

## Esthetic Replacement of Missing Lateral Incisors with a Cantilever Fixed Prosthesis and a Smile Makeover Using Porcelain Laminate Veneers - A Case Report

**Received:** 21 October 2022, **Revised:** 25 November 2022, **Accepted:** 27 December 2022

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### Keywords

Cantilever fixed prosthesis, PLV'S- Porcelain laminate veneers

### Abstract

Modern dentistry aims to restore the form, function, and aesthetics of people who are fully or partially edentulous. Despite the numerous therapeutic options available, replacing an anterior tooth remains a significant undertaking. Cantilever bonded bridges are a viable option to implants or orthodontic techniques for closure of gaps nowadays. Veneers, which can be made of composite or porcelain, can be used to repair aesthetically unappealing tooth shapes. This case focuses on the widespread consensus of using cantilever fixed partial dentures to replace missing maxillary lateral incisors and porcelain laminate veneers to address or correct midline diastema.

### Introduction

Tooth loss has an adverse effect on the patient's facial aesthetics, which can cause social and emotional distress. <sup>[1]</sup> Anatomical conditions can limit implant

placement, which can be overcome with a variety of treatments such as reduced-dimension implants, surgical bone augmentation operations, or various prosthetic designs. <sup>[2]</sup> There have recently been reports

# Journal of Coastal Life Medicine

on cantilever 2-unit fixed partial dentures with one abutment in the anterior tooth and premolar regions. [3] A cantilever-fixed partial denture may be indicated when an edentulous area is not bounded by natural teeth. [4,5] The treatment of unattractive anterior teeth is gaining popularity. For restoring the cosmetic appearance of the teeth, numerous treatment techniques are available. [6]

Ceramic crowns and traditional PFM restorations have lost favour compared to PLVs. Laminates can be used to modify smiles in a painless, conservative, and rapid manner, with long-lasting results. [7] The veneers have a good lifetime and durability, especially if the correct indications are in place and the proper procedures are followed. [8] For many years, full coverage crowns have provided long-lasting aesthetic correction of anterior teeth. However, because full coverage crowns require more tooth structure to be removed, more conservative options are now available.

This case focuses on the universal consensus of using cantilever-fixed partial dentures to replace missing maxillary lateral incisors and porcelain laminate veneers to close midline diastema.

## Case Report:

- A 24-year-old female patient was sent to the Department of Prosthodontics for replacement of lost maxillary right and left lateral incisors.
- The chief complaint of the patient was poor aesthetics due to missing anterior teeth and uneven spacing.
- A full functional occlusal evaluation was part of the clinical examination. This included the following: -
  - ❖ The incisal level of adjacent and opposing teeth,
  - ❖ Inclination of all anterior teeth and the type of occlusion.
- The following treatment options was proposed to the patient-
  - ❖ Orthodontic treatment approach
  - ❖ Implants
  - ❖ Fixed partial denture
  - ❖ Removable partial denture
  - ❖ Orthodontic treatment was selected by the patient as a conservative approach for space correction.
  - ❖ A multidisciplinary approach was undertaken for this patient to deliver a good aesthetic outcome.

## Pretreatment Extraoral Photographs



Frontal View



Profile View



Frontal Smiling



Oblique Smiling

## Pretreatment Intraoral Photographs



Left Lateral



Right Lateral



Frontal



Maxillary Occlusal



Mandibular Occlusal

## Radiographic Examination:



Orthopantomogram

An OPG demonstrating missing both maxillary lateral incisors and already root canal treated mandibular right molar.

## Endodontic Corrections:

A RE-RCT of 46 was performed as it was grossly decayed.

## Orthodontic Corrections:



PRE-TREATMENT



POST-BONDING

Pre-treatment and Post- bonding orthodontic pictures of the patients.

## Periodontal Corrections:



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Under the Periodontal corrections following treatment procedures were carried out: -

- Complete oral prophylaxis
- Frenectomy
- Gingival Depigmentation
- Aesthetic crown lengthening procedure

Frenectomy was done as the patient had high frenum attachment and it was the major cause for increasing spacing in maxillary anterior teeth and relapse of orthodontic treatment. Gingival Depigmentation was carried out to improve aesthetics of the patient as the patient had high smile line. Crown lengthening procedure and gingival zenith corrections of the patient was done in order to achieve better aesthetic outcome.

## Gingival Depigmentation and Frenectomy Done



PRE-OPERATIVE

OPERATIVE

POST-OPERATIVE

## Crown Lengthening Procedure Done for Gingival Zenith Correction



PRE- OPERATIVE

OPERATIVE



OPERATIVE

POST-OPERATIVE

## Prosthodontic Corrections

Following the endodontic, orthodontic and periodontal corrections, prosthodontic corrections of the patient was carried out.

The patient had a midline diastema and both missing maxillary lateral incisors. Therefore, porcelain laminate veneers were planned as a conservative

approach for 11 and 21 to close the spacing between two maxillary central incisors and mesial lateral cantilevers were planned from both the maxillary canines i.e., 13 and 23.

Pre-operative picture just post debonding of the patient was taken. (Figure 1A and 1B)



**Figure 1A:** Pre-operative post debonding



**Figure 1B.** Maxillary occlusal view

Diagnostic impression of the patient was taken using Alginate (Figure 2). Following this diagnostic cast was poured in dental stone. Facebow transfer of the patient

was taken and diagnostic mounting was done (Figure 3). Following this diagnostic mock-up was prepared on the diagnostic casts (Figure 4).



**Figure 2:** Diagnostic impression using irreversible hydrocolloid



**Figure 3:** Facebow transfer



**Frontal view**



**Maxillary occlusal view**

**Figure 4:** Diagnostic wax up

Tooth Preparation:

Laminate preparation- Depth orientation grooves was marked on both the maxillary central incisors and a

palatal wrap preparation was done. (Figure 5A, 5B, 5C).

Full coverage crown preparation was done with both the maxillary canines.





**Figure 5A:** Pre-operative



**Figure 5B:** Tooth preparation done



**Figure 5C:** Depth orientation grooves on maxillary central incisors

Following the tooth preparation, gingival retraction was done with the prepared teeth (Figure 6A and 6B) and final impression was taken with elastomeric impression material (Figure 7A and 7B) and was

poured in die stone and the master casts was prepared (Figure 8A and 8B) and temporization was done (Figure 9).



Figure. 6A



Figure. 6B

**Figure 6A and 6B:** Gingival retraction done



Figure. 7A



Figure. 7B

**Figure 7A and 7B:** Final impression



Figure.8A

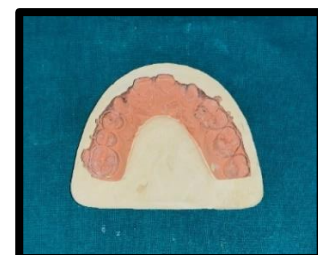


Figure. 8B

**Figure 8A and 8B** Final casts

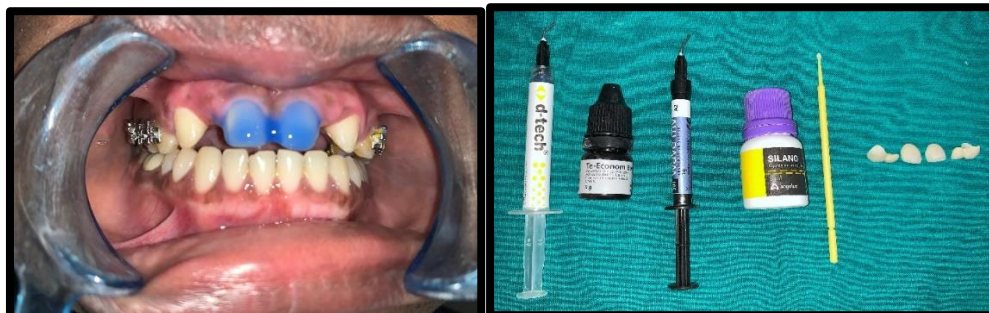


**Figure 9.** Temporization done

The final prosthesis was made which was further etched with 37% phosphoric acid, bonded and cured with flowable composite. (Figure 10A, 10B and 10C)



**Figure 10A** Final prosthesis showing 11 and 21 as laminates and mesial cantilevers from two maxillary canines i.e 13 and 23



**Figure. 10B:** Etching

**Figure. 10C:** Materials for cementation of prosthesis

## POST-TREATMENT EXTRAORAL PHOTOGRAPHS



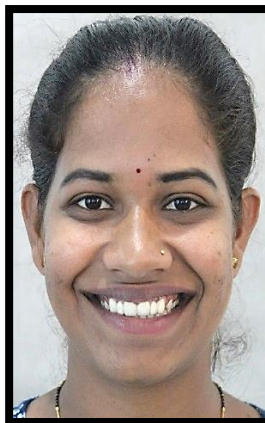
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**FRONTAL VIEW**



**PROFILE VIEW**



**FRONTAL SMILING**



**OBLIQUE SMILING**

## POST-TREATMENT INTRAORAL PHOTOGRAPHS



**RIGHT LATERAL**



**LEFT LATERAL**



**FRONTAL**



**MAXILLARY OCCLUSAL**



**MANDIBULAR OCCLUSAL**

### Discussion:

Occlusion is the deciding factor in the success of Cantilever-fixed prostheses. In the literature, the importance of limited functional contact, decreasing

the occlusal table, and other design factors has been underlined. Because the emphasis of both the patient and the dentist is on aesthetics, the components of



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occlusion that determine the severity of forces are typically disregarded.

## Conclusion

The function of weight, balance, dimension, and configuration in the patient's face is smile. Automation has been slow to arrive in dentistry. A cantilever-fixed prosthesis is one option for patients who were born without lateral incisors. Using a comprehensive approach to diagnosing and treating aesthetics can help achieve the smile that best enhances the patient's overall facial appearance while also providing the added benefit of improved oral health.

As a result, in this case, a multi-disciplinary approach was used to achieve the best aesthetics and function.

## References

- [1] Matsumoto W, Morelli VG, de Almeida RP, Trivellato AE, Sverzut CE, Hotta TH. Removal of implant and new rehabilitation for better esthetics. *Case Reports in Dentistry*. 2018 Jun 6;2018.
- [2] Storelli S, Del Fabbro M, Scanferla M, Palandrani G, Romeo E. Implant supported cantilevered fixed dental rehabilitations in partially edentulous patients: Systematic review of the literature. Part I. Clinical oral implants research. 2018 Oct;29:253-74.
- [3] Nomoto S, Sugiuchi A, Asai T, Sato T, Sekine H. Patient with Poor Esthetic Anterior Tooth Position Treated with Lithium Disilicate Mesial Cantilever Single-retainer Fixed Partial Denture: A Case Report. *The Bulletin of Tokyo Dental College*. 2021;62(2):119-25.
- [4] Decock V, De Nayer K, De Boever JA. 18-year longitudinal study of cantilevered fixed restorations. *International Journal of Prosthodontics*. 1996 Jul 1;9(4).
- [5] Drossart M, Cheron R, Tirlet G. All-ceramic cantilever resin-bonded fixed dental prostheses: a therapeutic option to replace a missing front tooth. *J Dentofacial Anomalies and Orthodontics*. 2017;20(3):306.
- [6] Shillingburg HT, Hobo S, Whitsett LD, Jacobi R, Brackett SE. *Fundamentals of fixed prosthodontics*. Chicago, IL, USA: Quintessence Publishing Company; 1997 Jan.
- [7] Sachdeva H, Kumar SK, Sthapak A. Porcelain Laminates Veneers: Case Report. *J Res Adv Dent*. 2015;4(2):16-20.
- [8] Gürel G. Predictable and precise tooth preparation techniques for porcelain laminate veneers in complex cases. *International Dentistry SA*. 2003;9(1):99-111.