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CASE REPORT

Veneers – An Anterior Esthetic Rehabilitation

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Abstract

Porcelain laminate veneers are one of the most conservative and esthetic restoration that can be used for enhancing esthetics. As dentists, it is required of us to develop the skill sets for providing esthetically pleasing results without compromising the biological and func- tional principles of natural dentition. The use of porcelain laminates veneers to solve aes- thetic and/or functional problems has been shown to be a valid management option espe- cially in the anterior aesthetic zone. The current porcelain veneers are esthetically superior, conservative and durable treatment modality. Present Case report discusses a patient hav- ing discolouration of the teeth in maxillary arch in the anterior region and treated for prob- lem. The patient was very satisfied with the result and had no complaints during follow-up. (2018, Vol. 02; Issue 02: Page 15 - 20)

Key words: Esthetics, Laminates, Conservative preparation, Porcelain

Introduction

The esthetic restoration of anterior teeth constitutes one of the greatest challenges in restorative dentistry, and, in this con- text, porcelain veneers are an increasingly popular treatment option for reestablish- ing unesthetic teeth (1). Currently, the use of adhesive procedures makes this treat- ment possible with the preservation of as much tooth structure as is feasible while satisfying the patient's restorative needs and esthetic desires. Porcelain veneers should be used as a solution to esthetic problems, involving morphologic modifica- tions as in relation to tooth color, shape, contour, size, volume, and positioning (2, 3). Moreover, veneers may be indicated to have a place in the restoration of loss of tooth structure due to disease or trauma. Since its introduction, porcelain veneer restoration has proven to be a durable and esthetic modality of treatment (4). With the excellent progress made through the introduction of adhesive systems in bond- ing capability to both enamel and dentin, more conservative restorative adhesive techniques have become possible for ad- dressing unesthetic tooth appearance (5). Composite resin can be used to mask tooth discolorations and/or to correct unesthetic tooth shape and/or position (6). However, such restorations still suffer from limited longevity, thereby reducing the esthetic result in the long term. Thus,

porcelain veneers are proposed as durable restorations with superior esthetics (7, 8). The porcelain materials commonly indi- cated for use as veneers are sintered feld- spathic porcelain or hot-pressed glass ce- ramic because of their translucency and potential for use in small thicknesses. Their variety in tonality from opaque to translucent allows mimicking of the natu- ral tooth structure, resulting in satisfac- tory esthetic results (1, 9). Besides, ce- ramic restorations present lower failure rates with regard to long-term survival and are considered more durable than di- rect composite veneers as long as patients are adequately selected and the veneers are prepared following meticulous clinical procedures (10). Therefore, the aim of this report was to present an esthetic approach to reestablishing the esthetics and bal- ance of the smile with porcelain veneers as the restorative strategy.

Case report

A middle aged female patient reported with a chief complaint of discoloured an- terior teeth and wanted esthetic rehabili- tation for the same. The patient was un- happy with the appearance of her teeth and restrained herself from smiling due to self consciousness (Fig 1).

A detailed family history, medical history and dental history was obtained. There was no relevant history recorded. The maxillary anterior exhibited variable de- grees of pitting with yellowish to brownish discoloration of the surface (Fig 2). All teeth were vital and had no hypersensitiv- ity. No carious teeth were present. Moder- ate amount of calculus was present. Treat- ment for oral hygiene improvement was done.

Fig 1: Preoperative extraoral view

Fig 2: Preoperative intraoral view

Maxillary and mandibular diagnostic casts were made. After analyzing the pa- tient's smile line it was decided to place porcelain laminate veneers from incisor to incisor in maxillary arch. Diagnostic wax up was done. Depth orientation grooves were placed on the facial surface of the tooth with 0.3mm and 0.5mm three wheel diamond depth cutter on the gingival half and incisal half respectively (Fig 3). The tooth structure remaining between the

depth orientation grooves were removed with a round end tapered diamond. Doing so, the aprismatic top surface of mature unprepared enamel, which is known to of- fer only a minor retention capacity, was removed. A chamfer finish line was placed lightly subgingivally in the maxillary ante- rior 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 incisal overlap provides a vertical stop that aids in the proper seat- ing of the veneer and overpreparation was avoided to preserve the tooth structure. The lingual finish line was placed with a round end tapered diamond, approxi- mately one fourth the way down the lin- gual surface connecting the two proximal finish lines (Fig 4). The finish line should be minimum 1mm away from centric con- tacts. The veneer extended onto the lin- gual surface will enhance mechanical re- tention and increase the surface area for bonding. All sharp angles of the prepara- tion were rounded off. A coat of dentin bonding agent was applied to the prepared teeth surfaces immediately after prepara- tion.

Fig 3: Veneer tooth preparation with 11 and 21

Fig 4: Cast showing lingual surface of the veneer preparation

After gingival retraction, impression was made with polyvinylsiloxane by putty- wash technique using impression trays. The shade was selected under direct sun- light with VITA 3D master shade guide. Temporary restoration was done with light cured composite resin. It was bonded to the teeth only at 2 to 3 spots with compo- site resin.

The temporary veneers were removed; the teeth were cleaned using pumice and were dried. The porcelain veneer made up of IPS-emax was tried on to the tooth with selected shade of try in paste to verify its color and fit. The esthetics and fit were ac- ceptable, the veneers were removed from the tooth, rinsed thoroughly, and dried. The inner side of porcelain veneer was etched with 5% hydrofluoric acid for 20 seconds, washed under running water and dried. A layer of silane coupling agent was applied on the inner surface of veneer and gently air dried after one minute. The silane coupling agent forms a chemical bond between the porcelain and resin, be- sides it also reduces the marginal leakage and discolouration. The silanized surface was then coated with a thin layer of bond- ing agent thinned with air from the air sy- ringe. The resin layer was polymerized with light. The prepared teeth were etched with 37% phosphoric acid for 30 seconds, rinsed thoroughly and dried. A layer of

bonding agent was applied on to the tooth surface. A dual cure resin cement was used for bonding the veneer to the tooth. The veneers were then positioned on the teeth correctly with slight pressure; the excess cement was removed with a brush. A coat of glycerine gel was applied along the veneer margins. Light curing of the luting composite was done through the Liquid strip for 10 seconds and the ve- neers were tacked to the teeth. After the initial set the remaining excess cement was removed with a NO: 12 Bard-Parker blade. The polymerization was continued for 60 seconds by directing the light ini- tially from lingual side, so that the resin cement shrinks towards tooth providing more retention. Then each segment of ve- neer was light cured for 40 seconds. Oc- clusion was checked to ensure that no contact existed on tooth-porcelain inter- faces. The patient was satisfied with her new emergence and smile (Fig 5 & Fig 6).

Fig 6: Postoperative extraoral view

Discussion

The introduction of new dental technology combined with changing patients attitude, is slowly altering dentistry's approach to esthetic problems. The patient's ac- ceptance of the porcelain laminate veneer technique now-a-days seems to be high
(11). A study conducted by Goldstein and Lancaster showed that patients would readily accept shorter restoration life ex- pectancy (five to eight years) if enamel could be saved by not reducing the tooth for a full crown. The technique is expected in the near future to be drastically simpli- fied. 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 (12-15). On the other hand long-term study of porcelain veneers is required in order to study their marginal integrity, marginal staining and their effect on gingival tissues (ideally) 0.3 mm of thickness for each shade change.

This ensures minimal damage to tooth and gingiva and ensure optimal long-term prognosis. Despite following all precau- tions, because of the delicate nature of porcelain veneers, a possible post-opera- tive complication is cracking. If the veneer has been well bonded to the underlying enamel and is not an aesthetic concern, the patient should be informed and the ve- neer should be left in place (16, 17)

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