

CASE REPORT

Veneering -A Smile Makeover : Case Report

Alsabah Sherif¹, Devendra Chaudhary², Harmeet Singh³, Beena J Dev¹

ABSTRACT

The objective of this article is to explain the improvement of dental esthetics with low thickness glass ceramic with minimal tooth preparation for patient with anterior spacing, mild discoloration and congenitally missing bilateral maxillary lateral teeth. A defined treatment plan resulted in increased enamel preservation, improved anterior guidance and restoration of esthetics. Therefore it can be concluded that the conservative use of minimum thickness ceramic laminate veneers provides satisfactory esthetic outcomes while preserving the dental structure.

INTRODUCTION

Restorative aesthetic dentistry should be practiced as conservatively as possible. Currently, the use of adhesive technologies makes it possible to preserve as much tooth structure as is feasible while satisfying the patient's restorative needs and aesthetic desires. With indirect restorations, clinicians should choose a material and technique that allows the most conservative treatment; fulfilling the patient's aesthetic, structural and biologic requirements; and has the mechanical requirements to provide clinical durability¹.

For cosmetic dental makeovers, the clinicians advocate minimally invasive procedures like laminates or veneers. Both are remarkable in nature, do have certain striking differences. Dental laminates have the same function as veneer and sometimes the two terms are used interchangeably. Laminates are thin layers of restorative material placed on the tooth structure without any or with only minimal tooth preparation, while maintaining the natural tooth colour worked upon. Veneers are thicker as opposed to dental laminates, which consequently requires more tooth preparation. For instance, someone with crooked teeth or who has gaps are much better off getting veneers which are more flexible and stable than dental laminates. However, if the issue is discoloration or minor chips, laminates are a great option because they are lightweight and do not require much enamel removal.

Veneer is a layer of tooth colored material that is applied to a tooth to restore localized or generalized defects and intrinsic discoloration. Veneers are made up of chair-side composite, processed composite, porcelain and compressed ceramic materials. The process of applying a thin veneer of preformed porcelain, composite resin or plastic material to a tooth is called laminating.

Laminates can successfully transform smiles painlessly, conservatively and quickly with long lasting results. The objective of Cosmetic Dentistry is to provide maximum improvements in aesthetics with minimum trauma to the dentition² Porcelain veneers are wafer-thin shells of porcelain that are bonded onto the facial surface of teeth so as to create a cosmetic improvement for a tooth.^{3,4} The technique utilizes the bonding capability of these materials to securely attach a thin shell of porcelain (the porcelain veneer) to a tooth. Although porcelain is inherently brittle, when it is firmly bonded to a tooth, it becomes very strong and durable^{5,6}.

The purpose of this article is to describe the veneering of maxillary anterior teeth of a 38 year old female with maxillary anterior spacing and congenital missing of right lateral.

CASE REPORT

A 38 years old female patient attended to the Department of Conservative Dentistry and Endodontics at Maharaja Ganga Singh Dental College and Research Centre, Sri Ganganagar, Rajasthan, India, with the chief complaint of spacing in maxillary anterior teeth. Intra oral examination revealed that anterior spacing and congenital missing of maxillary right lateral. (Fig 1)

1 Post graduate student

2. Principal & Head of the Department

3. Reader,

Department of Conservative Dentistry and Endodontics,

***Correspondence Address**

Dr Alsabah Sherif

Post graduate student, Department of
Conservative Dentistry and Endodontics,
Maharaja Ganga Singh Dental College
and Research Centre, Sri Ganganagar,
Rajasthan



Fig.1 Pre Operative view of the patient

DIAGNOSIS AND TREATMENT PLAN

A thorough case history of the patient was taken followed by diagnostic impression, dentofacial analysis and shade selection was done. Treatment plan includes modifying the maxillary right canine to lateral and maxillary right first premolar to canine. E Max Porcelain laminate veneers were planned on the six maxillary teeth. Patient was informed about the existing condition, treatment procedure was explained and the consent was taken. Diagnostic cast and wax mock up were made. (Fig.2)



Fig.2 Wax mock up done for explaining the treatment plan to the patient



Fig.3a Preparation limited to enamel

PROCEDURE

Cervical groove orientation with a round ball tip diamond bur was made, with the bur positioned at a 45 degree inclination for penetrating approximately a quarter of the activity. The purpose of this step was to create a sketch of the future cervical finish line. The preparation depth of 0.4 mm close to the gingival margin, rising to 0.7 mm for the bulk was achieved by using depth cutting burs (model 303 MANI). To mimic the natural curvature of the tooth and to provide even thickness of porcelain two plane facial reduction was done with round end tapered bur. The appropriate tooth reduction was verified with the use of silicone matrix. Proximal reduction was kept just short of breaking the contact. Incisal reduction of 1mm was done with incisal overlap to improve translucency and to provide positive seat for luting. Equigingival Chamfer finish line of 0.4mm maximum depth were made with. All the internal line angles were rounded to reduce stresses in the margins of the veneers. The teeth preparation was limited to enamel and the right and left canines were modified for right and left lateral incisors respectively. (Fig 3.a,b,c)



Fig 3 b. Right Canine modified for lateral incisor



Fig 3 c. Left Canine modified for lateral incisor

Retraction cord (No.000) was placed in the facial gingival sulcus for 5 minutes. Full arch impression was made using poly vinyl siloxane material using putty reline technique. An impression of the opposing arch was made using irreversible hydrocolloid material. Ceramic laminates restoration were fabricated with a lithium disilicate-reinforced glass ceramic material (IPS emax Press, Ivoclar-vivadent), using heat press technique. A layering ceramic (ips emax ceram, ivoclar-vivadent) was further applied to improve the incisal edge optical characteristic. (Fig 4)



Fig 4 Completed minimum thickness porcelain laminate veneer restorations

The teeth were cleaned prior to the trial. The quality of fit, gingival extension and color match of the veneer was assessed. The internal surface of the veneers were etched using 30% Hydrofluoric gel, rinsed and coated with a silane coupling agent. The prepared tooth were well isolated and etched with 37% phosphoric acid (Universal Etch), rinsed and monobond plus dentin bonding agent was applied following manufacturer's instructions. Variolink N (Ivoclar) resin luting cement was used for the cementation of the porcelain laminate veneers.

Once all gross excess was removed, the luting resin was cured using visible light activation unit for 40 seconds each. PLVs were finished using rotating abrasive disks (Soflex discs)..(Fig 5 a,b)



Fig 5 a. Frontal close up view of teeth after placement of veneers

The patient was given oral hygiene and home care instructions for the adequate care of the porcelain laminate veneers and asked to follow a strict follow up protocol of 1 week, 3 months, and 6 months for the assessment of the treatment procedures and oral hygiene measures.



Fig 5 b. Frontal view of smile

DISCUSSION

When veneers are considered, different restorative approaches have been proposed, depending on the thickness of the veneer and the color of the remaining dental structure. In the case of improving esthetics by changing the form and texture of teeth with no severe discoloration, veneers of smaller thickness may be indicated. After being informed about advantages and disadvantages of each restorative option, the patient opted for the conservative ceramic veneers of minimum thickness. The long-lasting esthetics and little preparation of the underlying dental structure were among main reasons for this decision.

Thus, in the presented clinical situation, the dental preparation was restricted to the enamel. Besides the optical characteristic similar to the dental structure, glass-ceramic materials have good bonding characteristics to the dental structure. This increased retention is mainly related to the use hydrofluoric acid to etch their internal surfaces, associated with the use of silane-coupling agents.⁷ Moreover, when the dental preparation is restricted to the enamel, improved and more reliable bonding may be obtained.⁸

CONCLUSION

The minimum thickness anterior ceramic laminate veneers may be a conservative and esthetic alternative to reestablish the form, shape, and color of anterior teeth. The ultimate success of esthetic treatments is only achieved when the patient is educated and motivated to maintain good oral health. The patient contribution and periodic control by the dentist is imperative to the long- term success of the treatment.

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