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SMILE APPROACH THROUGH PORCELAIN VENEER

Dental Science

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ABSTRACT

A healthy smile is an important part of the face beauty that reflects self confidence and self esteem. The beauty of smile also includes shape, color, position and the alignment of teeth that is shown when we smile or laugh.

To maintain the beauty of smile, the veneers are the materials of choice because they are also the most conservative and one of the best pleasing esthetic restorations to be used.

There are two main types of material used to fabricate a veneer: composite and dental porcelain. At present, porcelain veneers are esthetically superior, conservative and a durable treatment modality. Present case report discusses a patient having discoloration of the teeth in maxillary arch in the anterior region and treated for the same. The patient was very satisfied with the result and had no complaints during next 2 years of follow up.

KEYWORDS

esthetics, laminates, porcelain.

INTRODUCTION

There are two main types of material used to fabricate a veneer: composite and dental porcelain. A composite veneer may be directly placed (built-up in the mouth), or indirectly fabricated by a dental technician in a dental lab, and later bonded to the tooth, typically using a resin cement. The lifespan of a composite veneer is approximately 4 years.

In contrast, a porcelain veneer can only be indirectly fabricated. A full veneer crown is described as "a restoration that covers all the coronal tooth surfaces (Mesial, Distal, Facial, Lingual and Occlusal) .Laminate veneer, on the other hand, is a thin layer that covers only the surface of the tooth and generally used for aesthetic purposes. These typically have better performance and aesthetics and are less plaque retentive.

With the successful use of laminates smiles can be transformed painlessly, conservatively and quickly with long lasting result. [1]

As being less invasive for both hard and soft tissue and granting satisfactory aesthetic outcome, the rehabilitation procedure with porcelain veneer has been widely welcomed by the patients. [2] In addition the modern improvement of composite cement ,adhesive systems and simplified cementation procedure also enable the promotion of this effective treatment approach among the dentist .[3]

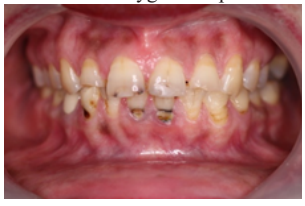
Indeed some points should be considered to obtain success in the case: planning type of preparation, selection of materials and the continued maintenance of the restorations. [4]

Thus, Porcelain veneers are a thin bonded ceramic restoration that restores the facial surface and part of the proximal surfaces of teeth that require esthetic restoration. The present case report describes the treatment of upper anterior discolored teeth with the porcelain laminated veneer to restores esthetics and function.

CASE REPORT

A 35 year old, female patient reported to my clinic .with a complaint of discolored anterior teeth as well as fracture tooth in upper front teeth region and wanted A beautiful smile. The patient was unhappy with the appearances of her teeth and restrained herself from smiling due to self consciousness. A detailed family, medical and dental history was obtained.

Extra oral examination elicited no abnormal findings. Intraoral examination revealed dental abrasion in 31,33 ,41, 42 ,43. Ellis class II fracture in 12, 22. Brownish black discoloration in 11 ,21,31,32,41,42,43, (fig 1) all teeth were vital and had no hypersensitivity, no carious tooth were present. Mild calculus and stain were present. Treatment for oral hygiene improvement was done.



(Fig 1 .preoperative Frontal View)

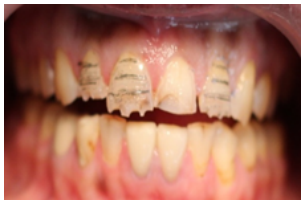


Fig 2. Tooth Preparation

Various treatment options were discussed which included laminate veneer, composite veneering, micro abrasion. Owing to its minimally invasive nature and excellent aesthetic qualities it was decided to enhance her appearance using porcelain laminated veneers.

Patient was informed about the existing condition, treatment procedure was explained and the consent was taken.

Maxillary and mandibular diagnostic Casts were made. Orientation facebow transfer records as well as centric and lateral occlusal record were made. Diagnostic casts were mounted on a Hanau wide vue II articulator using the facebow. Articulating was programmed using the centric and lateral occlusal records. A diagnostic wax up was done taking into considerations both centric and ecentric tooth movement. A

clear matrix was made and a composite buildup was done on patient tooth with the matrix. This temporary composite retoration was tried in mouth for 3 weeks and prompt recall schedule was performed. After analyzing the patient's smile line it was decided to place porcelain laminated veneer from lateral incisor – lateral incisor in maxillary arch. A well adapted, horizontally sectioned silicon matrix was made from the diagnostic Wax-up which was later used as a reference for teeth reduction. Depth orientation grooves were placed on the facial surface of the tooth with 0.3 mm and 0.5mm three wheel diamond depth cutter on the gingival half and incisal half respectively.

The tooth structure remaining between the depth orientation grooves were removed with a round end tapered diamond. By doing so the prismatic top surface of mature unprepared enamel, which is known to offer only a minor retention capacity, was removed. A chamfer finish line was placed Equigingival in the maxillary anterior teeth. Distally the tooth preparation was extended into the contact area but terminated facial to the contact area. An overlapped incisal edge preparation was chosen because the incisal overlap provides a vertical stop that aids in the proper seating of the veneer. The lingual finish line was placed with a round end tapered diamond, approximately one fourth the way down the lingual surface connecting the two proximal finish lines. The finish line should be minimal 1mm away from the centric contacts. All sharp angles of the preparation were rounded off.

After gingival retraction using double cord technique (fig3) impression was Made with additional silicone material by putty-wash technique The shade was selected under direct sunlight with VITA 3D master shade guide.

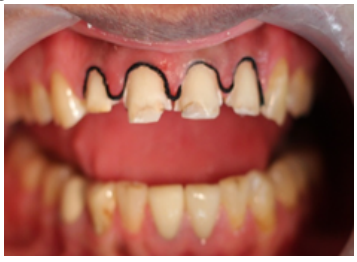


Fig 3.prepared Teeth With Retraction Cord.

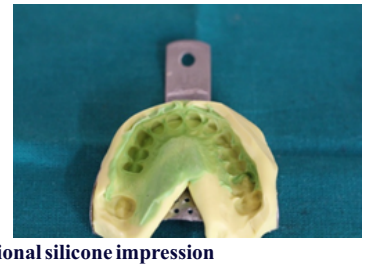


Fig 4. Additional silicone impression

Temporary restoration was done with light cure composite resin. It was spot bonded to the teeth.

Veneer Cementation

The temporary veneer was removed; the teeth were cleaned using pumice and were dried. The porcelain veneer Made up of lithium di silicate glycerial was tried on to the tooth with to verify its color and fit. The accepted veneer was removed from mouth, rinsed thoroughly and dried. The inner side of the porcelain was etched with 5 % hydrofluoric acid for 20 sec , washed under running water and dried. A layer of silane coupling agent (monoborid –S, ivoclar vivadent) was applied on the inner surface of veneer and gently air dried after 1 min which form a chemical bond between the porcelain and resin,

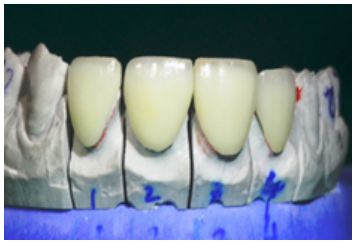


Fig 5 : Final Veneer

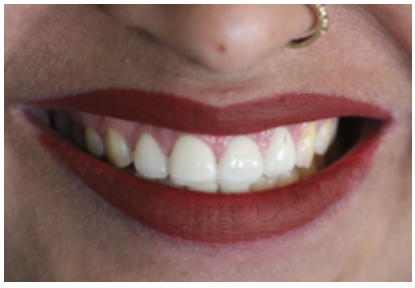


Fig 6: Veneer Cemented

The surface was then coated with thin layer of bonding agent thinned with air from the air syringe. The prepared teeth were etched with 37 % orthophosphoric acid (universal etch) for 30 sec, rinsed thoroughly and dried. A layers of Prime and Bond NT dentin bonding agent was applied on the tooth surface following manufacturer's instruction. A Calibra (dentsply) resin luting cement was used for cementation of the veneer to the tooth.

The veneer was then positioned onto the teeth correctly with slight pressure; the excess cement was removed off. A coat of glycerine gel (liquid strip – ivoclar vivadent) was applied along the veneer margins. Light curing of the luting composite was done through the liquid strip for 10 sec. After the initial set the excess cement was removed. The polymerization was continued for 60 sec by directing the light from lingual side so that the resin cement shrinks towards tooth providing more retention. Then each segment of veneer was light cured for 40 second. Occlusion was checked to ensure that no contact existed on tooth – porcelain interfaces. The patient was satisfied with her new smile.

Home Care Instruction:

The patient was given oral hygiene and home care instruction for the adequate care of the porcelain laminate veneers and asked to follow a strict follow up visit at 1st week, 3rd month and 6th month for the assessment of the treatment procedures and oral hygiene measure.

DISCUSSION

Patient selection is the main integral part for the success of PLVs. In the present case because of young age a conservative method to treatment (PLVs) were selected. Presence of normal overbite and overjet with favorable smile line and absence of parafunction and presence of sufficient enamel made PLVs most acceptable treatment option. The introduction of new dental technology combined with changing patient's attitude, is slowly altering dentist's approach to esthetic problem.[5]

The patient's acceptance of the porcelain laminate veneer technique now a day seems to be high. A clinical research to date has shown excellent retention rates. The introduction of high strength dentin bonding agents and reliable resin cements will accelerate the progression towards bonded porcelain used in clinical practice. [6]
On the other hand the long term study of porcelain veneer is required in order to study their marginal integrity, marginal staining and their effect on gingival tissue.

It is important to follow the correct treatment protocol and strive for clinical and laboratory composite thickness ratio of above 3:1. When this ratio is large, the forces created by the polymerization shrinkage of the luting cement may cause fracture of the thin porcelain veneer. Post bonding crack are an acknowledged complication of porcelain veneers. This ensure minimal damage to the tooth and gingiva and ensure optimal long term prognosis. Despite following all precautions, because of the delicate nature of porcelain veneer a possible post – operative complication is cracking. If the veneer has been well bonded to the underling enamel and is not an aesthetic concern, the patients should be informed and veneer should be left in place.

CONCLUSION

The porcelain veneers are useful adjuncts to dentist armamentarium, they help in the management of esthetic problems, minimizing dental tissue reduction. The veneers are technique sensitive but if used with proper knowledge and skill these restoration provide the best esthetic and functional outcome. The predictability of any restorative process will rest on the precise evaluation of oral and occlusal condition.

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