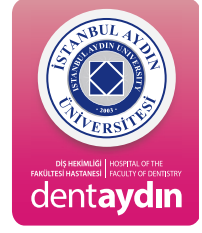




Aydın Dental Journal

Journal homepage: <http://dergipark.ulakbim.gov.tr/adj>



SINGLE NO-PREP PORCELAIN LAMINATE VENEER RESTORATIONS; 2 CASE REPORTS

DergiPark
AKADEMİK

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ABSTRACT

Porcelain laminate veneers provide an esthetic and conservative option in the anterior region for dentists and patients. In these applications, the selection of right indication and material affects the success directly. No-prep techniques for laminate veneers are being considered again in the current literature. In this article, 2 cases with single no-prep porcelain laminate veneers in the anterior region are presented.

Keywords: *Porcelain laminate veneer, prepless, resin cement*

ÖZET

Porselen laminate veneer restorasyonları ön dişlerin rehabilitasyonunda diş hekimi ve hastaya konservatif bir estetik çözüm sunan uygulamalardır. Bu tür restorasyonlarda uygun endikasyon ve uygun malzeme seçimi başarıyı doğrudan etkilemektedir. Diş hazırlığı yapılmadan restorasyonun uygulanması literatürde güncel olarak yeniden tartışılan bir konu olmuştur. Bu olgu sunumunda, 2 hastada ön bölgede tek diş hazırlık yapılmadan uygulanan porselen laminate veneer restorasyonlar ele alınmıştır.

Anahtar Kelimeler: *Porselen laminate veneer, prepless, reçine siman*

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INTRODUCTION

Restoration of anterior teeth using a conservative approach allows clinicians to provide porcelain laminate veneers with excellent esthetics without extensive tooth structure removal. Tooth preparation for porcelain veneers requires less tooth reduction compared to other restorative treatment options due to higher fracture strength when resin cement is bonded to enamel. Application of laminate veneers without making any preparations on the tooth has become a possibility with the improvements in the adhesive materials. Teeth with microdontia, abrasions, malpositions and diastemas can be restored successfully with “prepless” laminate veneers with the right treatment planning.^{1,2}

Ceramic laminate veneer restorations have advantages of bond strength to dental tissues, periodontal health, mechanical resistance and esthetics. On the other side they have disadvantages of requiring technical precision, not being repairable, having long chairside application time, not being able to mask underlying color when required, being brittle prior to cementation and not being economic.³

In these two case presentations, two patients were rehabilitated by ‘minimally invasive’ approach by their request. Lingually malpositioned teeth were restored with laminate veneer restorations.

CASE PRESENTATIONS

CASE-1

34-year-old female patient was concerned about her lingually malpositioned upper left lateral incisor and requested an esthetic restoration (Figure 1).



Figure 1: Case-1, initial situation.

Following clinical and radiological examinations different treatment options were discussed with the patient. Firstly, orthodontic treatment was recommended but the patient refused this option. As the patient was content with the appearance of other maxillary anterior teeth, it was decided to restore malpositioned lateral incisor with a laminate veneer without making any preparations. The introral factors of tooth like its position, occlusal relation, color, periodontal health and gingival biotype were evaluated. It was decided to apply no-prep laminate veneer procedure by using feldspathic blocks with a CAD/CAM system for the fabrication of the restoration.

After the selection of tooth color the impression was made using polyvinyl siloxane impression material (Express XT VPS, 3M ESPE, Seefeld, Germany). Laminate veneer restoration was fabricated in laboratory using CAD/CAM System (CEREC, Sirona Dental, Salzburg, Austria) from a feldspathic block (Vita Mark II, Vita Zahnfabrik, Bad Sackingen, Germany). Margins, occlusion and esthetic criteria were evaluated in the clinic and restoration was finished after characterization.

Due to good light transmission quality of feldspathic porcelain, a light curing resin cement (CHOICE 2, Bisco Inc., Schaumburg, IL, USA) was selected for luting the restoration.

Before cementation, a try-in paste was applied and translucent shade was found appropriate. 9.5 % Hydrofluoric acid was applied for 60 seconds onto the cementation surface of the restoration, rinsed with water and air-dried. Following the silane and bonding application the restoration was placed onto the tooth; the light curing was applied first on the lingual, then the labial side for 5 seconds. Excess cement was removed and completely cured by applying light for 20 seconds from all sides. (Figure 2)



Figure 2: Case-1, after cementation of prepress laminate veneer restoration on upper left lateral incisor.



Figure 3: Case-1, after 6 months.

The follow-up controls of the patient were carried out in 6 month (Figure 3) and 1 year (Figure 4) periods. No gingival problems were observed and the patient was satisfied with the esthetics and function.



Figure 4: Case-1, after 1 year.

CASE-2

26-year-old female patient applied to Istanbul University Faculty of Dentistry Prosthodontics Clinic for esthetic problems on her lingually malpositioned upper left canine. (Figure 5)



Figure 5: Case-2, initial situation.

Same with the other patient orthodontic treatment was recommended firstly, but the patient refused this option. As the patient was content with the appearance of her other maxillary anterior teeth, it was decided to restore malpositioned canine teeth with a laminate veneer without making preparation.

The same procedures with Case-1 were applied for the impression making and preparation of the restoration and the treatment was finished. (Figure 6)



Figure 6: Case-2, after cementation of prepress laminate veneer restoration on upper left canine.

The patient was called back at 6 month (Figure 7) and 1 year (Figure 8) periods. The restoration was observed as successful in terms of esthetics and function, and no gingival problems were observed.



Figure 7: Case-2, after 6 months.



Figure 8: Case-2, after 1 year.

DISCUSSION

The initial presentation of laminate veneer restorations suggested a no-prep approach and reported this as an advantage of the procedure.

However, this technique was abandoned due to restored teeth being too bulky and unnatural, resulting in esthetic concerns. A minimal preparation approach was found more successful and clinicians preferred it for a long time.⁴

In the last decade, minimal invasive procedures gained popularity and improvements in the materials used that made very thin laminate veneers a possibility. This resulted in no-prep laminate veneers to be considered as treatment options once again.⁵

However, applying laminate veneers without any preparations on the tooth is still a debated subject.⁶ Even though clinicians would like to restore teeth with minimal invasive techniques, especially when the reason is purely cosmetic, the survival and success of no-prep laminate veneers in long term, and health of soft tissues around these restorations are subjects of discussion in literature.⁷

Recent studies report good results in no-prep laminate veneer restorations if several conditions are met.⁸ Wells stated the following conditions for the success of no-prep laminate veneers:

- 1- Microdontia, for example tiny lateral incisors, irregularities in the width of the teeth and arch form,
- 2- Occlusal material loss due to abrasion, erosion or a combination of both,
- 3- Narrow dental arch and lingually malpositioned teeth in orthodontic premolar extraction cases,
- 4- Big lips and a wide smile, generally cases where there is enough space for the enlargement of the teeth.

In the current study no-prep laminate veneer restorations are planned and applied by taking

these points into consideration and selecting the right patients. CAD/CAM technique was preferred for a better marginal and internal fit compared to conventional fabrication procedures and homogeneity and mechanical stability advantages of ceramic blocks.⁹ Several different materials can be used in the CAD/CAM systems. In these cases, feldspathic ceramic blocks were used. These materials have 150 MPa fracture strength after adhesive cementation, their abrasion resistance similar to natural enamel, have good polishing properties and can be polished intraorally.¹⁰ Matsumura et al. reported several advantages of feldspathic ceramic; it can be successfully used in very thin layers, cost less than several other dental ceramic materials in the market, high mechanical resistance after etching with hydrofluoric acid and exceptional adhesion when used with the right adhesive system.¹

Cementation is one of the most important steps for the success of laminate veneers prepared with minimally invasive approach.¹¹⁻¹³ Adhesive resin cements are used for the cementation of laminate veneer restorations. Resin cements can be classified as self-curing, light-curing and dual curing; according to their polymerization methods. Self and dual curing resin cements include tertiary amines which may cause decolorization in time,^{14,15} for this reason light curing resin cements were preferred for the cementation of no-prep laminate veneer restorations in the current study. Also, the polymerization shrinkage occurs towards the light source, this was taken into consideration as the restorations were luted and the light curing was done from the lingual side first in order to lower decementation risk.

CONCLUSIONS

The no-prep laminate veneer restorations have been around more than two decades. Improvements of the materials and the adhesive techniques make these procedures on par with traditional laminate veneers. Minimally invasive approach is the greatest advantage of this procedure. It is a highly successful and esthetically pleasing treatment option if the right case is selected and the technique is carefully applied.

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