

The smile enhancement with no preparation or minimal teeth preparation and Lithium Disilicate veneers/ A case report.

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The minimally invasive treatment has always been the choice of treatment for the patients. Many of the dental procedures are now been implemented with innovations to make them almost non-invasive.

Presenting a case of a 25 years old girl, desiring for getting the front teeth gaps closed, she also had history of past orthodontic treatment of more than 2 year , and she realised that after the active and passive phase of her ortho treatment her initial complains were unattended, and now wanted an alternative approach to close the spaces with minimal damage to the teeth.

On Clinical Examination:

We could find

- Diastema in all her maxillary anterior teeth.
- Missing maxillary right lateral incisor(12).
- Composite residue (ortho appliance debonding) were seen on 11,13,21,23.
- Coronally placed gingival zenith in relation to 12 and 21.

After this examination the following treatment plan was proposed.

Treatment plan:

Smile correction included

- Laser assisted frenectomy and Gingival zenith correction.
- Implant supported restoration in 12.
- No preparation ceramic laminates with 11,13,21,22and 23.

Patient preferred for an option without implant due to financial reasons.

The final treatment protocol presented was placing the bridge with respect to missing 12.

The preoperative profile pictures were recorded to asses the present conditions shown in Fig A1, at the same time the maxillary arch retracted views and in occlusion views were recorded (Fig A2,A3,A4 and A5,A6,A7) The 12o'clock view and a moderate smile view(to asses the usual display of her teeth) were also recorded (Fig. A8,A9) .These photographs revealed the left over composite on the buccal surface of maxillary anteriors after previous ortho treatment.

Fig. A1. Profile views.





Fig A2. Front profile picture of the patient showing anterior teeth diastema and composite residue on 11,13,21 and 23 of previous orthodontic treatment.



Fig A3. Right lateral profile view showing missing maxillary right lateral incisor.



Fig. A4. Left lateral profile view.



Fig.A5. Front profile picture of the patient showing anterior teeth diastema and composite residue on 11,13,21 and 23 of previous orthodontic treatment



Fig A6. Right lateral profile view.



Fig. A7. Left lateral profile view.



Fig. A8. Occlusal view.



Fig. A9. Moderate smile view.

This was followed by the shade selection and the impressions of maxillary and mandibular arches using Poly ether impression material (3M ESPE, Monophase.) and working models were prepared in stone plaster and wax-up was done according to the planned treatment. (Fig. A10, A11)



Fig. A10. Shade selection.



Fig. A11 Wax-up model for trial run.

The procedure of Laser assisted gingival zenith correction was done using Picasso

2.5 w. Laser (Fig 12). The putty index was made (3M ESPE soft putty) (Fig.13) and same was transferred intraorally using Bis acryl material (3 M Protemp 4) (Fig B1, B2, B3)



Fig. A12 Shows the Laser assisted frenectomy and gingival zenith correction.



Fig. A13 Putty index prepared for transfer of smile trial run intraorally.



Fig B1



Fig. B2

Fig. B3.



Fig B1, B2, B3 Shows front, right lateral and left lateral views for transferred putty index intraorally with Porotemp 4. (The trial run.)

As the patient opted for non-implant procedure the teeth 11,13 were minimally prepared (using DIATECH Coltene,856,018,8F red ring bur and 0.3 mm depth cut bur, blue ring) and 21,22 and 23 were left unprepared. The enamel surface was smoothed using 3M soflex discs. And impression was made in polyether material and patient was relieved after providing the temporaries. (Fig. B4, B5 A and B, B6)

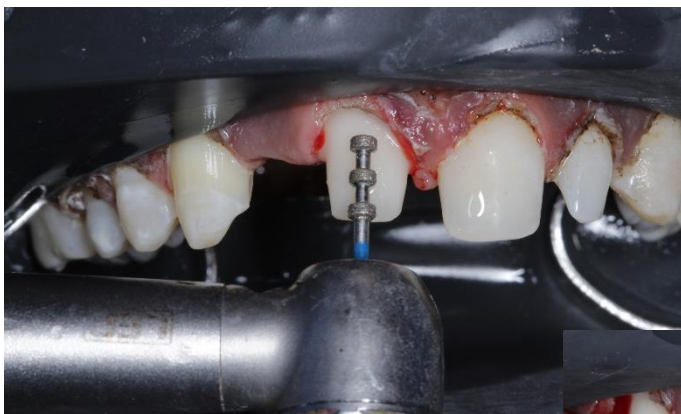


Fig. B4 Prepping through the temporaries for the bridge on 11,12,13, using LI-DI-SI.

Fig B5 A finishing the preparation using red soflex disc 3M, ESPE.





Fig. B5 B. Completed tooth preparation for 11,13 and IDS is done.



Fig. B6 Impression of prepped teeth is made in polyether impression material.

Fig. B7 Smile of the patient with temporaries on.



As the wax mock-up was prepared on the model on preoperative conditions, Laser assisted gingival zenith corrections created the space cervical to temporaries, which was later restored using light cure composite (3M Z350 A2). (Fig B8, B9, B10)



Fig. B8



Fig. B9



Fig. B10

Fig. B8, B9, B10 Shows the temporaries been extended cervically with composite to cover exposed margins after gingivoplasty.

The impressions were sent to the lab for preparing the LI-Di-SI laminates and veneers on 21,22,32 which were as thin to be compared with the eye contact lenses and the bridge for 11,12 and 13. After receiving the prosthesis it was first checked for its proper fit on the models and same is tried intraorally. (Fig C1, C2, C3, C4, C5.)



Fig. C1



Fig. C2



Fig. C3

Fig. C1, C2, C3 Shows LI-DI-SI ceramic art retrieved from Laboratory.



Fig. C4 Captured
Ceramic art glamour.

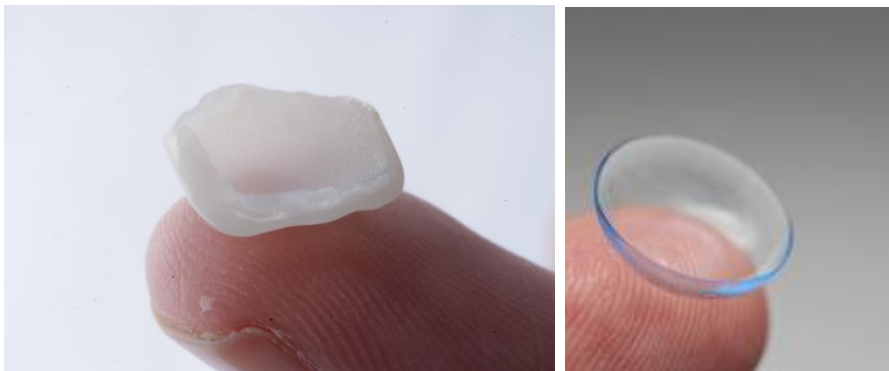


Fig C5 thin LI-Di-Si
prepress prosthesis
resembling contact
lens.

After trial the teeth were isolated using rubber dam and proceeded for cementation as follows.

The ceramic art was made ready for cementation in following steps. (Fig C6, C7, C8, C9)

- etching the ceramic art using 5% Hydrofluoric acid for 20 seconds, (Vivadent Ivoclar, Ceramic etching gel.)
- followed by drying and
- applying silane coupling agent for 120 sec (Monobond Plus, Vivadent Ivoclar). And
- bonding with dual cure bonding agent (Clearfill SE,Wizdent, Kurrare,Japan).



Fig. C6

Fig. C7



Fig. C8



Fig. C9



Fig. C7,8,9 Shows etching the ceramic art using 5% Hydrofluoric acid for 20 seconds, followed by drying and applying silane coupling agent for 120 sec. and bonding with dual cure bonding agent.

The steps followed for making the teeth ready for receiving the ceramic art:

- The teeth Two-week post-op after laser frenectomy.
- Split dam isolation followed by
- etching with 35% phosphoric acid for 20secs
- Rinsing off the etching gel and drying, appreciate the frosty appearance of the enamel,
- bonding with dual cure bonding agent and
- cementation with dual cure adhesive cement of the LI-DI-SI bridge on 11,12,13 (Ivoclar Veriolink).
- This last layer is cured through the transparent gel (Liquid strip, Ivoclar) to remove the oxygen inhibition layer.

(Fig C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20)



Fig. C10.

Fig. C11



Fig. C12



Fig. C13



Fig. C14



Fig. C15



Fig. C16



Fig. C17



Fig. C18

After the complete excess removal, the case was observed for any high points. All the excursive movements were checked and stable occlusion was observed. (Fig

Fig. C19



Fig. C20



Fig C 10 Two-week post-op after laser frenectomy

Fig C11 ,12,13,14,15 Split dam isolation followed by etching with 35% phosphoric acid, the frosty appearance, bonding with dual cure bonding agent and cementation with dual cure adhesive cement of the LI-DI-SI bridge on 11,12,13

Fig C 16,17,18 Shows bonding and cementation of 21,22,23.

Fig C 19 Application and curing through the KY Jelly to take care of the oxygen inhibition layer.

Fig C20 immediate post-op.

Finally patient was happy to receive the smile of desire.

Fig. C 21



Fig. C 22



Fig. C 23



Fig 21,22,23 Final post-ops after removal of rubber dam.



Fig. C 24



Fig. C 25



Fig 26

Fig. 24,25,26 shows post-op occlusal views in right lateral, left lateral and frontal views.

Fig C 27 Shows pre-op. occlusal view.



Fig. 28 Shows post-op. occlusal view.





Fig. 29 Pre-op. Twelve o'clock view.

Fig.30 Post-op Twelve o'clock view.





Fig. 31 Dental glamour.

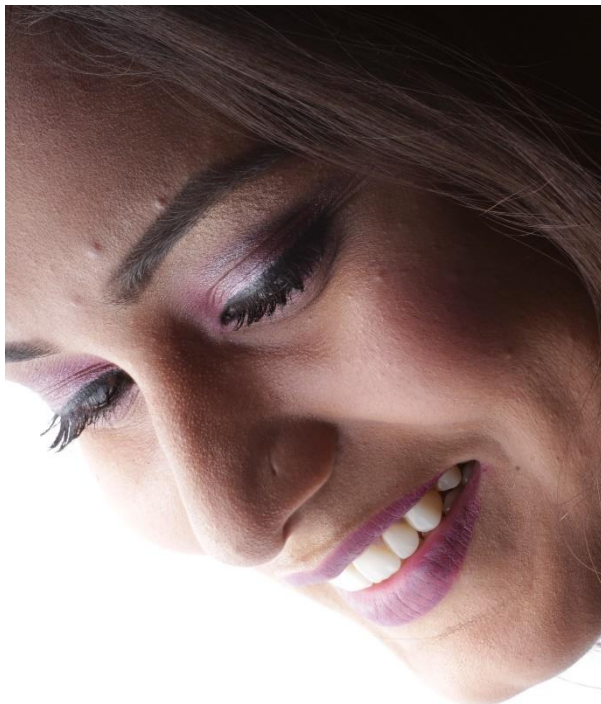
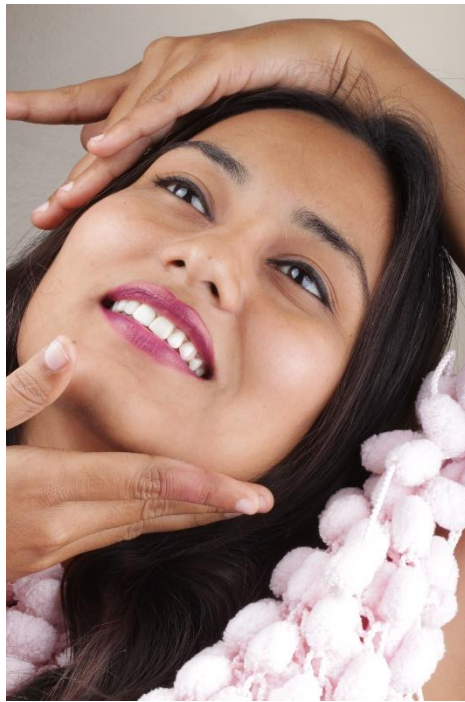


Fig. 32 Dental glamour.



Fig. 33 Dental glamour.

Fig 34,35,36 Dental glamour.



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