

# Immediate Provisionalization of a Narrow-Diameter Implant in the Mandibular Lateral Incisor Region: A Clinical Case Report

López Carriches C<sup>1\*</sup>, Ghaffari H<sup>2</sup>, Taheri R<sup>3</sup>, Leco Berrocal I<sup>4</sup>

## AUTHOR'S AFFILIATIONS

- Carmen López Carriches**  
Associate Professor, Department of Dental Clinic Specialties, School of Dentistry, Universidad Complutense de Madrid, Spain  
<https://orcid.org/0000-0003-2829-5229>
- Hujjatullah Ghaffari**  
Collaborator, School of Dentistry, Universidad Complutense de Madrid, Spain
- Ricardo Taheri**  
Doctor of Dental Surgery, DDS, Collaborator, School of Dentistry, Universidad Complutense de Madrid, Spain
- Isabel Leco Berrocal**  
Assistant Professor, Department of Dental Clinic Specialties, School of Dentistry, Universidad Complutense de Madrid, Spain

## ARTICLE INFO.

Received: 06 February, 2025

Accepted: 12 March, 2025

Volume: Vol-15, Issue-1, April 2025

DOI: <https://doi.org/10.3329/updcj.v15i1.79746>



© Authors retain copyright and grant the journal right of first publication with the work simultaneously licensed under Creative Commons Attribution License CC - BY 4.0 that allows others to share the work with an acknowledgment of the work's authorship and initial publication in this journal.

<https://creativecommons.org/licenses/by/4.0/>

Publisher: Update Dental College, Dhaka, Bangladesh

Web: [www.updatedentalcollege.edu.bd](http://www.updatedentalcollege.edu.bd)

E-mail: [updcj@hotmail.com](mailto:updcj@hotmail.com)



Scan to access article citation and full online link

## Corresponding Author\*

**Carmen López Carriches**

Associate Professor

Department of Dental Clinic Specialties, School of Dentistry, Universidad Complutense de Madrid, Spain  
Rey Francisco, 11-lower left. 28008 Madrid, Spain

E-mail: [maclopez@ucm.es](mailto:maclopez@ucm.es)

ORCID: <https://orcid.org/0000-0003-2829-5229>

## ABSTRACT

**Introduction:** We present the clinical case of a patient who had lost his right lower lateral incisor due to caries and underwent replacement with a dental implant and immediate provisionalization. Replacing a single lower incisor is clinically challenging due to limited mesiodistal space; however, aesthetic demands are somewhat reduced compared to upper incisors due to lower visibility. **Methods:** A 56-year-old male presented for replacement of tooth 4.2. Cone beam CT confirmed adequate bone height and width, with limited space between adjacent teeth. A 3.25 × 10 mm BT Klassic implant (Biotec, Italy) was placed following standard protocol under local anesthesia. Immediate provisionalization was achieved using a non-rotating abutment and an acetate crown. Postoperative care included antibiotics, analgesics, and chlorhexidine rinses. **Results:** The implant achieved good primary stability. Healing was uneventful, and sutures were removed after 7 days. Two months later, a carious lesion on tooth 4.1 was restored before final impression. A screw-cement retained crown was delivered, torqued to 20 N, and the fit was confirmed radiographically. **Conclusion:** This case illustrates the successful use of a narrow-diameter implant with immediate provisionalization for a lower incisor replacement, overcoming spatial limitations while achieving functional and aesthetic rehabilitation.

**KEY WORDS:** implant, lower incisor, immediate provisional.

## INTRODUCTION

When the four lower incisors are lost due to periodontal disease, the most common treatment plan involves placing two dental implants, usually at the distal ends of the edentulous space, that support the four lower incisors. This procedure is very predictable in the long term and relatively easy to perform due to the accessibility of the area and the little aesthetic commitment since the lower lip will cover the margin of the restoration and the visibility will be reduced. However, when only one lower incisor is lost, the treatment is more challenging due to the small mesiodistal space between the teeth adjacent to the edentulous area, compromising the distance between the root of adjacent teeth and the implant. A valid consent form was obtained from the patient to publish this clinical report.

## CASE REPORT

We report the case of a 56-year-old Caucasian male patient who came to the clinic to replace his lower right incisor. The patient had undergone surgery for a benign tumor in the right ear. The amount of remaining bone was evaluated by a CT scan, confirming sufficient bone availability in height and width but a limited mesiodistal space between the crowns and roots of teeth 4.3 and 4.1. (Figures 1 and 2).

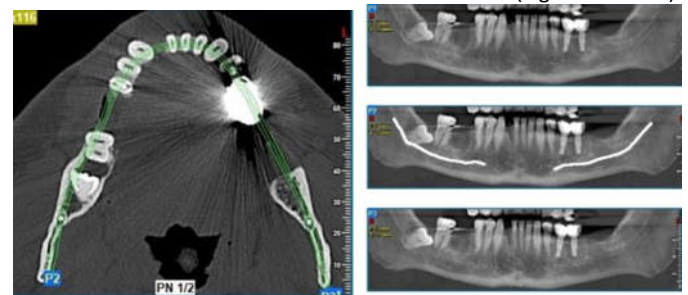


Figure-1: CT scan., Panoramic image.

The surgery was planned, and it was decided to place a 3.25x10mm Biotec implant (BT Klassic Implant IR. Biotec. Povolario di Dueville. Italy).

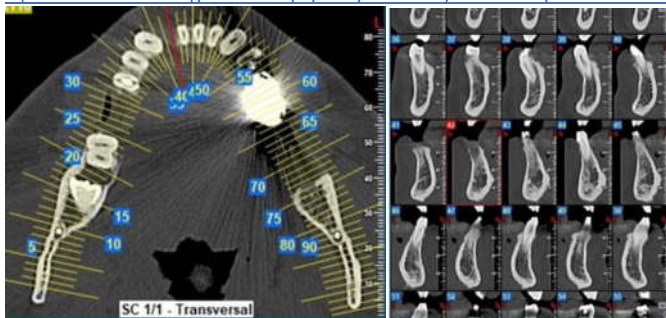


Figure 2. CT scan. Sagittal section at the level of tooth 42.

The inferior alveolar nerve block was performed with 4% articaine with 1:200.000 epinephrin. A supracrestal incision was made. We followed the manufacturer's drilling protocol starting with the position-marking cutter, 2mm pilot cutter, at 1000 revolutions per minute (rpm) and reducing to 450 rpm for the 2.5 cutter and the 2.95 cutter. The implant was inserted at 35 rpm, achieving an adequate position of the implant (Figure 3).

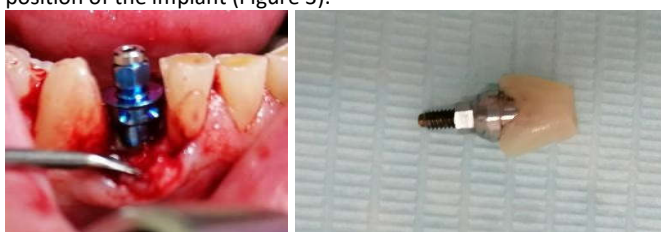


Figure-3: Implant positioned, Figure-4 Provisional crown

Immediate provisionalization was performed using a prosthetic abutment (non-rotating IR-monocone, Biotec. Povolario di Dueville. Italy) and an acetate tooth (Directa Crowns. Upplads. Vasby. Sweden). (Figure 4) A hole was drilled to access the abutment screw and covered with resin for provisionals (Protemp 4. 3M Epe. Neuss. Germany).



Figure: 5: Immediate provisionalization, Figure: 5-bis: Immediate provisionalization sutura.

After, we polished the surface to achieve an adequate provisional, therefore a correct emergency profile, and the occlusion was adjusted. (figure 5 and 5 bis). We used a 3-0 silk suture and amoxicillin 750 mg, ibuprofen 600 mg, and 0.2% chlorhexidine rinses were prescribed for seven days. The suture was removed after seven days after the first appointment after the procedure. Before taking the impression, two months later, a filling was performed in the distal surface of tooth 4.1 since a caries lesion had formed. The impression was taken with an open tray with heavy and fluid silicone (Elite HD. Zhermack. Badia. Polesive. Italy). We also checked the correct fit of the abutment with a periapical X-ray (Figure 6) The color was

registered with the VITA guide (Vitapan Classical. Bad. Sädingen. Germany) and in a week the final screw-cement retained crown was placed and the correct fit was checked with an x-ray (figure 7).

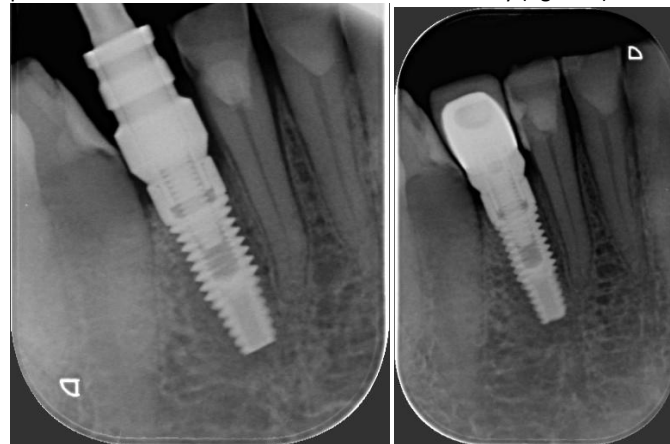


Figure-6: checking the fit of the abutmen, Figure-7: Definitive crown x-ray.

The crown was confectioned with a Biotec machined abutment. (Monocone Dritto Straight Abutment. Povolario di Dueville). It was cemented out of the mouth to remove the remains of cement (Ketac Cem Easy mix. Neuss. Germany) and screwed to 20 N with a torque wrench. The chimney allows access to the screw since in cemented crowns, if there is loosening it is very difficult to remove the crown to allow retightening. (Figure 8)



Figure-8: Definitive crown, Figure-9: Contour of the alveolus and Control X-ray after using the initial drill

## DISCUSSION

Regarding the three-dimensional position, there should be at least 1.5 mm between the root of the adjacent tooth and the implant. Ideally, the minimum bone volume in the implant's vestibular sector should be 2 mm. The bucco-cortical thickness is very important for aesthetics, as well as the thickness of the soft tissue<sup>1</sup>. In this case, the space was very limited so the most important thing was to center the position drill adequately and avoid inclination. It may seem that the implant was inclined towards tooth 41 but we can confirm by observing the contour of the alveolus of 42 after the extraction that the implant was placed in the correct direction (Figure 9). It is advisable to take an X-ray in case it is necessary to correct the direction and avoid injuring the neighboring roots (Figure 9) The vestibulo-lingual position should be slightly placed towards the lingual aspect (at the level of the cingulum of the tooth), about 2 mm. Furthermore, placing a buccal anterior implant may produce many

Website: <https://www.banglajol.info/index.php/UpDCJ>

complications<sup>2</sup>. Regarding the apical-coronal position, the implant should be placed 3 mm from the margin of the future restoration. The biological width should be about 3 mm<sup>3</sup>.

The provisional restoration can be fixed or removable. The advantage of an immediate fixed provisional is that the gingiva can be reshaped. The gingival contour can be restored using these temporary resin crowns, to which composite is added and sometimes even several provisional crowns are made.<sup>4</sup> If we make it removable, we must try to reshape the gingival margin with it or at least prevent harming the future gingival contour due to inadequate pressure.

After adapting the tissues to the provisional restoration, the impression can be taken using the Hinds technique to perfectly duplicate the gingival contour<sup>5</sup> In this case we did not consider it necessary because the aesthetics in this position is not so critical, and the patient didn't demand it.

This patient had a thick gingival biotype, which is the most favorable because recessions are less common.

The implant placed had an internal connection. The implant connection is a crucial factor in marginal bone loss, showing better results than external connection implants<sup>6</sup>. It is better if the abutment is machined and not casted, as the marginal fit is shown to be more precise.<sup>7</sup> The greater the height of the abutment, the less marginal bone loss and more biological width is achieved<sup>8</sup>. In addition, the residues of cement can be removed more efficiently<sup>9,10</sup>.

An alternative in cases of limited space is narrow-diameter implants.<sup>11</sup> They are safe, achieving good hard and soft tissue stability, and are sometimes the only option when there is not much mesiodistal space. This is a common situation in the case of lower incisor replacement.<sup>12</sup> The patient was very satisfied with the result obtained with the restoration. This treatment is much less sensitive, from an aesthetic point of view than an upper incisor.

## CONCLUSION

The placement of a unitary implant in the area of the lower incisors should not be underestimated as the mesiodistal space is usually very small and there is a risk of injuring the neighboring roots.

**CONFLICT OF INTEREST:** The authors declare no conflict of interest.

**FUNDING:** This research received no external funding.

**DATA AVAILABILITY STATEMENT:** The data presented in this study are available on reasonable request from the corresponding author

## REFERENCES

1. Linkevicius T, Apse P, Grybauskas S, Puisys A. The influence of soft tissue thickness on crestal bone changes around implants: a 1-year prospective controlled clinical trial. *Int J Oral Maxillofac Implants*. 2009;24(4):712-9. PMID: 19885413.
2. Tarnow DP, Cho SC, Wallace SS. The effect of inter-implant distance on the height of inter-implant bone crest. *J Periodontol*. 2000;71(4):546-9. <https://doi.org/10.1902/jop.2000.71.4.546>. PMID: 10807116.
3. Funato A, Salama MA, Ishikawa T, Garber DA, Salama H. Timing, positioning, and sequential staging in esthetic implant therapy: a four-dimensional perspective. *Int J Periodontics Restorative Dent*. 2007;27(4):313-23. PMID: 17726987.
4. Su H, Gonzalez-Martin O, Weisgold A, Lee E. Considerations of implant abutment and crown contour: critical contour and subcritical contour. *Int J Periodontics Restorative Dent*. 2010;30(4):335-43. PMID: 20664835.
5. Hinds KF. Custom impression coping for an exact registration of the healed tissue in the esthetic implant restoration. *Int J Periodontics Restorative Dent*. 1997;17(6):584-91. PMID: 9497745.

6. Galindo-Moreno P, Concha-Jeronimo A, Lopez-Chaichio L, Rodriguez-Alvarez R, Sanchez-Fernandez E, Padial-Molina M. Marginal Bone Loss around Implants with Internal Hexagonal and Internal Conical Connections: A 12-Month Randomized Pilot Study. *J Clin Med*. 2021;10(22):5427. <https://doi.org/10.3390/jcm10225427>. PMID: 34830709; PMCID: PMC8621760.
7. Piattelli A, Vrespa G, Petrone G, Iezzi G, Annibali S, Scarano A. Role of the microgap between implant and abutment: a retrospective histologic evaluation in monkeys. *J Periodontol*. 2003;74(3):346-52. <https://doi.org/10.1902/jop.2003.74.3.346>. PMID: 12710754.
8. Galindo-Moreno P, León-Cano A, Ortega-Oller I, Monje A, Suárez F, Óvalle F, Spinato S, Catena A. Prosthetic Abutment Height is a Key Factor in Peri-implant Marginal Bone Loss. *J Dent Res*. 2014;93(7 Suppl):80S-85S. <https://doi.org/10.1177/0022034513519800>. PMID: 24621670; PMCID: PMC4293716.
9. Wilson TG Jr. The positive relationship between excess cement and peri-implant disease: a prospective clinical endoscopic study. *J Periodontol*. 2009;80(9):1388-92. <https://doi.org/10.1902/jop.2009.090115>. PMID: 19722787.
10. Linkevicius T, Puisys A, Vindasiute E, Linkeviciene L, Apse P. Does residual cement around implant-supported restorations cause peri-implant disease? A retrospective case analysis. *Clin Oral Implants Res*. 2013;24(11):1179-84. <https://doi.org/10.1111/j.1600-0501.2012.02570.x>. PMID: 22882700.
11. Schiegnitz E, Al-Nawas B. Narrow-diameter implants: A systematic review and meta-analysis. *Clin Oral Implants Res*. 2018;29 Suppl 16:21-40. <https://doi.org/10.1111/clr.13272>. PMID: 30328192.
12. Walter C, Sagheb K, Blatt S, Klein MO, Herrmann J, Kleinheinz J, Al-Nawas B. Evaluation of the clinical safety and performance of a narrow diameter (2.9 mm) bone-level implant: a 1-year prospective single-arm multicenter study. *Int J Implant Dent*. 2023;9(1):32. <https://doi.org/10.1186/s40729-023-00495-x>. PMID: 37725234; PMCID: PMC10509112.



## How to Cite

López Carriches C, Ghaffari H, Taheri R, Leco Berrocal I. Immediate Provisionalization of a Narrow-Diameter Implant in the Mandibular Lateral Incisor Region: A Clinical Case Report. *Update Dent. Coll. j* [Internet]. [cited 2025 Apr. 27];15(1):43-45. Available from: <https://www.banglajol.info/index.php/UpDCJ/article/view/79746>