

Prosthodontic Rehabilitation of a Patient with Mal-aligned Teeth: A Conservative Esthetic Approach

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Abstract

Background: Esthetic rehabilitation of patients presenting with mal-aligned dentition and mutilated anterior teeth poses a significant clinical challenge, requiring a comprehensive and conservative treatment approach. Such cases demand careful evaluation of functional, biological, and esthetic parameters to achieve optimal outcomes.^{1,2}

Case Presentation: This case report describes the prosthodontic management of a 25-year-old female patient who presented with compromised anterior esthetics associated with multiple mutilated teeth and partial edentulism. A minimally invasive treatment plan was formulated involving porcelain laminate veneers for the maxillary central incisors and all-ceramic crowns for the adjacent lateral incisors.³⁻⁵

Results: The selected approach successfully restored dental esthetics, improved smile harmony, and enhanced the patient's confidence while preserving maximum tooth structure.

Conclusion: A multidisciplinary and minimally invasive prosthodontic approach using porcelain laminate veneers and all-ceramic crowns can provide predictable esthetic and functional outcomes in carefully selected cases.

Keywords: Porcelain laminate veneers, all-ceramic crowns, esthetic rehabilitation, mutilated dentition, prosthodontics.

Introduction

Mutilated dentition is frequently associated with the loss of tooth structure resulting from caries, trauma, developmental anomalies, or previous restorative procedures, often leading to compromised function and esthetics.^{6,7} In the anterior region, even minor discrepancies in tooth form, color, or alignment can significantly affect facial appearance, smile aesthetics, and patient self-esteem.^{8,9}

Recent advances in adhesive dentistry and ceramic materials have enabled clinicians to adopt minimally invasive treatment modalities that provide highly esthetic and durable restorations while preserving

healthy tooth structure.^{10,11} Porcelain laminate veneers have become a preferred restorative option for anterior teeth because they closely mimic the translucency and optical properties of natural enamel and require minimal tooth reduction.^{3,12-14} Similarly, all-ceramic crowns offer excellent strength, biocompatibility, and superior esthetic integration with adjacent natural teeth, especially in structurally compromised situations requiring complete coverage.^{15,16}

The present case demonstrates the successful rehabilitation of a patient with mal-aligned and mutilated anterior dentition using a combination of porcelain laminate veneers and all-ceramic crowns to achieve optimal esthetic and functional results.

Case Presentation

A 25-year-old female patient reported to the Department of Prosthodontics with the chief complaint of unsatisfactory dental appearance, particularly in the maxillary anterior region. The patient expressed dissatisfaction with her smile and reported that it negatively affected her confidence during social interactions.(Figure 1 & 2)

The patient's medical history was non-contributory, with no systemic diseases or contraindications to dental treatment. The dental history did not reveal any significant previous restorative or surgical procedures.

Clinical examination revealed multiple mutilated teeth in the maxillary anterior region characterized by altered morphology, discoloration, structural compromise, and mild mal-alignment. Partial edentulism further contributed to the imbalance in smile esthetics. Extraoral examination demonstrated smile line disharmony and inadequate lip support, while intraoral examination confirmed irregularities in tooth shape, alignment, and shade. Overall, these conditions resulted in compromised esthetics and adversely affected the patient's psychological well-being.

Figure 1:- PRE-OPERATIVE EXTRA ORAL PHOTOGRAPHS



Frontal view

Lateral profile

Frontal view (Smiling)

Figure 2:- INTRA-ORALPHOTOGRAPHS



Treatment Planning

Following comprehensive clinical and esthetic evaluation, a conservative and esthetically driven treatment plan was developed. The primary objective was to restore natural tooth appearance while preserving the maximum amount of healthy tooth structure.

Porcelain laminate veneers were planned for the maxillary central incisors (11 and 21) to correct tooth shape, color, and minor alignment discrepancies.^{3,12,20} All-ceramic crowns were indicated for the maxillary lateral incisors (12 and 22) because of greater structural compromise requiring complete coverage restorations.^{15,16} This combined approach provided an ideal balance between conservation of tooth structure and mechanical strength while achieving harmonious esthetics.

The patient was informed regarding the proposed treatment plan, expected outcomes, limitations, and maintenance requirements, and informed consent was obtained before initiating treatment.

Clinical Procedure

Comprehensive preoperative documentation was performed, including extraoral and intraoral photographs for esthetic analysis and treatment planning. Smile design principles were applied to evaluate tooth proportions, gingival display, facial symmetry, and smile line characteristics.^{17,18}

A diagnostic wax-up and mock-up were fabricated to simulate the anticipated outcome. The mock-up was transferred intraorally to allow evaluation of esthetics and function and to obtain patient feedback.

Necessary modifications were incorporated before proceeding with definitive treatment.¹⁹

Conservative tooth preparation was carried out for the laminate veneers (Figure 3), with depth orientation grooves placed to ensure controlled and minimal reduction predominantly within enamel, thereby maximizing adhesive bond strength.^{10,12} The lateral incisors were prepared according to conventional prosthodontic principles for all-ceramic crowns to provide adequate retention and resistance form.

Gingival retraction was achieved using retraction cords to expose the finish lines clearly and facilitate accurate impression making (Figure 3). Final impressions of both arches were recorded using elastomeric impression material to capture fine marginal details (Figure 4).

The fabricated ceramic restorations were evaluated during the bisque trial stage to assess marginal adaptation, contour, occlusion, shade match, and overall esthetics. Necessary adjustments were performed to achieve optimal integration with the adjacent natural dentition.

Following successful evaluation, the restorations were adhesively cemented using resin cement under proper isolation (Figure 5). Care was taken to ensure complete seating of the restorations, removal of excess cement, and establishment of harmonious occlusion.^{10,20}

Figure 3:- TEETH PREPARATION FOR LAMINATE



Depth orientation

Gingival retraction

Figure 4:- FINAL IMPRESSIONS



Maxillary impression

Mandibular impression

Figure 5:-CEMENTATION



Post-operative
Intraoral photograph

Post-treatment
Extra oral photograph

Results

The final outcome demonstrated a significant improvement in dental esthetics, with restoration of proper tooth morphology, alignment, and color harmony. The combination of porcelain laminate veneers and all-ceramic crowns resulted in a natural and pleasing smile.

The patient reported a high level of satisfaction with the treatment and expressed increased confidence in social interactions. Postoperative clinical evaluation confirmed successful rehabilitation from both functional and esthetic perspectives.

Discussion

Management of mutilated anterior dentition requires a delicate balance between conservation of tooth structure and achievement of optimal esthetic results. Porcelain laminate veneers are particularly advantageous because they involve minimal tooth reduction and preserve enamel, thereby enhancing adhesive bond strength and long-term clinical success.^{3,12-14}

All-ceramic crowns serve as an excellent restorative option for teeth that are structurally compromised and require additional reinforcement.^{15,16} The combination of these two treatment modalities allows the clinician to customize the restoration according to the specific requirements of individual teeth while maintaining overall esthetic harmony.

In the present case, adhesive protocols played a critical role in the longevity and success of the restorations. Proper case selection, meticulous tooth preparation, accurate impression procedures, and careful attention to each clinical step contributed significantly to the favorable treatment outcome.^{10,20}

This treatment approach is particularly beneficial for patients presenting with mutilated anterior teeth, discoloration, morphological abnormalities, and partial edentulism, where both functional and esthetic rehabilitation are required.

Conclusion

Prosthodontic rehabilitation using a combination of porcelain laminate veneers and all-ceramic crowns provides an effective, conservative, and predictable treatment option for patients with mal-aligned and mutilated anterior dentition. Thorough esthetic evaluation, careful treatment planning, and precise clinical execution are essential for achieving long-term success. The present case highlights the value of a minimally invasive yet comprehensive prosthodontic approach in restoring not only function and esthetics but also the patient's self-confidence.

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