Closure of Relapsed Spaces with Composite Lingual Buttons – Two Case Reports

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ABSTRACT

Introduction: It is interesting to note that patients who have strictly followed retention protocols and those who have violated the same have met with relapse in varying degrees. The reasons can also be varied like, periodontal ligament traction, continued abnormal growth pattern after orthodontic therapy, lack of adequate stabilization of teeth by surrounding bones in new position etc. The correction of relapsed malocclusions can be done with simple procedures like composite lingual buttons

Case report: Two patients one female aged 27 years and one male 29 years came to department of orthodontics with complaint of anterior spacing after treatment with fixed appliance therapy and chief complaint of open bite and spacing between upper and lower anteriors respectively. Both patients were treated with composite lingual buttons and satisfactory results were obtained.

Conclusion: In this era of peak advancement in orthodontic technology with lasers, self-ligating brackets, lingual braces, CADCAM technology, nanotechnology and robotics orthodontists should be aware of or should not ignore such simple, economical and effective techniques to tackle certain situations and ward of few disappointed patients to retain and uphold our faith in the society.

Keywords: Composite lingual button, relapse, Orthodontics, invisible

INTRODUCTION

It is interesting to note that patients who have strictly followed retention protocols and those who have violated the same have met with relapse in varying degrees.[1] The reasons can also be varied like

1. Periodontal ligament traction
2. Continued abnormal growth pattern after orthodontic therapy.
3. Lack of adequate stabilization of teeth by surrounding bones in new position.
4. Muscular imbalance at the end of orthodontic therapy.
5. Cause of malocclusion un-eliminated at the end of treatment.
6. Third molar eruption after the orthodontic treatment leading to late anterior crowding.

A simple technique to close relapse of anterior spacing in pre – treated cases can be done with composite lingual button as follows. Patient having anterior spacing with adequate incisal clearance is considered ideal case.

Procedure

a. **Fabrication of composite lingual button[2]:** After appropriate case selection 6 elastic separators are placed on a mixing pad. A cut is made on each separator with scalpel to facilitate easy removal after curing it on teeth. Each separator is filled with flowable composite and cured for ten seconds (Figure-1).

b. **Teeth preparation:** Palatal / lingual surfaces of selected anteriors are properly prophylaxed, and then etched with 37% phosphoric acid for 10-15 seconds and dried properly. Bonding agent is then applied and cured. A thin amount of flowable composite is applied on the prepared teeth surface. After completing these procedures the cured composite buttons are placed with gentle pressure to remove excess composite and cured for 10 seconds on each side. The separator can be removed at this stage (Figure-2). The pre-cut made on the separator facilitates easy removal. The space occupied by the separator forms the groove for E-chain engagement (Figure-3). The same procedure is repeated in the lower arch if the case demands. Patient to be reviewed after 1 week. Change of E-chain can be considered if necessary.

In the subsequent visits after correction, replace the E chain with ligature wire in figure of eight mode around composite button to form a permanent lingual retainer. Either prefabricated invisalign buttons or bondable metal buttons can be used as alternatives to composite.

Cases with mild to moderate anterior spacing can also be managed by the same method. Cases without adequate incisal clearance can be done by increasing the occlusal clearance with composite on the functional cusps.

CASE REPORT

Case 1

A female patient aged 27 years came to KMCT dental college with complaint of anterior spacing after treatment with fixed appliance therapy (Figure-4). She was very much reluctant to wear braces or removable appliance again. The option of closure of anterior spaces with composite lingual buttons was offered and complied by the patient. Since spacing was largely confined to, 11, 12, 21 and 22 lingual composite buttons were placed only on them.

At 2nd week almost half of the space was closed. Composite lingual buttons was given on lingual side of all lower anteriors. The elastomeric chain was replaced for upper anteriors and newly engaged for lower anteriors. During 3rd week only negligible space was remaining, which was closed by the 4th

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week (Figure-5). Permanent lingual retainer was placed with coaxial wire in figure of eight mode around composite button.

Case 2

A male patient aged 29 years came to KMCT dental college with a chief complaint of open bite and spacing between upper and lower anteriors (fig 6, 7). He had a history of fixed orthodontic treatment. He was not ready for retreatment with braces due to restraints of time and money. Composite lingual button with elastomeric chain was planned. All six teeth in the upper and lower anteriors were bonded with composite lingual button as explained. Elastomeric chain was engaged and changed in subsequent weekly appointments (fig 7). By the end of 4 weeks all anterior spaces were closed (fig 8). Fixed retention with coaxial wire was placed after treatment. Removable or fixed tongue guard was planned later for open bite correction. Open bite can also be corrected by modifying the same lingual button by sharpening the it so as to inflict trauma to tongue, there by patient himself will keep away from tongue thrusting habit and thereby elimination of etiology open bite.[4]

Figure-1: Cutting the separators and curing after filling composite; **Figure-2:** Intra-oral view after bonding and removal of separators; **Figure-3:** Placement of E-chain

Figure-4: Pre-treatment condition; **Figure-5:** After space closure

DISCUSSION

The clinician should expect some loss of the dental alignment obtained during orthodontic therapy in the long term in cases in which the orthodontic retainer has been removed by the orthodontist or lost by the patient.[1] The most effective way to re-treat anterior crowding or spacing after retention requires the use of brackets and archwires. However, patients are often reluctant to wear braces again for retreatment. Several alternatives have been proposed for tooth realignment, which may involve the use of an active removable appliance, retention with lingual spurs or the use of nickel-titanium archwires as retention devices.[2] A simple technique to close relapse of anterior spacing in pre-treated cases can be done with this composite lingual button technique. This innovative and low cost procedure can effectively close the relapse of anterior spacing in 1 to 2 months.[1] Either prefabricated invisible buttons or bondable metal buttons can be used as alternatives to composite lingual buttons. Furthermore this composite lingual button can be sharpened so as to inflict trauma which can be used for openbite

Figure-6: Pre-treatment extraoral; Figure-7: Pre-treatment intraoral

Figure-8: Comparison between pre-treatment and post-treatment conditions

correction secondary to tongue thrusting.

CONCLUSION

In this era of peak advancement in orthodontic technology with lasers, self-ligating brackets, lingual braces, CADCAM technology, nanotechnology and robotics orthodontists should be aware of or should not ignore such simple, economical and effective techniques to tackle certain situations and ward of few disappointed patients to retain and uphold our faith in the society.

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