

Editor's Choice

David L. Turpin, Editor-in-Chief

Postorthodontic root approximation after opening space for maxillary lateral incisor implants

Taylor M. Olsen and Vincent G. Kokich, Sr

Your favorite referring dentist has just seen a patient who completed treatment with you some time ago. You saved space in this patient for an implant to be placed for a missing maxillary lateral incisor, but the dentist says that there is not enough room between the adjacent roots. What happened? Did the roots of the adjacent teeth converge while the retainer was being worn, or were they not moved enough in the first place? This dilemma is frustrating for everyone involved.

These researchers evaluated the postorthodontic root approximation adjacent to congenitally missing maxillary lateral incisors in 94 patients with a total of 142 missing lateral incisors. The findings of this clinical study are interesting. Although root approximation was not consistent, 11% of patients experienced enough relapse to prevent implant placement. To ensure sufficient space for implants, the authors recommend at least 6.3 mm of intercoronal space and 5.7 mm between the roots. A bonded wire or resin-bonded bridge will help to maintain posttreatment root alignment. The authors concluded that, generally, the roots of adjacent teeth remain the same distance apart as measured at the end of orthodontic treatment.

Primary failure of eruption and *PTH1R*: The importance of a genetic diagnosis for orthodontic treatment planning

Sylvia A. Frazier-Bowers, Darrin Simmons, J. Timothy Wright, James L. Ackerman, and William R. Proffit

The aim of this study was to determine how genetic analysis can be used with related clinical diagnostic information to improve orthodontic management of primary failure of eruption (PFE). This type of research will eventually help clinicians make better treatment decisions for those with PFE. The lead author completed a preliminary study of PFE in 2007. Now, 2 years later,

this investigation took a broader look at the topic, including the role of genetics and the presence of mutations in parathyroid hormone receptor 1 (*PTH1R*).

Enrollment for this study was based on PFE in at least 2 family members. Through detailed interviews, a pedigree was extended in 1 family of 12 people ranging in age from 11 to 72 years. Five male and 4 female members were available for clinical and molecular testing. The pedigree and clinical findings further confirm that PFE is an inherited disorder, and that the inheritance can be autosomal dominant with variable expressivity. Noted the authors, "future research should address these questions: what is the specific role of *PTH1R* in the spectrum of eruption failure phenotypes, and are additional genes responsible for familial eruption failure?"

Pretreatment characteristics associated with orthodontic treatment duration

Monica A. Fisher, Reid M. Wenger, and Mark G. Hans

When you meet with a family to discuss the need for orthodontic treatment, the question most often asked is, "how long will it take?" It is not easy for practitioners to answer this question with accuracy. Very little has been published to help make predicting treatment time scientifically accurate. These authors from Case Western Reserve University believe that this study is the first to use pretreatment characteristics to estimate the likelihood that a patient's treatment duration will be shorter or longer than average.

Orthodontic treatment duration depends on a number of factors, some related to the orthodontist, such as when to start and whether to extract, and others related to patient behavior, such as school grades and oral hygiene. Based on this study of 400 patients, the following conclusions will help you answer patients' questions about treatment duration. After adjusting for other pretreatment characteristics, long treatments were independently associated with decreased lower facial height, maxillary crowding of 6 mm or more, severe overjet, 80% or greater overbite, poor school grades, presence of deciduous teeth, and extraction therapy. An estimated 95% of patients with these characteristics had longer-than-average treatment durations. You will want to read this entire article for a detailed discussion of the findings.