

DOI: <https://doi.org/10.17816/dent628870>

Treatment of gum recession by the method of a coronally displaced flap and application of phytoextract

Rasima R. Khaibullina, Natalya V. Lopatina, Larisa P. Gerasimova, Damira N. Tukhvatullina, Tat'jana V. Bashirova, Al'fija R. Khaibullina, Vlas S. Shchekin, Angelina O. Vlasova, Regina R. Habibullina

Bashkir State Medical University, Ufa, Russia

ABSTRACT

BACKGROUND: Owing to the widespread prevalence of gum recession in the morbidity structure of the population, the search for optimal treatment tactics for patients with this pathology is crucial in dentistry.

AIM: To evaluate the effectiveness of treatment of patients with gum recession using the coronally displaced flap method and application of a phytoextract.

MATERIALS AND METHODS: Overall, 123 patients diagnosed with gum recession were clinically examined. During examination, all patients revealed a defect such as exposed roots in the area of the frontal group of teeth. Moreover, the size of the defect was measured, and the Miller class was determined. Then, complex treatment was performed, including conservative treatment and, if required, surgical intervention, as well as orthopedic treatment.

RESULTS: In the surgical treatment of gum recession, flap operations were performed. On postoperative day 2, to achieve the best healing and regeneration of the gums, a phytoextract was applied. Over a 3-year period after treatment of patients with gum recession, the effectiveness of treatment was monitored, and relapses of the disease were detected. The following complications were identified after treatment of patients diagnosed with gum recession: transition from class I to II to Miller, 15% of cases; class II to III according to Miller, 19.5%; temporomandibular joint diseases during recession, 16.5%; and occlusal deformation during recession, 19.8%. Stabilization in class I recession occurred in 45.0% of patients, class II in 33.4%, and class III in 8.5%.

CONCLUSION: The etiology and pathogenesis of gum recession requires long term treatment and observation and early diagnosis and an integrated approach. Therefore, new treatment methods that will be most effective and can be used in all age groups are required. One of these methods is the method developed by the authors for the treatment of gum recession using a coronally displaced flap and the application of a phytoextract, which has shown high effectiveness in the long term.

Keywords: gum recession; phytoextract; coronally displaced flap; treatment; application.

To cite this article:

Khaibullina RR, Lopatina NV, Gerasimova LP, Tukhvatullina DN, Bashirova TV, Khaibullina AR, Shchekin VS, Vlasova AO, Habibullina RR. Treatment of gum recession by the method of a coronally displaced flap and application of phytoextract. *Russian Journal of Dentistry*. 2024;28(1):81–86.

DOI: <https://doi.org/10.17816/dent628870>

Received: 25.12.2023

Accepted: 15.01.2024

Published online: 15.03.2024

DOI: <https://doi.org/10.17816/dent628870>

Лечение рецессии десны методом коронально-смещённого лоскута и аппликацией фитоэкстракта

Р.Р. Хайбуллина, Н.В. Лопатина, Л.П. Герасимова, Д.Н. Тухватуллина, Т.В. Баширова,
А.Р. Хайбуллина, В.С. Щёкин, А.О. Власова, Р.Р. Хабибуллина

Башкирский государственный медицинский университет, Уфа, Россия

АННОТАЦИЯ

Введение. Ввиду широкой распространённости рецессии десны в структуре заболеваемости населения поиск оптимальной тактики лечения пациентов с данной патологией является актуальной проблемой стоматологии.

Цель исследования — оценить эффективность лечения пациентов с рецессией десны методом коронально-смещённого лоскута и аппликацией фитоэкстракта.

Материалы и методы. Проведено клиническое обследование 123 пациентов с диагнозом «рецессия десны». При клиническом осмотре у всех пациентов выявлялся дефект в виде оголения корней в области фронтальной группы зубов. При клиническом обследовании измеряли размеры дефекта и определяли класс по Миллеру. Далее проводили комплексное лечение, включающее как консервативное воздействие, так и, при необходимости, хирургическое вмешательство, а также ортопедическое лечение.

Результаты. При хирургическом лечении рецессии десны выполняли лоскутные операции. На 2-е сутки после операции для достижения наилучшего заживления и регенерации десны осуществляли аппликацию фитоэкстракта. На протяжении 3-летнего периода после лечения пациентов с рецессией десны контролировали эффективность лечения и выявляли рецидивы заболевания. Установлены следующие осложнения после лечения пациентов с диагнозом «рецессия десны»: переход I класса в II класс по Миллеру — 15% случаев; II класса в III класс по Миллеру — 19,5%; заболевания височно-нижнечелюстного сустава при рецессии — 16,5%; деформации окклюзии при рецессии — 19,8%. Стабилизация при рецессии I класса наступала у 45,0% пациентов, II класса — у 33,4% и III класса — у 8,5%.

Заключение. Рецессия десны требует длительного лечения и наблюдения, а также ранней диагностики и комплексного подхода. Поэтому необходима разработка новых методов лечения, которые будут наиболее эффективны и смогут применяться во всех возрастных группах. Одним из таких методов является разработанный авторами метод лечения рецессии десны с использованием коронально-смещённого лоскута и аппликации фитоэкстракта, который показал высокую эффективность в отдалённом периоде.

Ключевые слова: рецессия десны; фитоэкстракт; коронально-смещённый лоскут; лечение; аппликация.

Как цитировать:

Хайбуллина Р.Р., Лопатина Н.В., Герасимова Л.П., Тухватуллина Д.Н., Баширова Т.В., Хайбуллина А.Р., Щёкин В.С., Власова А.О., Хабибуллина Р.Р. Лечение рецессии десны методом коронально-смещённого лоскута и аппликацией фитоэкстракта // Российский стоматологический журнал. 2024. Т. 28, № 1. С. 81–86. DOI: <https://doi.org/10.17816/dent628870>

BACKGROUND

The problem of gingival recession—defined as the apical displacement of the gingival margin with exposure of the root surface—remains a relevant issue in periodontology [1–4]. Gingival recession also affects pregnant women, which plays a significant role in carrying a healthy pregnancy, and is further complicated by the contraindication of many pharmacological agents during this period. Advances in technology, equipment, and professional expertise allow clinicians to achieve highly favorable esthetic outcomes [3, 5]. However, treatment of gingival recession is often complicated by relapses, root prominence, fenestration, and loss of periodontal attachment.

Clinicians frequently encounter challenges in treating gingival recession in patients with a shallow oral vestibule, short labial or lingual frena, and thin alveolar cortical bone [6–8].

The coexistence of periodontal disease with dentoalveolar discrepancies significantly prolongs treatment duration. Gingival recession accounts for approximately 16% to 89% of all periodontal conditions [9, 10]. Patients who have completed orthodontic treatment are at greater risk of developing gingival recession than those with malocclusion who have not undergone treatment [8].

Periodontists should be proficient in techniques aimed at increasing the width of attached gingiva in the area of the exposed root. The single-stage root-coverage technique used for recession defects in the mandibular anterior teeth does not consistently provide stable long-term results. Greater effectiveness of a two-stage surgical protocol has not been conclusively demonstrated [1, 2, 8].

Existing surgical approaches utilizing pedicle flaps have substantial limitations. Therefore, given the high prevalence of gingival recession among the patients with periodontal disease, the search for optimal treatment strategies remains a critical problem in dentistry.

This work was aimed to evaluate the effectiveness of treating gingival recession using the coronally advanced flap (CAF) technique combined with the application of a chlorophyll-containing phytoconcentrate.

MATERIALS AND METHODS

A total of 123 patients diagnosed with K06.0 Gingival Recession were clinically examined. The majority were women—78 (63.4%)—likely reflecting heightened esthetic concerns.

During the clinical examination, 109 patients (88.6%) reported dentin hypersensitivity, 63 patients

(51%) were dissatisfied with esthetic outcomes, and 22 patients (18%) complained of hyperemia in keratinized periodontal tissues. Medical history was obtained, and clinical examination included evaluation of the gingival margin, oral hygiene status, mucosal color and integrity, tooth mobility, and extent of root exposure.

On clinical examination, all patients exhibited gingival recession with root exposure involving the anterior teeth. The dimensions of each defect were measured, and gingival recession was classified according to Miller's classification system.

Patients underwent comprehensive treatment, including conservative (non-surgical) therapy, surgical intervention when necessary, and prosthodontic rehabilitation.

Conservative management of patients diagnosed with gingival recession was provided at Vitadent clinics in Ufa by periodontists and general dentists, according to disease severity. Treatment followed a structured protocol:

- removal of supra- and subgingival plaque and calculus;
- flap surgery and antimicrobial therapy;
- correction of defective restorations;
- comprehensive dental treatment to eliminate oral foci of infection;
- selective occlusal adjustment;
- prescription of anti-inflammatory and antihistamine medications when indicated.

Surgical management of gingival recession primarily involved flap procedures. Following completion of therapeutic and surgical interventions, prosthodontic treatment included fixed prostheses with splinting elements as well as removable partial dentures (including cast metal prostheses).

The CAF technique was employed for surgical coverage of gingival recession. This approach utilized soft tissues located directly apical to the gingival recession. Variations included: trapezoidal or triangular flaps with vertical releasing incisions, oblique incisions for an envelope flap, semilunar flap, and tunnel technique with no incisions. Connective tissue grafts were harvested from the palate.

On postoperative day 2, to optimize gingival healing and regeneration, patients received applications of a chlorophyll-containing phytoconcentrate. The phytoconcentrate included: broccoli oil extract, oil extract of leaves and seeds of *Crambe maritima*, oil extract of first-year leaves of *Isatis tinctoria*, oil extract of leaves and seeds of *Crambe hispanica*, oil extract of *Crambe abyssinica* ("SANMO"), chlorophyll, and thymoquinone. This formulation provided anti-inflammatory, antioxidant, and neuroprotective effects.

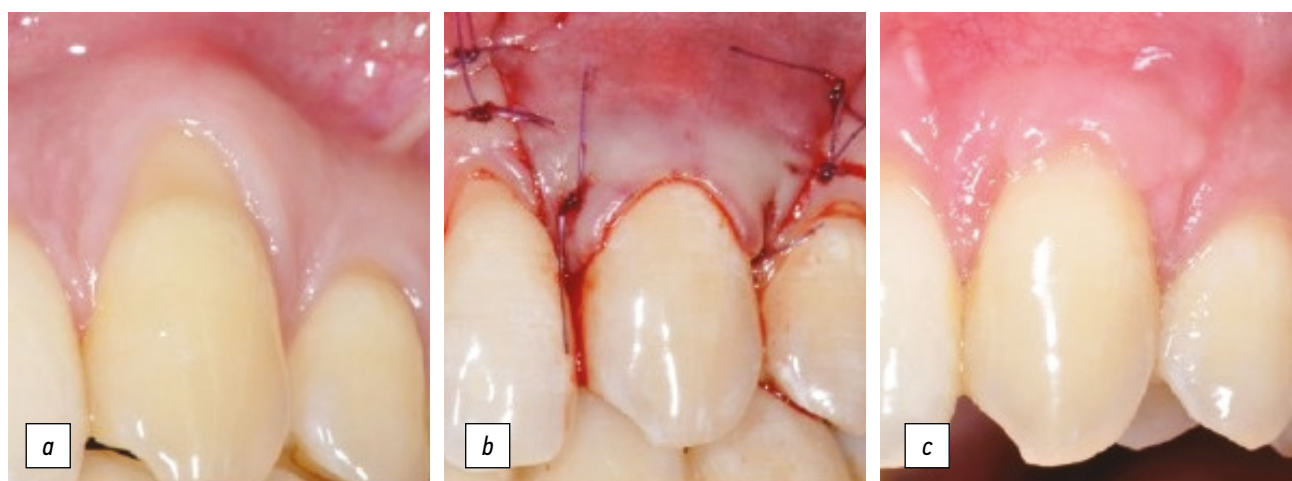


Fig. 1. Coronally advanced flap technique. *a*, Miller Class I gingival recession; *b*, suturing stage with coronally advanced flap; *c*, healing at 4 weeks postoperatively.

RESULTS AND DISCUSSION

The following complications were identified after treatment of patients diagnosed with gingival recession (ICD-10 code K06.0): progression from Miller Class I to Class II recession in 15% of cases; progression from Class II to Class III in 19.5%; temporomandibular joint disorders associated with gingival recession in 16.5%; and occlusal deformities in 19.8%. Stabilization of gingival recession was observed in 45% of patients with Class I, 33.4% of patients with Class II, and only 8.5% of patients with Class III recession.

During the 3-year follow-up period before and after treatment of gingival recession with the CAF technique in combination with a chlorophyll-containing phytoconcentrate, disease recurrence and postoperative complications were documented. Specifically, gingival recession recurred in 53% of cases. Postoperative bleeding occurred in 30 patients (25.7%). Soft tissue necrosis was observed in 33 patients (27.3%), and graft rejection occurred in 17 patients (14.2%).

CONCLUSION

Gingival recession requires prolonged treatment and follow-up, as well as early diagnosis and

a comprehensive therapeutic approach. It is therefore necessary to develop novel treatment methods that are both effective and applicable across different age groups. Excessive surgical trauma, the wide range of contraindications for surgery, and such complications as necrosis and graft rejection prompted us to search for alternative approaches. One such method is the technique developed by the authors, which combines a CAF with the application of a chlorophyll-based phytoconcentrate. This combined approach demonstrated high long-term effectiveness.

ADDITIONAL INFORMATION

Funding sources: The authors report no external funding for this study or its publication.

Conflict of interests: The authors declare no explicit or potential conflicts of interests associated with the study and publication of this article.

Author contributions: R.R. Khaibullina, N.V. Lopatina—conducting the research, general editing of the article; L.P. Gerasimova, D.N. Tukhvatullina—scientific sources review; A.R. Khaibullina, S.V. Shchekin—analysis of the results obtained, statistical data processing; A.O. Vlasova, R.R. Habibullina—writing and designing the text of the article; T.V. Bashirova—editing of the article.

REFERENCES

1. Adilkhanyan VA. Soft tissue management as the part of the combined method of aesthetic rehabilitation of the patient. *The Dental Institute*. 2011;(2):35–37. EDN: NYGGOB
2. Volkova VV. *Influence of molecular genetic factors on regeneration processes in the elimination of multiple recessions with different gum biotypes* [dissertation]. Moscow; 2017. 129 p. (In Russ). EDN: DVYBEB
3. Vorobyeva AV. *Substantiation of the effectiveness of the use of perfluorane during gingivoplasty using free gingival and connective tissue autografts* [dissertation]. Moscow; 2012. 156 p. (In Russ). EDN: QFMQVJ
4. Ganja IR, Modina TN, Hamadeeva AM. *Gingival recession. Diagnostics and methods of treatment*. Samara: Sodrzhestvo; 2007. 83 p. (In Russ).
5. Gorbatova EA. *The influence of the topography of the gingival divisions, the vestibule of the mouth, and the attachment of the frenules of the lips on the formation of pathological changes in the mouth* [dissertation]. Moscow; 2004. 167 p. EDN: NQNBZL
6. Edranov SS, Kerzиков RA. Free gingival graft morphogenesis. *Russian Journal of Dentistry*. 2017;21(2):111–116. EDN: WBLCTM doi: 10.18821/1728-28022017;21(2):111-116
7. Aguilar-Duran L, Mir-Mari J, Figueiredo R, Valmaseda-Castellón E. Is measurement of the gingival biotype reliable? Agreement among different assessment methods. *Med Oral Patol Oral Cir Bucal*. 2020;25(1):e144–e149. doi: 10.4317/medoral.23280
8. Ahmedbeyli C, Ipçi ŞD, Cakar G, et al. Clinical evaluation of an expanded coronary flap with or without a cell-free dermal matrix transplant with full coverage of the defect for the treatment of multiple gingival recessions with a thin tissue biotype. *J Clin Periodontol*. 2014;41(3):303–310. doi: 10.1111/jcpe.12211
9. Ahmedbeyli C, Ipçi SD, Cakar G, Yilmaz S. Laterally positioned flap along with acellular dermal matrix graft in the management of maxillary localized recessions. *Clin Oral Investig*. 2019;23(2):595–601. doi: 10.1007/s00784-018-2475-1
10. Soldatov IK, Juravleva LN, Tegza NV, et al. Scientometric analysis of dissertation papers on pediatric dentistry in Russia. *Russian Journal of Dentistry*. 2023;27(6):571–580. doi: 10.17816/dent624942

СПИСОК ЛИТЕРАТУРЫ

1. Адилханян В.А. Работа с мягкими тканями как часть комплексного подхода к эстетической реабилитации пациента // Институт стоматологии. 2011. № 2. С. 35–37. EDN: NYGGOB
2. Волкова В.В. Влияние молекулярно-генетических факторов на процессы регенерации при ликвидации множественных рецессий с различными биотипами десны: дис. ... канд. мед. наук. Москва, 2017. 129 с. EDN: DVYBEB
3. Воробьева А.В. Обоснование эффективности применения перфторана при проведении гингивопластики с использованием свободного десневого и соединительнотканного аутотрансплантатов: дис. ... канд. мед. наук. Москва, 2012. 156 с. EDN: QFMQVJ
4. Ганжа И.Р., Модина Т.Н., Хамадеева А.М. Рецессия десны. Диагностика и методы лечения. Самара: Содружество, 2007. 83 с.
5. Горбатова Е.А. Влияние топографии отделов десны, преддверия рта, прикрепления уздечек губ на формирование патологических изменений в пародонте: дис. ... канд. мед. наук. Москва, 2004. 167 с. EDN: NQNBZL
6. Едранов С.С., Керзиков Р.А. Морфогенез свободного десневого трансплантата // Российский стоматологический журнал. 2017. Т. 21, № 2. С. 111–116. EDN: WBLCTM doi: 10.18821/1728-28022017;21(2):111-116
7. Aguilar-Duran L, Mir-Mari J, Figueiredo R, Valmaseda-Castellón E. Is measurement of the gingival biotype reliable? Agreement among different assessment methods // *Med Oral Patol Oral Cir Bucal*. 2020. Vol. 25, N 1. P. e144–e149. doi: 10.4317/medoral.23280
8. Ahmedbeyli C, Ipçi Ş.D., Cakar G., et al. Clinical evaluation of coronally advanced flap with or without acellular dermal matrix graft on complete defect coverage for the treatment of multiple gingival recessions with thin tissue biotype // *J Clin Periodontol*. 2014. Vol. 41, N 3. P. 303–310. doi: 10.1111/jcpe.12211
9. Ahmedbeyli C, Ipçi Ş.D., Cakar G., Yilmaz S. Laterally positioned flap along with acellular dermal matrix graft in the management of maxillary localized recessions // *Clin Oral Investig*. 2019. Vol. 23, N 2. P. 595–601. doi: 10.1007/s00784-018-2475-1
10. Солдатов И.К., Журавлёва Л.Н., Тегза Н.В., и др. Наукометрический анализ диссертационных работ по детской стоматологии в Российской Федерации // Российский стоматологический журнал. 2023. Т. 27, № 6. С. 571–580. doi: 10.17816/dent624942

AUTHORS' INFO

* **Rasima R. Khaibullina**, MD, Dr. Sci. (Medicine), Associate Professor; address: 3 Lenina street, 450008 Ufa, Russia; ORCID: 0000-0002-9839-3492; eLibrary SPIN: 5107-5646; e-mail: rasimadiana@mail.ru

ОБ АВТОРАХ

* **Хайбуллина Расима Рашитовна**, д-р мед. наук, доцент; адрес: Россия, 450008, Уфа, ул. Ленина, д. 3; ORCID: 0000-0002-9839-3492; eLibrary SPIN: 5107-5646; e-mail: rasimadiana@mail.ru

Natalya V. Lopatina;

ORCID: 0000-0002-4547-3034;

eLibrary SPIN: 4672-7933;

e-mail: 89273065446@mail.ru

Larisa P. Gerasimova, MD, Dr. Sci. (Medicine), Professor;

ORCID: 0000-0002-1145-6500;

eLibrary SPIN: 1533-8640;

e-mail: gerasimovalarisa@rambler.ru

Damira N. Tukhvatullina, MD, Cand. Sci. (Medicine), Associate Professor;

ORCID: 0000-0003-4166-2601;

eLibrary SPIN: 5649-5059;

e-mail: damirastom@yandex.ru

Tat'jana V. Bashirova, MD, Cand. Sci. (Medicine), Associate Professor;

ORCID: 0000-0002-7893-8280;

eLibrary SPIN: 2727-1550;

e-mail: t_bashirova@mail.ru

Al'fija R. Khaibullina;

ORCID: 0009-0001-3124-1048;

e-mail: alfiyahabullina@mail.ru

Vlas S. Shchekin;

ORCID: 0000-0002-0882-4405;

eLibrary SPIN: 7796-0630;

e-mail: vsschekin@bashgmu.ru

Angelina O. Vlasova;

ORCID: 0009-0002-1818-5077;

eLibrary SPIN: 7999-8086;

e-mail: aovlasova@bashgmu.ru

Regina R. Habibullina;

ORCID: 0009-0006-0380-2115;

e-mail: miss.sadyckowa@yandex.ru

Лопатина Наталья Викторовна;

ORCID: 0000-0002-4547-3034;

eLibrary SPIN: 4672-7933;

e-mail: 89273065446@mail.ru

Герасимова Лариса Павловна, д-р мед. наук, профессор;

ORCID: 0000-0002-1145-6500;

eLibrary SPIN: 1533-8640;

e-mail: gerasimovalarisa@rambler.ru

Тухватуллина Дамира Назиповна, канд. мед. наук, доцент;

ORCID: 0000-0003-4166-2601;

eLibrary SPIN: 5649-5059;

e-mail: damirastom@yandex.ru

Баширова Татьяна Владимировна, канд. мед. наук, доцент;

ORCID: 0000-0002-7893-8280;

eLibrary SPIN: 2727-1550;

e-mail: t_bashirova@mail.ru

Хайбуллина Альфия Рашитовна;

ORCID: 0009-0001-3124-1048;

e-mail: alfiyahabullina@mail.ru

Щёкин Влас Сергеевич;

ORCID: 0000-0002-0882-4405;

eLibrary SPIN: 7796-0630;

e-mail: vsschekin@bashgmu.ru

Власова Ангелина Олеговна;

ORCID: 0009-0002-1818-5077;

eLibrary SPIN: 7999-8086;

e-mail: aovlasova@bashgmu.ru

Хабибуллина Регина Ралифовна;

ORCID: 0009-0006-0380-2115;

e-mail: miss.sadyckowa@yandex.ru

* Corresponding author / Автор, ответственный за переписку