

Porcelain Veneer: A Case Report

Abstract:

The porcelain veneer is very esthetic and conservative treatment modality for many indications. The success of porcelain veneer depends very much on the method of fabrication and most importantly case selection. An attractive appearance with veneer has shown to increase people's self-confidence, personal relationship, and even the success in his or her career. Hence with veneer, it is possible to create amazing esthetic results and yet retain considerable solid tooth structure

Key-words: Esthetics, porcelain veneer.

Introduction:

Porcelain veneers were commenced by John Calamia of New York University, USA, in the early 1980s.[1,2] Although this technique was first described in 1940 by Dr. Charles Pincus, developments in composite resin technology and acid etching of enamel and ceramic were required for it to become widely recognized.[3,4,5]

Porcelain veneers are increasing in present esthetic dental treatment because it is one of the conservative restorations of unesthetic anterior teeth.⁶ Porcelain veneers are thin-bonded ceramic prosthetics that restore the facial surface and part of the proximal surfaces of anterior teeth that require esthetic treatment.[7]

Indications:

- Correction of unesthetic surface defects such as hypoplastic enamel or enamel lost by erosion^{8,9} or abrasion
- masking of discoloration resulting from trauma
- endodontic treatment
- tetracycline stains

- repair of structural deficiencies such as fractured incisal edge,[10] diastema,[11] and peg laterals

Contraindication:

Inadequate enamel, amelogenesis and Dentinogenesis Imperfecta

Large restoration :

Root canal treated teeth with less tooth structure
Patient with oral habit [12] causing excessive stress on restoration and excessive interdental spacing

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Received : 10 Oct., 2022, **Published :** 31 March, 2023

Access this article online	
Website: www.ujds.in	Quick Response Code 
DOI: https://doi.org/10.21276/ujds.2023.9.1.10	

How to cite this article: Dubey, Juhi. (2022). Porcelain Veneer: A Case Report. UNIVERSITY JOURNAL OF DENTAL SCIENCES, 9(1). 52-55

In recent clinical studies, the placement of anterior porcelain veneer has shown very good long-term result. In 5-year study, 83% were shown satisfactory results, while in 8-year study, 95-97% were successful. However, the placement of porcelain is an irreversible procedure because of pre-requisite for tooth preparation. Therefore, the criteria for porcelain veneer must be carefully reviewed before the procedure is undertaken for its long-term success.[6]

Purpose of this case report is to present a clinical case, in which an esthetic and conservative porcelain veneer was fabricated to restore maxillary central incisors.

Case Report -1

A 21-year-old male patient reported to the department of conservative dentistry and endodontics with the chief complaint of discoloured anterior teeth since 10 years and wanted cosmetic rehabilitation for the same. The medical history was not significant. On clinical examination chalky-white enamel with pitting and mottling with dark brown staining in 11,21 was seen. (Figure 1) On the pulp vitality test of affected teeth with cold test (Roeko Endo-Frost, coltene) showed normal response and on electric pulp testing (Waldent) showed positive response. On the basis of clinical examination and vitality testing the final diagnosis of Dental fluorosis in 11,21 was made.



Fig 1. Pre-Operative

The final Treatment plan Porcelain Veneer in 11,21 was made. Patient was informed about the existing condition; treatment procedure was explained and the consent was taken.

Steps:

Labial Preparation:

Three-wheeled diamond bur used for depth-orientation grooves on the labial surface.

- Cervical third: 0.3mm
- Middle third: 0.5-0.8mm

- Incisal third: 1.5mm

Remove the remaining tooth structure between the depth orientation grooves with a round-end tapered diamond.

(Figure 2.a)

Ideally, the finish line should be a slight chamfer placed within enamel at the level of the gingival crest or slightly subgingival

Proximal Reduction:

Preparation must follow the papilla and extend half way into the interproximal area. (Figure 2.a)

Incisal Reduction:

0.5 mm deep orientation grooves are made in the incisal edge and the remaining tooth structure is removed using round end tapered diamond. (Figure 2.b)

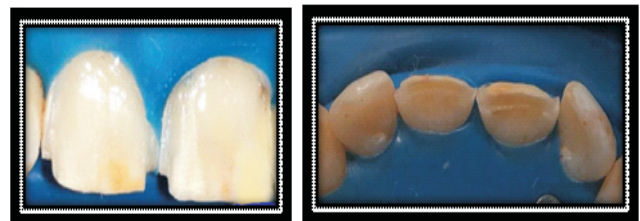


Fig 2. (a) labial & proximal preparation (b) incisal & palatal preparation

Fig 3. Steps



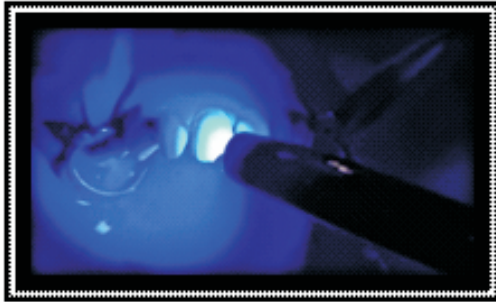
(a) Application of 10% Hydrofluoric acid



(b) Application of 37% phosphoric acid



© Application of bonding agent



(d) Light cure polymerization

Thin layer of dual-cure resin (sirona,Dentsply) , was applied to the inner surface of porcelain surface and then was placed onto the prepared tooth and polymerized at intervals of 5 seconds and remove the excess cement. After that, it was polymerized for 60 seconds on each surface. Porcelain veneer was examined for any occlusal interference and the final prosthesis is shown in (Figure 4).

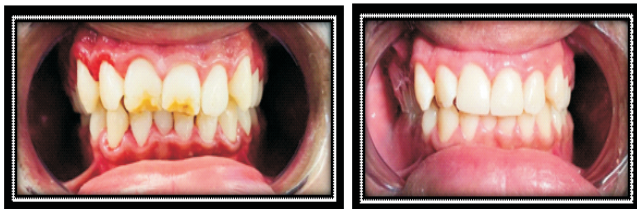


Fig 4. (a) Pre-Operative

(b) Post-Operative

Case Report - 2

A 27- year-old female patient reported to the department of Conservative Dentistry and Endodontics with the chief complaint of broken tooth in upper front region of mouth since 3 months. The medical history was not significant. On clinical examination Ellis class II fracture irt21 was seen. (Figure 5) On the pulp vitality test of affected tooth with cold test (Roeko Endo-Frost,coltene) showed normal response and on electric pulp testing (Waldent) showed positive response .On the basis of clinical examination and vitality testing the final diagnosis of Ellis class II fracture irt21 was made. This case was similar to

first case and the final treatment plan Porcelain Veneer irt 21 was planned. Veneer preparation and cementation was done as discussed earlier (Figure 6).



Fig 5. Pre-operative Image



Fig 6. Post-Operative Image

Discussion:

Re-establishing a patient's lost natural dental esthetic is among the important topics of today's dentistry, in addition to function, color, shape, structural and position abnormalities of anterior teeth might lead to important esthetic problems for patients. Any restoration should be done according to their mechanical, biological, and aesthetic principles.[13]

The advantages of using these restorations, they are biologically acceptable to the body owing to their increased chemical stability, lesser cytotoxicity and reduced risk of causing irritation or sensitivity. These restorations exhibit decreased plaque build-up and its easy removal due to their smoothly glazed surface.[14,15,16]

Porcelain Laminates Veneers have become the esthetic alternative to ceramic crowns and the traditional porcelain-fused-to metal.[14,17] With the successful use of laminates smiles can be transformed painlessly, conservatively, and quickly with long lasting results.[15] Veneers exhibit natural fluorescence and absorb, reflect and transmit light exactly as does the natural teeth structure.[14,15,1]

Porcelain Laminates Veneers should be avoided when enamel is insufficient, tooth is pulp-less, parafunction, unsuitable anatomical presentation of teeth and poor dental care. The risk factors for veneer failure are bonding onto pre-existing composite restorations, placement by an inexperienced operator, using veneers to restore worn or fractured teeth where large areas of exposed dentin and insufficient tooth structure is left.[14]

Conclusion:

Veneer is one of the most revolutionary techniques developed over the past 25 years. When dental professionals realized that porcelain can bond onto the composite and therefore onto the tooth surface, it changed everyone's view. The research in this field has been based on personal preference and anecdotal information, more objective research is required so that porcelain veneer will become better successful.

References:

1. Calamia JR. Etched porcelain facial veneers: A new treatment modality based on scientific and clinical evidence. *NYJ Dent*. 1983; 53:255–259.
2. Calamia JR. Etched porcelain veneers: The current state of the art. *Quintessence Int*. 1985;16:5-12.
3. Buonocore MG. A simple method of increasing the adhesion of acrylic filling materials to enamel surfaces. *J Dent Res* 1955; 34:849-53.
4. Calamia JR. Etched porcelain facial veneers: A new treatment modality based on scientific and clinical evidence. *NYJ Dent* 1983; 53:255-9.
5. Horn HR. Porcelain laminate veneers bonded to etched enamel. *Dent Clin North Am* 1983; 27:671-84.
6. Sowmya S, Sunitha S, Dhakshaini MR, Raghavendraswamy KN. Esthetics with veneers: A review. *Int J Dent Health Concern* 2015; 1:1-5.
7. The glossary of prosthodontics. *J Prosthet Dent*. 2017;117: E70.
8. Ried JS, Simpson MS, Taylor GS. Using porcelain veneer to treat eroded teeth. *Dent Abstr* 1991; 36:225-56.
9. Walls AW. The use of adhesively retained all-porcelain veneers during the management of fractured and worn anterior teeth: Part 1. Clinical technique. *Br Dent J* 1995; 178:333-6.
10. Lim CC. Case selection for porcelain veneers. *Quintessence Int* 1995; 26:311-5.
11. Hunt NP. Hypodontia – Problems of permanent space closure. *Br J Orthod* 1985; 12:149-52.
12. Heyde JB, Cammarato VT Jr. A restorative system for the repair of defects in anterior teeth. The laminate veneers. *Dent Clin North Am* 1981; 25:337-45.
13. Aldabeab, Khalid E. *JMSCR* 2019; 07: 06
14. Peumans M, Van Meerbeek B, Lambrechts P, Vanherle G. Porcelain veneers: a review of the literature. *J Dent* 2000; 28:163-77.
15. Gurel G. The science and art of porcelain laminate veneers. Quintessence Publication 2003.
16. Cunha LF, Pedroche LO, Gonzaga CC, Furuse AY. Esthetic, occlusal, and periodontal rehabilitation of anterior teeth with minimum thickness porcelain laminate veneers. *J Prosthet Dent* 2014; 112:1315- 1318.
17. Gurel G. Predictable and precise tooth preparation techniques for porcelain laminate veneers in complex cases. *Oral Health Journal* 2007; 9:30-40