Case Report

Esthetic rehabilitation with laminate veneers

N. S. Bulbule, B. K. Motwani, A. Tunkiwala, A. J. Pakhan
Sharad Pawar Dental College, Sawangi, Wardha - 442 004, Maharashtra, India

For correspondence
N. S. Bulbule, Department of Prosthodontics, Sharad Pawar Dental College, Sawangi (Meghe), Wardha - 442 004, Maharashtra, India. E-mail: bulbule@yahoo.com

The common man is bombarded by the media extolling the virtues of 'The Perfect Smile.' 'Laminate veneering is a conservative method of restoring the appearance of discolored, malformed anterior teeth.' Two young girls, one with tetracycline stains and the other with midline diastema had reported to the Department of Prosthodontics for esthetic restoration of their anterior teeth. The patient with tetracycline stain was treated with indirect ceramic laminate on maxillary and mandibular anterior teeth. The patient with midline diastema was corrected with direct composite laminate on upper central incisors. The patients were happy with the treatment and enhanced esthetic appearance.

Key words: Esthetic, laminate

INTRODUCTION

The common man is bombarded by the media extolling the virtues of 'The Perfect Smile.' Discolored, unsightly, malposed, malformed anterior teeth and midline diastemas can make the individual psychologically depressed and socially less active. In the 21st century of cosmetic dentistry, discolored, fractured, malformed, malposed teeth can be changed and restored to highly desirable form due to development of wide range of materials and techniques.

Laminate veneering is a conservative method of restoring the appearance of discolored, pitted teeth and teeth with midline diastemas. It provides extremely good esthetic results yet are conservative in nature and alternative to more extensive restorative procedures.

CASE REPORTS

Case 1

A 21-year-young girl had reported to the Department of Prosthodontics with the chief complaint of discolored teeth. She had all maxillary and mandibular teeth discolored with brownish bands of discoloration prominently on the incisal / occlusal third without any pitting or grooves [Figures 1-3]. Because of her young age she was insisting for esthetic correction of her anterior teeth.

The clinical examination and history revealed that the present discoloration were due to tetracycline stains. Radiographic and clinical examination did not reveal any periapical pathological condition, so esthetic correction with more conservative procedure, indirect ceramic laminates for her upper and lower anterior teeth were planned.

Diagnostic impressions were made and diagnostic wax up was carried out [Figure 4]. The teeth were cosmetically contoured and then prepared for laminates as follows [Figure 5].

1. The teeth were prepared for veneer thickness starting with the labial surface using the depth cutting burs from mesioproximal line angle to distoproximal line angle. Three-depth cuts in each cervical, middle and incisal third of the teeth were prepared with the dimension of 0.3, 0.5 and 0.7 mm, respectively.
2. Finish line was established using a long tapered medium or fine grit snub-nosed diamond bur. A definitive chamfer margin (0.3-0.4 mm in depth) was prepared beginning at the height of the free gingival margin and extended towards distal papilla tip and then towards mesial papilla tip.
   The chamfer margin was continued from distal papilla tip to beginning of contact point, far enough lingually to hide veneer margin when viewed from labial side.
   Without breaking the contact from labial side, the finish line was carried from this point to the incisal embrasure, cutting just labial (0.2 mm) to entire contact area.
   Similarly the tooth was prepared on mesial side. After placing the finish line, the land area between the depth cuts was removed.
3. The incisal edges of the teeth were prepared to provide the bulk for the porcelain (0.75-1.5 mm

Figure 1: Preoperative frontal intraoral photograph

Figure 4: Teeth preparations

Figure 2: Diagnostic wax up

Figure 5: Spot etching

Figure 3: Temporary direct composite laminates

Figure 6: Postoperative frontal intraoral photograph

average 1 mm).

The preparations were terminated at linguoincisal line angle. Temporary direct composite laminates were given to reduce sensitivity and for esthetic reasons. Spot etching was carried in an area of 1 mm diameter in the center of each tooth and without applying bonding agent temporary direct composite laminates were given [Figures 6 and 7].

Figure 7: Preoperative frontal intraoral photograph

Figure 10: Preoperative extraoral frontal photograph

Figure 8: Teeth preparations

Figure 11: Postoperative extraoral frontal photograph

Figure 9: Postoperative frontal intraoral photograph

Try in of ceramic laminates

1. All laminates were tried on the model.
2. The intimate adaptation of each laminate to the prepared tooth was checked.
3. The teeth surfaces were first cleaned with slurry of fine flour of pumice.
4. The proximal areas were finished with fine composite finishing strips.
5. Each laminate was individually tried starting from distal tooth.
6. Glycerin was used as temporary luting media for try in.
7. Fit, margins and shade of all laminates were checked.

Final cementation of ceramic laminates

1. Gingival retraction cord was placed to decrease the crevicular fluid flow [Figures 8-10].
2. Silane primer was applied to the etched laminate according to the manufacturer's instruction.
3. The prepared teeth surfaces were etched with 30-37% phosphoric acid for 15-20 s.
4. Bonding agent was applied and cured.
5. Flowable composite resin (Variolink II) was applied to the teeth surfaces.
6. Laminates were placed on teeth surfaces starting

from distal tooth first.
7. Complete seating of laminates on individual tooth was assured.
8. Initially a partial or short polymerization for 5-8 s was carried out.
9. The excess resin was removed.
10. The remaining complete polymerization for each surface was carried out.

Finishing

1. After complete polymerization excess composite was removed.
2. A 30 bladed carbide-finishing bur with a straight emergence profile from the LVS kit was used to remove the excess resin.
3. Excess porcelain margin was re-contoured with a microfine diamond point.
4. A 15-micron grit polishing diamond was then used to refine the interface of tooth, composite and porcelain.
5. The occlusion was refined with microthin articulating film of 0.0008 in.
6. The final finishing of occlusion with 30 bladed carbide bur.
7. The final polishing of the laminate was done with a series of ceramic polishing points and rubber cups with diamond dust impregnated paste.
8. Contact points were checked with dental floss.

Instructions

The patient was instructed for maintenance of laminates and recall appointment were given for weekly intervals to check the tissue response.

Case 2

A 20-year-young girl had reported to the department with the chief complaint of midline diastema. The clinical examination revealed that the patient was having midline diastema a maxillary central incisors and anterior open bite [Figure 11]. Because of her marriageable age prosthodontic correction with direct composite laminates to close her midline diastema was planned. Diagnostic impressions were made. Diagnostic wax up was carried out. During the diagnostic wax up it came to the notice that the subsequent increase in mesiodistal width of the maxillary central incisors to close the diastema was making a wider tooth appearance, so to compensate this, corresponding increase in the cervicoincisal height of the teeth were carried out.

According to the diagnostic wax up teeth were prepared [Figure 14] and direct composite laminates were done to close the diastema and decrease the amount of anterior open bite.

Finishing and polishing was carried out with composite finishing and polishing kit with polishing paste. Instructions were given for maintenance of the laminates and eating habits with these teeth.

DISCUSSION

According to the literature esthetic correction of discolored, pitted, malformed teeth with laminates is a better choice over full coverage restorations.

Direct composite laminates have better polishability. Indirect ceramic laminates appear more polychromatic and natural tooth like because of its closer shade matching. Laminate veneering technique is technique sensitive and requires art and skill to create natural appearance. Proper teeth preparations with proper placement of finish line and utmost care at try in and cementation of laminates can bring esthetically acceptable results. Advancement in the technique, ceramic and composite materials and luting media made it the most accepted treatment for esthetic correction of the anterior teeth over full coverage restorations.

ACKNOWLEDGMENT

Presented at: World Congress on Prosthodontics and 31st Indian Prosthodontic Society Congress, New Delhi, 2003 (Poster presentation).

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Source of Support: Nil, **Conflict of Interest:** None declared.