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COUNTOURING CROWNS ESTHETICALLY TO CLOSE DIASTEMA

Dental Science

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ABSTRACT

Most common complaints about spacing seen in maxillary anterior teeth . Etiology for midline diastema could be due to labial frenulum, microdontia, mesiodens, peg-shaped lateral incisors, agenesis, cysts, habits such as finger sucking, tongue thrusting, or lip sucking, dental malformations[1]. Advantage of direct resin restoration over porcelain restoration is that the clinician is able to maintain control and customize the material throughout the procedure with the consideration of physiological and economical limitations[2].

KEYWORDS

Midline Diastema , Composite Resign, Porcelain.

Introduction:-

Diastema are spaces of varying magnitude between the crowns of fully erupted maxillary and mandibular teeth. Anterior diastema compromises the harmony of a patient's smile[3]. Diastema also affects speech of the patients. Patients visits a dental office with the aim of having their diastema closed in order to fulfill their psychological (aesthetic and beauty enhancement), functional (pronunciation of 'f' and 's' sounds)problems. Direct composite resin restoration, porcelain laminate veneer and crowns are good treatment option for correcting anterior diastema[4]. In cosmetic treatment direct bonding restorative technique re-presents the preferred therapeutic option. Restorative method with composite resin is the least invasive, economical and esthetic treatment that can be done in a single visit[5].

Case Report:-

Female Patient of 21 years old comes with a chief complaint of spacing in her front teeth (Figure 1,2). On oral examination spacing seen from 23 to 13(Figure 3, 4). It was about 0.5mm spacing between 11-12, 11-21,21-22 & 1mm spacing between maxillary canine and lateral incisors on both side

Figure 1: Buccal Profile

Figure 2: Palatal Profile

Figure 3 : Left Profile

Figure 4: Right Profile

Treatment plan :

The patient did ot want to undergo orthodontic treatment.The option of closing the diastema with resin composite was presented to the patient. The patient agreed to the treatment following which shade selection was carried out cotton rolls were used to keep the operating area dry and free of contamination. Gingival retracting cord(sure-cord,0: sure-endo) was tucked in the gingival crevices of each tooth. A small piece of temporary composite (mock-up)was placed to determine the proper position of the contact point.

Procedure :

Mesial aspect of 11 was roughened with a diamond bur.Matrix band was placed around the adjacent teeth before etching. The enamel was acid etched for 10 seconds. After washing the etchant, tooth was blot dried and bonding agent(One coat Bond SL, Coltene) was applied with an applicator tip and light cured.Small increments of composite (Filtek Z250 XT, nanocomposite A2) were placed and contoured with the help of maylar strip to ensure optimal contour and identical width of the teeth. Finishing and polishing was carried out using finishing disc and finishing cups (blaze ; Medicept dental).Procedure was repeated on the mesial and distal surface of 12,21,22 and only on the mesial surface of 13 and 23. Nanohybrid composite was used because of its good handling properties and shade matching. Incremental technique was performed to improve the esthetic of the filling and the integration of the composite with tooth tissue. After closing the space between the teeth final finishing and polishing was done using finishing bur, finishing disc and finishing cups (Figure 5).

BEFORE **AFTER**

Discussion:

As Goldstein states, "Esthetic dentistry is the art of dentistry in its purest form[6]." One of the greatest assets a person can have is a smile that shows beautiful natural teeth[7]. When teeth are discolored, malformed, crooked, or missing there is often a conscious effort to avoid smiling and individual tries to cover up their teeth[8]. Correction of these type of dental problems can produce dramatic change in appearance which often results in improved confidence, personality, and social life[9].The restoration of smile is one of the most gratifying and appreciated services a dentist can render. Patients demand for aesthetic with minimally invasive procedure has resulted in the extensive utilization of freehand bonding of composite resin to anterior teeth[10].

Freehand direct resin composite provides an esthetic and conservative approach for closing diastema[11].

Advantages for direct composite restorations[5] :

- Conservation of tooth structure.
- Reversibility of procedure.
- Lower cost to patient.
- Relative ease of addition or removal of material when required.
- Clinician is able to maintain control and customize the material throughout the procedure.
- Closing diastema at one visit.
- Color shape and tooth position can be corrected at once.
- Correction can be done immediately.

Indirect technique generally requires multiple visits to enable proper placement of the laminates, crowns or bridgework and such procedure involves significant financial expenses[4]. In direct technique if the patient is not happy with the outcome, the restoration can be removed without damaging the tooth structure[12]. Also the cost of the treatment is very less in comparison with other treatment option like orthodontics treatment, veneers and crown[13].Time taken to close the gap is also less and can be done in single visit whereas orthodontic treatment will take few months to years.

Other advantage of a direct resin restoration over porcelain restoration is that the clinician is able to maintain control and customize the material throughout the procedure[14]. With porcelain, any modification means return to the lab for correction. There are variety of composite materials to choose from including microfills, hybrid, Microhybrid, and nanotechnology materials.When choosing the shade of the composite for restoration the hue, chroma and value should be checked. Hue is the name of the color or the basic shade. Chroma is the intensity of the color or the degree of hue saturation. Value is most important. It distinguishes light color from the dark color. It can be defined as the brightness of the color[15].

The restorative material used had nanoparticles. The materials with nanoparticles provide a smoother surface and therefore also favor the outcome after polishing and brushing procedures. Nanoparticulated composite resins tend to show a smaller brightness loss and smaller increasing of the superficial rigidity as time goes by. Additionally, these composites have also showed smaller solubility values, which can favor the restoration longevity.They also exhibit improved physical and optical properties rendering them ideal material to facilitate restoration that are indistinguishable from the natural dentition[16].

Conclusion:

A beautiful smile seems to reflect a certain style of living and the enhancement of facial beauty is one of the primary goals of patients seeking elective dental treatment. A well-designed smile is a product of consolidate effort accomplished by accurately diagnosed, methodical treatment planning, use of advanced materials and contemporary techniques rendered by the dentist.

Conflict of Interests

The authors of this paper declare that there is no conflict of interests regarding the publication of this paper.

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