic ulceration (6.1%) found in North India.[18] In the study, white lesions were found in 6.1% of the patients. While frictional keratosis (2.6%), leukoplakia (2.1%), and oral candidiasis (2.1%) were the most common. These white lesions were statistically more common in middle-aged males (p-value <0.001). Akhlaq et al. reported 14% candidiasis and 3.6% frictional keratosis prevalence in their clinical setting.[13] A study of geriatric patients stated increase incidence of smoker's palate (43%), denture stomatitis (34%), oral submucous fibrosis (30%), frictional keratosis (23%), and leukoplakia (22%) in male patients with hard palate (23.1%) being the most commonly affected side.[19]

There were 31 cases of oral lichen planus in the study, with 22 (70.9%) of them being females who frequently complained of a burning sensation on the oral mucosa. The most common clinical manifestation was a reticular pattern on the buccal mucosa on both sides. This is consistent with other studies that have found a high prevalence of lichen planus in the female population.[13, 20] However, there were 56 (65.8%) cases of oral reactive hyperplastic lesions reported in females, with traumatic fibroma (15.3%) and fibrous epulis (21.2%) being the most common.[21] Mohammad et al, on the other hand, found a high prevalence of pyogenic granuloma (53%), as well as peripheral giant cell granuloma (28%), in females at the Khyber College of Dentistry hospital, Pakistan.[22] Reddy et al have also reported the higher incidence of fibrous hyperplastic lesion up to 57.4% in the oral cavity, trailed by pyogenic granuloma 18.7% and peripheral ossifying fibroma 17.7%.[23]

Patients were referred to the appropriate department based on their needs in order to address the underlying cause of the problem. The ability to assess changes in the oral disease's manifestation from one visit to the next and to offer evidence-based treatments are crucial for monitoring oral health.[24] It is important to understand that in a dental setting, patient care extends beyond treating oral issues. It entails educating and empowering individuals to utilize the best practices for optimal oral health care in order to prevent oral disease as much as possible. To make them aware about the deadly side effects of consuming smoked and smokeless tobacco and ignoring asymptomatic oral lesions. One of the limitations of this study was sampling patients from a single institution in Pakistan. Future studies can aim at including appropriate representation from each part of Pakistan to provide a better estimate.

CONCLUSION

In the study, tobacco use in one way or another was linked to the most prevalent oral pathologic lesions. According to statistical analysis, male patients were substantially more likely to have this oral habit than female patients. In our clinical context, oral submucous fibrosis was the most common oral pathologic lesion, and it was more common in men. The most frequent oral pathologic lesions among female patients were immune-mediated lesions, infectious lesions, and reactive hyperplastic lesions.

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1 Mehwish Feroz Ali:	Conceived the idea, literature review, data collection, data analysis, interpreted the data and draft of the manuscript.
2 Gulrukh Askary:	Literature review, supervised and reviewed the manuscript.
3 Hasan Mehdi:	Conceived the idea, Literature review, interpreted the data, data analysis, supervised and reviewed and edited the final manuscript.
4 Aiman Khan, Farwa Sajjad:	Literature review, data collection and data entry.
5 Shahrukh Saran:	Literature review and data collection