



ORIGINAL RESEARCH PAPER

Orthodontics

CONTROLLED SEGMENTAL SPACE CLOSURE USING RED ELASTICS

KEY WORDS: Relapse, Retention, Fixed orthodontic treatment, stability.

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ABSTRACT

Following orthodontic treatment, some patients experience relapse, which is a significant challenge in maintaining treatment results. Ensuring the stability of outcomes, particularly the lower anterior teeth, is crucial from the patient's perspective. This aspect of orthodontic care is considered one of the most difficult tasks, as it demands sustained effort even after the active treatment phase concludes. Relapse can occur in patients regardless of their adherence to retention protocols, highlighting the complexity of achieving long-term stability. Consequently, the issue of relapse has been extensively studied. This case report examines the use of red elastics for controlled segmental space closure, aiming to provide a reliable solution for managing tooth movement and minimizing relapse in orthodontic treatment.

INTRODUCTION

Orthodontic treatment has long been recognized as an effective method for correcting malocclusions and enhancing dental aesthetics. However, despite successful alignment achieved during treatment, relapse, particularly in the lower anterior region, remains a significant concern for orthodontists and patients alike. The phenomenon of orthodontic relapse in lower anterior spacing presents unique challenges due to the delicate balance required to achieve stable alignment in this critical area of the dental arch.

This case report provides an overview of the factors contributing to orthodontic relapse in lower anterior spacing. It explores the anatomical, biomechanical, and environmental influences that predispose patients to relapse following orthodontic treatment. Additionally, the role of treatment modalities, such as fixed appliances, removable retainers, and interdisciplinary approaches, in mitigating relapse risks will be examined.

By shedding light on the complexities of orthodontic relapse in lower anterior spacing, it aims to deepen our understanding of the underlying mechanisms and facilitate the development of evidence-based strategies for long-term stability in orthodontic outcomes. Through a comprehensive exploration of relevant literature and clinical insights, this research endeavor seeks to address an important aspect of orthodontic practice, ultimately improving treatment outcomes and patient satisfaction. The reasons for relapse can be varied such as periodontal force, patient's growth pattern continuing after the treatment, type of treatment performed, type of the retainer and the duration of treatment, third molar eruption after treatment, muscular imbalance after the treatment, and noncompliance in retention protocol.

The treatment options are redoing the fixed appliance, clear aligner, or the wrap around appliance. However, with unhappy patients where cost factor is an issue, composite buttons can be considered. It is a simple and non expensive but an effective treatment modality. This article introduces a controlled segmental space closure using red elastics in mandibular anteriors.

TECHNIQUE

This technique is demonstrated in a 19-year-old female patient underwent fixed orthodontic treatment for generalized spacing. She presented to our department with relapsed spacing in relation to 31,41 with localized gingival recession in mandibular anteriors. [Figure 1] and [Figure 2]. She was offered normal correction treatments. She was keen for correction, but financially she was constrained. Hence, composite buttons were chosen as they were esthetically appealing and cost effective.



Fig 1- Pretreatment intraoral-Frontal view



Fig 2- Mandibular occlusal view

Fabrication Of Composite Button:

After selecting the suitable case and getting the informed consent, six elastic separators were placed on a mixing pad. A cut was made on each separator with scalpel so that it can be removed easily after curing it on the teeth. Then, flowable composite was used to fill each separator and cured for 10sec. examples as in [Figure 3] and [Figure 4].

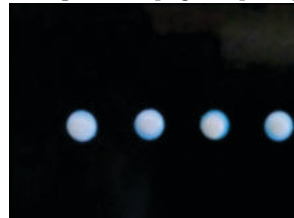


Fig 3 - Flowable composite button



Fig 4- Curing of the composite button

Tooth Preparation

The labial of the anterior teeth to be treated were properly prophylaxed, etched with 37% phosphoric acid for 10-15 s, and dried. Then, bonding agent was applied and cured. A thin layer of flowable composite was applied on the prepared tooth surface. The cured composite buttons were placed with gentle pressure, and the excess composite was removed and cured for 10 s on each side. After this, the separator was removed easily due to the precut made on it. The composite button was placed labially on 33,34,43 and 44. Red elastics placed from 33-43 and also from 34-44 [figure 5]. Lingually split fixed orthodontic retainer placed. In upper, Hawley's appliance placed [figure 6]



Fig 5- Composite button with elastics



Fig 6 - Upper Hawley's appliance



Fig 7 – Lower occlusal view of engaging elastics in button

Patient was reviewed after 2 weeks. Space was closed in relation to 31,41 and also gingival recession corrected. Labially 0.022MBT bracket placed from 33-43 and SS wire placed and secured with modules. Red elastics changed from 33-43 and also from 34-44 and lingually continuous fixed retainer placed.[figure 8]



Fig 8 – Post treatment of space closure in lower anteriors

Orthodontists should be prepared to see some degree of relapse in some of the patients who were noncompliant to the retention protocol or others with the before mentioned factors for relapse. Treatment options such as fixed appliance therapy, clear aligner, and removable retainers are not accepted by some patients who are reluctant to undergo the treatment again. Hence, a simple technique to close relapse of anterior spacing in pretreated cases can be done with this composite button technique. This simple, esthetic, and low-cost procedure can effectively close the relapse of anterior spacing in 1month. Prefabricated invisible buttons can also be used instead of the composite buttons.

In this modern era of advanced orthodontic treatments, this simple and cost-effective method can be considered for relapsed cases. This might help patients who are hesitant to start the treatment again with fixed appliance therapy.

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