

## Multiple space closure with direct composite resin restoration: A case report

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**Abstract:** Spacing is one of the most common forms of malocclusion seen frequently in the midst of the maxillary incisors. It may or may not be present with generalized anterior spacing. It leads to an unpleasant smile, impairment of phonetics, and difficulty in maintaining good oral hygiene. These spacings can be managed either by surgical, orthodontic, periodontal, restorative, and prosthodontic procedures or by a combination of procedures to achieve patient's aesthetic and functional requirements. Recent advances in direct dental composite resin, give dentist an advantage to perform minimal invasive aesthetic dentistry which is conservative, economical and time consuming. This case report describes multiple space closure with direct composite resin technique.

**Key Words:** Direct composite resin, Space closure, Maxillary anteriors, minimal invasive dentistry, Direct adhesive restorative materials

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### I. Introduction

Spacing in anterior region is a common aesthetic complaint of patients [1]. Midline diastema was defined by Keene as anterior midline spacing greater than 0.5 mm between the proximal surfaces of adjacent teeth [2]. Maxilla has a higher prevalence of midline diastema than mandible [3] It has multifactorial aetiology including labial frenulum, microdontia, mesiodens, peg-shaped lateral incisors, absence of lateral incisors, habits such as thumb sucking, tongue thrusting, and/or lip sucking, dental malformations, genetics, maxillary incisor proclination, dental-skeletal discrepancies, and imperfect coalescence of the interdental septum [4, 5]. Spacing can be treated in various ways such as orthodontic closure, restorative therapy, surgical correction or multidisciplinary approach depending upon the particular case and its aetiology [6,7]. The increased patient demand for minimally invasive aesthetic procedures and the improved physical properties of current composite materials has resulted in the extensive utilization of direct bonding of composite resin to anterior teeth. Direct resin build up is a worthy choice to treat diastemas based on tooth-size discrepancy [8]. Aesthetic composite resin materials have similar physical and mechanical properties to that of the natural teeth and possess an appearance like natural dentin and enamel [9] and hence can be successfully used to achieve the desired morphology and colour of the final restoration.[8] This case report describes multiple space closure using direct composite resin.

### II. Case Report

A 20-year-old male patient reported to the Department of Conservative Dentistry and Endodontics with the chief complaint of anterior teeth spacing. History revealed that he had the spacing from the time of permanent dentition and it affected his smile and personality. Clinical examination revealed 1-2 mm of spaces between maxillary anteriors. Along with spaces he had peg shape lateral on right side and left side lateral incisor was missing. (Figure1). As a more conservative, economical, aesthetic, and quicker option, a direct composite restoration technique was planned. Treatment procedure was explained to the patient and informed consent was taken.



Preoperative photographs

(Figure 1)

After appropriate shade selection of the direct composite material (Prevest Fusion Universal Composite Kit ) proper isolation was done with liquid rubber dam. Slight roughening of proximal surfaces of incisors done in order to increase micromechanical retention .



Isolation done by liquid rubber dam ( Prevest gingival shield ) (Figure 2)



Etching of proximal surfaces  
(Figure 3)

Required surfaces of the affected teeth were etched using 37% phosphoric acid for 15 seconds then cleaned with water and dried followed by application of bonding agent (Prevest Fusion Total Etch bonding system ) and curing of the same. Composite resin was placed at spacing and shape of peg shaped lateral incisor was modified



Composite placement  
(Figure 4)





Composite finishing and polishing (Figure 5)

Once composite build up is finished, polishing and finishing done with super snap polishing and finishing kit in order to get well polished & finished restoration (Figure 5). Polishing & finishing strips were used to get well contoured proximal margins as well as line angles.



Postoperative photograph  
(Figure 6)



Preoperative photograph  
(Figure 7)

Postoperative photograph  
(Figure 8)

### III. Discussion

Direct resin composite is frequently used material for closing multiple spaces also it can be placed in a single visit. These restorations offer numerous advantages over other possible treatment options such as ceramic veneers and orthodontic treatment. There are some limitations such as less fractural toughness, shear, and compressive strength and are not ideally suited for ultra-high-stress areas found in certain clinical situations also colour stability is one of the issue . however, this can be overcome by proper selection of composite resin material and the quality of finishing and polishing procedures and can be prevented with recalls .Regardless of limitations that direct composite resin restorations have they prevent wearing of opposing dentition which is seen in ceramic materials, adhesive techniques and better quality resin materials give dentists the chance to create more conservative, functional, aesthetic, economic, and long lasting restorations also in a very short chair time [10]

In this case report direct composite resin restorations were decided as the treatment method due to aesthetic demand of the patient who was having restricted time and money.

### IV. Conclusion

The esthetic problem of spaces in maxillary anterior teeth can be successfully dealt with the use of direct composite resin bonding. This painless conservative approach results in complete patient satisfaction leading to a successful outcome. Restorative method with composite resin is the least invasive, reversible, economic and aesthetic treatment which can be done in a single visit in comparison with all other available treatment options. A good retention is the key to success in a multiple space closure while using this kind of restoration.

### References

- [1]. K. Koora, M. S. Muthu, and P. V. Rathna, "Spontaneous closure of midline diastema following frenectomy," *Journal of Indian Society of Pedodontics and Preventive Dentistry*, vol. 25, no. 1, pp. 23–26, 2007.
- [2]. H. J. Keene, "Distribution of diastemas in the dentition of man," *American Journal of Physical Anthropology*, vol. 21, no. 4, pp. 437–441, 1963.
- [3]. J. T. Kaimenyi, "Occurrence of midline diastema and frenum attachments amongst school children in Nairobi, Kenya," *Indian Journal of Dental Research*, vol. 9, no. 2, pp. 67–71, 1998.
- [4]. Weber, Quoted in: *Orthodontic Principles and Practice*, edited by: T. M. Graber, W.B. Saunders Company, 3rd edition, 1972.
- [5]. O. M. Tanaka, A. Y. K. Morino, O. F. Machuca, and N. A. Schneider, "When the midline diastema is not characteristic of the 'ugly duckling' stage," *Case Reports in Dentistry*, vol. 2015, Article ID 924743, 5 pages, 2015.
- [6]. Murchison DF, Roeters J, Vargas MA, Chan DCN. Direct Anterior Restorations. In: Summitt JB, Robbins JW, Hilton TJ, Schwartz RS, editors. *Fundamentals of Operative Dentistry: A Contemporary Approach*. 3rd ed. Chicago: Quintessence; 2006. pp. 274–279.
- [7]. Lenhard M. Closing diastemas with resin composite restorations. *Eur J Esthet Dent*. 2008;3:258–268.
- [8]. Mai Abdulgani. "Closing Diastemas With Resin Composite Restorations ; A Case Report." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 18, no. 3, 2019, pp 30-33.
- [9]. B. Bagis , and H. Y. Bagis , "Porselen laminate veneerlerinklinikuygulamaas ,amaları : klinikbirolgusunumu," *Ankara Universitesi Dis , Hekimligi Fak ltesiDergisi* , vol. 33, no. 1, pp. 49– 57, 2006
- [10]. Bora Korkut, FundaYanikoglu, DilekTagtekin, "Direct Midline Diastema Closure with Composite Layering Technique: A One-Year Follow-Up", *Case Reports in Dentistry*, vol. 2016, Article ID 6810984, 5 pages, 2016. <https://doi.org/10.1155/2016/6810984>

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