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## Designing a smile: A case report

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### Abstract

The appearance of dentition is of concern to a large number of people seeking dental treatment. People are giving a lot of importance to the red and white aesthetics i.e., the teeth and the gums. The color of teeth is of particular cosmetic importance.

There has been a recent increase in interest in the treatment of tooth staining and discoloration. Veneers are a conservative method for treatment of aesthetic and functional problems in anterior region of oral cavity.

Since its introduction in 1938 by Charles Pincus, ceramic veneer restorations have proven to be durable and aesthetic restorative procedure for treatment of teeth. They solve aesthetic and/or functional problems have been shown to be a valid management option especially in the anterior aesthetic zone. Because of that the indications of this procedure expanded to a point where its use is now a common practice in dental clinics.

This Case report discusses smile designing in the anterior region with dental fluorosis. The patient was treated with porcelain laminate veneers in the maxillary arch.

**Keywords:** Veneers, aesthetics, fluorosis

### 1. Introduction

Confidence is an important aspect of one's personality and a confident smile makes the picture complete. With the increased awareness and changing times people seeking dental treatment for aesthetic purpose has significantly increased. Hence it has become important to have techniques and materials which can meet patients aesthetic desires and also simultaneously provides a most conservative way to meet structural, biological and mechanical requirements that can provide a long term clinical durability [1].

For many years, the most predictable and durable aesthetic restoration of anterior teeth has been achieved with full-coverage crowns. Because this approach requires the removal of substantial amounts of tooth structure, it is more invasive. The use of porcelain laminate veneers to solve aesthetic and/or functional problems has been shown to be a great treatment option [2]. Even though cutting of the tooth substance is slight, porcelain laminate veneer restorations (PLVR) have many advantages related to recovering esthetics of the following dysfunctions: morphological, shading and functional disharmonies, and widely-spreading tooth caries [3]. Veneers, since their introduction in 1938, have become one of the most predictable, aesthetic and least invasive modalities of treatment. They demonstrate excellent clinical performance in terms of strength, longevity, conservative nature and biocompatibility [4]. They provide the dentist and the patient an opportunity to enhance patient's aesthetics in a minimally invasive to virtually non invasive way [5].

### 2. Case report

A 20 year old male patient presented to the Department of Conservative Dentistry and Endodontics for the treatment of discoloured upper front teeth. (Figure 1)

Complete history of the patient along with preoperative photographs was taken and a diagnostic wax up was made (Figure 2). The patient's medical and family history was non-contributory.

On clinical examination it was found that patient had severe dental fluorosis. Following a detailed clinical examination and careful evaluation of the objective parameters of the patient's smile it was found that ceramic veneers were best suited for the condition in maxillary anterior

teeth as they provide the advantage of preservation of most of the natural tooth structure while achieving the aesthetics and PFM crowns were advised for mandibular anterior teeth as mandibular teeth often have minimal enamel, making long term attachment of veneers questionable as veneers require adequate enamel for optimal retention. So, eight maxillary anterior veneers and six PFM mandibular anterior crowns were required.

Prior to beginning of teeth preparation, the shade selection was done using vita shade guide and incisal guidance was checked. Tooth reduction for maxillary anterior veneers began by using a 0.5mm depth cutting bur on the buccal wall, starting from the gingival level moving towards the incisal edge. The lingual margin was placed above the contact point. Dual convergence was given on the labial surface to preserve the anatomical form of the labial surface. A long tapered chamfer ended diamond bur was used to reduce the buccal wall to create definite gingival and interproximal finishing line angles. The chamfer was taken slightly into the interproximal areas so as to allow the veneers to cover all the visible aspects of the teeth. Tooth reduction for mandibular anterior PFM crown began by giving a 2-3 depth-orientation grooves with a depth of 1 mm. The uniform 2mm incisal reduction is made between the grooves with cylindrical diamond bur. The interproximal cut is made with the same bur orientated perpendicularly to the major axis of the tooth. The end cutting bur is used to prepare the finishing line. The chamfer finishing line was given on buccal aspect and 90° shoulder finishing line was given at lingual aspect.

After completion of the teeth preparation (Figure 3) full arch impressions were taken with a polyvinyl siloxane impression material and an occlusal registration was made. (Figure 4, 5) The impression was sent to the lab along with the instructions regarding the underlying and final shades, the desired length, width and position of the frontal teeth. At the dental laboratory, refractory stone models of the prepared teeth were made and 8 porcelain veneers and 6 PFM crowns were fabricated (Figure 6). These were inspected in the dental office prior to the final placement in the patient's mouth for fit, marginal adaptation, appearance, translucency, shade and the absence of the black triangle in the gingival area. The try-in was done using glycerin medium. Each veneer is individually fitted and checked for marginal accuracy.

For final placement was done after rubber dam and retraction cord were placed to maintain a contamination free and dry operating field. The teeth for veneers were then pumiced and rinsed. Then, enamel surfaces of the prepared teeth were etched using 37% phosphoric acid (Etching Gel, Kerr, USA) for 15 seconds followed by thorough rinsing with water spray for 20 seconds and drying slightly. One-bottle bonding agent (Adper Single Bond, 3M ESPE, USA) was applied in two layers on the etched teeth surfaces using a bonding brush and polymerized with a light-curing unit (Demi LED Light Curing System, 450 nm, Kerr, USA) for 20 seconds. After etching and silanating (Figure 7) the interior surface of the porcelain laminate, the tinted cement is added and PFM crowns were cemented using resin modified glass ionomer cement. The veneers and crowns is gently pressed to place, and held there with a gloved finger while polymerizing with the light for 5 to 8 seconds. The initial excess cement is removed with the chisel end. Laminate is then completely cured for 60 seconds labially & lingually.

Carbide-finishing burs were used to remove excess cured composite resin at the margins and to make occlusal adjustments. Any rough interproximal areas were smoothed

using aluminium oxide polishing strips. Final smoothening and finishing was done with polishing cups and points. (Figure 8)



Fig 1



Fig 2



Fig 3



Fig 4



Fig 5



Fig 6



Fig 7



Fig 8

### 3. Discussion

Aesthetic procedures like direct and indirect laminate veneers, have become popular treatment alternatives for patients with aesthetic problems of anterior teeth in recent years [6]. The restorations can be made with minimal removal of the tooth substance, which improves the following dysfunctions: morphological unsightliness; color mismatching and/or translucency; functional disorders and widespread caries.

Bonded porcelain veneers provides a significant advantage, of conservation of tooth structure, over metal-ceramic or all-ceramic crowns which is a major factor in determining the long-term prognosis of any restorative procedure [7, 8]. They also provide a remarkable clinical durability resulting in decreased potential pulpal involvement [9]. However, the proper understanding of the principles involved in their fabrication and application is very important for the success of the treatment [10, 11, 12]. A thorough clinical examination to assure the correct indication followed by a defined protocol is the major success determinant factor. What needs to be taken into consideration is that the clinical follow-up results of this type of restoration are subjected to occlusal conditions and the patient's habits, as well as plaque quality control of the patient.<sup>3</sup> The aim of the dentist is not just to restore the aesthetics but to provide a restoration that provides the functional, biological and mechanical integrity, thereby enhancing the general health and welfare of the patient [13, 14]. Excellent prognosis is usually obtained in patients who keep good maintenance control.

Porcelain fused to metal (PFM) crown is preferred by many clinicians because of their high structural performance and aesthetic capability and has been dependable for more than five decades. A study conducted by Behr *et al.*, shows that PFM crowns showed 96.4% survival rate over 5 years with 98.2% free of chipping over 10 years for anterior teeth. The substructure of the crown is made of high noble alloy (over 60% noble metal i.e. gold, palladium, platinum of which 40% must be gold), noble alloy (over 25% noble metal content) or non-noble alloy (less than 25% noble metal content). Layers of feldspathic porcelain are then allowed to fuse to the metal substructure in a high heat oven in order to make it more esthetically pleasing. Though this is a bi-layered restorative material, it is still popularly used because it has good marginal finish, can mask any stump color, has good wear compatibility to opposing teeth and has long well documented history of providing lasting service [15].

### 4. References

1. Bora Korkut, Funda Yanikoğlu, Mahir Günday. Direct Composite Laminate Veneers: Three Case Reports, J Dent Res Dent Clin Dent Prospects. 2013; 7(2):105-111.
2. Rubina Tabassum. Porcelain Laminate Veneers – An Esthetic Bond: A Case Report, J Cont Med A Dent May-August. 2014; 2(2):60-60
3. Katoh Y, Taira Y, Kato C, Suzuki M, Shinkai K. A Case Report of a 20-year Clinical Follow-up of Porcelain Laminate Veneer Restorations, Operative Dentistry, 2009; 4-5:626-630.
4. Shailendra Gupta, Deepak Raisingani, Pradyumna Misra. Esthetic Rehabilitation with Ceramic Veneers: A Case Report, IJCD; JANUARY, 2011; 2(1).
5. Peumans M, Van Meerbeek SI, Lambrech P, Vancherle G, Porcelain veneers. a review of the literature, J Dent. 2000; 28(3):163-77
6. Núbia Pavesi Pini, Flávio Henrique Baggio Aguiar, Débora Alves Nunes Leite Lima, José Roberto

- Lovadino, Raquel Sano Suga Terada, Renata Corrêa Pascotto. Advances in dental veneers: materials, applications, and techniques: *Clin Cosmet Investig Dent.* 2012; 4:9-16.
- 7. Nalbandian S, Millar BJ. Aesthetic dentistry - The effect of veneers on cosmetic improvement; *British Dental Journal* 207, E3, 2009.
  - 8. Sowmya S, Sunitha S, Dhakshaini MR, Raghavendraswamy KN. Esthetics with veneers: A review. *Int J Dent Health Concern.* 2015; 1(1):46-50.
  - 9. Marco Gresnigt, Mutlu Özcan. Esthetic Rehabilitation of Anterior Teeth with Porcelain Laminates and Sectional Veneers. *J Can Dent Assoc.* 2011;77:b143
  - 10. Mangani F, Cerutti A, Putignano A. Clinical approach to anterior adhesive restorations using resin composite veneers. *Eur J Esthet Dent.* 2007; 2:188-209. [PubMed]
  - 11. Dino Re, Gabriele Augusti, Massimo Amato, Giancarlo Riva, Davide Augusti. Esthetic Rehabilitation of Anterior Teeth with Laminates Composite Veneers: Case Rep Dent. 2014.
  - 12. Gürel G. Porcelain laminate veneers: minimal tooth preparation by design: *Dent Clin North Am.* 2007; 51(2):419-31.
  - 13. Moon JE, Kim SH, Han JS, Yang JH, Lee JB. Esthetic restorations of maxillary anterior teeth with orthodontic treatment and porcelain laminate veneers: a case report: *J Adv Prosthodont.* 2010; 2(2):61-3.
  - 14. Dietschi D, Devigus A. Prefabricated composite veneers: historical perspectives, indications and clinical application: *Eur J Esthet Dent.* 2011; 6(2):178-87
  - 15. Mandiga S, Estafan D. An Esthetic Challenge: Case Report Utilizing a Combination of Monolithic Ceramic Veneers and Porcelain Fused to Metal Crown. *Int J Dent Oral Health.* 2015; 1(5).