

A Six-Month Orthodontic Solution to Space Closure and Bite Collapse



Clifton C.
Georgaklis,
DMD

For patients who exhibit missing posterior teeth, bruxism, and a concomitant loss of vertical dimension often with commonly occurring anterior flaring and spacing¹ (Figures 1 to 3); mainstream treatment consists of 1.5 to 2 years of orthodontic treatment to retract the anteriors and re-establish the collapsed vertical dimension. This is usually followed by removable retainer wear. It is important to restore the missing posterior support,² so the patient can be given implants or bridges afterward.

CASE REPORT

A patient who came to our general practice was given this treatment plan by 2 previous dentists with specialists in their offices. Eager to seek other alternatives, she presented for attenuated orthodontic and restorative treatment.

Treatment consisted of short-term, 6-month, fixed-orthodontic treatment by retracting the incisors to their original position before they migrated forward. The collapsed vertical dimension was increased through use of an anterior fixed composite bite plane. This is a flat-planed composite bite plane bonded to the lingual of the upper central incisors³ (Figures 4 to 6), prohibiting full closure. Through lack of posterior occlusion, within 3 to 4 months the posterior teeth exhibited significant passive supra-eruption, even without posterior vertical elastic wear (which may be used as an option to accelerate the process). At the same time, the incisor region is intruded through chewing. This occurs throughout the entire anterior region, as the teeth are essentially "splinted" through the orthodontic wire. In this way, even teeth without the composite bite plane are intruded. The ratio of posterior extrusion to anterior intrusion has been shown to be approximately 60:40.⁴

DISCUSSION

Secure retention is an essential aspect of this case. Removable retainers are inadequate, as even slight space relapse will be cosmetically obvious; and this is likely in an



Figures 1 and 2. Note palatal occlusion.



Figure 3. Note attrition.



Figures 4 and 5. Composite bite plane on teeth Nos. 6, 8, 9, and 11 intruded the anteriors and allowed passive eruption of posteriors.



Figure 6. After bridge cementation. Additional whitening procedures were recommended.

adult patient with fully formed dental arches and some bone loss.^{5,6} In addition, our practice occupies a niche in treating adults through short-term cosmetic orthodontics,⁷ and this demographic desires retention that is aesthetic. Furthermore, treatment is *orthodontic* in these cases and *not orthopedic*, so the results are less stable, thus requiring fixed retention. A lingual composite splint (Ribbond [Ribbond.com]), where composite covers most of the tooth's lingual aspect and

plan, they should be placed before or during orthodontic treatment, *not after*. This case utilized 3 fixed bridges, helping to correct some mesial drift which may be caused by transseptal fiber contraction.¹⁰ Temporary bridges were inserted the day the braces were removed, and the splints were placed. Permanent impressions were taken 1 month later to allow for gingival healing and minor occlusal settling (Figures 7a and 7b).

CONCLUSION

This treatment approach shows a rapid, straightforward solution for this common functional and aesthetic dental problem, which is frequently treated with a more complicated long-term plan, often prone to relapse.♦

References

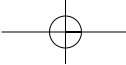
1. Kelly JT Jr. A multidisciplinary approach to restoring posterior bite collapse. *Compend Contin Educ Dent*. 1997;18:483-485, 488-490.
2. Reshad M, Jivraj S. The influence of posterior occlusion when restoring anterior teeth. *J Calif Dent Assoc*. 2008;36:567-574.
3. Georgaklis CC. Alternative orthodontic treatment for adult crossbites and overbites. *Dent Today*. 2001;20:60-63.
4. Lei Y, Zhang S. Clinical study on the orthodontic treatment of deep overbite with bite plane [in Chinese]. *Hunan Yi Ke Da Xue Xue Bao*. 1998;23:465-466.
5. Brunsvold MA. Pathologic tooth migration. *J Periodontol*. 2005;76:859-866.
6. Martinez-Canut P, Carrasquer A, Magán R, et al. A study on factors associated with pathologic tooth migration. *J Clin Periodontol*. 1997;24: 492-497.
7. Georgaklis CC. Six-month adult aesthetic orthodontic treatment. *Dent Today*. 1999;18:110-113.
8. Georgaklis CC. Anterior retention with a reinforced composite resin splint after cosmetic orthodontic treatment. *Dent Today*. 2002;21:54-57.
9. Greenstein G, Cavallaro J, Scharf D, et al. Differential diagnosis and management of flared maxillary anterior teeth. *J Am Dent Assoc*. 2008;139:715-723.
10. van Beek H. Dissertation 25 years later. 1. Mesial drift of teeth by occlusal forces [article in Dutch]. *Ned Tijdschr Tandheelkd*. 2004;111:48-51.



Figure 7a and 7b. Before and After.

can overlap onto the buccal aspect, is preferred. This can serve to augment small teeth, change shape and width by enhancing line angles, fill chips, and restore surfaces with attrition.⁸

In conjunction with the orthodontic space closure, posterior support must be provided, as the splint will fracture without posterior protection and incisor flaring will return.⁹ The increased vertical dimension would also be lost, since the posteriors would intrude. If implants are part of this



A Six-Month Orthodontic Solution...

continued from page

Dr. Georgaklis originated the concept of 6-month adult cosmetic orthodontics in his Boston practice in 1991. He has employed it since 1991, and has been publishing and lecturing on various aspects of the concept since 1999. He can be reached at (617) 277-5200, or visit rapidbraces.com.

Disclosure: Dr. Georgaklis reports no conflicts of interest.

continued on page ##

