

# Space Closure In Lower Anteriors - A Minimally Invasive Approach With Directs



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## KEYNOTE SPEAKER

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*Dr. Kaunain Merchant, she has done her BDS from the prestigious D. Y. Patil School of Dentistry and has been practicing Restorative and Aesthetic Dentistry with Dr Gulati's centre, Gums n Smiles Dental. She has undertaken a number of programs in Aesthetic and Restorative Dentistry and also devotes her time in helping run Synqronize Education.*

### Chief Complaint & Case History

45 year old male presented with generalized spacing in between lower anteriors & besides that he wasn't too happy with the size and shape of the same. He enquired if there was a conservative way to restore aesthetics in the area.

### Clinical Evaluation

1. Clinical evaluation revealed Class III occlusion with a crossbite.
2. Facial evaluation during speech & smile revealed greater display of lower anteriors compared to upper anteriors, as a consequence of lower jaw prominence.
3. Intraoral examination revealed almost uniform diastemas between teeth nos. #31, #32, #41 & #42 (Fig.1)
4. Gingival & periodontal health appeared good with no mobility and signs of trauma from occlusion.
5. Occlusion was evaluated in centric and functional movements.
6. Though a cross-bite was noted but no occlusal contacts were noticed in centric and eccentric mandibular movements.
7. Patients oral hygiene maintenance was found to be satisfactory.



Fig. 1

### Treatment Plan & Execution

Multiple options, including orthodontics were discussed with patient. After thorough deliberations, decision was taken to go ahead with direct bonding procedure with composite resins to close the diastemas & restore aesthetics in the area.

Routine prophylaxis and thorough polishing was done with pumice slurry and not commercially available polishing paste.

It was decided to take up the bonding procedure employing natural layering technique using body & enamel shades from Beautifil –II range of composites from **Shofu Inc., Japan**.

Vita classical shade guide was used for preliminary shade selection and shade tab A2 appeared to be the closest match to the teeth to be restored (Fig. 2). Accordingly Beautifil-II A2 was selected as the body shade for the proximal build-ups. Gauging the translucency of the teeth, decision was made to use T – Enamel (Translucent-Enamel) from Beautifil-Enamel range of composites (**Shofu Inc., Japan**)



Fig. 2

Teeth were then isolated using rubber dam & margins of the dam were everted (Fig. 3). Super-Snap finishing discs (**Shofu Inc. Japan**) medium coarse & fine (Purple & Pink) were used to minimally prepare the proximal surfaces and give long bevels from proximal to the facial surfaces of four anterior teeth (Fig. 4 & 5). Teeth were acid

etched with 37 % phosphoric acid (**Etch-Rite from Pulpdent,USA**) for 20 seconds (Fig. 6), rinsed thoroughly with water and blotted with small cotton pellets. Light cure self-etching one component dental adhesive (**BEAUTIBOND – Shofu Inc., Japan**) was applied on the etched surfaces to achieve a thin homogenous glossy surface. The bonding agent was air-dried after 10 seconds, post which it was photocured for 10 seconds with LED photocuring gun (Fig. 7).



Fig. 3



Fig. 4



Fig. 5

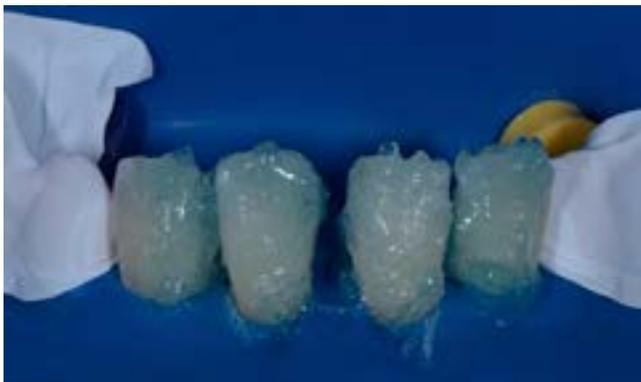


Fig. 6



Fig. 7

Free hand technique was used to create the lingual shell using T-Enamel shade (**Beautiful-Enamel, Shofu Inc.**) (Fig. 8). Single body shade A2 (**Beautiful II, Shofu Inc.**) (Fig. 9) was used for layering the bulk of the body on the proximal surfaces and no. 1 synthetic hair brush (Fig. 10) was used to even out the layered composite and for blending on the bevels created on the facial surfaces.



Fig. 8



Fig. 9

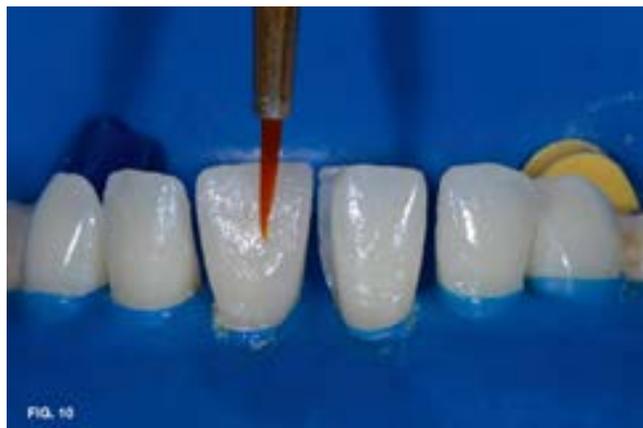


Fig. 10

After layering body shade, T- Enamel shade (**Beautiful-Enamel**) was layered and blended in the same manner. Each increment was photocured for 20 seconds. Teflon matrix was used to prevent bonding of proximal surfaces while working on adjacent teeth (Fig. 11). After layering & photocuring composites in all three diastemas among lower anterior teeth (Fig. 12, 13 & 14), a water based transparent gel was placed on the teeth (Fig. 15) & each area was photocured again for 20 seconds to cure the oxygen inhibited surface layer. The gel was thoroughly washed and rubber dam was then removed.



Fig. 11



Fig. 12



Fig. 13



Fig. 14



Fig. 15

### Finishing & Polishing

The finishing of the restorations was started with TR-11EF finishing diamond bur (**Mani Inc., Japan**) in air turbine to remove any overhangs in cervical area, followed by TR-12F diamond bur (**Mani Inc., Japan**) (Fig. 16) in a slow speed handpiece to do finishing of facial surfaces and to define macro & micro anatomy.



Fig. 16

A No. 12 surgical blade (Fig. 17) & Super-Snap finishing strips (**Shofu Inc., Japan**) (Fig.18 & 19) were used for finishing the proximal embrassure areas.



Fig. 17



Fig. 18



Fig. 19

The patient was recalled after 2 days (Fig. 20) for final finishing & polishing, with the following protocol. Super-Snap finishing & polishing discs & strips (**Shofu-Inc., Japan**) were used for contouring & finishing of proximal & cervical areas (Fig. 21, 22 & 23) & One-Gloss (**Shofu-Inc., Japan**) was used with gentle pressure on slow speed handpiece for fine finishing of the restorations (Fig. 24 & 25).



Fig. 20



Fig. 21



Fig. 22



Fig. 23



Fig. 24



Fig. 25

High gloss polishing was achieved with alumina oxide impregnated Super-Buff (**Shofu Inc., Japan**) polishing system (Fig. 26 & 27).



Fig. 26



Fig. 27

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Patient was quite satisfied with the overall result & was given thorough instructions in oral hygiene maintenance & 6 monthly recalls.

In conclusion, composite resins can provide very predictable and minimally invasive treatment options in situations like these and can serve as a good alternative where other treatment options like orthodontics are not acceptable to certain segment of patients due to age and time related factors.