ORIGINAL ARTICLE

FREQUENCY OF GINGIVAL RECESSION AND ITS SEVERITY: A CROSS SECTIONAL STUDY AMONG PATIENTS VISITING PERIODONTICS DEPARTMENT, KHYBER COLLEGE OF DENTISTRY, PESHAWAR

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ABSTRACT

The objective of this study was to determine the frequency of gingival recession and its severity in association with local contributing factors in patients visiting Khyber College of Dentistry, Peshawar. Study was conducted from September 2016 to January 2017.One hundred and seventy-five patients of both genders were selected using convenient sampling technique. The participants involved in this study were examined in Periodontics Department, Khyber College of Dentistry Peshawar, using mouth mirror, triple syringe, and WHO probe under dental unit light. Miller's classification was used for measuring various grades of gingival recession. Data were analyzed using SPSS, V-22. The maximum age of patient was 53 years and minimum 18 years and the mean age was calculated as 32 years (SD 9.71). Calculations showed that 50% (n=87) of all the patients were male and remaining 50% (n=88) were females age ranged from 18 to 53 years. Males with gingival recession were 25% (n=44) and females were 32% (n=58). Out of the total 175 patients, those with Miller Class I were 28.6 % (n=50) followed by Miller's class II, 27.4 % (n=48), Miller's Class III 5.7 % (n=10) and Miller's Class IV 2.9 % (n=5). The recommendations of this study is that every patient should be educated and instructed about the correct brushing technique, the correction of malaligned teeth, the discontinuation of injurious oral habits especially snuff dipping, frequent use of mouthwashes and interdental cleaning aids e.g. dental floss etc. as all of these aids will lead to prevention of plaque accumulation and thus the prevention of periodontal disease which causes gingival recession.

Key Words: *Gingival Recession, Miller's Classification, Local Etiological factor.*

INTRODUCTION

Gingival recession is the movement of the gingiva in apical direction in relation to cementoenamel junction leading to root surface exposure.[1] Gingival recession may be grouped as either localized, limited to a particular area, or generalized ,extending throughout the oral cavity. With regards to the position it can be classified as either Actual or Apparent whereas actual position is the level of epithelial attachment on the tooth, i.e. from the cementoenamel junction to the probable depth of the pocket and apparent position is the level of crest of the gingival margin, i.e. from the cementoenamel junction to the gingival margin.[2] Miller proposed a classification system in 1985 and probably is the most widely used for describing the gingival recession.

Class I: Marginal tissue recession not extending to the mucogingival junction(MGJ).No loss of interdental bone or soft-tissue

Class II: Marginal recession extending to or away from the MGJ. No loss of interdental bone or soft-tissue

Class III: Marginal tissue recession extends to or beyond the MGJ. Loss of interdental bone or soft-tissue is apical to the CEJ, but coronal to the apical extent of the marginal tissue recession

Class IV: Marginal tissue recession extends to or beyond the MGJ. Loss of interdental bone

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extends to a level apical to the extent of the marginal tissue recession. An index for gingival recession and modifcation of Miller's classification had also been proposed earlier.[17]

The aetiology of gingival recession is multifactorial.[3] Several factors may play a role in gingival recession development, such as excessive or inadequate teeth brushing, destructive periodontal disease, tooth malposition, high muscle attachment and occlusal trauma.[4] There remains a significant correlation between the gingival recession and some risk factors such as cigarette smoking, use of abrasive tooth powder, oral hygiene practices, braces, and occlusal injury.[5] Gingival recession appears as a wedge-shaped lesion on buccal surface of the teeth, and it can occur on any tooth surface. Following gingival recession, several complications develops such as hypersensitivity , probable tooth loss[6] loss of esthetic appearance, plaque retention, root caries and tooth abrasion.[7] The surgical treatment of gingival recession involves a shift of tissue either by sliding known as Pedicle flap procedure or by grafting , which can be a free gingival graft or connective tissue graft. It can also involve the use of various membranes (Resorbable and Non resorbable) employing the principles of guided tissue regeneration.[8] These treatment modalities are employed when an insufficient tissue from the donor adjacent to site in recipient is present or when the objective of treatment is to augment the thickness of tissue.[9] The aims and objective of this study was to determine the prevalence of gingival recession and its severity associated with local risk factors and also to determine in our population the most common etiological factor associated with gingival recession. This study also provide evidence of oral hygiene practices in local population, which can be used to highlight any malpractices in oral hygiene and can be a baseline for prevention of recession of gingiva.

METHODOLOGY

This is a descriptive cross-sectional study which was conducted at Khyber College of Dentistry, Peshawar from September 2016 till January 2017. For the selection of the participant, conveniene sampling technique was used. The sample size was 175.

Sample Size Calculations:

Sample Size:

(with justification of its calculations and reference used):

n=p(1-p)(Z/E)2

n=.10(1-.10)(1.96/.05)2

n=138+37=175

Since, an estimated 10% non-respondents rate will be added, so an additional margin of 37. is taken.

Thus, n = 138 +37 = 175. Therefore, the sample size calculated for the study is 175

Inclusion criteria:

- Physically and mentally healthy with no other co-existent systemic disease
- Age between 18 - 53 years because the frequency of gingival recession is negligible below 18 years of age and the individuals above 53 years are more affected with systemic illness which makes it an etiological factor .

Exclusion criteria:

- Patients not willing to participate in the study,
- known psychiatric illness, a history of taking any anxiety or antidepressant medications
- Language barrier
- Present pregnancy

An approval was obtained from the ethical committee of the hospital. Informed consent was obtained from all the patients after a detailed explanation of the procedure and assurance that the data will be kept entirely classified.

The teeth were examined on their labial and lingual/palatal aspect. Dental unit's over the head light was used for clinical examination of recession. After that, the type of gingival recession was classified using Miller's classification system (1985).The patients were also examined for the presence or absence of malocclusion in addition to patient's gender and tooth brushing technique. The proforma also had a checklist for Oral hygiene status,whether or not the patient is using mouthwash and interdental cleaning aids (Floss, toothpick) along with history of previous orthodontic treatment. The patient's oral hygiene status was determined using Simplified Oral Hygiene (J.C Green and J.R Vermillion 1964) Index and labelled good, fair and poor accordingly .

Statistical Package for Social Sciences (SPSS) version 22 was used for the analysis of the data. Percentages and frequencies were calculated for the gingival recession with regards to gender and age groups. Mean and SD values were also calculated for numerical variables like age. Chi square test was applied to compared the frequency of gingival recession among age groups and genders.

RESULTS

This study comprised of 175 individuals, 88 (50%) were males and 87 (50%) were females. The maximum age of patient was 53 years and minimum age was 18 years and the mean age was calculated to be 32 years (SD 9.71). Out of the total 175 patients, 58.3 % (n=102) of the patients had gingival recession while 41.7% (n=73) were without gingival recession (Table 1). Gingival recession was present in 50.6% (n=44) males and 65.9% (n=58) females . There were 30.1 % (n=52) of gingival recession cases with poor oral hygiene . (Table 2).

Patients were classified on the basis of Miller's Classification system (1985). In a sample size of 175 individuals, 50 (28.6%) were class I, and the remaining were 48 (27.4%), 10 (5.7%) & 5 (2.9%) Class II, Class III & Class IV respectively. (Figure 1). Soft brush users who had gingival recession were 68.2% however 31.8% had no gingival recession. Out of 128 sites in Maxillary incisors, there was recession on 102 (79.6%) sites while the mandibular incisors were examined on 196 sites in total and revealed recession on 173 (88.26%) sites (Table 3).

TABLE 1. RECEDING GUMS STATUS

	Frequency	Percent	Valid Percent	Cumulative Percent
No	73	41.7	41.7	41.7
Yes	102	58.3	58.3	100.0
Total	175	100.0	100.0	

TABLE 2. ORAL HYGIENE STATUS WITH GINGIVAL RECESSION

		Oral hygiene Status			
		Good	Fair	Poor	Total
Receding gums Status	No	2	49	22	73
	Yes	3	47	52	102
Total		5	96	74	175

DISCUSSION

The most important etiologic factors of gingival recession are the presence of supra- and sub-gingival calculus, inadequate width of keratinized tissue, and faulty tooth brushing techniques.[5]

Medium and soft tooth brush users have high frequency of gingival recession owing to the presence of factors such as malocclusion, scrubbing brush technique, snuff dipping etc. The frequency of gingival recession in females is high owing to presence of mostly thin tissue biotype.

In one study class I recession was found in 50 (29.6%) of the patients while class II 48 (27.4%), class III 10 (5.7%) class IV 5 (2.9%). Comparison of the two studies showed more class I cases in our studies where as more class II (35.6%) cases reported in the study conducted at Chile .10 In one population sample male with gingival recession were 32% which is not in agreement with our study depicting increased frequency of gingival recession in females 49.4%. A study in Greece showed that out of 63.9 % gingival recession was noted in 68% of males and 59.3 % females which contradicts our study.[11] A study showed that 18% were using no brush and 42% were using scrubbing technique and 40% were using other brushing techniques.[12] Our study showed that the percentage of patients using scrub technique to be 35.7% which is less than the study mentioned above (study in Iran) however the percentage of people ignorant of their brushing technique is higher in our population (59.3 %). In another study, gingival recession

TABLE 3. VARIOUS VARIABLES IN RELATION TO GINGIVAL RECESSION

Variables	Categories	Receding Gums Status		X2	P-value
		No	Yes		
		n (%)	n (%)		
Gender of the patient	Female	43 (49.4)	44 (50.6)	4.23	.047
	Male	30 (34.1)	58 (65.9)		
Socioeconomic status	Poor	20 (31.7)	43 (68.3)		0.13
	Average	52 (47.3)	58 (52.7)		
	Rich	01 (50.0)	01 (50.0)		
Oral hygiene Status	Good	02 (40.0)	03 (60.0)	7.81	0.02
	Fair	49 (51.0)	04 (49.0)		
	Poor	22 (29.7)	52 (70.3)		
Frequency of Brushing	Nil	25 (33.3)	50 (66.7)	6.50	0.089
	One	38 (50.0)	38 (50.0)		
	Twice	07 (35.0)	13 (65.0)		
	More than Twice	03 (75.0)	01 (25.0)		

Brushing method Status	Horizontal	26 (42.6)	35 (57.4)	0.16	0.98
	Vertical	11 (44.0)	14 (56.0)		
	Rotational	03 (37.5)	05 (62.5)		
	Not Aware	33 (40.7)	48 (59.3)		
Type of brush Status	Don't Noticed	15 (30.0)	35 (70.0)	10.31	0.016
	Hard	06 (46.2)	07 (53.8)		
	Soft	14 (31.8)	30 (68.2)		
	Medium	38 (55.9)	30 (44.1)		
Inter Dental Aids Status	No	52 (45.2)	63 (54.8)	1.69	0.20
	Yes	21 (35.0)	39 (65.0)		
Inter Dental Aids 1 Status	Nil	55 (45.8)	65 (54.2)	2.72	0.25
	Tooth Pick	16 (33.3)	32 (66.7)		
	Floss	02 (28.6)	05 (71.4)		
Mouth wash Status	No	67 (41.4)	95 (58.6)	0.11	0.77
	Yes	06 (46.2)	07 (53.8)		
Presence of malalignment Status	No	62 (45.6)	74 (54.4)	3.76	0.065
	Yes	11 (28.2)	28 (71.8)		

TABLE 3. SITES SHOWING GINGIVAL RECESSION

Arch examined	Number of teeth examined	Total sites examined	Sites exhibiting recession n (%)
Maxillary	64	128	102 (79.6 %)
Mandibular	98	196	173 (88.2 %)

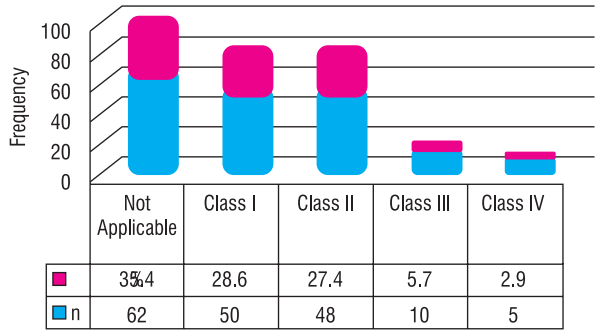

Fig 1: Different classes of gingival recession

was reported in 428 (53%) individuals overall,[13] which was similar to our study. A study showed that gingival recession was reported in 72.5% of cases comprising 60 males and females.[14] This percentage is more than what is reported in our population 102/175 (58.3 %). A Brazilian study with a sample size of 245 , gingival recession was observed in 81.4% of cases and the incidence was high among women which is in agreement with our study.[15] A study in India utilizing a sample size of 244 had class I 112 (45.9%) class II 64 (26.2%) class III 38(15.6%) Class IV 30 (12.3%) which is in close agreement with the result of our studies.[16]

CONCLUSION

The contributing factors for gingival recession were individual with poor oral hygiene status, faulty tooth brush techniques (Scrub Technique), presence of malocclusion and plaque accumulation. The frequency of gingival recession was more in females than males. A total of 64 maxillary incisors showed gingival recession on 102 (79.6%) sites and 98 mandibular incisors showed recessions on 173 (88.2%) sites.

REFERENCES

1 Kassab MM, Cohen RE. The etiology and prevalence of gingival recession. J Am DentAssoc. 2003;134(2):220-5.

2 Sabarinathan J, Prabhu M, Lui LT, Chung V, Lin TS, Chew V, et al. Prevalence of Gingival Recession among the Different Races of Patients Reporting to Penang International Dental College. Int J Dent Sci Res. 2014;2(4A):1-3.

3 Khattar S, Sharma A. Research Article Gingival Recession: Prevalence, Severity and Possible Etiological Factors in the Out Patients of Subharti Dental College and Hospital, Meerut-An Epidemiological Study. Sch J Dent Sci. 2015;2(6):343-8.

4 Sanz M, Bäumer A, Buduneli N, Dommisch H, Farina R, Kononen E, et al. Effect of professional mechanical plaque removal on secondary prevention of periodontitis and the complications of gingival and periodontal preventive measures. J Clin Periodontol. 2015;42(S16).

5 Lafzi A, Abolfazli N, Eskandari A. Assessment of the etiologic factors of gingival recession in a group of patients in Northwest Iran. J Dent Res Dent Clin Dent Prosp. 2009;3(3):90.

6 Alghamdi H, Babay N, Sukumaran A. Surgical management of gingival recession: A clinical update. Saudi Dent J. 2009;21(2):83-94.

7 Morris JW, Campbell PM, Tadlock LP, Boley J, Buschang PH. Prevalence of gingival recession after orthodontic tooth movements. Am J Orth and Dent Orthopedics. 2017;151(5):851-9.

8 Miller Jr P. A classification of marginal tissue recession. Int J Perio Resto Dent. 1985;5:8-13.

9 Padilla M, Aillapan E, Navarro P, Cantín M, Beltrán V, De La Roza G, et al. Effects of Manual Toothbrushing on Gingival Recession in an Adult Population Sample in South of Chile. Int J Odont. 2014;8(3):461-7.

10 Chrysanthakopoulos NA. Gingival recession: prevalence and risk indicators among young greek adults. J of clin and exp dent. 2014;6(3):e243.

11 Chrysanthakopoulos NA. Occurrence, extension and severity of the gingival recession in a Greek adult population sample. J of Perio & Imp Dent. 2011;2(1):37-42.

12 Nguyen-Hieu T, Ha Thi B-D, Do Thu H, Tran Giao H. Gingival recession associated with predisposing factors in young vietnamese: a pilot study. Oral Health Dent Manag. 2012;11(3):134-44.

13 Guimarães GM, Aguiar EG. Prevalence and type of gingival recession in adults in the city of Divinópolis, MG, Brazil. Braz J of Or Sci. 2012;11(3):357-61.

14 Khosya B, Devaraj C. Etiology and severity of different grades of gingival recession in adult population. Nat J of Med Res. 2014;4(3):189-92.

15 Mahajan A. Mahajan's Modification of the Miller's Classification for Gingival Recession. Dent Hypotheses. 2010;1(2):45–50.

16. Cullinan MP, Ford PJ, Seymour GJ. Periodontal disease and systemic health: current status. Aust Dent J. 2009;54Suppl 1:S62–9.

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3 Muhammad Nasir Shah	Proof reading and review for intellectual content.
4 Safia Rehmat	Data interpretation and manuscript editing.
5 Faiza Abdul Hakam	Data collection, helped in article layout.
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CORRIGENDUM

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