Porcelain Laminate Veneers - Revitalizing Smile: A Case Report

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Abstract: Teeth, the most dominant component of smile connote a lot in today’s growing society. Multiple options are available to treat the problems arising in the zone of high esthetic sensitivity. From a purely cosmetic standpoint, the value of the appearance of one’s teeth has taken on a great importance in today’s society. With the advancements in the area of cosmetic dentistry the dental professionals have been offered new opportunities. Porcelain laminate veneers helps in solving esthetic and/or functional problems especially in the anterior esthetic zone. This case report describes assessment of esthetic derangement - diastema, discolored and chipped off teeth in the anterior region. The patient was treated with porcelain laminate veneers for the closure of diastema and other related problems thus a complete revitalization of smile.

KEY WORDS
Smile; Laminates; Diastema

INTRODUCTION
Face, most dominant part of body may not gain its true value if teeth, dominant component of smile are not in correct form. Derangement in the confident smile may affect the individual in almost every zone of his life. From a purely cosmetic standpoint, the value of the appearance of one’s teeth has taken on a great importance in today’s society. With the advancements in the area of cosmetic dentistry the dental professionals have been offered new opportunities. Multiple options are available to treat problems in the zone of high esthetic sensitivity. Every option offers some advantages and disadvantages. The use of porcelain laminate veneers (PLVs) to solve esthetic and/or functional problems has been shown to be a valid management option especially in the anterior esthetic zone. PLVs offer pleasing, predictable and permanent result in diastemas, tooth size discrepancy, discolorations, staining, fractures in teeth and smile designing. Survival rates of PLVs have ranged from 92% at 5 years to 64 % at 10 years.1 Carefully placed PLV have reported very high survival rates of over 90% after 9 years stressing the need for the proper case selection and technique.2,3 This case report describes the critical assessment and management of a situation with multiple Diastema, discolored and fractured teeth utilizing PLVs.

CASE REPORT
A 40 year old female reported to the clinic with a chief complaint of discolored anterior teeth and gaps between her upper and lower teeth. The patient was unhappy with appearance of her teeth and restrained herself from smiling due to self-consciousness. On examination, it was found that diastemas in her maxillary and mandibular anterior teeth region had made her smile unpleasing. Patient had undergone composite veneering on her maxillary incisors which got discolored and chipped off [Fig. 1].

After thorough examination, impressions for diagnostic models were made in irreversible hydrocolloid (Heraplast, Heraeus Kulzer, USA). Two sets of diagnostic impressions and casts were made, one for record and other for mock up preparation and diagnostic wax–up [Fig. 2]. To provide a long term solution, the patient was provided the option of PLVs for maxillary and mandibular teeth for which she had given her approval and signed the consent form for the same.
Porcelain Laminate Veneers – Smile

Fig. 1: Preoperative intra-oral view (Diaestema between maxillary and mandibular anteriors)

Fig. 2: Mock preparation and diagnostic wax-up

Fig. 3: Depth grooves on 11 and 21 for porcelain laminate veneers

Fig. 4: Completed teeth preparation for porcelain laminate veneers of 12, 11, 21, 22 & 41, 42

Fig. 5: Post-operative intra-oral view with porcelain laminates veneers on 12, 11, 21, 22, 41 & 42

Fig. 6: Postoperative extra oral view with confident smile
At the commencement of the treatment, thorough scaling and polishing was done. Before proceeding for tooth preparation, shade was selected using Vitapan Classical shade guide (Vita Zahnfabrik, Germany). The maxillary and mandibular teeth were prepared for PLVs as follows [Fig. 3 & Fig. 4]. Labial reduction of 0.5 mm was done from mesioproximal to distoproximal line angle. Finish line was established using double grit tapered diamond point. A definitive chamfer margin of 0.3 mm was prepared beginning at the height of the free gingival margin and extended beyond the proximal line angles to hide veneer margin when viewed from lateral oblique view. The incisal chamfer was extended palatally as little increase in height was desirable. The centric stops were marked and spaced from palatal extension. After finishing the preparations the gingival retraction and final impressions were made in addition silicone (Affinis, Colt’ne Whaledent) by double step double mix technique. Provisional restorations were prepared and cemented. PLVs were fabricated by refractory die technique (IPS SIGN Ivoclar Vivadent, USA). Then tried in for shade, fit, marginal adaptation, shape, size, symmetry and contacts. First they were tried-in individually using glycerin as a holding medium. After individual evaluation, collective try-in was done and patient’s approval was obtained.

CEMENTATION

The laminates were arranged in correct sequence and were cemented on two teeth at a time starting at the midline. The teeth were etched using 37% Phosphoric Acid (Meta Etchant-37, Meta Biomed Co. Ltd, Korea) for 15 seconds. On air drying bonding agent (Meta P & Bond, Meta Biomed Co Ltd, Korea) was applied & light cured for 10 seconds. Dual cure composite resin cement (Duolink, Bisco, USA) was used for cementation. On completion, occlusion was checked and high points interferences were removed and polished [Fig. 5 & Fig. 6]. Patient was instructed to avoid hard foods and extreme temperatures, avoid alcohol based mouth rinses in the first 72 hours. The patient was also instructed to get oral prophylaxis done in every 3 months and to avoid excessive biting forces and habit patterns.

DISCUSSION

Smile is a curve which makes everything straight. But, what if; this smile is not a confident smile. Diastema, discoloration, fracture etc. may result in hampering of the esthetic. Diastema may be caused due to various regions-congenitally missing teeth, tooth and jaw size discrepancy, frenum attachments, Developmental problems, habits, periodontal disease, tooth loss. The restorative closure of diastema can be achieved by using any of the techniques mentioned; direct composite veneers, indirect composite veneers, porcelain laminate veneers, all ceramic crowns, metal ceramic crowns and composite crowns. Composite resin and porcelain are the most frequently used veneering material for diastema closure conservatively. Smaller diastema can be closed with micro-filled and hybrid resins if the diastema is about 1-1.5 mm in dimension but for larger one PLVs is the choice. One of the most important advantages of bonded PLV is that they are extremely conservative in terms of tooth reduction. In the present case, only 0.5 mm reduction on the labial surface was done. The highly glazed surface of PLV prevents plaque accumulation, excellent esthetics provide lifelike appearance. However, certain limitation such as Darkly stained teeth, bruxing and amount of unsupported porcelain should be evaluated. Even, if the laminates fail in the long run, the conserved tooth can still be treated with a full crown restoration. PLV offer a predictable and successful treatment modality that preserves a maximum of sound tooth structure.

CONCLUSION

Satisfaction in the eyes of the patient is the most authentic award what a dentist can get. Bonded PLV can provide such satisfaction in the form of esthetic and function in a highly predictable way. Porcelain laminate veneers offers more comprehensive applications when they are used cautiously and the outcome accomplished have been pleasing for the esthetic dentist and the patient. It has become increasingly apparent that conservation of tooth structure is a major factor in determining the long-term prognosis of any restorative procedure and porcelain laminate veneers provide such beneficial treatment to the patient.

CONFLICT OF INTEREST & SOURCE OF FUNDING

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REFERENCE


