

## CASE REPORT

# Enhancing the esthetics of face by management of midline diastema: A Case Report.

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**ABSTRACT :**

Maxillary midline diastema is a common esthetic problem in mixed and permanent dentition. The space can occur either as a transient malocclusion or created by developmental, pathological or iatrogenic factors. Along with midline diastema, anteriors can have generalised spacing, particularly in the maxillary arch. These can be managed by surgical, orthodontic, restorative, and prosthodontic procedures, or by a combination of procedures to meet the patient's aesthetic and functional needs while also improving the patient's psychological impact. A case report of aesthetic enhancement of maxillary anteriors with a midline diastema is presented in this article.

**KEY WORDS :** Management of Diastema, Diastema closure, Direct composite restoration, Treatment options.

**INTRODUCTION :**

Maxillary anterior spacing, also known as diastema, is a common cosmetic complaint among patients. Midline diastema was defined by Keene as anterior midline spacing greater than 0.5 mm between the proximal surfaces of adjacent teeth. The concept of aesthetics is a judgement about the sublime and beauty. The presence of diastemas, caused by differences in tooth size, is one of the oddities in smile aesthetics. Midline diastema is an aesthetic concern caused by late mixed dentition and permanent dentition. There is a higher prevalence of midline diastema with maxilla than with mandible in the literature.

The cause of midline diastema is multifactorial. Thick labial frenulum is the most common cause, but other factors include microdontia, mesiodens, peg-shaped lateral incisors, lateral incisor agenesis, cysts in the midline region, habits such as tongue thrusting, sucking of digits and/or lips, genetics, developmental dental anomalies, dental-skeletal discrepancies, maxillary incisor proclination, and imperfect aggregation.(1)

Any of the following techniques can be used to close

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diastemas: composite veneers, porcelain laminate veneers, ceramic crowns, metal ceramic crowns, and composite crowns. With the advancement of materials and techniques in this evolutionary era, increased patient demand for minimally invasive aesthetic procedures, as well as the improved physical properties of current composite materials, direct bonding of composite to anteriors has become widely used.(2)

This article presents a case study of a single-visit aesthetic management of anterior teeth with midline diastema using a direct composite layering technique.

**CASE REPORT :**

A 30 year old male patient reported to the department of Prosthodontics and Crown & Bridge, Sharad Pawar Dental College, Sawangi (M), Wardha, with a chief complaint of spacing in his upper front teeth, affecting his self-confidence and anticipated to have his teeth cosmetically corrected. The patient's medical history revealed no systemic diseases. Intraoral examination revealed midline spacing (3 mm approx)) between maxillary central incisors (Fig 1) with an adequate width of lateral incisors and a scope to increase width of central incisors mesially to correct diastema.

The patient was given all possible treatment options

for diastema correction, such as orthodontic treatment, porcelain laminates and veneers, and composite restorations, among others. Since the patient opted for short term treatment plan with emphasis on esthetic, Direct aesthetic partial composite laminate veneers as build-ups for both maxillary central incisors were considered as a more conservative, economical, aesthetic, and faster option in this case.

To begin, no tooth preparations were performed prior to the restorative procedure. The shade selection was done using the Vita shade guide. The shade A2 was considered as the shade for the teeth to be restored. The shades of dentin and enamel composites were decided to be used together as layers to simulate a natural A2 shade outlook. All maxillary incisors were isolated by using rubber dam. The adjacent central and lateral incisor was covered with Teflon band while the other was restored. 37% phosphoric acid (Etching Gel, Kerr, USA) was applied on the mesial surface of tooth to be restored for 15 seconds, rinsed for 20 seconds, and dried with air slightly. Then a single bottle bonding agent (Adper Single Bond, 3M ESPE, USA) was applied and polymerized for 20 seconds with a LED light cure unit, then A2 dentin shade was used as a base layer over which JE layer that is enamel layer is applied. Composite Polishing discs (3M Sof-Lex Polishing Discs System Kit) were used to final polish the restoration to give it more natural appearance.(Fig 2)

#### DISCUSSION :

Direct composite resin restorations can be placed in a single visit and often do not require preliminary models or wax-ups, and hence do not involve laboratory fees that escalate costs. There are numerous causative factors that can cause midline diastema or anterior spacing. Diagnosis of diastema is based on a thorough clinical examination due to the numerous origins, causative factors and aetiology. Orthodontic treatment, porcelain veneers, and crowns are also treatment options for diastema closure, but in the age of minimally invasive dentistry, the conservative approach is preferred.(3)



Figure 1



Figure 2



Pre-treatment



Post-treatment

Direct composite veneering has given clinicians the added benefit of achieving predictable aesthetic results while causing minimal trauma to the teeth. Direct composite resin restorations can be placed in a single visit, do not require a pre-treatment appointment, and have lower treatment costs. In terms of aesthetic dentistry, these restorations have many advantages over others. (4) There are also some disadvantages of direct composite resin restorations compared to some indirect porcelain alternatives. Most composite materials possess less fractural toughness, shear, and compressive strength and are not ideally suited for ultra-high-stress areas found in certain clinical situations. In this case report, one-year recall of a midline diastema closure treatment by using direct composite resins was assessed. Clinically, neither restoration has any fractures nor it showed any discoloration. Although one-year follow-up appears insufficient, additional long-term follow-up is required as restoration issues such as marginal leakage, discoloration, fractures, and debonding for composite resins generally resolve within 6 months of treatment. Taking this into account, and based on the positive results, an experienced dentist with proper case selection, an appropriate technique,

and modern materials can perform highly aesthetic and durable direct composite resin restorations that can satisfy patients under the conditions of the case presented.

#### **CONCLUSION :**

Direct composite veneering can be a valuable treatment option for anterior spacing caused by tooth size discrepancies. This painless, conservative, cost-effective, single-visit approach leads to complete patient satisfaction and a successful outcome.

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