

Esthetic management of generalized spacing in maxillary anterior dentition by laminate veneers using aesthetic pre-evaluative temporaries - a case report

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Abstract

In day to day clinical practice dental professionals often come across patients seeking aesthetic correction for spaced dentition where orthodontic correction is not feasible due to various reasons. With the recent advances of ceramic and bonding techniques, minimally invasive porcelain laminate veneer has become a suitable alternative to produce natural and lifelike results. This present case report describes a young male patient presenting with spacing between maxillary anterior teeth and was treated with laminate veneer using aesthetic pre-evaluative temporaries (APT).

Key words: anterior spacing, laminate veneer, APT.

Introduction

Appearance is not considered a vanity sign, but literally a need, since face is the exposed area of the body and mouth a prominent line. Smile constitutes an important component in presentation of a human being favoring his/her social appearance. Spacing in anterior teeth is a very common complication. In primary and mixed dentition space can be a normal growth characteristic and it usually gets closed after canine eruption. There can be multiple factors that can cause dental spacing which are mainly divided into physiological and developmental.

Developmental causes: As the development takes place, spacing will be corrected by themselves. There are very few cases that need intervention or surgery for its correction

- (a) Spacing in deciduous/ primary teeth: It is very common in front or anterior teeth but as the child grows and jaw growth occurs it starts to disappear with the eruption of permanent teeth.
- (b) Ugly duckling stage: After the eruption of maxillary centrals and laterals and proceeding eruption of permanent canine at the age of 7- 12 years, spacing appears between upper front teeth. Roots of laterals are pushed mesially and crowns pushed distally by the crown of canine that lead to the space which will be corrected after complete eruption of canine.

Physiological causes

- (a) Thumb sucking: Due to the habit of constant thumb sucking by the kid from the time when permanent teeth start to erupt to 6-7 years, spacing develops in anterior teeth.
- (b) Tongue thrusting: It is a very common cause of spacing in both the maxillary and mandibular anterior teeth. Constant habit of tongue thrusting lead to the increase in space progressively with age.
- (c) Periodontitis: Spacing in adulthood is most probably can be due to lack of oral hygiene or any pathological condition like diabetes, etc. These conditions lead to bone loss around the teeth and movement of teeth which causes spacing.

There are various treatment modalities to close spacing on teeth based on problem, etiology and type of problem¹. Some treatment options to correct dental spacing in teeth:

1. Orthodontic treatment: It is the ideal form treatment in most cases but not preferred by patients because of longer duration of time.

2. Direct and indirect veneers: It is minimally invasive and quickest mode of treatment of dental spacing. In direct veneers, composite is used to match shade of natural tooth. In indirect veneers, porcelain and composite materials are used.
3. Crowns and bridges: It is a more invasive treatment option than the veneers. It is preferred only when spacing cannot be treated by veneers.

Case report

A 28 year old male patient reported to the department with chief complaint of spacing in his anterior teeth and desired to have his teeth corrected esthetically (Fig.1). No relevant medical history was present. Oral hygiene was satisfactory. No caries or periodontal disease was present. On intraoral examination generalized spacing was present in maxillary incisors. Overjet and overbite both were 2mm. Patient was referred to the department of Orthodontics for necessary opinion. Treatment options given to the patient were fixed orthodontic appliance and porcelain laminate veneers and were discussed in detail in terms of treatment, cost, patient affordability, duration of treatment and number of appointments. Patient wanted treatment in shorter duration, so he opted for the PLV option. This article reports a case of spaces in upper incisors that is managed using PLV.

Diagnostic impressions were made using irreversible hydrocolloid during first appointment. Impression was poured using Type III dental stone. Two study models were prepared. On the one set of study model, wax up was done on upper incisors (Fig.2). On the other set, smile designing was done after mock preparations w.r.t 22,21,11,12 and explained to patient. Shade was selected before tooth preparation². Putty index was made using diagnostic wax up for fabrication of Aesthetic pre evaluated temporary (APT). Tooth was prepared minimally (0.5mm) with long, tapered medium grit

diamond. Definitive chamfer margins were prepared gingiva- proximally and on both mesial and distal surfaces^{3,4}. Contacts were cleared. Incisal edges were prepared 1mm on lingual aspect (Fig. 3,4). 2 step polyvinyl impression technique was used to make final impression. Provisionalisation was done using tooth coloured acrylic (Fig. 5). Casts were sent to laboratory. Etching was carried out by HF acid during placement of PLV⁵ 37% hydrophosphoric acid used for etching of tooth. Bonding agent was applied on all prepared teeth surfaced and inner surface of veneer and placed on tooth. Excess was removed and cured for 60 sec⁶. Refinement was done by extra fine diamond points. Final cementation of veneer is done [Fig. 6 (a)&6(b)].

Discussion

As now dental technology is introduced along with the changing patient attitude, dentistry approach to esthetic problems is also changing slowly. PLVR is an excellent restorative material with minimal removal of tooth substance. Most frequently used material for diastema closure are composite resin and porcelain. Diastema of about 1-1.5mm in dimension can be closed with microfilled composite.

Conclusion

In modern dental practice aesthetic rehabilitation with minimum tooth preparation like porcelain laminate veneer is a popular choice for correction of spacing between anterior teeth. If properly executed following correct diagnosis and meticulous treatment planning will enhance aesthetic outcome as well as long term survival of prosthesis.

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Legends Figures



Figure 1: Pre treatment photograph



Figure 2: Diagnostic wax up



Figure 3: Depth cut using three tire bur through APT



Figure 6 (a)



Figure 4: Teeth preparation



Figure 6 (b).

Figures 6(a) & 6 (b) Post-treatment photograph



Figure 5: Provisional restoration