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Embellishing the artistic elements: A clinical case series

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Abstract
All human desires are in some way related to beauty. A pleasant smile and appearance plays an integral part in building his self-confidence and positive self-image. Porcelain laminate veneers are one of the most conservative and esthetic restoration that can be used for enhancing esthetics. As dentists, we should develop the skill for providing esthetically pleasing smiles without compromising the biological and functional principles of natural dentition.Veneers have been excellent in case of extreme discolouration, any surface defects, diastema and also in slight malalignment. This case series illuminates the high merits and excellent reproducibility of ceramic details and also guides the clinician about the fundamental details that should be kept in mind while restoring teeth with indirect veneers.

Keywords: Esthetics, smile, reproducibility, discolorations

1. Introduction
The increasing demand for esthetic restorative treatment and the recent advances in adhesive dentistry have led to the development of materials and techniques aimed at restoring the natural tooth appearance, especially in the anterior segment. Re-establishing a patient's lost natural dental esthetics due to extrinsic and intrinsic discoloration, malalignment is among the important topics of today's dentistry [1]. In addition to function, colour, shape, and structural and position abnormalities of anterior teeth might lead to important esthetic problems for patients. In order to solve such problems, the technique preferred frequently is to cover the teeth with dental crowns. However, excessive preparations of teeth and damages to surrounding tissues, such as gingiva, are some disadvantages of crowns [2]. Therefore, in recent years, laminate veneer restorations, have become popular as an esthetic conservative treatment option mimicking the translucency of natural tooth structure. These restorations are to correct existing abnormalities, esthetic deficiencies and discolorations and can provide more promising esthetic results [3, 4].
The aim of this case series is to describe the rehabilitation of discoloured, malaligned maxillary anterior teeth and the smile line of the patient utilizing lithium disilicate reinforced glass ceramic veneers.

2.1 Case Report-1
A 21 year old female patient reported to the Department of Conservative Dentistry and Endodontics, Krishnadevaraya College of Dental Sciences with the chief complaint of discoloured front teeth since childhood. The medical history was non-contributory. On extra oral examination teeth were brownish with white patches enveloping the incisal and facial surfaces of upper front teeth. They were discrete, confluent white spots. The case was diagnosed as moderate dental fluorosis (Dean's index) and indirect Ceramic Veneers (overlap type) wrt 13 12 11 21 22 23 were planned. (Fig-1a& 1b)
Preparation was done for ceramic veneers wrt 13 12 11 21 22 23 with incisal overlap done. During preparation, the facial and palatal surfaces were reduced to 0.5-1.0 mm and the incisal reduction was 1.0 mm. All the incisors and canines were prepared with a chamfered finishing line with rounded internal line angles. The cervical preparation ended at the cemento-enamel junction. Smooth margins were created to prevent stress concentration zones. Gingival retraction cords placement done and Elastomeric putty wash impression was made. Temporaries were given with direct composite. (Fig-2a& 2b).

Fig 1a: Preoperative facial

Fig 1b: Intra oral facial view

Fig 2a: After tooth preparation

Fig 2b: With retraction cord

Ceramic veneer units were etched with 10% hydrofluoric acid and rinsed with water. This was followed by Silane coupling agent Monobond –S applied on undersurface of veneer units for better bonding. Cementation of ceramic veneer units 13 12 11 21 22 23 done using dual cure resin cement and light cured from facial, palatal, mesial and distal surfaces for 40 seconds. Excess luting cement was removed and the marginal area finished and polished with abrasive discs and strips. Restorations were checked to avoid any occlusal interference. The patient was satisfied with her new smile line and excellent view of the anterior teeth and was recalled in 2 days and encouraged for better dental flossing. (Fig-3a& 3b).

Fig 3a: Post cementation

Fig 3b: Post-Operative Image

2.2 Case Report -2

A 39 year old female patient reported to the Department of Conservative Dentistry and Endodontics with the chief complaint of discoloured upper and lower teeth. On clinical examination upper teeth shows brownish confluent discrete spots involving facial and cervical margins of upper and lower teeth. It was diagnosed as moderate fluorosis (Dean's index) with incisal disfigurement. This case was almost identical to the first case and ceramic veneers (incisal overlap) were planned wrt 13 12 11 21 22 23. (Fig-4).

Fig 4: Preoperative image

Fig 5a: After tooth preparation

Fig 5b: With retraction cords

Fig 6a: Post cementation

Fig 6b: Post-operative image

2.3 Case Report-3

A 23 year old female patient reported to the Department of Conservative Dentistry and Endodontics with the chief complaint of irregularity in upper front tooth region. Patient's medical and dental histories were unremarkable. Clinical examination revealed the presence of malaligned maxillary incisors and canines and diagnosed as Angle's Class I malocclusion. Orthodontic therapy was recommended but patient refused to wear braces due to esthetic concern. Restoration with ceramic veneers wrt 11 21 22 23 and intentional root canal treatment followed by all ceramic crowns were planned wrt 13 12 because of the chances for iatrogenic pulp exposure. (Fig-7a& 7b). Prior to preparation wax mock up was done so that the esthetic appearance of the patient was predicted.

Fig 7a: Pre operatve Image

Fig 7b: Intra oral occlusal view

Veneer preparation was done for ceramic veneers wrt 11 21 22 23 with incisal overlap preparation using three tier diamond depth cutter LSV-1 and LSV-2 with the depth of 0.5 mm. Facial reduction and incisal reduction was 1.5 mm and chamfer finish line was prepared with rounded internal angles. Later blended with a flat end round bur and intentional root canal treatment done wrt 13 12. After the preparation impression, gingival retraction cords placement done and Elastomeric putty wash impression was made (Fig-9). Temporaries were given with direct composite with respect to upper incisors. Bisque trial was done. Acid etching done with respect to upper teeth 13 12 11 21 22 23.Ceramic veneer units etch and rinse done with 10% hydrofluoric acid. Silane coupling agent Monobond –S applied on under surface of veneer units for better bonding followed by cementation of ceramic veneer units using dual cure resin cement and light cured from facial, palatal, mesial and distal surfaces. (Fig10a&10b)

Fig 9: Tooth preparation for veneers 11 21 22 23 and all ceramic crows 13 12

Fig 10a: Post cementation

Fig 10 b: post treatment facial photographs

3. Discussion

The coronal portion of the tooth consists of enamel, dentine and pulp. Any change to these structures is likely to cause an alteration in the outward appearance of the tooth caused by its light transmitting and reflecting properties[5].The appearance of tooth colour is dependent on the quality of the reflected light and is also, as a consequence, dependent on the incident light. Historically, tooth discolouration has been classified according to the location of the stain, which may be either intrinsic or extrinsic [6]. Dental fluorosis is the result of chronic endogenic intake of fluorides in amounts exceeding the optimal daily dose of 1 ppm. Dental fluorosis features hypomineralization of enamel which occurs due to the effects of excessive fluoride on ameloblasts during amelogenesis [7]. Porcelain laminate veneers gained increasing popularity ever since and said to have high survival rates and good clinical success having excellent biocompatibility with gingival, periodontal tissues and provide precise colour match and translucency to the natural tooth [8]. A study conducted by Goldstein and Lancaster showed that patients would readily accept shorter restoration life expectancy (five to eight years) if enamel could be saved by not reducing the tooth for a full crown[9].The technique is expected in the near future to be drastically simplified.Few of the indications include stained or darkened teeth, hypocalcifications, diastema, chipped teeth, slightly rotated teeth, discrepancies in size and shape of teeth, worn acrylic veneers, foreshortened teeth, slight deviation of midlines, stained restorations and lingually positioned, labially placed teeth[10]. Veneers is one of the most improved and revolutionised restorative techniques over the last few decades. It is of outmost importance that the case selection, tooth preparation, veneer placement and cementation and patient maintenance are the hallmarks for long clinical success of veneer placement. There are four types of veneer incisal preparations are possible for veneers: a) window, b) feather, c) bevel or d) incisal overlap. Incisal overlap, in which the incisal edge is reduced and then the veneer preparation extended onto the palatal aspect of the preparation. This also helps to provide a positive seat for luting whilst involving more extensive tooth preparation. The preparation depth should be of the order of 0.4 mm close to the gingival margin, rising to 0.7 mm for the bulk of the preparation. This is best achieved by using a depth cutting bur diamond depth cutter LSV-1 and LSV-2. The preparations margins are then blended with a flat end round bur [11].

However, porcelain laminates have their own limitations too. They should not be used when remaining enamel is inadequate to provide adequate retention. Large Class IV defects should probably not be restored with veneers because of the large amount of unsupported porcelain and the lack of tooth-colored backing. The amount of unsupported porcelain should be carefully evaluated in cases with a large diastema. Darkly stained teeth are not optimally restored with veneers. The prognosis for veneers in bruxism is doubtful. Certainly, such patients should be instructed to use a night guard after final restoration (Sheets & Taniguchi, 1990)[12].Even, if the laminates fail in the long run, the conserved tooth can still be treated with a full crown restoration. Porcelain laminate veneers offer a predictable and successful treatment modality that preserves a maximum of sound tooth structure. An increased risk of failure is present only when veneers are partially bonded to dentin. The estimated survival probability of porcelain laminate veneers over a period of 10 years is 91% (Dumfahrt & Schäffer, 2000) [13].

The perfect combination of restorative material and cementation strategy will determine the clinical success of a restoration. An adhesive cementation technique is fundamental to retain the veneers, given that they lack preparation for mechanical retention. Thus, silica-based ceramics (feldspathic porcelains, leucite-reinforced ceramics, and lithium disilicate ceramics) are indicated when making veneers [14]. These ceramics are acid sensitive, present high translucency, and can be used in very small thicknesses. In addition to favouring retention, the precementation chemical treatment by acid etching and silanization reduces the internal propagation of cracks, increasing the resistance of the ceramic to postcementation fracture. The precementation chemical treatment described in this case is indicated for feldspathic porcelains. This type of ceramic has a specific working protocol, with small differences in the time required for acid conditioning [15].This case presented herein has replicated the treatment outcomes through the use of esthetic and restorative

techniques. The benefits include correction of tooth shapes and dimensions that result in improved tooth proportions with an esthetically pleasing appearance.

4. Conclusion

Porcelain veneers are a useful adjunct to the dentist for management of esthetic problems in both young and old patients. The survival probability of porcelain veneers according to the Kaplan - Meier survival estimation method was 97% at 5 years and 91% at 10½ years [7,8]. Clinician should be careful during tooth preparation and luting phase so that optimal results can be ensured. Ceramic veneers displayed promising results when considering the esthetic and mechanic criterias. The new smile of the patient was satisfactory with excellent esthetic appearance.

5. References

1. Migliau, Guido. Endo-restorative treatment of a severly discolored upper incisor: resolution of the “aesthetic” problem through Componeer veneering System." Annali di stomatologia 2015; 6(3-4):113.
2. Bora Korkut, Funda Yanıkoğlu, Mahir Günday. Direct Composite Laminate Veneers: Three Case Reports, J Dent Res Dent Clin Dent Prospects. 2013; 7(2):105-111.
3. Aristidis GA, Dimitra B. Five-year clinical performance of porcelain laminate veneers. Quint Int. 2002; 33:185-9.
4. Faunce FR, Myers DR. Laminate veneer restoration of permanent incisors. J Am Dent Assoc. 1976; 93:790-2.
5. Watts, Am, Addy M. Tooth discolouration and staining: a review of the literature. Br. Dent J. 2001; 190(6):309.
6. Pindborg J. J. Pathology of the dental hard tissues. Copenhagen: Munksgaard, 1970, 221.
7. DenBesten, Pamela, Wu Li. Chronic fluoride toxicity: dental fluorosis. Fluoride and the Oral Environment. Karger Publishers, 2011; 22:81-96.
8. Shetty, Ashish. Survival rates of porcelain laminate restoration based on different incisal preparation designs: an analysis. J Conserv Dent. 2011; 14(1):10.
9. Ahmed T. Porcelain laminate veneers–a review. Journal of Evolution of Medical and Dental Sciences. 2013; 2(45):8856-8859.
10. Jhajharia K, Shah HH, Paliwal A, Parikh V, Patel S. Esthetic Management of Fluoresced Teeth with Ceramic Veneers and Direct Composite Bonding–An Overview and A Case Presentation. J Clin Diagn Res. 2015; 9(6):ZD28-Z30.
11. Walls AWG, Steele JG, Wassell RW. Crowns and other extra-coronal restorations: porcelain laminate veneers. Br Dent J. 2002; 193(2):73.
12. Bhoyar AG. Esthetic closure of diastema by porcelain laminate veneers: A case report
13. Kamble, Vaibhav D, Rambhau D, Parkhedkar. Esthetic rehabilitation of discolored anterior teeth with porcelain veneers. Contemporary clinical dentistry. 2013; 4(1):124.
14. Farias-Neto A, Gomes EM, Sánchez-Ayala A, Sánchez-Ayala A, Vilanova LS. Esthetic rehabilitation of the smile with no-prep porcelain laminates and partial veneers. Case reports in dentistry, 2015.
15. Pini NP, Aguiar FHB, Leite Lima DAN, Lovadino JR, Suga Terada RS, Pascotto RC. Advances in dental veneers: materials, applications, and techniques, Clinical, Cosmetic and Investigational Dentistry. 2012; 4(10):9-16.