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*Etiological factors of gingival recessions and their frequency
in students of Lublin universities*

Gingival recessions are periodontal losses without clinical features of inflammation, limited to the lingual (palatal) or/and labial (buccal) surfaces. They are usually observed in the front part of the dental arch and concern vestibular surfaces of canines and premolars (8, 15).

Etiology of gingival recessions is complex. In young people, the main factors responsible for the formation of recessions are improperly employed hygienic procedures: improper toothbrushing technique and excessive frequency of toothbrushing, use of hard toothbrush and excessive pressure while brushing, improper use of additional devices (dental floss, electric toothbrushes, toothpicks) (9). Anatomical and morphological conditions, such as too thin gums or defects in the gingival structure, root dehiscences, low fraenal or buccal folds attachments, high attachments of the genial muscle and shallow vestibule, influence the rise of gingival recessions (3, 6, 15).

Bad oral hygiene is another etiological factor of gingival recessions. The result of ignoring hygiene is dental plaque. Bacteria, producing endo- and exotoxines, enzymes and waste metabolic products, cause periodontal loss and resorption of alveolar process bone. If dental plaque is not removed, it hardens and transforms into dental calculus. Calculus irritates the gums, causing their destruction (7, 12). Moreover, improper teeth alignment in the dental arch, occlusal and non-occlusal parafunctions, iatrogenic errors of preventive, surgical, orthodontic and periodontal treatment result in the rise of recessions (13, 14).

The results of periodontal losses are: oversensitivity to thermal, chemical and mechanical factors, caries of the root and cavities of non-cariogenic origin, decrease in the teeth aesthetics and even teeth loss due to recessions.

The aim of the study was to examine the frequency and the chief etiological factors of gingival recessions in students of Lublin universities.

MATERIAL AND METHODS

The studied group comprised 110 students, aged 19–26. Patients were divided into two equal groups: A – students of the dental faculty, Medical University of Lublin – 30 women and 25 men; B – Students of other Lublin universities – 29 women, 26 men. Clinical examination was carried out and a questionnaire was completed with the use of a dental mirror and periodontal probe, in artificial light, in the Department of Conservative Dentistry in Lublin. Oral Hygiene Index (OHI) was established and Recessions Depth (RD) was measured. Recessions were divided into 3 groups: R0 (0–3 mm), R1 (3–6 mm), R2 (> 7 mm)

RESULTS AND DISCUSSION

In the group examined significant frequency of gingival recessions was observed (36.3%). Periodontal losses were more frequent in women: group A – dentistry students (40%) and B – female students of other universities (37.9%). Results presented confirm the data from the literature that women are more prone to gingival losses than men (2, 5). Recessions were found in 34.6% of male students in group B – other university students and 32% of group A – men from dental faculty (Table 1).

Table 1. Frequency of gingival recessions in the groups examined

	Group size	Frequency of gingival recessions	Mean
Female dentistry students	30	40%	36.3%
Male dentistry students	25	32%	
Female students of other universities	29	37.9%	
Male students of other universities	26	34.6%	

The study shows that women's temper influences recessions occurrence in both female groups. Most of female students with recessions (61.5%) describe themselves as energetic ones. The greatest number of recessions observed referred to vestibular surfaces of canines and premolars and were much more frequent in the mandible (64.7%) than in the maxilla (35.3%) (Table 2). Our observations were in agreement with Bochniak and associates' research (4). These recessions were usually localized on the left side of the dental arch (52.3%). In the group examined, losses up to 3 mm (R0) constituted 68.7%, 3 to 6 mm (R1) – 26.7%, higher than 7 mm (R2) – 4.5%.

Table 2. Number and localization of gingival recessions

Tooth number	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28	sum
Women group A				1	4	3				1	1	2		2			14
Men group A				1	1	3	1	1		2	3	2	1				15
Women group B			1	3	3	2	2		2	3	3	2	1	6			28
Men group B				1		1					1			1	1		5
Tooth number	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38	
Women group A					3	6		2	1		6	5	1				24
Men group A					1	2	4	1	1	1		4	2		1		17
Women group B			1	2	3	5	5	1	1	2		5	7	3	2		37
Men group B				2	2	3	5	3	3	4	4	4	4	1	1		36

Good Oral Hygiene Index was found in students from the dental faculty (group A), in comparison with group B (Fig. 1)

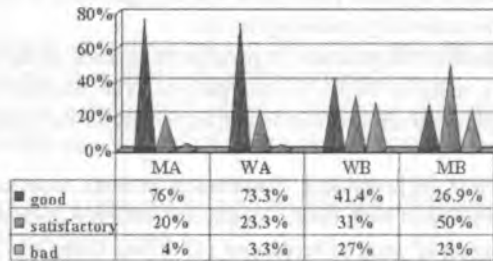


Fig. 1. Oral Hygiene Index (OHI). MA – men, group A, WA – women, group A, WB – women, group B, MB – men, group B

It was found that 63.2% of female and 56% of male students from group A brush their teeth at least 3 times a day (Fig. 2). More than half (53.4%) of women from the dental faculty (who have the greatest frequency of recessions) brush their teeth longer than 2 minutes (Fig. 3).

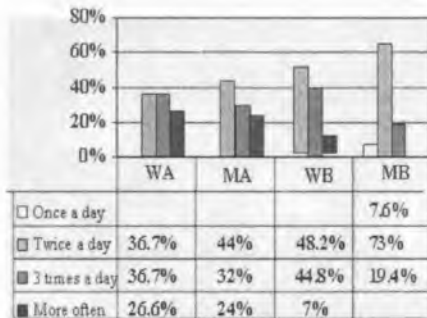


Fig. 2. Toothbrushing frequency

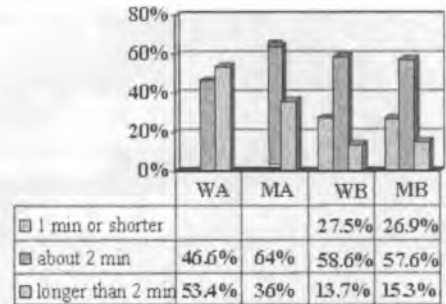


Fig. 3. Toothbrushing time

Research results presented above enabled us to conclude that the main etiological factor of gingival recessions in group A was overhygienization.

In the occurrence of periodontal losses improper toothbrushing technique was significant. In the questionnaire 21.7% of other university students, in whom recessions were observed declared employing only horizontal motions while brushing. The use of excessive pressure on a toothbrush was a frequent error in group B (20% of women, 34.6% of men). Using a hard toothbrush (Fig. 4) could cause gums bleeding while brushing (11.5% of men from group B).

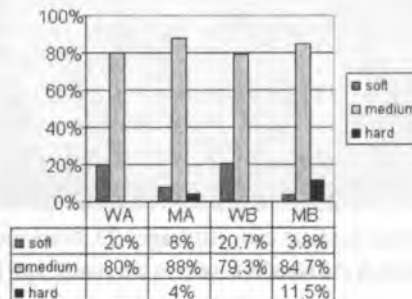


Fig. 4. Kind of toothbrush used by the patients examined

Improper employment of hygienic procedures was recognized as a chief etiological factor of gingival recessions in other university students (Fig. 7).

The questionnaire showed the presence of parafunctions, such as lip biting, teeth gritting or gnashing or biting one's nails in 54.5% of our patients. The correlation between performing parafunctions and recessions occurrence was found, especially in the group B (80% of men and 72.7% of women).

Misalignment of teeth in the dental arch, disturbances in dental topography, crowding of teeth, extrusions or the protrusion of teeth have a significant influence upon shaping the width of the attached gum and developing of gingival recessions (1). It was found that gingival recessions can occur before the start of the orthodontic treatment – as a result of malocclusion, in the course of or as an effect of the treatment. Started or completed orthodontic treatment was declared by 37.4% of patients (in which 38.9% had fixed and 61.1% removable appliances). In 34% of orthodontically treated patients gingival losses were observed. It was found that the improper cleaning of teeth was the cause of their occurrence. Patients in whom food debris tended to stay behind the clasps, bonds and archwires, brushed their teeth exerting much pressure, employing horizontal motions, thus causing numerous and high recessions (6, 11) (Fig. 5, 6).



Fig. 5. Female student of other than medical university, aged 24. Numerous, high recessions (R1 and R2) localized next to premolars and molars. Exposed root furcation of tooth no 16



Fig. 6. Female student of dental faculty, aged 23. Gingival recession can be observed next to tooth no 26



Fig. 7. Male student of other than medical university, aged 23. Numerous, low gingival recessions (R0) Localized in the mandible next to the canine and premolars

CONCLUSIONS

1. The registered rate of recessions (36.3%) confirmed the existence of a serious problem of gingival losses in students of Lublin universities.
2. Gingival recessions were more frequent in the group of women (39%).
3. The highest frequency of gingival losses was observed in female students of the dental faculty (40%).
4. Recessions were more frequent in the mandible (64.7%) than in the maxilla (35.3%) and concerned canines and premolars.
5. The main etiological factor of periodontal losses in students of the dental faculty was overhygienization. Improper hygienic habits led to the occurrence of gingival recessions in students of other universities.

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SUMMARY

Gingival recession is a periodontal loss without clinical features of inflammation, limited to the lingual (palatal) or/and labial (buccal) surfaces. The aim of the study was to examine the frequency and the chief etiological factors of gingival recessions in students of Lublin universities. The study comprised 110 students, aged 19–26, divided into two equal groups: students of the dental faculty, Medical University of Lublin (30 women and 25 men) and students of other Lublin universities (29 women, 26 men). In the group examined 36.3% frequency of gingival recession was shown. The highest frequency of gingival losses was observed in women—students of the dental faculty (40%) and other universities (37.9%). Recessions were found in 34.6% of male students from other universities and 32% of men from the dental faculty. Recessions were more frequent in the mandible (64.7%) than in the maxilla (35.3%) and concerned canines and premolars. They were usually localized on the left side of the dental arch. On the basis of our research it was found that the chief factor giving rise to recessions among the dentistry students was overhygienization. 63.2% of female and 56% of male students from the dental faculty brush their teeth at least 3 times a day. More than half (53.4%) of women (who have the greatest frequency of recessions) brush their teeth for longer than 2 minutes. Improper hygienic habits were recognized as the chief etiological factor of gingival recessions in other university students. In the questionnaire 21.7% of other university students in whom recessions were observed, declared employing only horizontal motions while brushing. Besides, 20% of women and 34.6% of men use excessive pressure on a toothbrush and 11.5% of men use a hard toothbrush. It was found that gingival recessions can occur before the start of the orthodontic treatment as a result of malocclusion, in the course of or as an effect of the treatment. Started or completed orthodontic treatment was declared by 37.4% of patients (in which 38.9% had fixed and 61.1% removable appliances). In 34% of orthodontically treated patients gingival losses were observed. It was found that the improper toothbrushing technique (excessive pressure on a toothbrush, horizontal motions) was the cause of their occurrence. Occlusal and nonocclusal parafunctions turned to be the other significant factors giving rise to recession. The correlation between performing parafunctions and recessions occurrence was found in the 80% of men and 72.7% of women from other Lublin universities. The registered rate of recessions (36.3%) confirmed the existence of a serious problem of gingival losses among the students of Lublin universities and drew attention to the necessity of early diagnostics and prompt introduction of prophylactic and therapeutic action.

Czynniki etiologiczne i częstość występowania recesji dziąsłowych
wśród studentów uczelni lubelskich

Recesja dziąsłowa to zanik przyzębia bez klinicznych cech zapalenia, ograniczony do powierzchni językowej (podniebiennej) i/lub wargowej (policzkowej). Celem pracy było zbadanie częstości i przyczyn występowania recesji dziąsłowych wśród studentów uczelni lubelskich. Badaniem klinicznym i ankietowym objęto 110 studentów w wieku 19–26 lat, podzielonych na dwie liczebnie równe grupy: studentów Oddziału Stomatologii AM w Lublinie (30 kobiet i 25 mężczyzn) i studentów innych uczelni lubelskich (29 kobiet i 26 mężczyzn). Wykazano znaczną (36,3%) częstość występowania zaników dziąsłowych w badanej grupie. Najczęściej recesje występowały w grupie studentek stomatologii (40%) oraz studentek innych uczelni (37,9%). Zaniki wykryto u 34,6% mężczyzn z innych uczelni i 32% studentów stomatologii. Recesje zlokalizowane były najczęściej w żuchwie (64,7%) niż w szczęce (35,3%), najczęściej dotyczyły kłów i przedtrzonowców. Większą liczbę zaników dziąsłowych zaobserwowano po lewej stronie łuku zębowego (52,3%). Za

główny czynnik etiologiczny zaników przyzębia wśród studentów stomatologii uznano nadhigienizację. 63,2% kobiet i 56% mężczyzn z Oddziału Stomatologii szczotkowała zęby trzy razy dziennie lub częściej. Ponad połowa (53,4%) studentek stomatologii, u których najczęściej obserwowano zaniki dziąsłowe, szczotkowała zęby dłużej niż dwie minuty. Nieprawidłowo przeprowadzane zabiegi higieniczne miały największy wpływ na powstawanie recesji wśród studentów innych uczelni. W badaniu ankietowym 21,7% studentów, u których występowały recesje, deklarowało wykonywanie tylko ruchów poziomych podczas szczotkowania zębów, 20% kobiet i 34,6% mężczyzn stosowało zbyt dużą siłę nacisku na szczotkę, a 11,5% mężczyzn używało twardej szczotki. Stwierdzono, że recesje dziąsłowe powstawać mogą przed rozpoczęciem leczenia ortodontycznego jako wynik wady zgryzu, w czasie jego trwania lub jako jego skutek. Rozpoczęte lub przebyte leczenie ortodontyczne zadeklarowało 37,4% badanych (w tym 38,9% aparatem stałym, a 61,1% aparatem zdejmowanym). U 34% zbadanych pacjentów leczonych ortodontycznie zaobserwowano recesje. Stwierdzono, że przyczyną ich wystąpienia było nieprawidłowe oczyszczanie zębów (stosowanie zbyt dużej siły nacisku na szczotkę, wykonywanie ruchów horyzontalnych). W badaniu ankietowym 54,5% pacjentów deklarowało uprawianie parafunkcji zwarciovych lub niezwarciowych, takich jak zgrzytanie zębami. Największą korelację pomiędzy uprawianiem parafunkcji a występowaniem recesji dziąsłowych zaobserwowano w grupie studentów innych uczelni (80% mężczyzn i 72,7% kobiet). Wykazana częstość występowania recesji (36,3%) potwierdziła istnienie problemu zaników dziąsłowych wśród młodych ludzi i zwróciła uwagę na konieczność wczesnej diagnostyki oraz wczesnego wdrażania działań profilaktycznych i leczniczych.