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DIAGNOSTIC DELAY FOR ORAL MALIGNANT AND PREMALIGNANT DISORDERS IN PATIENTS PRESENTING WITH CLINICALLY EVIDENT ORAL MUCOSAL LESIONS

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ABSTRACT

This study was done to assess patients' opinion about the diagnostic delay of suspicious oral lesions they were presented with in the Out-patient Department. To estimate the time between the discovery of lesions and seek professional help, visit a healthcare professional, and referral being issued and time between referral and appointment with a specialist for clinically evident oral malignant and premalignant disorders.

A longitudinal cross-sectional study was conducted at Fatima Jinnah Dental College and Hospital, Karachi. The sample size of 384 was calculated using OpenEpi software. The study duration was 2 years from January 2019 to December 2020. The convenience sampling technique was used. Ethical approval was taken from the Institution's Ethical Review Committee. A 16-items questionnaire was designed to collect study data.

Study data revealed that 57.7% patients used over the counter medication or applied home-based remedies to treat the oral lesions. Around 28.8% of patients were negligent of any changes in the oral cavity and the lesion was diagnosed incidentally when the oral examination was performed for other dental treatment. 96.6% of patients were satisfied with the advice provided by their referring dental practitioner and most (84.7%) agreed to act on their referral immediately. However, 15.2% of patients still delayed their specialist appointment > than one month.

Patients understand that all forms of oral lesions require professional dental care for the better treatment.

Keywords: *Precancerous conditions, diagnosis, early detection of cancer, oral mucosa.*

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INTRODUCTION

Recently, the occurrence of oral lesions has been reportedly increasing in our population.[1] This may include oral mucosal reactive lesions, benign lesions, premalignant disorders and malignancy.[2] As per the literature, several factors are associated with the initiation, progression and transformation of these oral lesions which includes smoking, tobacco consumption, alcohol, infective agents etc.[3] Most of the oral lesions are diagnosed incidentally when a patient presented with other dental problem such as dental pain. The vigilant examination of the oral mucosa during visits can catch the eyes of the clinician with such suspicious lesions.[4] Some of these suspicious oral lesions may be diagnosed at its initial phase due to the presence of symptoms and treated timely.[5] While a greater number of patients reported at the late stages of disease, for them the effectiveness of treatment declines and quality of life is also compromised.[6]

According to the World Health Organization, "those oral mucosal lesions have susceptibility for malignant transformation referred to as oral potentially malignant disorders (OPMD)".[7] The global prevalence of OPMDs was reported as 4.47%.[3] The prevalent suspicious oral mucosal lesions are oral submucous fibrosis (OSMF) and oral lichen planus (OLP) in our population.[8-9] They are often asymptomatic at the initial stage of its development, which can easily be overlooked by patients.[7] The time when these lesions exhibit distressing symptoms like pain, burning sensation, ulceration, limited mouth opening, swelling on the neck (lymphadenopathy), and inability to eat, swallow or talk; it may attain an advanced or progressive stage.[3, 10] They might have also transformed into oral malignancies such as oral squamous cell carcinoma (OSCC) which has a 10.9% occurrence rate in our population.[11]

The delay in reporting and diagnosis of such lesions not occurs at the patient's end only, it may be due to delay in issuing the referral to the patient or appointment with the specialist.[12] The previous literature says, delay in the diagnosis of suspicious oral lesions can happen due to asymptomatic lesions, lingering visits to the oral health care provider, over the counter medicine, or not following the referral to the specialist.[13] Moreover, patients are blinded by the life threatening consequences of persistent suspicious oral lesions.[11] In this study, patients' opinion was assessed about the diagnostic delay of suspicious oral lesions they are presented with in the Out-patient Department. Following points were recorded:

1 Time taken between the discovery of suspicious lesions and seeking professional help,

2 To visit a healthcare professional

3 Or time taken for an appointment with a specialist for clinically evident oral premalignant and malignant lesions.

MATERIAL AND METHODS

This was a cross-sectional, longitudinal survey-based study that was conducted at the Fatima Jinnah Dental College and Hospital (FJDC&H), Karachi. The sample size was calculated through OpenEpi software of 384 equation of sample size calculation is n = [DEFF*Np(1-p)]/ [(d^2/Z$^2_{1-\alpha/2}$*(N-1)+p*(1-p)]. The population size (for finite population correction factor or fpc)(*N*):100000, Hypothesized % frequency of outcome factor in the population (*p*): 20% +/-5, Confidence limits as % of 100(absolute +/- %)(*d*): 5% and Design effect (for cluster surveys-*DEFF*): 1. The duration of the study was 2 years from January 2019 to December 2020. The sampling technique was consecutive. Patients above the age of ≥18 years were included in the study. Both genders, males and females were selected for the study. A 16-items questionnaire was employed to assess the opinion of patients about the delay in the diagnosis of suspicious oral lesions which was obtained from a published study internationally11 but slight modifications made in the questionnaire as per the context of the study population. Verbal and written consents were obtained from all the patients who had reported to the Outpatient Department. The ethical approval was taken from the Ethical committee of the Fatima Jinnah Dental College (JAN-2019-OPLO1).

In the study, patients asked about the first person to contact for management, the regularity of dental visits, habits, discovery of lesions, time when seeking professional help, delay time and reason, referral date and beliefs and attitudes towards oral mucosal screening. A moderator who provided assistance to some patients in filling the questionnaire was not part of the team. Face to face verbal responses were also asked randomly from the patients to compare the answers. The verbal responses were collected by a trained person who was not part of the team to avoid interviewer-bias. Patients with clinically evident premalignant and malignant lesions were included. Those patients who gave consent were enrolled in the study. Validity was ensured through a review of the literature, patient feedback, and feedback from an oral maxillofacial surgeon.

The statistical analysis of patients' responses was calculated by Statistical Package for Social Sciences (SPSS version 20). For qualitative and quantitative data percentage, frequencies, means and SD were calculated. The ANOVA and Pearson correlation tests were applied to find correlation between different study variables which defines the time of diagnostic delay. P-value less than .05 was found to be significant.

RESULTS

The questionnaire was filled by 384 patients, out of which 360 were complete and 24 forms were incomplete or lacked essential details. In this study, 60% (216) were males and 40% (144) were females' ratio of 3:2. The mean age was 39.2±12.6 and mouth opening was 22.1±9. The cases reported in 2019 were 75.6% (272) and in 2020 was 24.4% (88). Figure 1 represents the forms of oral premalignant lesions in our population. The most common oral potentially malignant disorders were OSF (212; 58.8%), and Lichen planus (38; 10.5%). The majority of the patients had the habit of consuming chalia alone (36; 10%) or in combination with pan (36; 10%), gutka (152; 42.2%) and smoking (84; 23.3%).

Table 1 represents the association of gender and age group with parameters like visit to dental practitioner, presence of oral mucosal lesion, and agreement with referral. The majority of patients (93.3%) fail to visit the dentist often and prefer to visit different dental

TABLE 1: ASSOCIATION OF GENDER AND AGE GROUPS WITH DIFFERENT ELEMENTS OF QUESTIONNAIRE

		GENDER		Total	p-value	AGE GROUP			Total	p-value
		Male	Female			<30 years	30-60 years	>60 years		
Dental Visit Related Questions	Do you visit a dentist on a regular basis?									
	Yes	20 (5.5%)	4 (1.1%)	24 (6.6%)	0.016*	4 (1.1%)	20 (5.5%)	0 (0%)	24 (6.6%)	0.223
	No	196 (54.4%)	140 (38.8%)	336 (93.3%)		88 (24.4%)	228 (63.3%)	20 (5.5%)	336 (93.3%)	
	Unsure	0 (0%)	0 (0%)	0 (0%)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	
	Total	216 (60%)	144 (40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	
	Do you visit the same dentist									
	Yes	16 (4.4%)	4 (1.1%)	20 (5.5%)	0.05*	0 (0%)	20 (5.5%)	0 (0%)	20 (5.5%)	0.008*
	No	200 (55.5%)	140 (38.8%)	340 (94.4%)		92 (25.5%)	228 (63.3%)	20 (5.5%)	340 (94.4%)	
	Unsure	0 (0%)	0 (0%)	0 (0%)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	
	Total	216 (60%)	144 (40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	
	Do you visit a dentist when you need dental treatment?									
	Yes	120 (33.3%)	72 (20%)	192 (53.3%)	0.301	52 14.4%)	132 (36.6%)	8 (2.2%)	192 (53.3%)	0.045*
	No	96 (26.6%)	72 (20%)	168 (46.6%)		40 (11.1)	116 (32.2%)	12 (3.3%)	168 (46.6%)	
	Unsure	0 (0%)	0 (0%)	0 (0%)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	
	Total	216 (60%)	144 (40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	
Lesion Related Questions	Did you know about the lesion before screening?									
	Yes	152 (42.2%)	104 (28.8%)	256 (71.1%)	0.704	64 (17.7%)	176 (48.8%)	16 (4.4%)	256 (71.1%)	0.644
	No	64 (17.7%)	40 (11.1)	104 (28.8%)		28 (7.77%)	72 (20%)	4 (1.1%)	104 (28.8%)	
	Unsure	0 (0%)	0 (0%)	0 (0%)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	
	Total	216 (60%)	144 (40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	
	Does your lesion look normal to you?									
	Yes	92 (25.5%)	64 (17.7%)	156 (43.3%)	0.920	48 (13.3%)	100 (27.7%)	8 (2.2%)	156	0.105
	No	104 (28.8%)	68 (18.8%)	172 (32.5%)		36 (10%)	128 (35.5%)	8 (2.2%)	172 (32.5%)	
	Unsure	20 (5.5%)	12 (3.3%)	32 (8.88%)		8 (2.2%)	20 (5.5%)	4 (1.1%)	32 (8.88%)	
	Total	216 (60%)	144 (40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	
	Do you use self-medication									
	Yes	120 (33.3%)	88 (24.4%)	208 (57.7%)	0.296	48 (13.3%)	148 (41.1%)	12 (3.3%)	208 (57.7%)	0.451
	No	96 (26.6%)	56 (15.5%)	152 (42.2%)		44 (12.2%)	100 (27.7%)	8 (2.2%)	152 (42.2%)	
	Unsure	0 (0%)	0 (0%)	0 (0%)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	
	Total	216 (60%)	144 (40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	

Referral Related Questions	Was it made clear why you were referred?									
	Yes	208 (57.7%)	140 (38.8%)	348 (96.6%)	0.222	84 (23.3%)	240 (66.6%)	20 (5.5%)	348 (96.6%)	0.334
	No	4 (1.1%)	4 (1.1%)	8 (2.2%)		4 (1.1%)	4 (1.1%)	0 (0%)	8 (2.2%)	
	Unsure	4 (1.1%)	0 (0%)	4 (1.1%)		0 (0%)	4 (1.1%)	0 (0%)	4 (1.1%)	
	Total	216 (60%)	144 (40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	
	Did you agree with your referral?									
	Yes	204 (56.6%)	140 (38.8%)	348 (96.6%)	0.228	84 (23.3%)	240 (66.6%)	20 (5.5%)	348 (96.6%)	0.012*
	No	8 (2.2%)	4 (1.1%)	8 (2.2%)		8 (2.2%)	4 (1.1%)	0 (0%)	8 (2.2%)	
	Unsure	4 (1.1%)	0 (0%)	4 (1.1%)		0 (0%)	4 (1.1%)	0 (0%)	4 (1.1%)	
	Total	216 (60%)	144 (40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	
	Did you delay in using your referral?									
	Yes	84 (23.3%)	72 (20%)	156 (43.3%)	0.037*	56 (15.5%)	92 (25.5%)	8 (2.2%)	156 (43.3%)	<0.001*
	No	132 (36.6%)	72 (20%)	204		36 (10%)	156 (43.3%)	12 (3.33%)	204 (56.6%)	
	Unsure	0 (0%)	0 (0%)	0 (0%)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	
	Total	216 (60%)	144 (40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	

TABLE 2: PATIENT REPORTED TIME BETWEEN APPOINTMENTS FOR ORAL PREMALIGNANT DISORDERS

	Gender		**Total**	**p-value**	**Age group**			**Total**	**p-value**
	Male	**Female**			**< 30 years**	**30 - 60 years**	**> 60 years**		
Time between discovery of lesion and seeking help from health care provider									
<4 weeks	20 (5.5%)	3 2 (8.88%)	5 2 (14.4%)	.001*	0 (0%)	4 8 (13.3%)	4 (1.1%)	5 2 (14.4%)	<0.001*
>4 weeks	1 9 6 (54.4%)	1 1 2 (31.1%)	308(85%)		9 2 (25.5%)	2 0 0 (55.5%)	1 6 (4.44%)	3 0 8 (85.5%)	
Total	216(60%)	144(40%)	3 6 0 (100%)		9 2 (25.5%)	2 4 8 (68.8%)	20 (5.5%)	3 6 0 (100%)	
Visit to a health care provider and referral after discovery of lesion									
<4 weeks	2 0 4 (56.6%)	1 4 0 (38.8%)	3 4 4 (95.5%)	0.210	8 8 (24.4%)	2 3 6 (65.5%)	20 (5.5%)	3 4 4 (95.5%)	0.600
>4 weeks	1 2 (3.33%)	4 (1.1%)	1 6 (4.44%)		4 (1.1%)	1 2 (3.33%)	0 (0%)	1 6 (4.44%)	
Total	216(60%)	144(40%)	3 6 0 (100%)		9 2 (25.5%)	2 4 8 (68.8%)	20 (5.5%)	3 6 0 (100%)	
Time between referral date and appointment to a specialist									
<4 weeks	1 9 0 (52.7%)	1 1 5 (31.9%)	3 0 5 (84.7%)	0.036*	7 3 (20.2%)	2 1 4 (59.4%)	18 (5%)	3 0 5 (84.7%)	0.228
>4 weeks	2 6 (7.22%)	2 9 (8.05%)	5 5 (15.2%)		1 9 (5.27%)	3 4 (9.44%)	2 (0.55%)	5 5 (15.2%)	
Total	216(60%)	144(40%)	3 6 0 (100%)		9 2 (25.5%)	2 4 8 (68.8%)	20 (5.5%)	3 6 0 (100%)	

Patients attitude towards the suspicious oral lesion									
Not anxious	59 (16.3%)	43 (11.4%)	102 (28.3%)	<0.001*	42 (11.6%)	56 (15.5%)	4 (1.1%)	102 (28.3%)	<0.001*
Slightly anxious	72 (20%)	23 (6.3%)	95 (26.3%)		23 (6.3%)	67 (18.6%)	5 (1.3%)	92 (25.5%)	
Moderately Anxious	52 (14.4%)	36 (10%)	88 (24.4%)		23 (6.3%)	59 (16.3%)	6 (1.6%)	88 (24.4%)	
Extremely Anxious	33 (9.1%)	42 (11.6%)	75 (20.8%)		4 (1.1%)	66 (18.3%)	5 (1.3%)	75 (20.8%)	
Total	216(60%)	144(40%)	360 (100%)		92 (25.5%)	248 (68.8%)	20 (5.5%)	360 (100%)	

TABLE 3: REPRESENTS CORRELATION BETWEEN THE GENDER AND DELAY IN DIAGNOSIS AND REFERRAL TO THE SPECIALIST THROUGH PEARSON CORRELATION TEST

Correlations			
	Time between discovery of lesion and seeking help	**Visit health care provider and referral issued**	**Referral being issued first appointment with specialist**
Gender	.001*	.070	.020*
Time between discovery of lesion and seeking help	1.000	.002*	.093
Visit health care provider and referral issued	.002*	1.000	.000*
Referral being issued first appointment with specialist	.093	.000*	1.000

* p≤0.005 is considered as significant

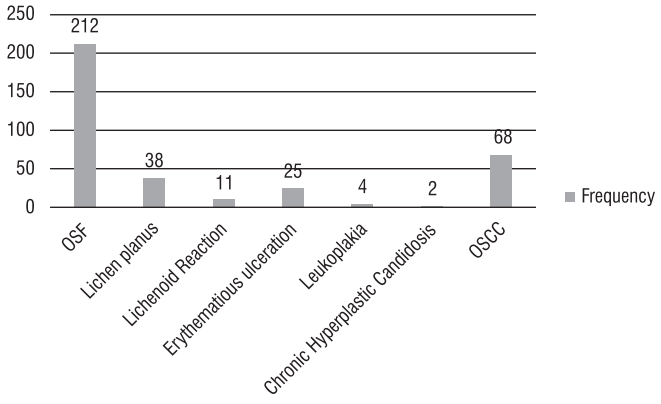

Fig 1: Represents the occurrence of the oral premalignant disorders and malignant lesions in a teaching institute

practitioners (p= 0.016 and 0.05) every time. We have found that despite communicating the need of referral patients' usually delayed their referral to a specialist > than a month. Delay in appointment to specialists was seen among males (p= 0.037) who belong to middle age (p= <0.001). Table 2 represents that the time between the discovery of a lesion and seeking help from a health care provider in both gender and all age groups was reported to be 4 weeks after knowing about the lesion. Those patients reported their earliest had one or more alarming symptoms at the time they presented to OPD.

DISCUSSION

As per our findings most of the study population (85%) presented to us at the chronic progressive, late stages of oral premalignant lesion and some of them first preferred to visit a physician instead of dental practitioner. Study data also revealed that some patients used over the counter medication (57.7%) or applied home-based remedies to treat the oral mucosal lesions were seen as barriers to seeking help. When the lesion fails to heal and symptoms get worse then they seek assistance from the health care provider.[12] Around 28.8% of patients were negligent or ignorant of any changes in their oral cavity and the lesion was diagnosed incidentally when the oral examination was

performed for other dental treatment. We assume that this may be due to lack of knowledge, financial constraint, and lack of awareness of the consequences of the suspicious oral lesions.[13,14] Some patients' notified that social influences such as family, friends or relative guidance or previous experience to somewhat similar lesions also delay seeking help from the oral health care professionals.[15] Twenty percent of the study population preferred to visit a physician for oral mucosal lesions, sometimes the lesions get healed with the treatment regime provided by the physician but in some cases it worse or transforms into an aggressive lesion by the time a dental practitioner examines it.[16]

In this study, the vicinity in which our teaching institute works has a higher number of patients possessing low levels of education and understanding related to oral health care.[17] Most of them heard about oral cancer but they didn't know that oral cancer is the complication of persistent non-healing oral lesions.[18] We have given an understanding to the patients presented to us that any oral lesion requires to be examined by the dental health professionals and those consuming risk factors are at high risk of developing premalignant lesions. All of them were indulged in consuming betel nuts alone (10%) or in combination with betel quid (10%), gutka (42.2%), and smoking (23.3%) from a very early age except few. This is in accordance with Mohiuddin et al that reported 48.3% of patients used betel quid with tobacco, 22.9% consumed areca nut only, and 7.6% used naswar.[9] The consumption of risk factors was mostly found in males as compared to females' ratio of 3:2. However, the ratio specifies that females were more involved in the habit of consuming these factors in this study subjects.

The most common premalignant condition was reported in oral submucous fibrosis (58.8%) and the second most common was oral lichen planus 10.5% in current study. The other oral potentially malignant lesions were erythematous/ulceration (6.9%), leukoplakia (1.1%), and chronic hyperplastic candidosis (0.5%). Most cases were reported in the age group of 30-60 years. This is in accordance with a study conducted by Iqbal et al that they have stated a high prevalence of OSMF in the 3rd to 4th decade of life in our population.[19] The OSMF was prevalent in the male population (64%) but lichen planus was in females (70.5%). Similarly, Qureshi et al found a high occurrence of lichen planus in the female population (67.3%).[20] There is a positive association of oral potentially malignant lesions with the age and gender represented by a p-value <.001.

In this study, 96.6% of patients were satisfied with the advice provided by their referring dental practitioner and most (84.7%) agreed to act on their referral immediately. However, 15.2% of patients still delayed their specialist appointment > than one month. The patients understand the urgency to visit specialists which were clearly communicated by the dental practitioner. Those patients reported to dental practitioners were immediately referred to the specialist but those first reported to physicians faced a slight delay in the management of oral potentially malignant lesions. A thorough awareness about the oral potentially malignant lesions, consuming risk factors, adverse effect on the oral mucosa, and its prolonged consequences was made understood by the research team. We didn't further trail those patients who delayed the appointment to the specialist.

CONCLUSION

Vigilant screening of the suspicious oral mucosal lesions, and immediate referral to the specialist may decrease the rate of oral malignancy in our population. Once referral was issued to a specialist patient should not be missed and a watchful follow-up kept on the appointment status. Patients understand that all forms of oral lesions require professional dental care for the better treatment. There must be a mass oral screening program arranged by the private and government organizations to examine general population oral health status and if there are patients with premalignant or malignant lesions manage as earliest.

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