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Ten-Year Evaluation of Conservative and Surgical Treatment of Gingival Recession. A Case Series Study

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A B S T R A C T

In the last years the treatment of non-inflammatory periodontal diseases has greatly changed. Apico-coronal dimension of gingival tissue is not considered to be of utmost importance, but significance of tissue thickness over each tooth is stressed. Purpose of this study was to show results of conservative and surgical treatment of gingival recession. Sample consisted of two groups of subjects, which have been treated in one of stated ways during ten years. The data was obtained on the beginning and after ten years of recall. Both groups showed increased dimension of keratinized gingiva during observed time with decrease of gingival recession, plaque- and gingival index. It is considered that treatment should start with conservative measures with necessary motivation of the patients. If it does not show improvement, one should consider best surgical method available for each patient. Clinical results show success in both groups, meaning that treatment was properly decided on.

Introduction

Decreased dimension of attached gingiva is very often connected to gingival recession. In the last few years the approach in the treatment of non-inflammatory periodontal diseases has greatly changed. It is considered that for the development of the gingival recession most responsible factor is the thickness of gingival tissue, and not apico-coronal dimension of the gingiva[1]. Dehiscences and fenestrations of the alveolar bone are held important for the development and progression of gingival recession[2].

Patients with gingival recession and root exposure mostly complain on bad esthetics, pain, caries or erosion of tooth root. In the treatment of such cases numerous procedures with considerably good results are suggested, but the literature shows controversial data[3–7]. Gingival recession is not anymore considered to be primary indication for mucogingival

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surgery – justification of the treatment procedures is based on cost-benefit effectiveness[8]. Surgical treatment is still useful in the therapy of a variety of mucogingival problems, such as deeply inserting frena, and gingival recession with shallow vestibulum.

Most frequent indication for mucogingival surgery is nowadays widening of a narrow zone of attached gingiva. Today it is supposed that a precisely defined zone is not necessary for the maintenance of periodontal health. Guided tissue regeneration (GTR) techniques have shown great success in the treatment of gingival recession, but the nature and quality of the tissue that forms on the root surface has not yet been discovered[9]. Wennström[1] first reported the possibility of a conservative treatment of gingival recession in a study that showed lack of recession formation in places with a narrow zone of gingival tissue and absence of plaque accumulation and inflammation. Surgical methods of treatment are described in detail on a number of places, but sometimes there are difficulties in indications and access to the areas with gingival recession, as well as in patient selection[8]. Patients sometimes complain about poor esthetics of free gingival grafts[8].

Gingival recessions should be treated conservatively, and treatment should consist of oral hygiene information, motivation, initial therapy with or without subgingival scaling, occlusal adjustment and odontoplasty[10].

The purpose of this paper was to ascertain and compare the results of conservative and surgical treatment of gingival recession during ten years.

Material and Methods

This study used data from the archive of Department of Periodontology of Zagreb School of Dentistry. A total number of 43 gingival recession patients who were in recall at least for ten years was selected according to the treatment plan which was determined for them ten years ago. Each patient had initially gingival recession on at least 1 to 4 teeth, without other simptoms of periodontal disease, especially inflammation. At the beginning, clinical evaluation was used for the determination of the treatment plan, whether surgical or conservative. Recall treatment and measurements were performed at visits at least twice per year.

Detailed periodontal charting at the beginning of the treatment defined the dimensions of gingival recession (GR) in millimeters, gingival index (GI)[11] and plaque index (PI)[12], probing attachment level (PAL) and the width of keratinized gingiva (KG). Photographs of teeth with GR were taken before the treatment as well. Both groups of patients received oral hygiene and brushing (modified Stillman method) instructions; minimal plaque and supragingival calculus were eliminated together with iatrogenic factors. Odontoplasty and occlusal adjustment were performed after clinical analysis of function. Depending on the severity of the gingival recession, the aesthetic component of the recession and the motivation each patient the therapists decided whether the surgical or consevative approach was to be performed.

Group of conservatively treated patients numbered 20 subjects with 34 teeth that had GR. After re-evaluation, recall was planned every 12 to 15 weeks. Conservative treatment consisted of teeth polishing and elimination of greater morphological and functional disturbances, as well as proper brushing technique instructions (modified Stillman method was suggested), using soft or medium toothbrush.

Surgical treated group consisted of 23 patients with 45 teeth that exhibited GR greater than 3 millimeters in the apico-

-coronal dimension. After initial therapy and re-evaluation after six weeks, a mucogingival surgical procedure was performed. The zone of attached gingiva was widened by means of a free gingival graft (FGG) as described by Bernimoulin and De Trey[13]. After uneventful post-operative healing recall was planned every 20 to 24 weeks. The measurements for each tooth with GR that underwent both conservative and surgical treatment were measured at every recall visit, and after completed ten years of therapy. Statistical analysis comprised of mean values, standard deviation and Student t-test for paired observations.

The therapist that performed the measurements ten years after the beginning of therapy and recall (AB) was not aware of the type of treatment that each patient underwent for the last ten years, therefore this study should be proclaimed as half – blind, since two first authors (KJS and DP) knew about the treatment plan and procedures performed.

Compliance with recall program was fairly good. The patients were called approximately 3 days before the appointment to be reminded about it. Most of the patients were disciplined in attending the recall appointments.

Results

Initial GR mean in the conservatively treated group was 4.4 0.2 mm. After 10 years the mean was 3.9 0.1 mm. There was a change of gingival dimension in 15 (44.12%) out of 34 teeth. 13 patients had change of mucogingival dimension above at least one tooth, while one patient exhibited improvement above 2 teeth. The teeth that had changes were those with initial GR ranging from 4 to 6 mm vertically, but there were no changes in teeth with initial GR between 3 and 5 mm. None of the patients exhibited increased value of GR.

Surgical procedure by FGG was performed in 23 patients, above a total number of 45 teeth. Initial mean GR in this group was 5.4 0.2 mm, and after 10 years it measured 3.8 0.2 mm. The decrease of GR was observed in 39 teeth (86.67%), and all patients exhibited changes above at least one tooth. Six teeth (13.37%) showed no improvement.

Table 1 shows changes of GR in teeth successfully treated by means of conservative and surgical therapy (FGG).

Table 2 shows mean values of PI and GI at the beginning and 10 years after in patients treated conservatively and surgically by means of FGG.

In table 3 it can be seen how many teeth and patients were treated in both groups.

Figures 1 and 2 show changes of the dimensions of the mucogingival unit in both groups. The surgical treatment group has better results, especially the teeth that had greater recessions.

TABLE 1
CHANGES OF GINGIVAL RECESSION DIMENSIONS IN BOTH GROUPS

(Teeth with decrease of GR during the observed period)

	FGG	Conservatively
initial mean of GR (mm)	5.4 0.2	4.4 0.2
mean after 10 yrs (mm)	3.8 0.2	3.9 0.2
No. of teeth	39 (86.67%)	15 (44.12%)

Teeth that did not show decrease of GR during the observed period

	FGG	Conservatively
initial mean of GR (mm)	4.2 0.8	4.0 0.2
No. of teeth	6 (13.37%)	19 (55.88%)

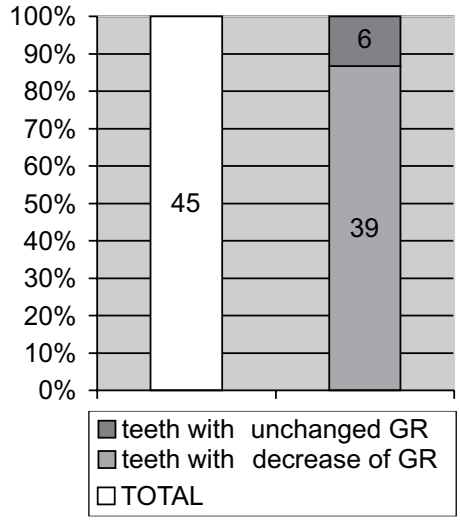

Figure 1. Analysis of decrease/stoppage of gingival recession in milimeters in patients that received conservative treatment. 10 – year after beginning of therapy

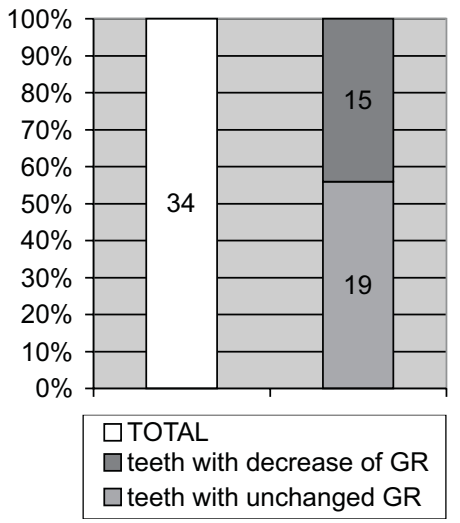

Figure 2. Analysis of decrease/stoppage of gingival recession in milimeters in patients that received surgical treatment. 10 – year follow-up.

TABLE 2
MEAN VALUES OF PI AND GI INITIALLY AND AFTER 10 YEARS IN BOTH GROUPS

Conservative treatment

	initially		after 10 yr.		p
PI	0.87	0.93	0.44	0.60	p<0.001
GI	0.43	0.89	0.59	0.68	p<0.001

Surgical treatment

	initially		after 10 yr.		p
PI	0.76	0.88	0.29	0.49	p<0.001
GI	0.32	0.71	0.31	0.55	p<0.001

TABLE 3
NUMBER OF TEETH AND PATIENTS TREATED IN BOTH GROUPS

Conservative treatment

No. of teeth treated	No. of patients	TOTAL
1	8	8
2	10	20
3	2	6
TOTAL	20	34

Surgical treatment

No. of teeth treated	No. of patients	TOTAL
1	11	11
2	7	14
3	1	3
4	3	12
5	1	5
TOTAL	23	45

Discussion and Conclusion

In diagnostics of GR special attention should be given to pseudo-recessions, which do not exceed the cemento-enamel junction. Periodontal pockets are almost never present in such cases, and this fact appreciates healing and decreases the possibility of post-operative complications.

Free gingival graft is a predictable and very successful attempt to increase the zone of keratinized gingiva. Its goal is not the coverage of recession, but preven-

tion of progression by means of expansion of the zone of keratinized and attached gingiva[8,14].

Our study shows that FGG complements to the decrease of gingival recession, and thus for following reasons:

1. Widening of the zone of attached gingiva moves its border both apically and coronally;

2. In young and healthy patients one can sometimes observe the phenomenon called creeping attachment, the moving of the free gingival margin coronally;

3. Absence of inflammation and plaque, together with proper brushing technique removes the factors that contribute to the development of gingival recession and the decrease of gingival dimension, what favors the relationship of gingiva towards hard tooth tissue.

According to the presented study, in treatment of long and narrow recessions between 4 and 6 millimeters, FGG procedure seems appropriate and justified. Smaller recessions (up to 4 millimeters) should be treated with caution, at first conservatively, and after some years, especially if there is no improvement or rather if one can observe an increase of gingival recession, FGG procedure should be performed. The esthetics can afterwards be completed by means of a coronally positioned flap (CRF).

Motivated and careful patients with acceptable oral hygiene can very often avoid surgical treatment, even more so if either the gingival recession is present at poorly accessible sites, or anatomical characteristics of the patient hamstring the proper surgical procedure[7,15].

One can conclude that conservative treatment can be satisfying procedure in the beginning, but sometimes, if creeping attachment occurs, it can completely resolve the problem of gingival recession. The esthetic component in such patients is very often at stake, since modern periodontology concentrates on both functional and esthetic harmony of the gingival tissue.

Transplantation of palatal tissue on exposed tooth roots can esthetically improve patient's dentition outlook. Creeping attachment, which can be observed in young and healthy subjects, can completely or partially resolve the problem, but 100% coverage is possible exclusively by surgical methods, such as FGG or CRF.

Longer and wider recessions in both groups showed greater improvement than shorter and narrower ones, which proves that srugical treatment does have some importance in the therapy of the mucogingival problem.

Clinical results show acceptable success rates in both groups over a long-term period. Statistical significance can be observed in all processed data, since it is known that age diminishes the motivation and willingness for oral hygiene maintenance.

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DESETOGODIŠNJA EVALUACIJA KONZERVATIVNOG I KIRURŠKOG TRETMANA GINGIVNIH RECESIJA. ISPITIVANJE NIZA SLUČAJEVA

S A Ž E T A K

Posljednjih se godina pristup liječenju neupalnih bolesti parodontnih tkiva uvelike promijenio. Apiko-koronarna dimenzija gingivnog tkiva se više ne smatra bitnom za razvoj gingivne recesije, a naglašava se važnost debljine mekih tkiva iznad svakog zuba. Zadaća je ovog istraživanja bila prikazati rezultate konzervativnog i kirurškog liječenja gingivnih recesija tijekom deset godina. Uzorak su činile dvije skupine ispitanika što su tijekom deset godina liječeni konzervativno i kirurški. Uspoređivani su rezultati u početku i nakon deset godina liječenja. U obje se skupine bolesnika tijekom desetogodišnjeg liječenja povećala širina keratinizirane gingive, uz smanjenje gingivne recesije, plak-indeksa i gingivnog indeksa. Smatramo da ponajprije treba započeti konzervativnu terapiju uz nužnu motivaciju. Tek nakon nekoliko godina koristi se tehnika slobodnog gingivnog transplantata. Klinički rezultati pokazuju zadovoljavajući uspjeh u obje istraživane skupine, što je ujedno znakom da smo početno stanje bolesnika ispravno procijenili.