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Case Report

Restoring Smile with Ceramic Veneers for a Patient with Fractured Anterior Teeth: A Case Report

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ABSTRACT

Introduction: In this case report, the successful treatment of a patient's smile using ceramic veneers for the rehabilitation of fractured maxillary anterior teeth is described. A 47-year-old female patient was traumatized and suffered fractures in the maxillary central incisors. Unhappy with the smile, the patient sought a solution that would be long-lasting and pleasing to the eye. The most durable and aesthetic treatment of choice was ceramic veneers, well known for the strength and excellent appearance characteristics.

Methodology: The treatment plan consisted of lithium disilicate ceramic veneers. Minimal tooth preparation was done after obtaining consent from the patient to conserve as much of the natural tooth as possible. Precision impressions were taken and sent for the fabrication of a custom veneer by the dental laboratory. The veneers were bonded directly on the fractured maxillary central incisors using adhesive cement, providing a strong and durable fit.

Discussion: Lithium disilicate ceramic veneers were selected for their translucency and ability to match the color as well as strength-all ideal characteristics for anterior restorations. Minimal tooth preparation preserved enamel, which helps in bonding efficacy and longevity. With their predictable and durable aesthetic results for cases of dental trauma to the anterior region, ceramic veneers replicate the internal projection while offering strength and longevity. This assertion has been backed by an evidence case demonstrating the capacity of the veneers to mimic a natural tooth in appearance while providing strength and longevity. Hence, the patient was highly satisfied with her refurbishment and reported feeling more confident with her smile.

Results: At the 12-month follow-up, the ceramic veneers remained intact with no complications-no chipping or discoloration, no detachment at the tooth-veneer interface. Continued satisfaction was recorded in the patient concerning the aesthetic outcome. The excellent color match and translucency of the veneer.

Keywords: Aesthetic restoration, Ceramic veneers, Dental trauma, Fracture, Lithium disilicate.

INTRODUCTION

Dental trauma, explicitly involving the anterior teeth, is a common concern that affects individuals across various age groups, with young adults being specifically susceptible due to factors such as sports injuries, accidents, or falls [1]. These incidents affect half-broken teeth, specifically in the anterior region. Such fractures not only compromise the patient's dental role but also have a significant psychological impact, as the appearance of the anterior teeth is closely linked to self-esteem and confidence [2].

Fractured maxillary anterior teeth pose unique challenges for dental practitioners as restoring these teeth requires a balance between aesthetics and reality. The end is to ensure that the restoration is durable enough to withstand the forces of mastication [3]. Conventional tonic options such as arsenic-compliant resins get bid prompt results, but they need to improve the seniority and beautiful preciseness necessary for best outcomes, notably these conditions [4]. Also, composite materials may exhibit staining or wear over time, leading to a less-than-satisfactory appearance as the restoration ages. Ceramic veneers have a highly effective and conservative answer for restoring fractured anterior teeth. These light shells of ceramic materials are spoken to set across the looking rise of the tooth to offer a long and esthetically pleasing return that mimics the original tooth structure [5].

Veneers provide numerous advantages, including excellent strength, superior color stability, and the ability to replicate the translucency of natural enamel. This combination of properties makes ceramic veneers it fit for use [6].

Lithium disilicate ceramics are extensively used for the veneer manufacture due to their high strength and esthetic features. The translucency of this material closely resembles that of a natural tooth, qualifying it for use in anterior restoration [7]. It is tough in terms of esthetics and resists chipping and fracture. Furthermore, it is a long-term solution for patients. Durability of the restoration is also guaranteed by the bonding process, whereby the restoration is securely attached to the underlying tooth structure [8].

This case report focuses on the treatment of a 47-year-old female patient who presented with fractured maxillary central incisors resulting from a traumatic injury. The patient's chief complaint was dissatisfaction with her smile due to the visible fractures in her anterior teeth. After a thorough clinical evaluation, it was determined that ceramic veneers would provide the most aesthetically pleasing and durable solution for the patient's condition. This case report focuses on the treatment of a 47-year-old female patient who presented with fractured maxillary central incisors resulting from a traumatic injury. The patient's chief complaint was dissatisfaction with her smile due to the visible fractures in her anterior teeth. After a thorough clinical evaluation, it was determined that ceramic veneers would provide the most aesthetically pleasing and durable solution for the patient's condition.

CASE PRESENTATION

A patient presented at the dental clinic as a 47-year-old who underwent facial trauma resulting in a fractured maxilla involving the central incisors (#11, #21, and #22). The main complaint was that the patient was seeking treatment for the poor appearance of her smile and emphasized the requirement for an aesthetically pleasing and durable compromise in that regard. A thorough clinical and radiographic examination was performed to assess the fractures and choose the most suitable treatment plan *[Figure 1]*.

Figure 1: Preoperative view of fractured maxillary central incisors and lateral incisor

Medical and Dental History

- **Medical History**: The patient was in good health, with no significant medical conditions or contraindications for dental treatment.
- **Dental History**: Prior to the trauma, the patient had no significant dental issues or restorations.

Clinical and Radiographic Examination

- **Clinical Examination:** Horizontal fractures involving the incisal third of the maxillary central incisors were identified. The teeth were asymptomatic, with no signs of pulpal exposure or periapical pathology.
- **Radiographic Examination:** Periapical radiographs confirmed that there was no pulpal involvement, and the periapical tissues were healthy.

Treatment Plan

Ceramic veneers are chosen for aesthetic restoration as least amount of intervention had taken place on tooth structure involved. They are the most appropriate esthetic option, as well as conserving the maximum amount of tooth structure.

Procedure:

1. **Shade Selection:** A Vita 3D Master shade guide was used to select a shade that closely matched the patient's adjacent teeth.
2. **Tooth Preparation:** Conservative tooth preparation was carried out, with only 0.3–0.8 mm of enamel removed from the labial surface of the fractured incisors to create space for the veneers while preserving as much of the natural tooth structure as possible. Etching The Tooth Surface With 37 Percent Phosphoric Acid *[Figure 2]*.
3. **Impression:** Impressions were taken using polyvinyl siloxane (PVS) material (Virtual putty, Ivoclar Vivadent) and sent to the dental laboratory for veneer fabrication.
4. **Try-in and Bonding:** Upon receiving the ceramic veneers from the lab, the veneers were tried in to assess fit, color, and contour. After the patient approved the appearance, the veneers were etched with 30% hydrofluoric acid gel, a silane coupling agent was applied, and the veneers were bonded using dual-cure resin cement

(Variolink Esthetic DC, Ivoclar Vivadent). The teeth were conditioned with 37% phosphoric acid etching gel (N-Etch, Ivoclar Vivadent) under strict moisture control to ensure optimal bonding *[Figure3]*.

Figure 2: Tooth Preparation

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Figure 3: Etching The Tooth Surface With 37 Percent Phosphoric Acid

Results and Follow-Up

The ceramic veneers restored the patient's fractured teeth, achieving a highly aesthetic and real outcome. The veneers combine seamlessly with the color translucence and texture. The patient was delighted with the result: the natural appearance and improved smile symmetry *[Figure 4]*. Post-treatment, the patient was instructed to maintain oral hygiene and avoid biting complex objects to prevent veneer damage. The patient reported no real or aesthetic problems and remained highly satisfied with the outcome.

Figure 4: Post-operative Image

DISCUSSION

Ceramic veneers have become a widely accepted treatment option for restoring fractured anterior teeth precisely when there is minimal loss of tooth structure [9]. Unlike full-coverage crowns, veneers require minimal tooth preparation, preserving most of the natural tooth structure [10]. This suit account highlights the eminent employ of ceramic veneers in returning broken maxillary incisors, offering an inevitable and long-lasting effect. The selection of ceramic veneers for this patient was based on the material's superior mechanical properties and ability to mimic natural teeth. Ceramic veneers, notably were successful [11]. Lithium disilicate ceramics are known for their excellent fracture and wear resistance and ability to blend seamlessly with natural tooth structures due to their light-transmitting properties. The translucence and colour consistenncy of ceramic veneers check that they are close to tooth enamel, allowing the result that is about the same as the closed teeth [12]. An important agent in the winning of ceramic veneers is the soldering work. In this case, resin-based cement combined with proper tooth conditioning and preparation ensured a strong and durable bond between the veneer and the underlying tooth structure. Soldering to tooth enamel arsenic was performed inch this suit is pet across soldering to dentine because tooth enamel provides amp further inevitable and long bond. The etching of the enamel with phosphoric acid makes micro-porosities that Improve the mechanical retention of the veneer.

Proper preparation of the patient's teeth is crucial for the long-term success of the veneers. Ideal candidates should have healthy teeth, minimal wear, and good oral hygiene.
Patients with habits like teeth grinding (bruxism) or severe misalignments may not be suitable for veneers, as excessive forces can cause damage or loosening. Therefore, a thorough evaluation of the patient's

dental health is necessary before starting the procedure.
Educating patients on post-treatment care is essential to maintain the veneers' integrity. Patients are advised to avoid biting hard objects and follow proper oral hygiene practices. Regular follow-up visits are recommended to check for issues like chipping, loosening, or staining of the veneers.

CONCLUSION

At the 12-month follow-up, the ceramic veneers remained intact with no reported complications. This case demonstrates how ceramic veneers when adequately planned provides a durable and highly aesthetic answer for restoring fractured anterior teeth. In this case, lithium disilicate ceramic veneers successfully restored the maxillary central incisors of a 47-year-old patient, ensuring a strong bond and an excellent aesthetic match to the natural teeth. At the 12-month follow-up, the veneers remained intact, and there were no signs of complications such as chipping or discoloration.

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Conflict of Interest: The authors declare no conflict of interest.

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