Journal Homepage: -www.journalijar.com
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)
Article DOI:10.21474/IJAR01/7072
DOI URL: http://dx.doi.org/10.21474/IJAR01/7072

RESEARCH ARTICLE

CREATING ESTHETIC SMILE WITH LAMINATE VENEERS – A CASE REPORT.

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Manuscript Info

Manuscript History

Received: 10 March 2018
Final Accepted: 12 April 2018
Published: May 2018

Keywords:-
Anterior spacing, laminate veneers , smile design**.**

Abstract

Dental profession has always been in a constant search of restorations that have a natural looking appearance and at the same time long lasting also. Advances in dental materials has led to the porcelain laminate veneers and bonding materials which has improved the overall quality in esthetic results. This case report describes the case of a patient who presented with spacing in maxillary anterior teeth, was concerned about her facial appearance due to the same and was treated with laminate veneers.

Introduction:-

Today, large number of patients are becoming aware of their dental associated problems and desire to get them treated. One of the problem amoung them is the unesthetic anterior dentition. Dental spacing is one of the common causes for unesthetic smile. It may be due to several factors such as missing teeth, supernumery teeth, microdontia, over retained primary teeth, periodontal disease or due to hypertrophic upper Iip frenum. Advancements in dental ceramic and bonding material has made conservative tooth preparation and restorative procedures possible. Veneer is a layer of tooth colored material that is applied to the tooth to restore localized or generalized defects and intrinsic discolorations. This case report describes prosthetic rehabilitation of a patient with maxillary anterior teeth spacing with laminate veneers.

Case Report:-

A 23 year old female patient reported to the department of Prosthodontics Crown and Bridge, in Dr. R Ahmed Dental College and Hospital, Kolkata, with a chief complaint of spacing in upper anterior teeth and desire to close the space to enhance her smile.(Fig 1) The teeth appeared normal in size & form but with spacing of about 1-2 mm in between maxillary anteriors. (Fig 2) No abnormality was detected in radiographic findings. Firstly, orthodontic treatment option was considered, but due to time constraints patient opted for laminate veneers as it was conservative, less time consuming and showed prompt results.

Primary upper & lower diagnostic impressions were made with irreversible hydrocolloid, alginate impression material (Algitex, DPI, Mumbai) and casts were poured in type III dental stone (Kalabhai). Followed by diagnostic wax up of maxillary anterior teeth to get an idea of the size and form of the teeth after utilizing the spacing. This was shown to the patient for her approval and finally an APT (Aesthetic pre-evaluative temporary) was fabricated out of this diagnostic wax up.

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APT was fabricated using a silicone index made from putty consistency rubber based impression material (Affinis,Coltene Whaledent, NJ), over the diagnostic wax up cast , one for temporarization and other as reduction guide. After this shade selection was done using Vitapan Classical shade guide and A1 shade was selected. In the silicone index, tooth colored acrylic resin was dispensed in the region where laminate veneer was planned and this index was then placed over the unprepared teeth for the intra-oral mock up. Then these aesthetic pre-evaluative temporaries (APT) were evaluated both by dentist and the patient and final consent was taken from the patient.

Minimum preparation was required so; reduction was carried out through the temporaries. Initial depth cut of 0.5mm was given using three tire depth cutting bur for labial reduction.(Fig 3) Once the desired depth is achieved, the facial surface of tooth is marked with Hb lead pencil to enhance contrast between prepared and unprepared tooth portion and then the remaining part of APT is removed. These marked horizontal lines will remain marked until the desired depth of labial reduction is uniformly achieved using tapered round end fissure bur.(Fig 4)

Supragingival deep chamfer finish margin is produced which preserves tooth structure. Inter-proximal reduction is carried out in such a way that the contact point is preserved. Window preparation is done in which 1mm incisal edge is preserved. (Fig 5) It is the most conservative preparation out of all preparations. All the corners and line angles are rounded, as it reduces internal stresses.

Then stock metal tray was selected and vinyl polysiloxane impression material of putty and light body consistency was used to make single step double mix impression (Affinis,ColteneWhaledent, NJ), to get details of the tooth preparation. Impression was kept in place till it was completely set.

Impression was removed from the mouth and then rinsed, inspected and finally disinfected with 2% gluteraldehyde solution and sent to the laboratory for fabrication of laminate veneers along with mock up and pictures of aesthetic pre-evaluative temporaries. The technician was also instructed for the shade of veneers.

Another set of provisional laminates were prepared using tooth colored acrylic material in the prepared silicone index.(Fig 6) These laminates were then finished, polished and luted to the teeth with composite resin after spot etching.

Luting Of Laminate Veneers:-

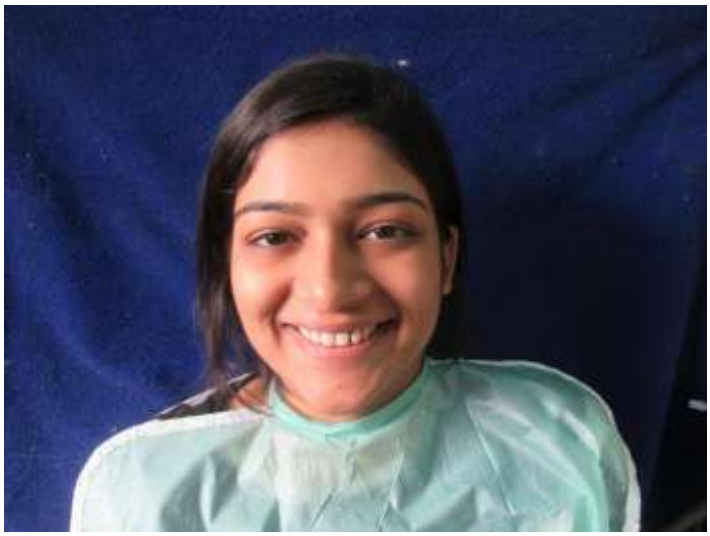
Before luting of the laminate veneers, bisque trial was done for checking their fit, form, position and shade. After this veneers were sent to laboratory for glazing. In next appointment, provisional laminates were removed. The surface of the prepared teeth were cleaned and pumiced to remove any remnants of provisional luting cements. Laminates were then tried and once these were found satisfactory by the patient, they were finally begun to lute with resin cement.

The inner surfaces of the veneers were etched, using 5% hydrofluoric acid for 20 seconds, and rinsed thoroughly, while the teeth surfaces were etched using 37% phosphoric acid for 15 seconds and rinsed. Veneers were air dried, and silane coupling agent (Monobond N, IvoclarVivadent) was applied over the etched surface for 60 seconds. The teeth were coated with bonding agent, and air dried. Resin cement layer was coated over the veneers.Veneers were positioned from the cervical finish margin to the incisal edge for proper fitting. The luting procedures were carried out initially over the central incisors, followed by lateral incisors, and finally the canines.(Fig 7)

A short light curing of 5 seconds was done initially to stabilize the position of the laminate and excess cement was removed. Inter dental cement was removed using dental floss. Later final curing was carried out for 60 seconds. After luting of all six veneers, finishing was done with superfine yellow band bur, followed by abrasive disks (Shofu, Super snap rainbow kit). Patient was satisfied with the outcome of the treatment.(Fig 8) She was recalled for follow up after 1 week, 1 month and 6 months and veneers were functioning satisfactorily.

Maintainence:-

Patient is advised to do routine brushing and flossing, use non abrasive toothpaste and patient is especially told not to bite anything hard on the restorations as any extreme force, can potentially cause the porcelain veneers to crack or separate from teeth.



(Fig 1) Pre treatment extra-oral photograph

(Fig 2) Pre treatment intra-oral photograph

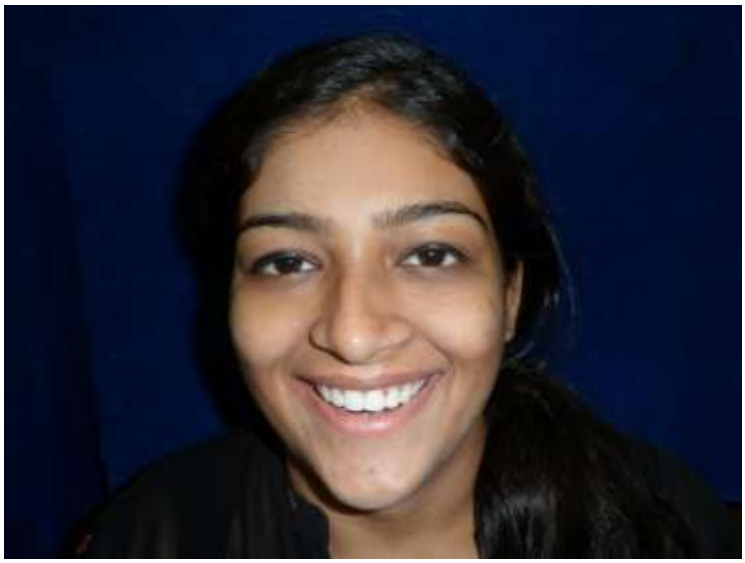
(Fig 3) Depth cut using three tier bur through APT

(Fig 4) Horizontal lines placed with Hb pencil in depth cut

(Fig 5) Window tooth preparation

(Fig 6) Provisional restoration fabricated from the putty index

(Fig 7) Post treatment intra-oral photograph



(Fig 8) Post treatment extra-oral photograph

Discussion:-

There are several options for treating anterior spaces such as composite restorations, full veneer crown, laminates. But, laminates are the most conservative option with minimum tooth preparation and have the advantage of resistance to discoloration unlike composites.

Treating patient with porcelain laminates using aesthetic pre-evaluative temporaries helped both dentist and the patient to visualize and analyze the final outcome, which saved the chair side time and also helps to preserve the enamel to get more effective bonding between laminates and tooth surface using resin cement.

The veneers were fabricated from Lithium Disilicate ceramic in this case which have high translucency and strength compared to low fusing feldspathic porcelain.

Conclusion:-

In today's Dental Practice, the concept of minimal invasive procedure for preservation of tooth structure, laminate veneers would be the ideal choice for restoring spacing between anterior teeth. If properly executed, following a

strict protocol of evaluation, pre evaluative temporarization, tooth preparation, properly selected all ceramic material, bonding, will enhance the aesthetic outcome and long term success can be achieved.

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