



## SINGLE VISIT SOLUTION FOR DIASTEMA AND FRENUM INTERFERENCE –A CASE REPORT

Utpal Kumar Das<sup>1\*</sup>, Sana Shaheen<sup>2</sup>, Sayantan Mukherjee<sup>3</sup>

<sup>1</sup>Professor and H.O.D, Department of Conservative Dentistry & Endodontics, Guru Nanak Institute of Dental Sciences and Research, 157/F Nilgunj Road, Panihati, Kolkata-700114, West Bengal, India.

<sup>2</sup>Post Graduate student, Department of Conservative Dentistry & Endodontics, Guru Nanak Institute of Dental Sciences and Research, 157/F Nilgunj Road, Panihati, Kolkata-700114, West Bengal, India.

<sup>3</sup>Reader, Department of Conservative Dentistry & Endodontics, Guru Nanak Institute of Dental Sciences and Research, 157/F Nilgunj Road, Panihati, Kolkata-700114, West Bengal, India.

Corresponding Author:- **Utpal Kumar Das**  
E-mail: [drsana.shaheen@gmail.com](mailto:drsana.shaheen@gmail.com)

<p><b>Article Info</b> <i>Received 19/04/2016</i> <i>Revised 27/04/2016</i> <i>Accepted 08/05/2016</i></p> <p><b>Key words:</b> Diastema Closure, Midline Diastema, Laser- Assisted Frenectomy</p>	<p><b>ABSTRACT</b> Midline diastema in an adult is a major esthetic problem, treatment depending on the etiological factors, size, occlusion and extent of diastema. Commonest causes are high attachment of labial frenum, dentoalveolar disproportion, proclination etc. A 19 year old female patient reported with maxillary midline diastema and high frenal attachment. Laser frenectomy was done using diode laser and midline diastema was closed with light activated composite resin. 6 months follow up was done. There are various treatment options available for the closure of diastema depending on the clinical situation. Laser-assisted frenectomy is much more comfortable for the patient because there is minimal per-operative bleeding and no suture required. Thus a combination of laser based frenectomy followed by immediate composite resin restoration solves the problem of diastema in single sitting.</p>
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### INTRODUCTION

Midline diastemata (MD) are spaces of varying magnitude between the crowns of fully erupted maxillary and mandibular central incisors. Keene describes MD as anterior midline spacing greater than 0.5 mm between the proximal surfaces of adjacent teeth. Incidences are more in maxillary teeth (14.8%) than mandibular teeth (1.6 %). MD can occur in temporary, mixed or permanent dentition. It is considered normal for many children during the eruption of the permanent maxillary central incisors [1]. With the eruption of the laterals and permanent canines, the MD reduces or even closes completely. According to Weber causes for spacing between maxillary incisors are high frenum attachment, dentoalveolar disproportion, proclination, Supernumerary teeth, Missing lateral incisors, Midline cysts, Habits such as thumb sucking, mouth breathing and tongue thrusting etc. The labial frenum, however, is regarded to be hypertrophic when it causes the

palatal papilla to blanch upon pulling the upper lip. Under such circumstances, surgical correction may be introduced [1, 2].

Treatment modalities depend on the etiological factors of the MD. Laser-assisted frenectomy is a much more comfortable for the patient because it means that no scalpel or stitches are required. Its postoperative advantages are minimum bleeding, Absence of scar tissue formation, Good wound healing, less pain, and Lack of swelling. [3]

Thus a combination of laser based frenectomy followed by immediate composite resin restoration solves the problem of diastema in single sitting.

### CASE REPORT

A 19-year-old female patient reported to the department of conservative dentistry and endodontics,



gurunank institute of dental sciences and research, Kolkata, with a chief complaint of gap between her upper front teeth. Aesthetics was the main concern.

**CLINICAL EXAMINATION**

Intraoral examination

Upper Midline Diastema Measuring 2.5 mm

Labial Frenum

- Hypertrophic
- Extending between the central incisors
- Inserting into the palate with blanching upon pulling

**PROVISIONAL DIAGNOSIS**

Midline Diastema with High Frenal Attachment

**TREATMENT PLAN**

Due to the poor economic condition coupled with time restraint, the option of frenectomy followed by immediate composite resin restoration in single sitting was taken under consideration.

**PROCEDURE**

The topical anesthesia was administered with Lido jelly 2%-GCPC (2% lidocaine Hydrochloride)

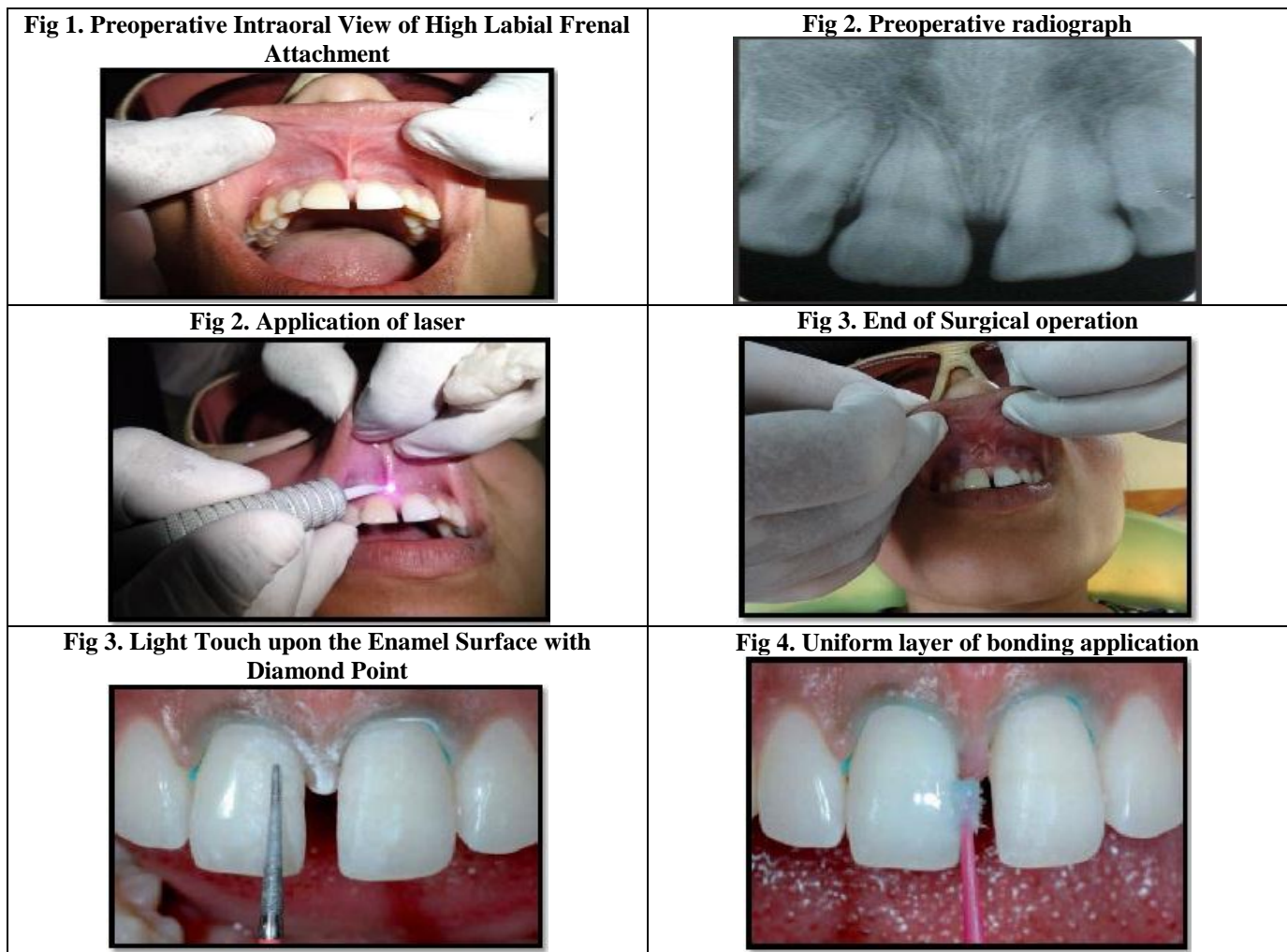
followed by infiltrating anesthesia of Xylestesin- A (2% lidocaine with epinephrine 1/8000; Espe, seefeld, Germany) in small amount [7].

The frenectomy was performed using diode laser with a wavelength of 980 nm. The laser was operated at a power of 3.0 watt in continuous wave mode, with a 32-micron quartz optical fiber. The fiber tip was held in light contact with the tissue, in gentle, sweeping brushing strokes while the upper lip was lifted to stretch the frenum slightly [4,5]. Hemostasis was achieved without suturing. Analgesics were not given since no postoperative discomfort was expected.

The restorations were done taking one incisor at a time. Light Touch upon the Enamel Surface on mesial side of both centrals was done with diamond point to enhance bonding process.

3M™ ESPE™ Shade Selector Wheel was used for shade matching of the tooth. Single Bond Universal was applied on the tooth for 20 sec with micro brush.

Restoration completed using Filtek Z350 XT. Finishing and polishing done with Soflex system. Mylar strips were used for the interproximal area during the composite build up.



**Fig 5. Single bond universal**



**Fig 5. Post-operative view after composite build up**



**Fig 6. Before, After**



**DISCUSSION**

There are many etiological factors in the development of a median diastema in an individual. According to Edwards the possible causes are prominent labial frenum, dentoalveolar disproportion, missing teeth, supernumerary teeth, proclination of the upper labial segment and pernicious habits. A study has also suggested the genetic susceptibility in the development of midline diastema [2]. It is believed that the prominent labial frenum exerts distal pressure on central incisors making them separate leading to midline diastema. Angle in 1907, suggested its removal before treating this malocclusion.

As suggested by many, inverted supernumeraries were more likely to be associated with bodily displacement of the permanent incisors, median diastema and torsion [6].

Pernicious habits if prolonged can change the equilibrium of forces among the lips, cheeks, and tongue. Thumb sucking, tongue thrusting and lower lip biting habits causes the outward pressure on the dentition leading to flaring of anterior teeth, which leads to midline diastema. Malocclusions like Angles Class II div I or Class I bimaxillary protrusion can lead to the diastemas between the teeth [6].

Treatment modalities depend on the etiological factors and complexity of the MD. Laser-assisted frenectomy is a much more comfortable for the patient because it means that no scalpel or stitches are required. The postoperative advantages, i.e., lack of swelling, bleeding, pain or, scar tissue formation, the good wound healing and overall satisfaction were observed in the

clinical application of laser-assisted frenectomy [5] The clinical application of the diode (980 nm) laser in oral and proved to be of beneficial effect for daily practice, it can be considered practical, effective, easy to used, offers a safe, acceptable, and impressive alternative for conventional techniques of frenectomy [7] Thus a combination of laser based frenectomy followed by immediate composite resin restoration solves the problem of diastema in single sitting.

**CONCLUSION**

Presence of midline diastema is a common aesthetic problem in adults. There are many innovative treatment procedures available varying from restorative build up, porcelain veneers and orthodontic approach. Composite restorations are very conservative, less time consuming and mimic the natural tooth structure. The cost of treatment is very less in comparison with other treatment options like orthodontic treatment, veneers and crown [10]. The time taken to close the gap is also very less as it can be done in a single visit when compared to other treatment option like indirect veneer and crowns which cannot be done in single visit and requires minimum of two to three visits whereas orthodontic treatment will take around few months to years [9].

**ACKNOWLEDGEMENT**

None

**CONFLICT OF INTEREST**

The authors declare that they have no conflicts of interest.



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