

Management of Midline Diastema - An Inter-Disciplinary Approach

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Abstract: Often patients report to a dental clinic with a large diastema that is unmanageable by simple direct or indirect laminates. These efforts usually result in unaesthetic results due to the teeth having unequal proportions. Such cases are best tackled by an inter-disciplinary approach as demonstrated in this case. The patient presented with a large midline diastema and requested its closure. First orthodontic movement was carried out to equalize the spaces between the 6 anterior teeth, following which eMax laminates were fabricated to close the now evenly spaced, minor diastemas

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I. Introduction

Often patients report to a dental clinic with a large diastema that is unmanageable by simple direct or indirect laminates. These efforts usually result in unaesthetic results due to the teeth having unequal proportions. Such cases are best tackled by an inter-disciplinary approach as demonstrated in this case. The patient presented with a large midline diastema and requested its closure. First orthodontic movement was carried out to equalize the spaces between the 6 anterior teeth, following which eMax laminates were fabricated to close the now evenly spaced, minor diastemas.

II. Case Report

The patient reported to the Department of Prosthodontics at D Y Patil University School of Dentistry requesting closure of an upper midline diastema. The patient aspired to follow a career in the airline service industry and thus had high aesthetic demands.

On examination, the diastema seemed too large, measuring 4mm in width. The patient was advised to undergo orthodontic treatment to equilibrate the spacing between the 6 anterior teeth, envisioning the final result to have more ideal proportions.

After orthodontic movement, the patient reported back and a diagnostic impression was made. An aesthetic wax up was done for the anterior 6 teeth according to dentogenics. It was recommended to perform crown lengthening for the lateral incisors to bring the zeniths in harmony with the adjacent teeth but the patient refused any procedure for the gums and requested we proceed as is.

Fig 1: Pre-operative retracted view



The shade was selected, under appropriate lighting conditions, as A2 with light yellow shading on the cervical and interdental edges to give a natural appearance. The wax up was transferred to the mouth using a temporary crown material and deemed satisfactory by both patient and operator.

Fig 2: Transfer of mock up to the mouth



The tooth preparations were carried out according to the APT technique put forth by GalipGurel, ensuring conservative preparations. A 0.5 mm depth bur was used to cut 3 grooves into the facial surfaces of the teeth. The depths of these grooves were marked with a lead pencil and the preparation was done till these markings were erased by the bur.

Fig 3: Depth grooves marked with lead pencil



Fig 4: Completed preparations in enamel



After refining the preparations, a 2 stage putty-light body impression was made with Addition Silicone.

Fig 5: Final Impression



The laminates were fabricated in eMax using a layered technique. The final laminates were bonded with a transparent luting agent and strict bonding protocols were followed. For ease of handling, applicator tips with beading wax were attached to the outer surface of each laminate to function as a handle.

Fig 6: eMax Laminates



Fig 7: Applicator tip with beading wax



The teeth were first selectively etched with 37% Phosphoric acid while the laminates were etched with Hydrofluoric Acid for 45 secs each.

Fig 8: Hydrofluoric Acid etch

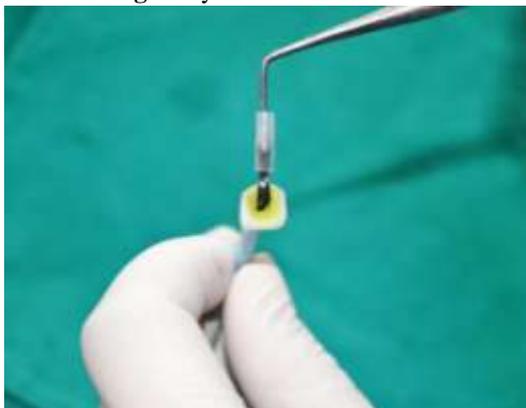


Fig 9: Etched Intaglio Surface



After thorough rinsing and air drying, a Silane coupling agent was applied to the laminates and left to dry. Bonding agent was applied to the teeth as well as the laminates, which was not cured at this stage.

Fig 10: Silane application



Fig 11: Bonding agent application



The 2 paste luting agent was mixed on a paper pad and applied to the laminates which were then placed onto the teeth. This was tack-cured so as to allow easy removal of the flash cement using a sharp explorer and interdental floss. Following which the cement was cured for 40 seconds from all surfaces.

Fig 12: Seating of the laminate



Fig 13: Curing



After cementation, the patient was instructed in care and hygiene procedures and a night guard was delivered to prevent ceramic fracture or debonding of the laminates in the future.

Fig 14: Immediate post-operative view



Fig 15: Before & after



III. Conclusion

When presented with a single, large diastema, it is always advisable to equilibrate the spaces between multiple teeth before proceeding for prosthetic intervention. The best results are achieved when the final outcome is clear before proceeding with any dental work.

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