

CASE REPORT

Indirect laminate veneer: a conservative novel approach

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SUMMARY

Various treatment options and materials are available for restoration of an endodontically treated tooth. Laminate veneer is conservative treatment usually employed for aesthetic correction or improvement. The indirect composite is available in a wide range of shades and specific characterisation is easily performed chair side in the operatory area, which makes it a quick procedure and time saving for both the patient and the dentist. The physical properties and optical properties are good enough to use it as indirect restorative material, so in this particular case it was the material of choice for fabrication of laminate veneer on anterior tooth. In this case, the endodontically treated tooth with a fractured incisal edge was restored with indirect composite material.

BACKGROUND

Any restoration should be fabricated using mechanical, biological and aesthetic principles. Preservation of the tooth structure is very important for longevity of both the tooth and the restoration. Laminate veneer is a conservative treatment option based on sound mechanical, biological and aesthetic principles. Direct and indirect techniques with various materials were used for fabrication of the laminate veneers. Indirect composite was used for restoration in the form of inlays and onlays for the posterior teeth. Here an indirect composite was used as laminate material for the aesthetic correction of the maxillary anterior tooth. Laminate veneer was fabricated using indirect composite, and comparative aesthetic was achieved with patient satisfaction.

CASE PRESENTATION

A 21-year-old female patient reported to the Department of Prosthodontics, Crown & Bridge and Oral Implantology of K.M. Shah Dental College and Hospital, Piparia, Vadodara with chief problems of bad appearance of her front teeth. Oral examination was conducted which revealed the presence of full complement of teeth in both the arches with Ellis class IV fracture of tooth no. 11 (figure 1). There was no soft tissue injury around the fractured teeth. Discolouration of the fractured tooth was there when compared with the adjacent central incisor. The patient gave a history of a motor vehicle accident a week prior to presentation. The vitality test revealed the tooth non-vital. Endodontic treatment was carried out for the tooth. The indirect laminate veneer was planned for the aesthetic correction of the fractured tooth.

TREATMENT

The tooth preparation was performed according to the standard principles for tooth preparation required for veneer preparation for the ceramic veneering. The facial surface was prepared in the three planes to give the effect of illusion to improve aesthetic. The facial surface was prepared with uniform preparation depth of 1.5 mm. The chamfer margin was placed subgingivally to improve aesthetic and emergence profile of the tooth. The preparation was the incisal edge, was performed about 2 mm to cover the fracture incisal edge with restoration (figure 2). The preparation was extended to the lingual surface to give wrapped-around preparation geometry. The proximal finish line was placed as lingually as permitted by the tooth anatomy (figure 3).

Preparation was finished with yellow colour fine grit finishing diamond point. Gingival retraction was performed using retraction cord and chemical retraction agent. Impression was made using addition silicon impression material with double mix double impression technique and poured with die stone.

Adoro (ivoclar vivadent) indirect composite was used to fabricate the veneer. The separating medium supplied by the manufacturer was applied to the prepared tooth surface. The spacer was then applied on the die to create the cementing space. Shade selection was performed using the shade guide supplied with material kit by the manufacturer. Indirect composite build up was performed according to the manufacturer instruction and was cured in the curing unit with visible light source for 20 min. After curing the restoration was polished using universal polishing paste supplied by the manufacturer (figure 4).

Gingival retraction was again performed for cementation procedure. Fluid control was performed using the cotton role to ensure moisture



Figure 1 Pre-restorative photograph showing the fractured incisal edge of central incisor.

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Figure 2 Tooth preparation to receive laminate veneer.

free environment at the cementation surface. Etching was conducted and bonding agents were applied. Before cementing the restoration, the toileting of the preparation surface was conducted. Cementation was conducted using the resin cement of similar shade. Postcementation instructions were given to the patient (figure 5).

OUTCOME AND FOLLOW-UP

Follow-up was conducted after 1 day, 7 day and a month for evaluation of fit and patient's satisfaction regarding functional and aesthetic demands. The patient was satisfied and happy with given restoration. There was no painful response of tooth on percussion.

DISCUSSION

Laminate veneers are considered as one of the most conservative restorative with aesthetic value.¹ Their success rate as aesthetic restoration is around 94–96% proved by long-term clinical study make them restoration of choice where minimal tooth preparation is indicated.²

It is a common belief that endodontically treated teeth are weaker but it is not demonstrated in any experimental study though the moisture content of the endodontically treated teeth is reduced. The laboratory study however demonstrated the similar fractured resistance between the sound teeth and endodontically treated tooth.³ The anterior teeth which are endodontically treated do not always need complete coverage restoration by placing a complete coverage crown; many otherwise intact teeth with no large loss of tooth structure function



Figure 4 Labial surface and cementation surface of the laminate veneer.

well with the partial coverage restoration option available to restorative dentist.⁴

In the present case the tooth was non-vital and discoloured with a fractured incisal edge so it is a clear indication for endodontic therapy which will need definitive aesthetic restoration for the endodontically treated tooth. As the destruction of the tooth structure was not excessive, therefore, full coverage restoration for the tooth was ruled out for the preservation of the natural remaining tooth structure. Various materials are available for the aesthetic restoration of the anterior teeth which requires the aesthetic correction or restoration. The available materials are direct composite resin, ceramic and the recently added the indirect composite resin. The indirect composite is available in a wide range of the shades and specific characterisation is easily performed chair side in operatory area which makes it quick procedure and time saving for both the patient and the dentist. The physical properties and optical properties are good enough to use it as indirect restorative material, so in this particular case it was the material of choice for fabrication of laminate veneer on anterior tooth.

The highly polished surface can be produced on indirect composite resin which makes it self-cleansing and less plaque retentive. This is more gingiva friendly if highly polished.

The main objective of any laminate veneer preparation is the minimum preparation of remaining tooth structure.⁵ The etching of the prepared surface was conducted for the better bonding between the tooth surface and the restoration.⁶ The gingival retraction was performed for evaluation of the marginal fit of the restoration.⁷



Figure 3 Definitive cast.



Figure 5 Postrestoration photograph of the patient.

Learning points

- ▶ Preservation of the tooth structure in any form is important for the betterment of the patient.
- ▶ Laminate veneer is a conservative treatment possibility and should be used whenever and wherever possible.
- ▶ Indirect composite can be the material of choice when loss of tooth structure is less.
- ▶ Indirect composite is economical option to ceramic veneer with comparable aesthetic, physical property and optical property.
- ▶ Indirect composite laminate veneer can be fabricated in office which saves laboratory costing and waiting period for final prosthesis.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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