Revista ARACÊ
ISSN: 2358-2472

AESTHETIC REHABILITATION WITH CERAMIC LAMINATES AND GINGIVOPLASTY – CASE REPORT

https://doi.org/10.56238/arev7n3-131

Submitted on: 02/14/2025 **Publication date:** 03/14/2025

Lívia Maria Sorrilha Marques Mussi[1], Mériele Ane Pacheco Felix Basílio[2], Fabiana Madalozzo Coppla[3], Fernando Machuca[4] and Sérgio Vieira[5]

ABSTRACT

The popularization of treatments with veneers, in composite resin or ceramic, has made patients increasingly demanding. Conservative treatments, such as whitening, may not meet your expectations. Ceramic laminates are excellent options for these cases. Before any aesthetic restorative procedure, it is necessary to reestablish the correct gingival architecture. This article reports a case of aesthetic rehabilitation with ceramic laminates preceded by mockup-assisted gingivoplasty, with very satisfactory results in the end.

Keywords: Dental veneers. Cementation. Gingivoplasty. Clinical crown augmentation.

[1] Specialist in Dentistry
E-mail: mapf08@hotmail.com
[2] Specialist in Dentistry
E-mail: mapf08@hotmail.com
[3] Doctor in Dentistry
E-mail: fcoppla@hotmail.com
[4] Master of Dentistry
E-mail: nandokml@gmail.com
[5] Doctor in Dentistry
E-mail: dr.srvieira@gmail.com

Revista ARACÊ
ISSN: 2358-2472

INTRODUCTION

The search for aesthetic excellence in the smile has been a constant in dentistry today, with this objective tooth whitening is often considered the first step in planning. However, in some cases, patients have aesthetic concerns beyond color, such as the shape, size, and position of the teeth, so whitening alone is not able to meet patient expectations. In this scenario, composite resin or ceramic veneers emerge as an option, providing the dental professional with an efficient alternative to improve dental aesthetics.

Composite resin veneers are known for their versatility and ability to deliver good aesthetic results. Additionally, they are more cost-effective compared to ceramic veneers, making them an affordable option for many patients looking for aesthetic improvements. However, it is worth noting that composite resin veneers can be more susceptible to staining and discoloration over time, requiring regular maintenance and polishing.1 Ceramic veneers, on the other hand, offer stain resistance, color stability, and shine for a longer period.3 In addition, ceramic provides a translucency similar to that of natural tooth enamel, making a natural result with a high aesthetic standard.

Ceramic veneers also offer the advantage of being highly customizable, and can be adapted to meet the specific needs of each patient. In this way, ceramic laminates not only correct imperfections, but also improve the harmony and proportion of the smile, creating natural and aesthetically pleasing results.

Gingival recontouring is often necessary to create a favorable scenario for the application of veneers. The harmony between gingival tissues and new ceramic restorations plays a key role in achieving exceptional aesthetic results. Therefore, the careful integration of gingival recontouring into the treatment plan can further optimize the final result, ensuring complete and harmonious dental aesthetics.

Therefore, the objective of this article is to demonstrate through a clinical case report of aesthetic rehabilitation with ceramic laminates preceded by mockup-assisted gingivoplasty, presenting very satisfactory results in the end.

CASE REPORT

A 23-year-old male patient sought the Specialization Course in Dentistry at the ABO, Curitiba, PR, because he was dissatisfied with his anterosuperior teeth. In the anamnesis, she reported that she had recently completed the orthodontic treatment, had already had teeth whitening and still wanted larger, lighter and more rectangular teeth.

Revista ARACÊ
ISSN: 2358-2472

During the clinical examination, it was observed that the canine lacked a guide during the left laterality and adequate probing depth for gingivoplasty in the dental elements in question.

Fig.1: Initial extraoral photos.

After clinical and photographic evaluation (Fig. 1) and by the patient's expectations, the following treatment plan was established: gingivoplasty, to augment the clinical crown of the first premolar upper right to the left, and subsequent rehabilitation with ceramic laminates in lithium disilicate to reestablish the desired function and aesthetics.

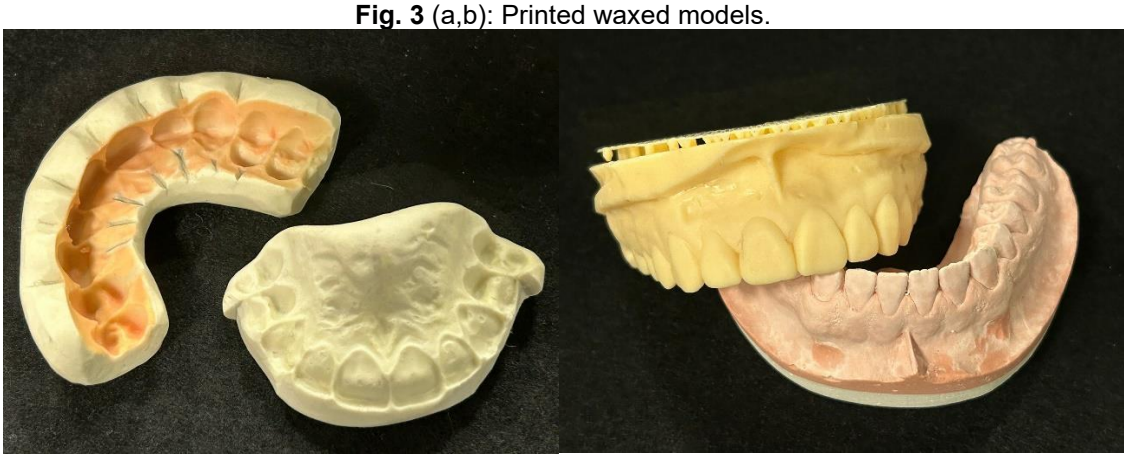
Impressions with addition silicone (Panasil – Ultradent), bite registration and photographs were made (Fig. 2 a,b) and sent to the prosthesis laboratory to prepare the diagnostic wax and the mockup guides.

Fig. 2 (a, b): Initial intraoral photos.

In the prosthesis laboratory, digital smile planning, digital wax-up and printed models (Fig. 3 a,b) were then made to generate a more harmonious smile according to the patient's expectations. Laboratory silicone guides for temporary restorations (mockup) and preparations were also made.

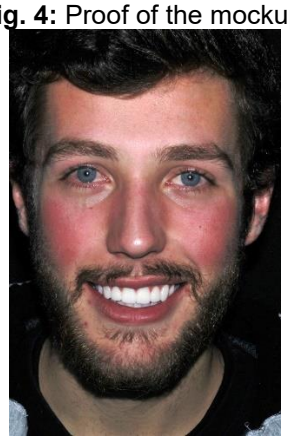
Revista ARACÊ
ISSN: 2358-2472

Fig. 3 (a,b): Printed waxed models.



In the second consultation, the mockup was tested with bisacrocylic resin (Prima Art color B1 – FGM) and, after evaluation and approval of the patient (Fig. 4), gingival plasty was performed to augment the clinical crowns as planned.

Fig. 4: Proof of the mockup.



Gingivoplasty was initially performed with the mockup positioned, to determine the height of the gingival contour with the aid of an electric scalpel. Only in tooth 24, after probing and measuring the distance from the free gingival margin to the bone crest, osteotomy was necessary, which, in turn, was performed without a flap and using a micro Ochseibein chisel and milling cutter (2173 ESPHL – KG) (Fig. 5)

Fig. 5: Immediate after gingivoplasty.

Revista ARACÊ
ISSN: 2358-2472

At the third visit and after the gingiva had healed (Fig. 6 a, b, c, d and 7 a, b), under local anesthesia, preparations were made for the ceramic laminates using diamond tips and sanding discs, always guided by the wear guides. Retractor wire 000 (Ultrapak – Ultradent) was inserted individually so that the preparations could be taken subgingivally. The preparations were then polished with rubbers for preparation polishing (DHPRO) and another thread, now 00 (Ultrapak – Ultradent) was inserted continuously for horizontal gingival clearance. This second thread was then removed at the time of molding with addition silicone (Panasil – Ultradent) by the 2-step technique. The bite was recorded with silicone (Futar D – Ultradent). The preparations had an average thickness of 0.6mm. Additional photographs for recording the color of the substrate and choosing the final color (BL4) were also obtained (fig. 8 a,b,c and 9 a,b,c)

Fig. 6 (a, b, c, d): Post-gingivoplasty.

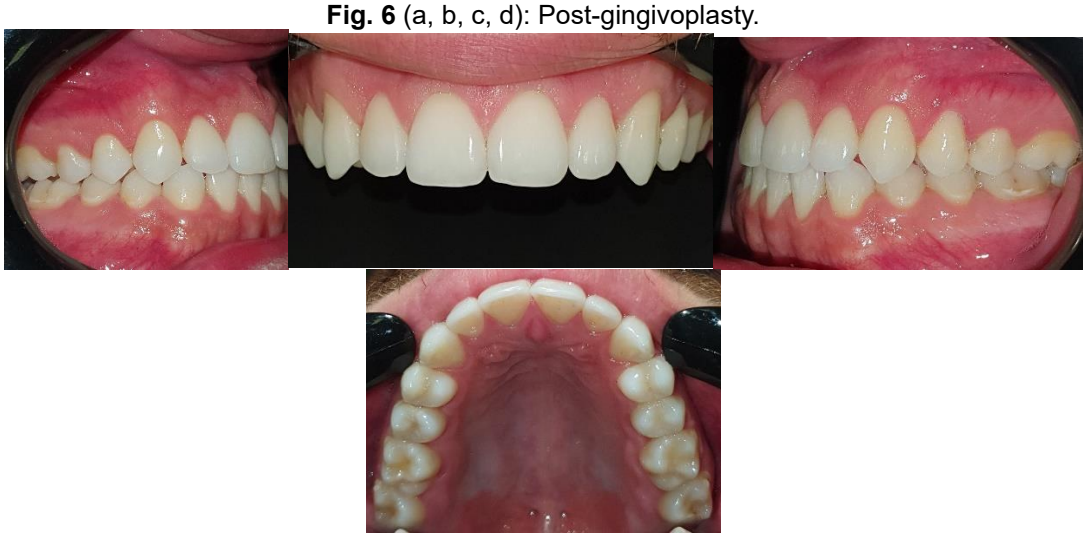


Fig. 7 (a, b): Right and left lateralities.

Revista ARACÊ
ISSN: 2358-2472

Fig. 8 (a, b, c): Preparations.

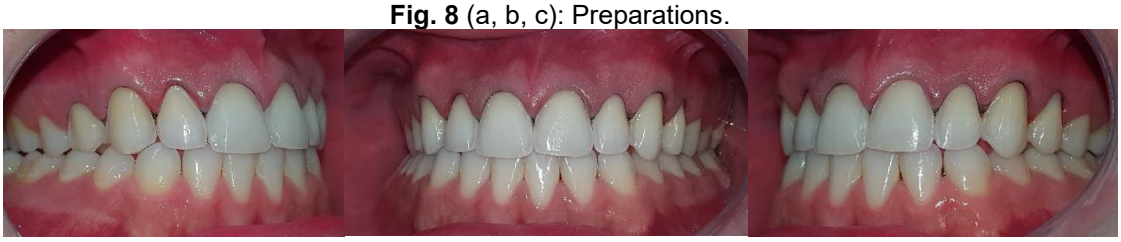


Fig. 9 (a, b, c): Refinement of preparations, molding and color registration.

Temporary restorations with bisacrocyl resin (Prima Art color B1 – FGM) were installed in all 8 teeth, as the patient already showed sensitivity after preparations, even though he was in enamel (Fig. 10 a,b). He was also instructed on hygiene care so that the gums remained healthy until the cementation of the pieces.

Fig. 10 (a, b): After the installation of bisacrillic resin provisionals

At this moment, after the preparations were ready and temporary installed, the patient asked to change the shape of the teeth, he wanted them to be even squarer. This information was passed on to the prosthesis laboratory, which made the necessary adjustments to the wax-up. After the patient's authorization, the pieces were made of injected lithium disilicate (MTB0 - CG) and subsequently made up (Fig. 11 a,b and 12 a,b).

Revista ARACÊ
ISSN: 2358-2472

Fig. 11 (a, b): Printed laminates.

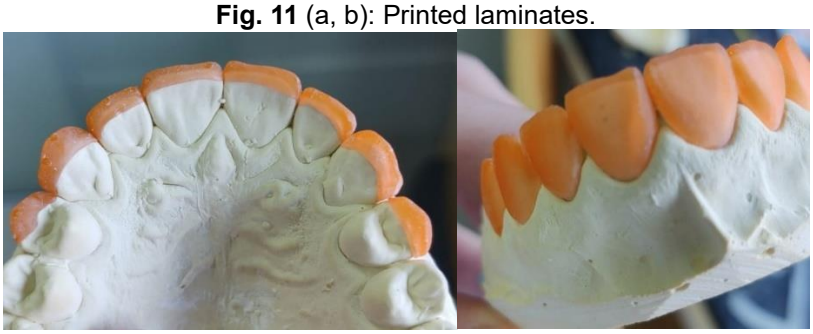
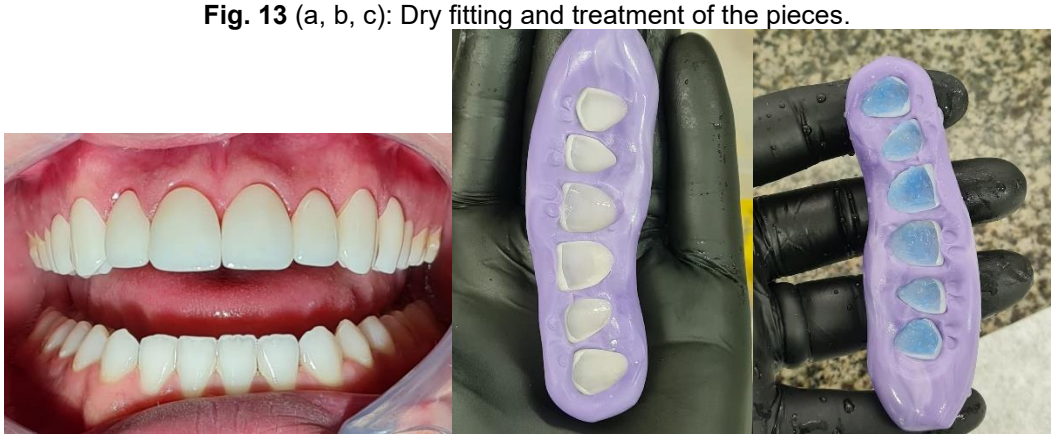


Fig. 12 (a, b): Make-up phase and finished laminates.

In the fourth session, the provisional specimens were removed, the preparations were sanitized, and the specimens were dry and wet tested (Fig. 13 a). After the try-in test, the color chosen for the cement was OW (All Cem Veneer – FGM).

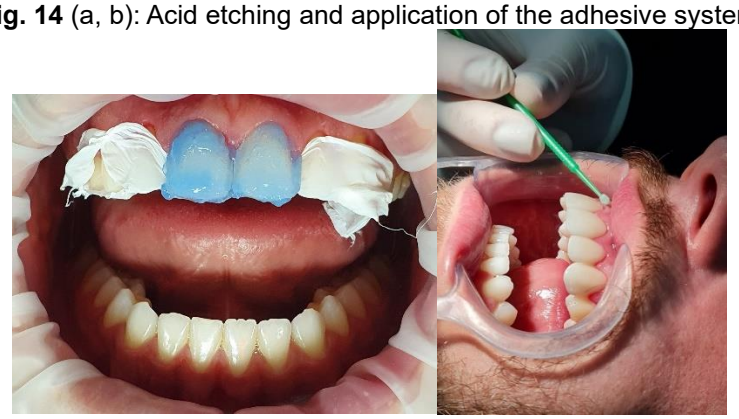
Fig. 13 (a, b, c): Dry fitting and treatment of the pieces.



The specimens were treated with 10% hydrofluoric acid for 20 seconds, washed and dried, phosphoric acid for 1 minute, washed and dried again, silane application for 1 minute (Fig. 13 b,c). The teeth were conditioned with 37% phosphoric acid for 30 seconds (Fig. 14 a), washed and dried, and then an adhesive (Conventional Amber – FGM) was applied (Fig 14 b). The pieces were then cemented with light-curing resin cement (All Cem Veneer color OW - FGM).

Revista ARACÊ
ISSN: 2358-2472

Fig. 14 (a, b): Acid etching and application of the adhesive system



After cementing all the specimens, adjustments were made in static and dynamic occlusion and the final photos of the case were taken (Fig. 15 a, b, c, d, e, f; 16 a, b, c, d; 17 a, b and 18 a, b).

Fig. 15 (a, b, c, d, e, f, g): Final extraoral photos.

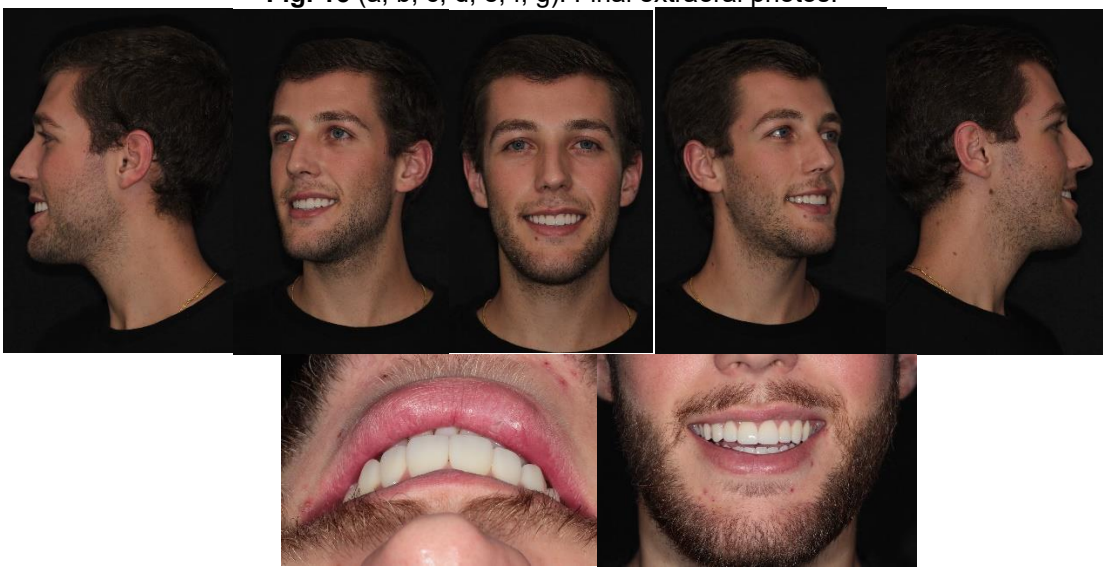
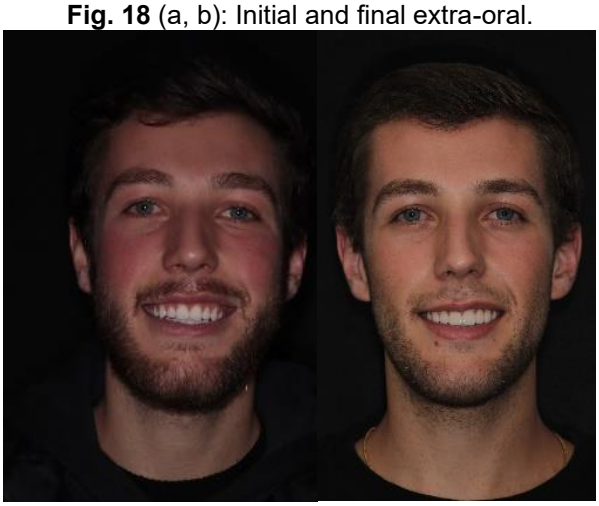


Fig. 16 (a, b, c, d): Final intraoral photos.

Revista ARACÊ
ISSN: 2358-2472

Fig 17 (a, b): Initial and final intraoral.

Fig. 18 (a, b): Initial and final extra-oral.



DISCUSSION

In Dentistry, aesthetics is related to the harmony of the smile. Smiles should be restored and adapted to the face, age, and lifestyle of patients, restoring self-esteem and confidence when smiling[10]. As for the aesthetic principles of the smile, in addition to factors related to the teeth (color, shape, texture and proportion) others are also considered, such as gingival contour and symmetry. Proportionality between teeth is an important factor, but an adequate gingival contour must be reestablished before determining tooth proportion6,9.

In cases of aesthetic rehabilitation, one of the most commonly used procedures is whitening, as it is safe, simple, and conservative8. However, not all patients have their expectations met with this procedure alone.

Revista ARACÊ
ISSN: 2358-2472

In order to meet the expectations of patients who are increasingly aesthetically demanding, the use of ceramic laminates has been shown to be very efficient3,7 as well as their association with gingival aesthetic procedures, reestablishing adequate gingival architecture6.

It is necessary to make use of all available resources to meet cases of high aesthetic demand, so the use of photographs for planning and digital wax-up associated with the intraoral mockup serves for confirmation and approval of the patient, offering predictable and highly satisfactory results[2].

The use of temporary restorations (mockup) is an easy and powerful tool for planning aesthetic treatments[4]. After the patient's approval, it becomes easier to execute and predict the results.

The use of electrocautery for gingival plasty is an excellent option for this[5], very similar to the use of laser. The use of temporary restorations in bisacrocyl resin (mockup) to guide the gingival contour during gingivoplasty also makes the procedure more predictable[4].

CONCLUSION

The case presented in this clinical report shows that the use of a mockup, as a surgical guide, based on diagnostic wax-up is useful and feasible for the augmentation of clinical crowns prior to the installation of ceramic laminates, as well as the knowledge of the details of the various stages of the entire procedure.

Revista ARACÊ
ISSN: 2358-2472

REFERENCES

1. Araújo E, Perdigão J. Anterior Veneer Restorations - An Evidence-based Minimal-Intervention Perspective. J Adhes Dent, 2021 Apr 7; 23(2):91-110.

2. Garcia PP, Costa RG, Calgaro M, Ritter AV, Correr GM, Cunha LF et al. Digital smile design and mock-up technique for esthetic treatment planning with porcelain laminate veneers. J Conserv Dent. 2018 Jul-Aug; 21(4): 455-458.

3. Gresnigt MMM, Cune MS, Jansen K, Van der Made SAM, Özcan M. Randomized clinical trial on indirect resin composite and ceramic laminate veneers: up to 10-year findings. Journal of Dentistry, July 2019, V 86, 102-109.

4. Jurado CA, Parachuru V, Tinoco JV, Perez GG, Tsujimoto A, Javvadi R, et al. Diagnostic mock-Up as a surgical reduction guide for crown lengthening: technique description and case report. MDPI Medicine 2022, 58, 1360.

5. Kumar P, Rattan V. Sachin R. Comparative evaluation of healing after gingivectomy with electrocautery and laser. Journal of oral biology and craniofacial research 5, 2015, 69-74.

6. Mondelli J. Aesthetics and Cosmetics in Integrated Restorative Clinic, 2018, 2nd ed, chap 2, 17-82.

7. Morita RK, Hayashida MF, Pupo YM, Berger G, Reggiani RD, Betiol EAG. Minimally invasive laminate veneers: clinical aspects in treatment planning and cementation procedures. Case Reports in Dentistry, v 2016.

8. Oliveira PTG, Somacal DC, Burnett Jr LH, Spohr AM. Aesthetic rehabilitation in teeth with wear from bruxism and acid erosion. The Open Dentistry Journal, 2018, 12, 486-493.

9. Santos FR, Kamarowski SF, Lopez CAV, Storrer CLM, Neto AT, Deliberator TM. The use of the digital smile design concept as an auxiliary tool in periodontal plastic surgery. Dental Research Journal, Mar-Apr 2017, v 14 (2).

10. Seixas MR, Chamber CA. The smile arc: review and synthesis. Dental Press J Orthod. 2021; 26(3):E21SPE3.