

# Case Report

## Prosthodontic Correction Of Midline Diastema

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### Abstract

Today's patients are more concerned about their physical appearance in which smile plays an integral role. Midline diastema is one of the common problem seen in either mixed, primary or permanent condition. Patient with these condition visit their dentist with high expectations to improve the appearance of the smile which elevates their self esteem in the society. So restorative dentist should diagnose and plan the treatment such that patient is satisfied with both functional and esthetic result of the restoration.

**Key words:** Midline diastema, porcelain fused to metal bridge.

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### Introduction

A diastema is defined as a space greater than 0.5 millimeter between the proximal surfaces of adjacent teeth.<sup>1</sup> Maxillary midline diastema is common in primary mixed dentitions. It is termed as "developmental ", reflecting the spontaneous partial or complete closure that occurs with eruption of permanent lateral incisor and canine. In adult dentition reported incidence ranges from 5% to 20%.<sup>2</sup> Suggested causes include missing or undersized lateral incisors; mesiodens; Para functional habits such as thumb sucking, mouth breathing and tongue thrusting, flared or rotated incisors, anodontia; macroglossia; dentoalveolar disproportion; localized spacing; closed bite; ethnic and familial characteristic and midline pathology.<sup>3</sup>

Many forms of therapy can be employed for diastema closure. A carefully developed diagnosis and advanced planning allows the most appropriate treatment to be determined for each individual case to address the patient's needs.<sup>4</sup> Hence in this article history, diagnosis and treatment plan of a case of midline diastema is discussed.

### Case report

A female patient aged 34yrs was referred to Department of Prosthodontics for replacement of missing tooth. Patient also complained about "gap between her front teeth" and the desire to correct the same (Fig 1). Her medical history was non contributory. Maxillary left retained deciduous canine tooth was extracted which made way for developing midline diastema (Fig 2).

Midline diastema of around 5-6mm was present between 11 and 21. Etiology of midline diastema was retained undersized left maxillary deciduous canine. No other associated conditions were observed. Patient's periodontal status was satisfactory with no caries. There were no signs of temperomandibular disorder and the occlusion was in class 1 molar relation. Radiographic findings of the teeth were also normal.

Alginate impressions (zelgan plus, dentsply) were made to prepare diagnostic wax up. Diagnostic wax up was evaluated and treatment plan was discussed with the patient. It was decided to fabricate 6 unit porcelain fused to metal bridge to correct midline diastema and also to replace missing 23 region. A putty index (Aquasil, dentsply) was made on the diagnostic wax up for the preparation of temporary crowns.

Shade selection was done before tooth preparation. Teeth to be prepared were anesthetized and 13, 12, 11, 21, 22 were prepared to receive porcelain fused to metal bridge to close midline diastema and to replace missing 23 region. Preparation was carried out using diamond points (Fig 3). After adequate preparation of the teeth, final impression was made using dual phase single step putty reline technique. Putty index was used to prepare temporary bridge (DPI) which exactly simulated the final restoration.

Metal try in was done to check the adaptation of framework followed by porcelain try in on which any occlusal interference were checked. Final cementation was done using glass ionomer cement (GC gold) and post cementation instructions were given to the patient (Fig 4).



**Fig 1 :** midline diastema around 5-6mm between 11 and 21



**Fig 2 :** after extraction of maxillary left retained deciduous canine tooth



**Fig 3 :** after tooth preparation of 13,12,11,21,22



**Fig 4 :** post restoration of midline diastema and missing 23 region

### Discussion

Maxillary midline diastemas are a common esthetic problem that dentists must treat. Many innovative therapies have been used, varying from restorative procedures to surgery (frenectomies) and orthodontics.<sup>5</sup> Midline diastema can also be corrected by orthodontic intervention, flowable composites, laminates or bridges.

Patient was not willing for orthodontic correction as it was time consuming procedure. Laminates and flowable composite were not an ideal treatment option for this case as diastema was 5-6mm wide and would hamper the retention and would decrease the strength of these materials. And also there was an missing tooth 23 in the same arch. Patient didn't want to undergo surgical procedure to place implant for missing 23. So it was decided to fabricate 6 unit PFM bridge to close the midline diastema and also to replace missing 23.

Recently all ceramic restorations are preferred in anterior region compared to porcelain fused to metal ones. When analyzing the survival rates according to the position in the mouth, it was evident that all types of all-ceramic crowns performed better in the anterior.<sup>6</sup> No significant difference was seen for anterior or posterior-placed seated metal-ceramic crowns.<sup>6</sup> Patient was given an option of 6 unit all ceramic (zirconia) bridge, but she preferred metal ceramic bridge due to economical reasons.

### Conclusion

Midline diastema is one of the common aesthetic problem faced in all age groups. The key to best results are the identification of the problem, assignment to the appropriate dentists, proper evaluation and diagnosis, and accurate communication between the treating

dentists and the patient. Treating dentist should spend adequate time to properly evaluate, diagnose, and communicate with the patient to achieve the desired cosmetic change. This case report demonstrated the examination, diagnosis and execution of proper treatment plan for the patient.

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