Case Report

https://doi.org/10.36377/ET-0151

Total rehabilitation of a patient with severe chronic generalized periodontitis in the maxilla with dental implantation in geriatric age (a clinical case)

Onik S. Unusyan ✉, Innokenty D. Ushnitsky, Alexander D. Semenov, Andrian V. Ivanov

North-Eastern Federal University, Yakutsk, Russian Federation

✉ onikunusyan@gmail.com

Abstract

Currently, a priority direction of healthcare is the optimization of comprehensive medical and social rehabilitation of patients. The high level of prevalence of periodontal diseases among the population determines the relevance of research aimed at the improvement of treatment and preventive measures. Considering the above, we conducted a total rehabilitation of a geriatric age patient with severe chronic generalized periodontitis in the maxilla by performing dental implantation. In the beginning, we assessed the width and length of the bone tissue of the alveolar process of the maxilla based on the results of CBCT. Next, the removal of mobile teeth was performed with the simultaneous installation of dental implants with bone grafting using the IDR technique (immediate dentoalveolar reconstruction). After which we fixed the multi-units (straight and angled 30°) on the implants and performed the taking of impressions. Then, within 48 hours, we performed the fabrication and fixation of temporary crowns from PMMA (polymethyl methacrylate) on the installed implants in the patient.

Keywords: chronic periodontitis, alveolar process, dental implantation, bone grafting, immediate loading, geriatric age

Article info: received – 02.10.2025; revised – 13.11.2025; accepted – 20.11.2025

Conflict of interest: The authors report no conflict of interest.

Acknowledgements: There are no funding and individual acknowledgments to declare.

For citation: Unusyan O.S., Ushnitsky I.D., Semenov A.D., Ivanov A.V. Total rehabilitation of a patient with severe chronic generalized periodontitis in the maxilla with dental implantation in geriatric age (a clinical case). *Endodontics Today.* 2025;23(4):697–701. https://doi.org/10.36377/ET-0151

Тотальная реабилитация пациента с хроническим генерализованным пародонтитом тяжелой степени на верхней челюсти с дентальной имплантацией в старческом возрасте (клинический случай)

О.С. Унусян ✉, И.Д. Ушницкий, А.Д. Семенов, А.В. Иванов

Северо-Восточный федеральный университет им. М.К. Аммосова, г. Якутск, Российская Федерация

✉ onikunusyan@gmail.com

Резюме

В настоящее время приоритетным направлением здравоохранения является оптимизация комплексной медико-социальной реабилитации пациентов. Высокий уровень распространенности заболеваний пародонта среди населения обуславливает актуальность исследований, направленных на совершенствование лечебно-профилактических мероприятий. С учетом изложенного нами проводилась тотальная реабилитация пациента старческого возраста с хроническим генерализованным пародонтитом тяжелой степени на верхней челюсти путем проведения дентальной имплантации. В начале проводили оценку ширины и длины костной ткани альвеолярного отростка верхней челюсти по результатам КЛКТ. Далее проводилось удаление подвижных зубов с одномоментной установкой дентальных имплантатов с костной пластикой по методике IDR (немедленная зубоальвеолярная реконструкция). После чего производили фиксацию мульти юнитов (прямые и угловые 30°) на имплантаты и осуществляли снятие слепков. Затем в течение 48 часов осуществляли изготовление и фиксацию временных коронок из PMMA (полиметилметакрилат) на установленные имплантаты у пациента.

Ключевые слова: хронический пародонтит, альвеолярный отросток, дентальная имплантация, костная пластика, немедленная нагрузка, старческий возраст

Информация о статье: поступила – 02.10.2025; исправлена – 13.11.2025; принята – 20.11.2025

Конфликт интересов: Авторы сообщают об отсутствии конфликта интересов.

Благодарности: Финансирование и индивидуальные благодарности для декларирования отсутствуют.

Для цитирования: Унусян О.С., Ушницкий И.Д., Семенов А.Д., Иванов А.В. Тотальная реабилитация пациента с хроническим генерализованным пародонтитом тяжелой степени на верхней челюсти с дентальной имплантацией в старческом возрасте (клинический случай). *Эндодонтия Today.* 2025;23(4):697–701. https://doi.org/10.36377/ET-0151

INTRODUCTION

Currently, a high level of prevalence of diseases of the periodontal tissues is determined, where a severe form of generalized periodontitis is often identified [1; 2]. It is characterized not only by a pronounced inflammatory reaction but also by profound morphofunctional destructive disturbances in the structures ensuring the stability of the teeth, including the gingival tissue, periodontal ligament, cementum, and alveolar bone [3; 4]. Chronic generalized periodontitis causes the occurrence of partial or complete loss of teeth. Furthermore, existing local destructive processes according to the pathogenetic mechanisms of the disease contribute to the desensitization of the organism with the further formation and development of focal-induced diseases of various organs and systems [3; 5]. Anatomical and topographic changes of the alveolar process in inflammatory periodontal diseases cause several difficulties during the medical and social rehabilitation of patients [5; 6]. Despite the extensive study of inflammatory-destructive processes of the periodontal tissues, the problems of improving treatment and preventive measures remain not fully solved. This emphasizes the necessity of a comprehensive approach to treatment, including local methods of debridement, dental implantation according to different concepts, orthopedic rehabilitation and correction of general risk factors, as well as the necessity of constant interdisciplinary dispensary observation [1; 3; 5; 7].

CLINICAL CASE

The total rehabilitation of a patient with severe chronic generalized periodontitis in the maxilla with dental implantation in a geriatric age patient was conducted in the dental clinic of the Clinic of North-Eastern Federal University.

In the management of the patient, well-known basic and additional methods of investigation of the organs and tissues of the oral cavity, as well as the maxillofacial area, were applied. The object of the study was a 78-year-old patient with partial secondary adentia, code according to the International Classification of Diseases (ICD-10) K08.1 (loss of teeth due to accident, extraction or localized periodontal disease) and with severe chronic generalized periodontitis (Fig. 1). Based on the obtained results of CBCT, we performed the planning of total dental implantation on the maxilla (Fig. 2).

Fig. 1. Appearance of the oral cavity of the patient with partial secondary adentia of the maxilla

Рис. 1. Внешний вид полости рта пациента с частичной вторичной адентией верхней челюсти

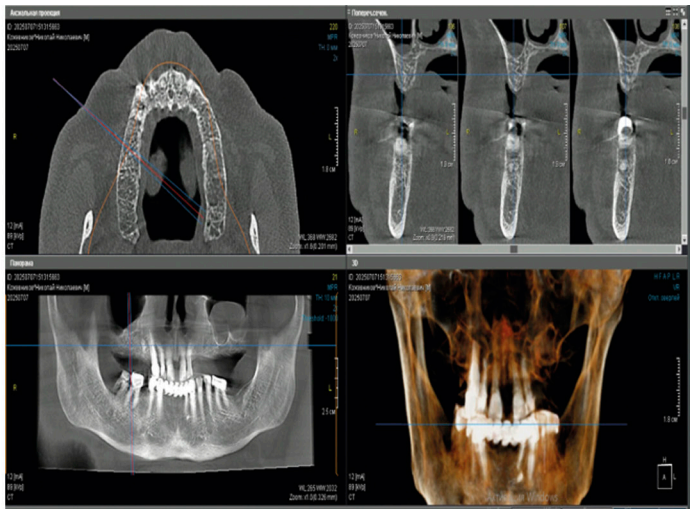

Fig. 2. Results of CBCT of a 78-year-old patient with partial secondary adentia with severe chronic generalized periodontitis

Рис. 2. Результаты КЛКТ пациента 78 лет с частичной вторичной адентией с хроническим генерализованным пародонтитом тяжелой степени

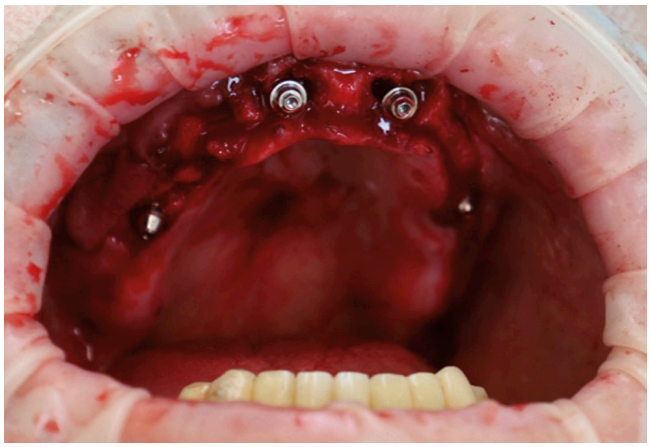

Fig. 3. Installed angled 30° multi-units on the distal implants and straight multi-units on the anterior implants with a length of 2.5 millimeters

Рис. 3. Установлены 30° угловые мультиюниты на дистальные имплантаты и прямые мультиюниты на передние имплантаты с длиной 2,5 мм

Under infiltration anesthesia Sol. Articaini 1:200000 1.7 ml, the extraction of teeth 1.4, 1.3, 1.2, 1.1, 2.1 and 2.2 was performed. Next, we performed the reflection of a mucoperiosteal flap, the installation of 4 dental implants in the area of teeth 1.6, 1.2, 2.2 and 2.6 according to the "All on 4" concept, in which two distal implants (4.3 by 13 mm) were installed at an angle of 30–35° to exclude the performance of additional surgical interventions in the maxillary sinus regarding sinus lifting and to lengthen the span of the orthopedic construction, to obtain bicortical fixation in the distal implants for primary stability with an indicator above 35 N/cm^2 and 2 straight implants (4.3 by 13 mm) in the frontal section of the alveolar process of the maxilla with bone grafting using the IDR technique (immediate dentoalveolar reconstruction). Next, we installed angled 30° multi-units on the distal implants and straight multi-units on the anterior implants with a length of 2.5 millimeters (Fig. 3). Monofilament sutures 6/0 were placed and we performed the taking of an impression from the level of the multi-units with a transfer coping with A-silicone using the open-tray technique. Next, in the laboratory using the "Exocad" software, we modeled and milled temporary crowns from PMMA (polymethyl methacrylate). Within 48 hours after the installation of the dental implants, the temporary construction on the maxilla was fixed (Fig. 4, *A*, *B*).

After three months, the mucous membrane in the area of the dental implants is without changes, on the radiograph a stable level of bone tissue around the artificial supports is determined, as well as the stability of the implants under a load above 32 N/cm^2. Next, the replacement of the temporary orthopedic construction with a permanent one made of acrylic plastic on a milled titanium bar was performed.

In general, on this clinical case, simultaneous dental implantation with bone grafting and immediate loading was successfully implemented, ensuring the preservation of the height of the interalveolar distance, the masticatory function of the dentofacial system and the aesthetic qualities of the orthopedic construction in a geriatric age patient.

DISCUSSION

In standard dental implantation for the total restoration of the alveolar process of the maxilla, the optimal number of implants fluctuates within the limits from six and more units, in which the necessity of performing bone grafting by performing open and/or closed sinus lifting often appears. This technique is characterized by invasiveness, a more prolonged period of rehabilitation and costliness, which is less suitable for patients of geriatric age. Whereas dental implantation by the "All on 4" method is associated with rapid prosthetics without performing sinus lifting due to the inclined installation of

A **B**

Fig. 4. Fixation of the temporary orthopedic construction on the maxilla after 48 hours of installation of the dental implants (*A* – front view; *B* – view from the occlusal surface)

Рис. 4. Фиксация временной ортопедической конструкции на верхней челюсти через 48 часов после установки дентальных имплантатов (*A* – вид спереди; *B* – вид с окклюзионной поверхности)

the distal implants, which ensures high reliability, aesthetics and cost-effectiveness compared to traditional methods. At the same time, this method allows for performing total implantation with immediate loading and the installation of only four implants, which ensure the restoration of the masticatory function of the dentofacial system and reduce the period of rehabilitation of patients. In this connection, the "All on 4" method, as the clinical case showed, can be successfully applied in persons of geriatric age as an option for the restoration of various defects of the dental arches.

CONCLUSIONS

The obtained results of the performed total dental implantation in a geriatric age patient by the "All on 4" method with immediate loading, determine its prospects in clinical dentistry, which expand the indications for application, conditioned by effectiveness, the exclusion of performing bone grafting, the rapid restoration of the function of the dentofacial system, cost-effectiveness, reliable fixation, minimal invasiveness and the prevention of atrophy of the bone tissue of the alveolar process.

REFERENCES / СПИСОК ЛИТЕРАТУРЫ

1. Verdiev A.E., Savvidi K.G., Blinova A.V., El-Aydi M.A., Davydov B.A. Orthopedic rehabilitation of a patient with severe chronic generalized periodontitis using dental implantation and a digital protocol: a clinical case. *Medical Alphabet*. 2025;(10):79–84. (In Russ.) https://doi.org/10.33667/2078-5631-2025-10-79-84
   Вердиев А.Э., Саввиди К.Г., Блинова А.В., Эль-Айди М.А., Давыдов Б.А. Ортопедическая реабилитация пациента с хроническим генерализованным пародонтитом тяжелой степени тяжести с применением дентальной имплантации и цифрового протокола: клинический случай. *Медицинский алфавит*. 2025;(10):79–84. https://doi.org/10.33667/2078-5631-2025-10-79-84
2. Isufi R., Xhajanka E., Thodhorjani A., Hysenaj N., Lela F., Bara S., Isufi R. All-on-four concept literature review. *International Journal of Membrane Science and Technology*. 2023;10(2):3892–3899. https://doi.org/10.15379/ijmst.v10i2.3255
3. Dashevskiy I.N., Gribov D.A., Olesova V.N. Personified biomechanics of edentulous jaw with restoration on the scheme of "all-on-4" and with parallel implants. *Russian Journal of Dentistry*. 2019;23(1):21–23. (In Russ.) https://doi.org/10.18821/1728-2802-2019-23-1-21-23
   Дашевский И.Н., Грибов Д.А., Олесова В.Н. Персонифицированная биомеханика беззубой челюсти при реставрации по схеме «все-на-4» и на параллельных имплантатах. *Российский стоматологический журнал*. 2019;23(1):21–23. https://doi.org/10.18821/1728-2802-2019-23-1-21-23
4. Kulakov A.A., Kasparov A.S., Porfenchuk D.A. Factors affecting osteointegration and the use of early functional load to reduce the duration of treatment in dental implantation. *Stomatology*. 2019;98(4):107–115. (In Russ.) https://doi.org/10.17116/stomat201998041107
   Кулаков А.А., Каспаров А.С., Порфенчук Д.А. Факторы, влияющие на остеоинтеграцию и применение ранней функциональной нагрузки для сокращения сроков лечения при дентальной имплантации. *Стоматология*. 2019;98(4):107–115. https://doi.org/10.17116/stomat201998041107
5. Nikitina L.I., Gromova A.S. Dental rehabilitation of patients with complete (secondary) adentia using dental implants. *Acta Medica Eurasica*. 2022;(3):29–35. https://doi.org/10.47026/2413-4864-2022-3-29-35
   Никитина Л.И., Громова А.С. Стоматологическая реабилитация больных с полной (вторичной) адентией с использованием дентальных имплантатов. *Acta Medica Eurasica*. 2022;(3):29–35. https://doi.org/10.47026/2413-4864-2022-3-29-35
6. Albaqawi A.H. "All-on-4" and "All-on-6" treatment concept applied using computer-guided surgery in a patient: Case report with a 2-year follow-up. *Clin Case Rep*. 2023;11(3):e7101. https://doi.org/10.1002/ccr3.7101
7. Glebova M.S., Glebov G.S., Sletova V.A., Gabbasova I.V., Boiko E.M., Idrisova A.M., Sletov A.A. Dental implantation after reconstruction of total and subtotal defects of the upper and lower jaws. *International journal of Innovative Medicine*. 2023;(2):18–20. https://doi.org/10.33667/2782-4101-2023-2-18-20
   Глебова М.С., Глебов Г.С., Слетова В.А., Габбасова И.В., Бойко Е.М., Идрисова А.М., Слетов А.А. Дентальная имплантация после реконструкции тотальных и субтотальных дефектов верхней и нижней челюстей. *International journal of Innovative Medicine*. 2023;(2):18–20. https://doi.org/10.33667/2782-4101-2023-2-18-20

INFORMATION ABOUT THE AUTHORS

Onik S. Unusyan – Cand. Sci. (Med.), Associate Professor, Department of Surgical Diseases and Dentistry, North-Eastern Federal University, 58 Belinsky Str., Yakutsk 677027, Russian Federation; https://orcid.org/0000-0002-8839-4205

Innokenty D. Ushnitsky – Dr. Sci. (Med.), Professor, Head of the Department of Therapeutic, Surgical, Orthopedic and Pediatric Dentistry, North-Eastern Federal University, 58 Belinsky Str., Yakutsk 677027, Russian Federation; https://orcid.org/0000-0002-4044-3004

Alexander D. Semenov – Cand. Sci. (Med.), Associate Professor of the Department of Therapeutic, Surgical, Orthopedic Dentistry and Pediatric Dentistry, North-Eastern Federal University, 58 Belinsky Str., Yakutsk 677027, Russian Federation; https://orcid.org/0009-0008-2937-5232

Andrian V. Ivanov – Cand. Sci. (Med.), Associate Professor of the Department of Surgical Diseases and Dentistry, North-Eastern Federal University, 58 Belinsky Str., Yakutsk 677027, Russian Federation; https://orcid.org/0009-0003-9352-1111

ИНФОРМАЦИЯ ОБ АВТОРАХ

Унусян Оник Саркисович – к.м.н., доцент кафедры хирургических болезней и стоматологии, ФГАОУ ВО «Северо-Восточный федеральный университет им. М.К. Аммосова», 677000, Российская Федерация, г. Якутск, ул. Белинского, д. 58; https://orcid.org/0000-0002-8839-4205

Ушницкий Иннокентий Дмитриевич – д.м.н., профессор, заведующий кафедрой терапевтической, хирургической, ортопедической стоматологии и стоматологии детского возраста, ФГАОУ ВО «Северо-Восточный федеральный университет им. М.К. Аммосова», 677000, Российская Федерация, г. Якутск, ул. Белинского, д. 58; https://orcid.org/0000-0002-4044-3004

Семенов Александр Дмитриевич – к.м.н., доцент кафедры терапевтической, хирургической, ортопедической стоматологии и стоматологии детского возраста, ФГАОУ ВО «Северо-Восточный федеральный университет им. М.К. Аммосова», 677000, Российская Федерация, г. Якутск, ул. Белинского, д. 58; https://orcid.org/0009-0008-2937-5232

Иванов Андриан Владимирович – к.м.н., доцент кафедры доцент кафедры хирургических болезней и стоматологии, ФГАОУ ВО «Северо-Восточный федеральный университет им. М.К. Аммосова», 677000, Российская Федерация, г. Якутск, ул. Белинского, д. 58; https://orcid.org/0009-0003-9352-1111

AUTHOR'S CONTRIBUTION

All the authors made equal contributions to the publication preparation in terms of the idea and design of the article; data collection; critical revision of the article in terms of significant intellectual content and final approval of the version of the article for publication.

ВКЛАД АВТОРОВ

Все авторы внесли равноценный вклад в подготовку публикации в части замысла и дизайна исследования; сбора данных; критического пересмотра статьи в части значимого интеллектуального содержания и окончательного одобрения варианта статьи для опубликования.