GEORGIAN MEDICAL NEWS

ISSN 1512-0112

NO 1 (370) Январь 2026

ТБИЛИСИ - NEW YORK

ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

Monthly Georgia-US joint scientific journal published both in electronic and paper formats of the Agency of Medical Information of the Georgian Association of Business Press. Published since 1994. Distributed in NIS, EU and USA.

GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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Содержание:

GEORGIAN MEDICAL NEWS
No 1 (370) 2026

CLINICAL MANAGEMENT OF IMMEDIATE IMPLANT PLACEMENT AND LOADING IN THE ESTHETIC ZONE WITH FINAL PROSTHETIC RESTORATION

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Abstract.

Immediate implant placement with immediate loading in the esthetic zone is a predictable treatment option when strict surgical and prosthetic protocols are followed. This case report describes the clinical management of a 50-year-old systemically healthy, non-smoking male treated with two immediately placed implants in the maxillary central incisor region (teeth 11 and 21).

Following atraumatic flapless extraction due to extensive root caries (tooth 11) and a chronic periapical granulomatous lesion with insufficient residual root length (tooth 21), two tapered implants (3.5 × 13 mm; Hiossen) were placed.

Primary stability was achieved with insertion torque values of 40 Ncm (D.11) and 45 Ncm (D.21) fulfilling accepted criteria for immediate loading.

Guided bone regeneration was performed using a 50:50 mixture of autogenous bone harvested from the mandibular retromolar area and xenograft material, without the use of a barrier membrane. Immediate screw-retained provisional restorations were placed out of occlusion.

Clinical and radiographic evaluation at six months after final prosthesis delivery demonstrated stable peri-implant bone levels, preserved interdental papillae, and satisfactory esthetic integration.

The limited follow-up duration represents a limitation for long-term esthetic evaluation.

Key words. Immediate implant, esthetic zone, GBR, provisional restoration, final prosthesis.

Introduction.

Immediate implant placement with immediate or early loading in the anterior maxilla is widely accepted as a viable treatment approach that reduces treatment time, preserves alveolar bone, and maintains peri-implant soft tissue architecture [1-5]. However, the esthetic zone presents unique biological and prosthetic challenges, particularly when replacing adjacent maxillary central incisors. Careful patient selection, atraumatic extraction, achievement of adequate primary stability, and appropriate soft and hard tissue management are essential to ensure long-term esthetic success [6-14].

Clinical Procedure:

1. Atraumatic flapless extraction of two maxillary central incisors
2. Implant placement
3. Guided Bone Regeneration (GBR)
4. Immediate temporary restoration
5. Final prosthetic restoration.

Case Presentation and Clinical Procedure.

Patient Demographics and Diagnosis:

A 50-year-old male patient presented with complaints related to the maxillary anterior region. The patient was systemically healthy, a non-smoker, and reported no history of periodontal disease. As part of the preoperative anamnestic and medical assessment, laboratory investigations were requested, including:

- Serum vitamin D
- Total calcium levels
- Bleeding time
- Coagulation time
- Lipid profile (LDL cholesterol)
- All laboratory values were within normal physiological limits, and no medical contraindications for implant surgery were identified.

Clinical and radiographic examination revealed different pathological conditions affecting the maxillary central incisors.

Tooth 11 presented with extensive root caries extending subgingivally, resulting in a poor prognosis and rendering the tooth non-restorable. Tooth 21 demonstrated a chronic periapical granulomatous lesion. Although apical surgery could have been considered, the remaining root length was insufficient due to apical resorption and structural compromise, making long-term prosthetic rehabilitation unfavorable. Therefore, extraction of both teeth followed by immediate implant placement was indicated [1,6,9].

Atraumatic Extraction:

The maxillary central incisors were extracted due to non-restorable conditions.

Tooth 11 was removed because of extensive root caries with a hopeless prognosis, while tooth 21 was extracted due to a chronic periapical granulomatous process combined with insufficient remaining root length for predictable prosthetic planning.

Minimally invasive, flapless extraction techniques were performed using periotomes to preserve the buccal bone plate and surrounding soft tissues [1,6,7].

Post-extraction clinical inspection and photographic documentation demonstrated intact interradicular and socket walls without signs of iatrogenic damage. Preservation of the interradicular bone and alveolar socket integrity is a critical factor for minimizing post-extraction bone resorption and contributes positively to the long-term prognosis of immediately placed implants in the esthetic zone [1,6].

Implant Placement:

Two implants were placed immediately into the fresh extraction sockets at positions 11 and 21.

Two tapered implants (Hiossen) with a moderately rough surface were used.

Implant dimensions were 3.5×13 mm for both sites.

Primary stability was achieved with an insertion torque of 40 Ncm at site 11 and 45 Ncm at site 21, fulfilling the criteria for immediate loading [4,5,8]. Resonance frequency analysis confirmed implant stability with ISQ values of 68 and 70, respectively.

Intraoperative assessment of the recipient sites indicated D2 bone density according to the Lekholm and Zarb classification, reflecting favorable cortical support combined with good-quality medullary bone. This bone quality is generally associated with predictable primary stability and favorable conditions for osseointegration [3,9].

Implants were positioned using a palatal approach and placed 2–3 mm subcrestally relative to the buccal bone level. This positioning was selected to reduce buccal loading forces, minimize stress concentration on the thin buccal plate, and support long-term peri-implant bone stability in the esthetic zone [2,14].

Palatal positioning and subcrestal placement are considered favorable biomechanical factors and may represent a minor but relevant determinant contributing to the long-term survival and prognosis of implant [6].

Guided Bone Regeneration (GBR):

Clinical evaluation of the peri-implant soft tissues revealed optimal gingival thickness, favorable contour, shallow probing depths, and an adequate band of keratinized mucosa.

Due to the favorable socket morphology and stable soft tissue conditions, no barrier membrane was applied, and graft stabilization was achieved through careful compaction and immediate provisionalization. Due to these favorable soft tissue conditions and stable gingival architecture, no free gingival graft (FGG) or additional soft tissue augmentation was required, as also documented in the clinical photographs.

Following implant placement, a buccal bone defect and peri-implant gaps between the implant surface and socket walls were observed. Guided bone regeneration (GBR) was therefore performed using a bone-chips technique with a 50:50 mixture of autogenous bone and xenograft material [10,12]. Autogenous bone was harvested from the mandibular retromolar area using a SafeScraper (META, Italy) and temporarily stored in sterile 0.9% NaCl solution until mixing, in order to preserve cellular vitality and minimize contamination.

The augmentation was carried out in a staged manner. In the first layer, autogenous bone was placed in direct contact with the implant surface, particularly in the apical and peri-implant regions, to promote early osseointegration due to its osteogenic, osteoinductive, and osteoconductive properties. In the second layer, a combined autogenous bone and xenograft mixture (Purgo Graft) was applied to improve volume stability and reduce resorption risk, which is especially relevant in the anterior maxilla.

Bone chips were gently compacted using a chisel-type instrument (Chisel 3), allowing controlled condensation and adequate filling of the peri-implant gaps, particularly in the apical direction [11,12]. The total graft volume was approximately 1 cc, selected to compensate for expected resorption and to support long-term hard-tissue stability in the esthetic zone. Cover screws were placed during the augmentation phase to prevent graft particles from entering the internal implant connection and were later removed for impression taking [12].

No barrier membrane was applied in this case. The decision to omit membrane coverage was based on the presence of intact socket walls, favorable soft tissue conditions, and the ability to achieve graft stability through controlled compaction of the bone particles and immediate provisionalization.

This approach was selected to reduce surgical complexity while maintaining adequate space stability in the esthetic zone.

Immediate Provisional Restoration:

Screw-retained provisional restorations fabricated from PMMA were placed immediately after surgery. Occlusal contacts were avoided in centric and eccentric movements. The provisional restorations were anatomically contoured in a prosthetically driven manner to guide peri-implant soft tissue healing. Software used for design (Exocad DentalCad). Particular emphasis was placed on the transmucosal emergence profile, which was designed with a gradual, concave contour to provide adequate soft tissue support while avoiding excessive compression of the peri-implant mucosa. This contouring strategy facilitated the stabilization of the gingival margins and supported the formation and preservation of the interdental papillae between the adjacent implants [2,8,9].

Final Prosthetic Restoration:

After a healing period of six months following implant placement, the provisional restorations were removed. At this stage, peri-implant soft tissues demonstrated clinical stability, with well-preserved gingival margins and interdental papillae. Digital impressions were obtained using an intraoral scanner (Medit i700, Medit Corp., South Korea), allowing accurate capture of the peri-implant soft tissue architecture and implant positions.

Solo zirconia crowns were fabricated and screw-retained onto the implants, achieving optimal esthetic integration and functional occlusion (Figure 5: Temporary restorations removed).

Digital impressions were taken to accurately capture the soft tissue contours and implant positions (Figure 6: Digital impression acquisition).

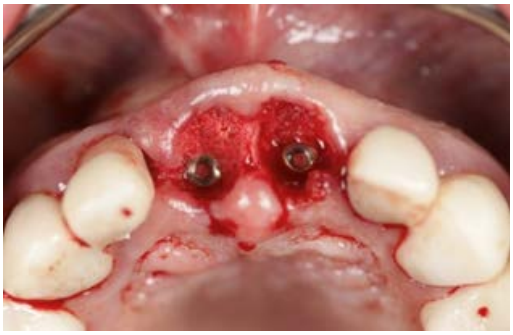
The definitive restorations were digitally designed using CAD software (Exocad DentalCAD). Particular attention was paid to the design of the emergence profile, which was shaped to replicate the contours established by the provisional restorations and to support the peri-implant soft tissues in a prosthetically driven manner. A gradual, concave transmucosal profile was implemented to minimize pressure on the peri-implant mucosa, promote soft tissue stability, and facilitate long-term maintenance of gingival architecture. The cervical contours were designed to follow the natural gingival zeniths and scalloping of the anterior maxilla, thereby enhancing esthetic integration.

Screw-retained monolithic zirconia crowns were fabricated and delivered as the final prosthetic restorations. Occlusal contacts were carefully adjusted to achieve harmonious static and dynamic occlusion while avoiding excessive loading in



Figure 1:a,b,c : a) pre-op , b)minimal invasive extraction , c) extracted infected root

Figure 2: Implant placement D.11,21



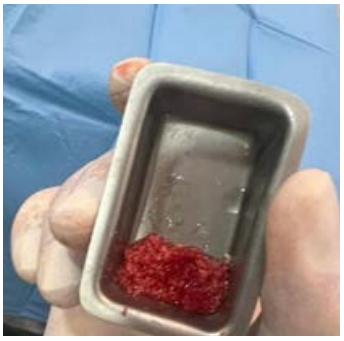


Figure 3b : a,b,c : a) GBR , b) mixture of autogenous bone and xenograft, c) mixture of autogenous bone and xenograft


Figure 4 : a,b : a) Transfer placement for impression , b) Pmma temporary placement

Figure 5 : a,b : *a) Temporary restorations removed, b) rtg after 6 months*

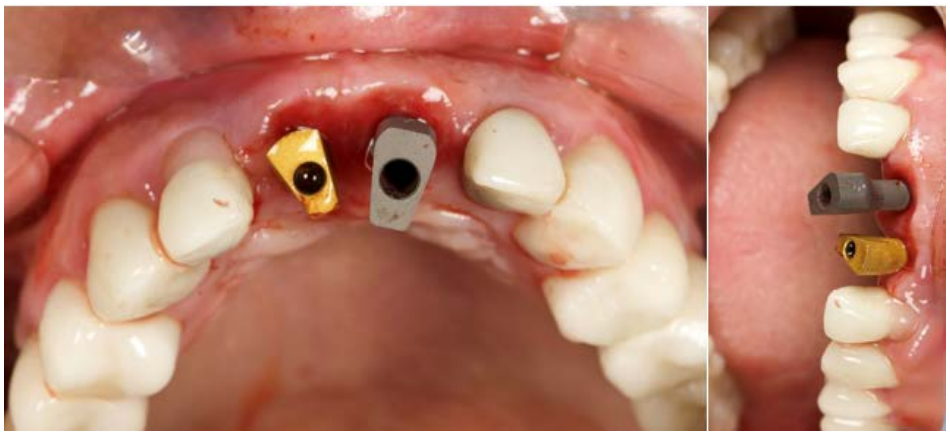


Figure 6 : *a,b : Scan body placement (digital impression medit i700)*

Figure 7. *a,b,c : Final prosthetic restorations*

lateral excursions. At the time of final prosthesis delivery, the restorations demonstrated optimal esthetic integration, proper occlusal function, and stable peri-implant soft tissue contours, fulfilling both functional and esthetic treatment objectives (Figure 7: Zirconia crowns in place) [4,14].

Results.

Both implants demonstrated excellent primary stability at placement and uneventful osseointegration. Soft tissue healing was favourable, with preservation of the gingival margins and interdental papillae between implants 11 and 21. Radiographic evaluation at six months showed stable peri-implant bone levels without signs of marginal bone loss or complications. The patient reported high satisfaction with both esthetic and functional outcomes.

Follow-up evaluation was performed six months after delivery of the definitive prosthetic restorations, including clinical examination and periapical radiographic assessment [3,9].

Discussion.

This case highlights the clinical feasibility of immediate implant placement and loading in the esthetic zone, even when replacing two adjacent maxillary central incisors [2-4]. Achieving high primary stability ≥35 Ncm was critical in enabling immediate provisionalization [4,5,8].

The use of GBR with a combined autogenous bone and

xenograft approach helped compensate for buccal bone deficiencies and supported long-term tissue stability [10,12].

Preservation and reconstruction of the interdental papilla between adjacent implants remain a major esthetic challenge. In this case, careful three-dimensional implant positioning, immediate provisionalization, and appropriate emergence profile design contributed to favourable papilla formation [2,8,9]. Despite the positive short-term outcomes, the six-month follow-up period after final prosthesis delivery is limited and does not allow definitive conclusions regarding long-term esthetic stability. This limitation should be considered when interpreting the results.

In the present case, preservation of the interdental papilla between the two adjacent implants at positions 11 and 21 was achieved despite the inherent esthetic risk associated with reduced inter-implant distance. This outcome may be attributed to precise three-dimensional implant positioning, subcrestal palatal placement, and immediate provisionalization with a carefully designed concave emergence profile. The provisional restorations likely played a key role in guiding early soft tissue maturation and stabilizing the peri-implant papilla during the critical healing phase.

Conclusion.

Immediate implant placement with GBR and immediate provisionalization can be a predictable and esthetically successful treatment option in the anterior maxilla when strict clinical protocols are followed.

When performed with careful planning and adherence to surgical protocols, this method ensures both functional success and optimal esthetic outcomes, improving patient satisfaction and reducing overall treatment time.

Nevertheless, longer follow-up and larger clinical studies are required to confirm the long-term esthetic stability of immediate implants placed in adjacent anterior sites.

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