

Designing Smiles Through Injection Molding...

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Freedom is the oxygen of soul that exhales confidence.

We are living in the world of beauty where everyone thinks that others are sailing in the boat of graceful smiles...and desires to own one for them self.

Each one of us have the right to wear that beautiful smile.....absence of which pulls us back leaving us underconfident and reversing the smile curve. Even a small correction by the dentist puts a jewel of happiness, confidence and smile back on our face and person rejoices life as a new personality.

A shy , underconfident female patient of age 44 years visited our clinic to fill the spaces present between her teeth which was a hindrance to her full smile.

Patient wanted to close the triangular spaces present near the gums and get her treatment done within her economic limits.

O/E – Generalized gingivitis and localized periodontitis w.r.t maxillary and mandibular anteriors .

Treatment plan – Thorough scaling and root planning

Cervical embrasure closure using composite resin (the most economic option).



Fig 1(1A, 1B, 1C) – PRE-OPERATIVE FRONT, RIGHT LATERAL, LEFT LATERAL VIEWS IN OCCLUSION.



Fig 2(2A,2B,2C) – PRE-OPERATIVE RETRACTED FRONT, RIGHT LATERAL, LEFT LATERAL VIEWS SHOWING GINGIVAL RECESSON AND EMPTY EMBRASURE SPACES.

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FIG 3(3A,3B,3C) – PRE-OPERATIVE RETRACTED FRONT, RIGHT LATERAL .LEFT LATERAL VIEWS



FIG 4- (4A, 4B) PRE OPERATIVE OCCLUSAL VIEWS



FIG 5(5A,5B,5C,5D,5E)- FIVE STAGES OF INCREASING SMILES.

Execution of treatment -As the patient was ready to undergo the treatment plan mentioned above, a thorough prophylaxis preceded the treatment followed by maxillary and mandibular impressions made in condensation silicone (ZETAPLUS, ZERMACK). The models were prepared in die stone and sent to the laboratory for execution of wax up with all the required morphological details and characterization as the same will be registered in clear silicone index (EXACLEAR GC). The lab technician was also instructed to make EVA (Ethylene Vinyl Acetate) trays for making clear silicon index. These trays were fabricated for Maxillary as well as Mandibular anterior segment respectively.

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The point to be considered here is that, clearance of 3 to 3.5 mm should be maintained from the wax up so that later this space will be occupied by the Clear Silicon Material.

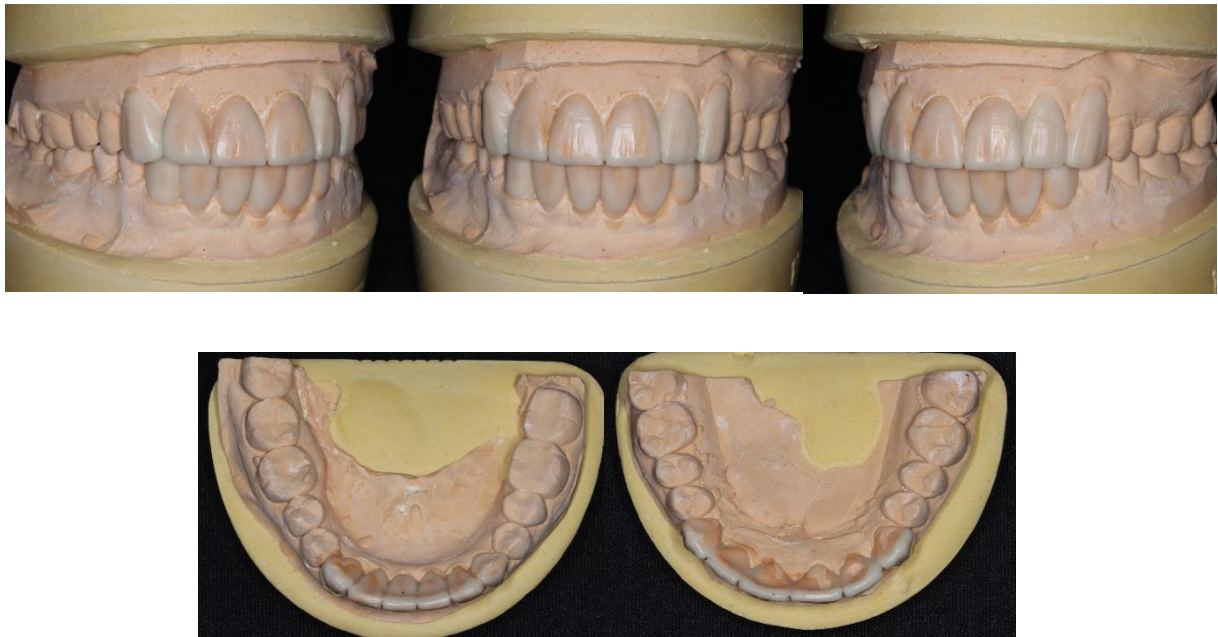


FIG 6 (6A,6B,6C,6D,6E) – RIGHT LATERAL,FRONT, LEFT LATERAL WAX UP AND MAXILLARY AND MANDIBULAR OCCLUSAL VIEWS.

After receiving these wax-up models and EVA trays from the lab we proceeded to prepare Clear Silicon Index. For this first, models were immersed in water for 5-10 mins. After taking out models from the water small amount of clear silicon is injected all over the waxed-up area without lifting the tip of syringe which will avoid air entrapment in the Clear Silicon Index. Also some clear silicon material is injected on the intaglio surface of EVA tray. This tray is then adapted over the models with a gentle pressure so that the excess material flows out, maintaining the thickness of 3-3.5 mm all over surfaces.. These trays are now set aside for 5-7 mins to allow complete polymerization of the Clear silicon material. Once the polymerization is complete, the EVA trays are separated from the Index and the excess material is removed with 12 no. blade . Now the Indices are checked for fit on the models. Once the fit is approved, the Vent Holes are prepared using a taper fissure diamond

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bur(TF13) on the incisal edges, so that through these holes the tip of the flowable syringe can be inserted.



FIG 7 (7A,7B) – CLEAR SILICON INDICES FOR MAXILLARY AND MANDIBULAR ARCHES USING EVA TRAYS.



FIG 8(8A,8B) – VENT HOLES IN THE INDEX FOR INSERTING THE TIP OF THE SYRINGE

Now this is the time to replicate the wax-up details intraorally. When the patient arrives, the tray fit is checked.

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FIG 9 -FIT CHECK INTRAORALLY

After the intraoral try-in of the index , we go ahead with the following steps :

- The superficial prism less enamel is removed using Coarse Disc (Red Sof-Lex 3M).
- Application of Split Rubber Dam.
- Isolating the set of alternate teeth with Teflon tape
- Acid etching of enamel with 37% phosphoric acid for 15-20 seconds.
- Rinsing off the etchant with water for 15 seconds
- Observe the frosty white appearance of Enamel.
- Application of bonding agent /adhesive
- Application of modeling resin on the intaglio surface of the clear silicone index to increase the wettability
- This assembly is carried intraorally and the tip of the flowable composite is inserted through the vent holes till the depth of the space .
- Now the flowable material is injected slowly, as the index is translucent ..one can easily see the occupance of the space with composite resin
- Slowly start withdrawing the tip..which will avoid air bubble entrapment .
- If there is any air bubble entrapped this is the perfect time to remove it by rotating the tip of the flowable composite in the direction opposite to the air bubble , slowly the air bubble will flow out of the space
- Once we are completely satisfied with well occupied restoration ,this is cured for 15-20 seconds from all the sides.
- Now the index is separated from the oral cavity and any excess composite resin is removed with 12 no. blade.
- The finishing is carried out with 30 fluted long tapered carbide bur and the proximal sides are finished with Sof-Lex finishing stipes(3M ESPE)
- Now the final polishing protocol is carried out using composite finishing and polishing kit (Astropol composite finishing and polishing kit, Ivoclar & Spiral ,Dentsply)
- Now the same procedure is carried out on the remaining alternate teeth set.

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FIG 10(10A ,10B,10C,10D,10E) – ISOLATION OF ALTERNATE TEETH WITH TEFLON ie. 12,21,23 , ETCHING, FROSTY WHITE APPEARANCE OF ENAMEL, BONDING w.r.t. 13,11,22,APPLICATION OF MODELING RESIN ON THE INTAGLIO SURFACE OF INDEX RESPECTIVELY



FIG 11(11A,11B) – INSERTION OF SYRINGE TIP AND INJECTING THROUGH VENT HOLES FOR COMPOSITE RESTORATION .

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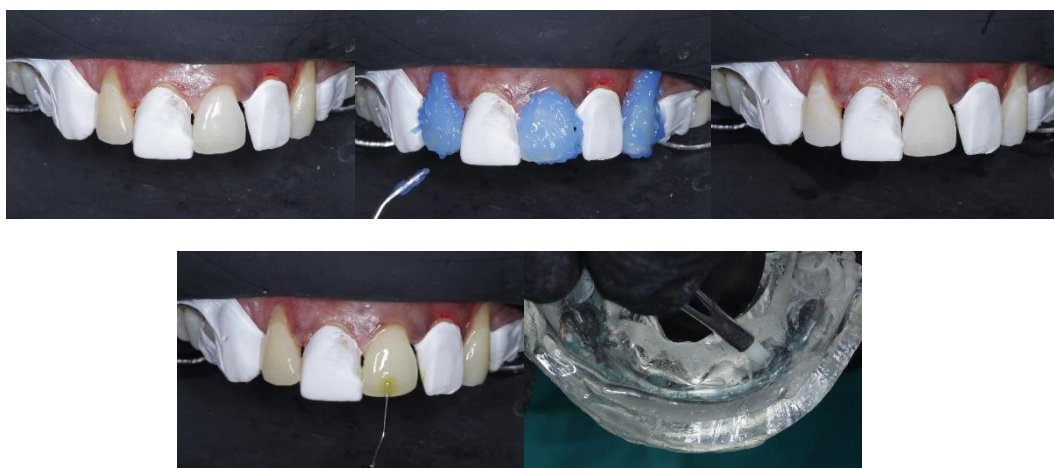


FIG 12(12A,12B) – SEPERATION OF THE INDEX FROM THE TEETH AFTER CURING



FIG 13(13A,13B) – FINISHING OF COMPOSITE RESTORATION WITH COURSE AND FINE SOF-LEX FINISHING (3M ESPE) STRIPES.

NOW, we repeat the same on the alternate teeth as well



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FIG 14 (14A,14B,14C,14D,14E) – ISOLATION OF ALTERNATE SET OF TEETH WITH TEFLON W.R.T 13,11,22 , ETCHING, FROSTY WHITE APPEARANCE OF THE ENAMEL, BONDING WITH 12,21,23, APPLICATION OF MODELING RESIN ON THE INTAGLIO SURFACE OF INDEX RESPECTIVELY.



FIG 15 (15A,15B,15C) – INSERTION OF SYRINGE TIP , FILLING WITH COMPOSITE RESIN , AFTER SEPERATION OF THE INDEX RESPECTIVELY



FIG -16 (16A,16B,16C) – POST OPERATIVE FRONT ,RIGHT LATERAL, LEFT LATERAL AND OCCLUSAL VIEWS.

The same set of steps are repeated for the mandibular arch .



FIG 17 (17A,17B,17C) - PRE OPERATIVE FRONT ,RIGHT LATERAL, LEFT LATERAL VIEWS.

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FIG 18 -FIT CHECK INTRAORALLY



FIG 19 (19A,19B,19C,19D) - ISOLATION OF ALTERNATE TEETH WITH TEFLON
ie.42,31,33 , ETCHING, FROSTY APPEARANCE, BONDING w.r.t. 43,41,32, MODELING RESIN ON THE
INTAGLIO SURFACE OF INDEX RESPECTIVELY



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FIG 20 (20A,20B,20C) – INSERTION OF SYRINGE TIP , INJECTING FLOWABLE COMPOSITE RESIN , AFTER SEPERATION OF THE SILICON INDEX RESPECTIVELY.



FIG 21 (21A,21B,21C,21D,21E) – ISOLATION OF ALTERNATE SET OF TEETH WITH TEFLON W.R.T 43,41,32 , ETCHING, FROSTY APPEARANCE, BONDING WITH 42,31,33, MODELING RESIN ON THE INTAGLIO SURFACE OF INDEX RESPECTIVELY.



FIG 22 (22A,22B,22C) – INSERTION OF SYRINGE TIP , INJECTING FLOWABLE COMPOSITE RESIN , AFTER SEPERATION OF THE SILICON INDEX RESPECTIVELY.



FIG 23 (23A,23B) IMMEDIET POST OPERATIVE FRONT AND OCCLUSAL VIEW.

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As this flowable composite is cured through the vacuum inside the Clear Silicon Index, the monomer will have a good degree of conversion and the problem of oxygen inhibition layer is also resolved. In turn the restoration thus obtained will have good physical properties.

Now the final polishing protocol is carried out using composite finishing and polishing kit (Astropol composite finishing and polishing kit, Ivoclar & Spiral ,Dentsply)



FIG 24 (24A,24B,24C) IMMEDIET POST OPERATIVE FRONT ,RIGHT AND LEFT LATERAL VIEWS.



FIG 25(25A,25B,25C,25D,25E)- FIVE STAGES OF INCREASING SMILES.

Fulfilment of desire is confidence; it shows up in every single moment of smile. Beauty begins the moment you decide to be yourself, once you start believing, magic starts happening. Your energy will introduce you before you even speak, lighting your face with the aura of confidence. The sparkling smile jewels the face which is revealed in following photographs of happy patient.

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FIG 26 (26A,26B,26C,26D)- THE BLISS.

THANK YOU !!!