

# AESTHETIC OPTIMIZATION COMBINING TEETH WHITENING, DIRECT VENEERS, AND DIASTEMA CLOSURE WITH COMPOSITE RESIN - CASE REPORT

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## ABSTRACT

Aesthetics is a factor that involves people's daily lives, relating social, cultural, and psychological factors, and teeth are very important in this context. The presence of teeth with any kind of disharmony, especially in the anterior segment of the mouth, is one of the main aesthetic problems that negatively affect people. Dentistry allows changes to be made to individuals' smiles through whitening techniques and composite resin restorations. **Objective:** To improve the patient's relationship with their self-image through teeth whitening and direct aesthetic restorative procedures. **Case report:** Patient KFM, male, sought treatment at the UniEVANGÉLICA Dental Teaching Clinic with the main complaint that he would like to replace a restoration on his front tooth and change its color, as it was very yellow and there were diastemas between his upper incisors. The clinical examination showed tooth 21 with a very evident brownish color, the other teeth yellowish, and the presence of diastemas between the upper incisors. After studying the case, a diagnostic waxing was performed to resize the teeth. The proposed treatment plan was teeth whitening, followed by restorative procedures, within the clinical protocol, which included: closing the diastemas and performing direct veneering with composite resin on tooth 21. **Conclusions:** Teeth whitening, a minimally invasive procedure, met expectations, and direct-use composite resins promoted immediate and satisfactory aesthetic results, achieving the desired aesthetic success and patient satisfaction.

**Keywords:** Composite Resins; Dental Aesthetics; Smile; Self-Image.

## INTRODUCTION

Currently, the number of people seeking cosmetic procedures as a solution to various aesthetic imperfections is on the rise (REIS DE SOUSA, 2023; PAIXÃO,

2023; LOPES DA COSTA, 2024). In today's society, individuals are increasingly seeking to improve their image, and this is no different when it comes to smiles (FERREIRA, 2022; PAIXÃO, 2023), as they significantly affect people's quality of life and well-being (FERREIRA, 2022; REIS DE SOUSA, 2023; LOPES DA COSTA, 2024).

The main complaints of aesthetic dissatisfaction are changes in the shape, color, and size of teeth (REIS DE SOUSA, 2023), compromising the harmony and balance of the healthy aesthetic appearance of teeth. Thus, with advances in adhesive materials and restorative techniques, in addition to restoring form and function, the dental surgeon reestablishes the harmony of the individual's smile (FERREIRA, 2022).

Regarding tooth discoloration, teeth whitening is included in the current philosophy of minimally invasive dentistry, as it is a conservative technique compared to other cosmetic procedures, and has become a common and routine practice in dental offices (PEREIRA, 2022; PAIXÃO, 2023). These techniques improve tooth color, making them whiter and more harmonious, boosting individuals' self-esteem and social spontaneity in relation to their smile (PAIXÃO, 2023).

The presence of diastemas, which are spaces between teeth, can cause discomfort, impairing the aesthetics of the smile and leading individuals to seek a solution (FERREIRA, 2022; PRIYANKA, 2023). In dental changes in color, shape, or stains, direct resin veneers emerge as a solution to aesthetically enhance the smile (LOPES DA COSTA, 2024).

Current adhesive restoration techniques with composite resin include a range of indications, including the correction of various aesthetic and functional imperfections, offering an affordable, versatile, and quick solution (LOPES DA COSTA, 2024), in addition to preserving healthy tooth structure, requiring less clinical time, and offering excellent longevity (FERREIRA, 2022; PRIYANKA, 2023).

## **CASE REPORT**

The patient KFM, male, sought treatment at the UniEVANGÉLICA Dental Clinic with the main complaint that he would like to replace a restoration on his front

tooth and change the color, because they are very yellow. The clinical examination revealed that tooth 21 was brownish in color, making it quite evident, and the other teeth were yellowish, with diastemas between the upper incisors.

After the clinical examination, an X-ray was taken to evaluate the endodontic treatment of tooth 21 and to check the presence and/or condition of the restorations, as well as to diagnose possible carious lesions. The periapical radiograph of tooth 21 showed that the endodontic treatment was satisfactory. Plaster models were obtained to perform a diagnostic wax-up, and then a silicone guide was molded to facilitate the restorative procedure.

Based on the clinical findings and the case study, the proposed treatment plan was first to whiten the teeth, followed by restorative procedures to place a veneer on tooth 21 and close the diastemas.

First, two whitening sessions were performed, with a one-week interval, in order to improve the color of the teeth. The technique performed was in the office, using Whiteness HP Blue (FGM) whitening agent, 35% hydrogen peroxide, according to the manufacturer's guidelines and protocol.

Two weeks after completing the whitening treatment, the restorative session was scheduled to perform direct veneering of tooth 21 and closure of the diastemas with composite resin.

We began by selecting the color and resin, separating the microhybrid composite resins Herculite Dentina A2 (Dentsply/Sirona) and Z 250 A2 (3M/ESPE) for the enamel.

Standard cavity preparation for veneers was performed, creating a cervical channel that demarcates the gingival margin. Next, three cervical-incisal channels were made on the vestibular surface (one in the center, one near the mesial, and one near the distal) and preparation was carried out by wearing down the vestibular surface, going along the channels until completion. No wear was performed on teeth with diastemas.

After placing absolute isolation of the operative field with dental floss ties, the clinical protocol for composite resin restorations was followed, starting with acid conditioning, applying 37% phosphoric acid for 30 seconds on the enamel and 15

seconds on the dentin, followed by rinsing for twice the time. The conventional two-step primer/adhesive Single Bond (3M/ESPE) was applied in two layers, followed by air drying and light curing of the last layer for 20 seconds. The silicone guide was adapted to the teeth to speed up the restoration procedure and define the anatomy of the crown previously waxed on the diagnostic model.

The veneer on tooth 21 first received a layer of Herculite Dentina A1 (Dentsply/Sirona) composite resin to mask the darkened dentin and was light-cured. Herculite Dentina A2 (Dentsply/Sirona) was then used, and Filtek Z250 A2 (3M/ESPE) was used for the surface layer of the enamel. The final polymerization was 40 seconds. After removing the absolute isolation, the occlusion was checked and the initial finishing was performed.

In the next session, the finishing and final polishing were performed using fine and extra-fine diamond tips, followed by abrasive rubber tips for composite resin polishing, discs with decreasing abrasiveness, and finally, a felt disc with Diamond R diamond paste (FGM), thus restoring the shape and color of the teeth.

## **CONCLUSIONS**

Aesthetic procedures have gained great relevance in recent years, as they improve individuals' self-esteem.

The teeth whitening technique provided lighter teeth, symbolizing a conservative, quick, and simple treatment, following the manufacturer's guidelines. Associated with the use of adhesive restorations with composite resin in the direct technique, they proved to be highly effective in the aesthetic recovery of the smile, thus achieving the desired success and patient satisfaction.

## **BIBLIOGRAPHICAL REFERENCES**

Ferreira APFC et al. Diastema closure with composite resin using the wall technique: a literature review. *Res Society Development* 2022; 11(16):1-8; e293111638414. Available at <https://rsdjournal.org/index.php/rsd/article/view/38414>

Lopes da Costa AP et al. Direct composite veneers and indirect ceramic veneers: a literature review. *Braz J Health Rev* 2024;7(3):1-15.

Paixão et al. Modern concepts for teeth whitening: a narrative review of the literature. Braz J Development 2023; 9(1):2913-2929.

Pereira SP. Considerations on teeth whitening procedures: Literature review. Braz J Development 2022; 8(1):7741-7751.

Priyanka et al. Diastema closure with direct composite restoration—Case report. Int Dent J Student's Res 2023;11(1):28–31.

Reis de Sousa JS. Direct composite resin veneers: case report and discussion of current concepts. Res Society Development 2023; 12(6):1-6; e2612641849. Available at <https://rsdjournal.org/index.php/rsd/article/view/41849>