

EARLY CLASS II TREATMENT

Early orthodontic intervention (2-phase treatment) of developing Class II malocclusions in patients with excessive overjet emphasizes that there are few (if any) advantages for this approach, when compared with 1-phase treatment started in the early permanent dentition.¹ The comparisons of the results indicated that treatment with either approach is similar, except that 1-phase treatment achieves the same objectives in a shorter time. Thus, the 1-phase approach is more efficient for both patient and clinician.

Philosophy behind early treatment (in the deciduous or mixed dentition) is the belief that early intervention brings natural forces to normal function.^{4,5}

The essence of this controversy is best summarized by these statements of Edward H. Angle, that appeared in the 7th edition of his book in 1907...the proper time to begin treatment is as near the beginning of the variation from the normal in the process of development of the dental apparatus as possible. This may date from the eruption and locking of the first permanent molars into distal occlusion or into mesial occlusion, or it may in rare instances have an even earlier beginning- in the mallocking of the deciduous teeth. It has always been argued by the writers of the "old school" that this is a most unpromising age for treatment favouring the period of life between the ages of twelve and seventeen years...

Preliminary findings of a randomized prospective clinical trial on the early treatment of Class II, Division 1 malocclusion indicate that treatment in late childhood may be as effective as that in midchildhood. Thus treatment in late childhood may be more practical and cost-effective, because it reduces the total length of time a child has to be seen by an orthodontist. Actually, the results of our research¹ and that by other investigators tend to concur about the value of early treatment in late childhood as the first phase of a one-stage treatment. This conclusion pertains to the correction of the distoclusion but also to space management within the dental arch. The optimal timing of treatment in the late mixed dentition would correspond to the time just before the loss of the deciduous second molars. Nance⁶ expressed similar views earlier in this century.

Are there any advantages of early Class II treatment?

The discussion on early orthodontic intervention (2-phase treatment) of developing Class II malocclusions in patients with excessive overjet emphasizes that there are few (if any) advantages for this approach, when compared with 1-phase treatment started in the early permanent dentition.¹ The comparisons of the results indicated that treatment with either approach is similar, except that 1-phase treatment achieves the same objectives in a shorter time. Thus, the 1-phase approach is



more efficient for both patient and clinician. Yet, in discussions and debates on this subject, 2 important issues have not been sufficiently considered: external apical root resorption (EARR) and incisor trauma (IT).

Brin et al⁷ used patients from a randomized clinical trial of early Class II treatment at the University of North Carolina (UNC) by Tulloch et al⁶ The study's purpose was to determine whether the maxillary incisors of Class II children treated in 1 phase in the early permanent dentition would be more likely to experience moderate to severe (2 mm) EARR. The results indicated that children who had 2-phase treatment had incidences of EARR of 5% and 11% with functional appliances and headgears, respectively. The incidence of EARR of 2 mm or greater was approximately 20% in patients who received 1-phase treatment in the early permanent dentition. Thus, the 1-phase group had a 2- to 4-times greater risk of developing EARR of 2 mm or greater than did the 2-phase groups. In addition, the average reductions of overjet required in the second phase were 1.5 mm for the functional appliance group, 4.6 mm for the headgear group, and 5 mm for the 1-phase control group. Brin et al⁷ found significant associations between EARR, the magnitude of overjet reduction, and the time spent wearing fixed appliances. Furthermore, Segal et al,⁸ in a meta-analysis to elucidate possible treatment-related etiologic factors for EARR, concluded that treatment-related causes of root resorption appear to be the total distance the apex had moved and the time it took to accomplish the movement. Thus, if minimization of EARR is a goal of orthodontic treatment, as it should be, clinicians must consider treatment in the mixed dentition to modify growth and minimize residual tooth movement needed to correct the large overjet of patients having a 1-phase approach. It is surprising that little emphasis was placed on this benefit of early Class II treatment.

References

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How to cite this article: Bhardwaj A . Guest Editorial : Early Class II Treatment. *TMU J Dent* 2017;4(4):126-127.