DELAWARE • DISTRICT OF COLUMBIA • MARYLAND • NEW JERSEY • PENNSYLVANIA • PUERTO RICO • VIRGIN ISLANDS

THE AWARD WINNING

MASO Journal

Middle Atlantic Society of Orthodontists

Spring 2019

MASO-Spring CE

March 1, 2019
Union League
Philadelphia, PA
Details on page 15

RESEARCH ABSTRACT

THE EFFECT OF MALOCCLUSION SEVERITY AND TREATMENT DURATION ON PATIENT SATISFACTION WITH CLEAR ALIGNER THERAPY

Wiese L, Williams R, Jiang SS, Bosio JA
University of Maryland

Introduction: While many studies have explored patient satisfaction with conventional orthodontic treatment, few have investigated patient satisfaction with clear aligner therapy; and none have attempted to determine if a patient's initial malocclusion or treatment duration influenced their satisfaction with clear aligner (Invisalign®) therapy.

Objectives: This study attempted to determine if the initial severity of a patient's malocclusion, or the duration of treatment, impacts a patient's satisfaction with the final result of clear aligner treatment.

Methods: Thirty-three orthodontic patients who had been treated with clear aligners responded to a satisfaction questionnaire containing twenty-one questions relating to their satisfaction with treatment, approximately two years after treatment was completed. Overjet, overbite, and maxillary and mandibular anterior crowding/spacing were measured to determine the initial severity of their malocclusion. Logistic regression analyses with factors of satisfaction as the dependent variable were used to quantify associations between patient satisfaction in regard to both the initial severity of malocclusion, and treatment duration.

Results: Overall, patients were satisfied with aligner treatment. However, no significant associations were observed between patient satisfaction and either the initial severity of the malocclusion or treatment duration. Patient satisfaction with clear aligner orthodontic treatment is generally high, but appears not to be associated with the initial severity of the patient's malocclusion or treatment duration.

Conclusions: Patient satisfaction with clear aligner therapy is multi-factorial. While this study could not conclude that the initial malocclusion or treatment duration significantly affects patient satisfaction, there are many other factors that influence satisfaction. Regardless, satisfaction with clear aligner treatment is generally very high.

ARTICLE OF INTEREST

USE OF AN OVATE PONTIC TO MAINTAIN BUCCOLINGUAL BONE DIMENSION IN A GROWING PATIENT

Dr. Mehreen Merchant
Dr. Patrick T. Cuozzo

Introduction: Four types of pontic design have traditionally been used in fixed prosthodontics[1]. They include the hygienic pontic, the ridge lap/saddle pontic, the modified ridge lap, and the ovate pontic. Ovate pontics are typically the design of choice in aesthetically important regions because they offer excellent aesthetics, allow for optimal hygiene, and encourage the development of an emergence profile[2].

Through our use of this pontic design during and after orthodontic treatment, we have found that ovate pontics offer yet another advantage - maintenance of buccolingual bone dimension during growth. This case report illustrates how this was successfully accomplished in a growing patient.

Diagnosis and Treatment Plan: A 13-year-old female patient presented for comprehensive orthodontic treatment with a convex profile, Class II malocclusion, maxillary and mandibular crowding, and mandibular midline discrepancy. The patient reported a history of avulsion and reimplantaion of her upper left central incisor at 9 years of age. Clinical examination revealed discoloration of the tooth, and a position that was noticeably apical in comparison to her upper right central. These signs indicated dentoalveolar ankylosis, a condition that occasionally follows the reimplantation of avulsed teeth[3].

To date, there is no satisfactory treatment for this condition, in which the root of the tooth is gradually resorbed and replaced by bone. As ankylosis in growing patients often results in increasing infra-position of the affected tooth and retarded growth of the alveolar bone, ankylosed teeth should be extracted before they compromise future prosthodontic treatment[4]. Accordingly, extraction of the tooth was recommended as a part of the patient's treatment plan. In order to prevent the considerable bone loss that typically follows extraction, the use of an ovate pontic in the extraction space was also planned.

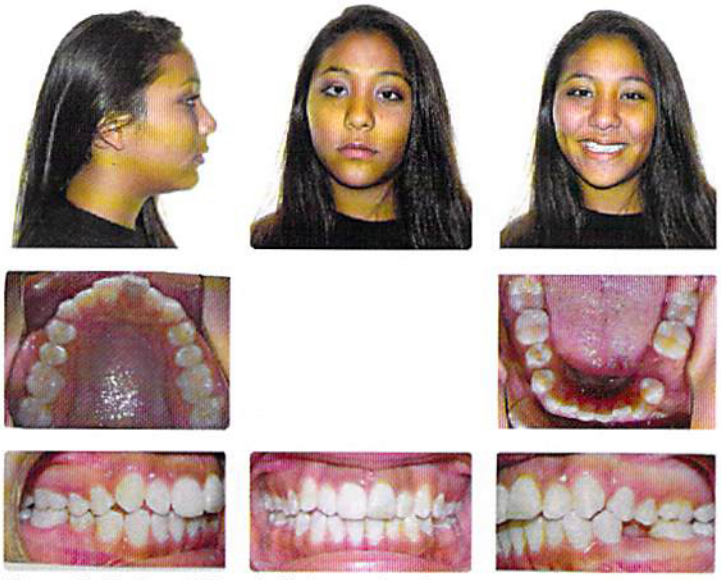

Figure 1. Patient KN at initial examination.

CONTINUED ON PAGE 6

CONTINUED FROM PAGE 5

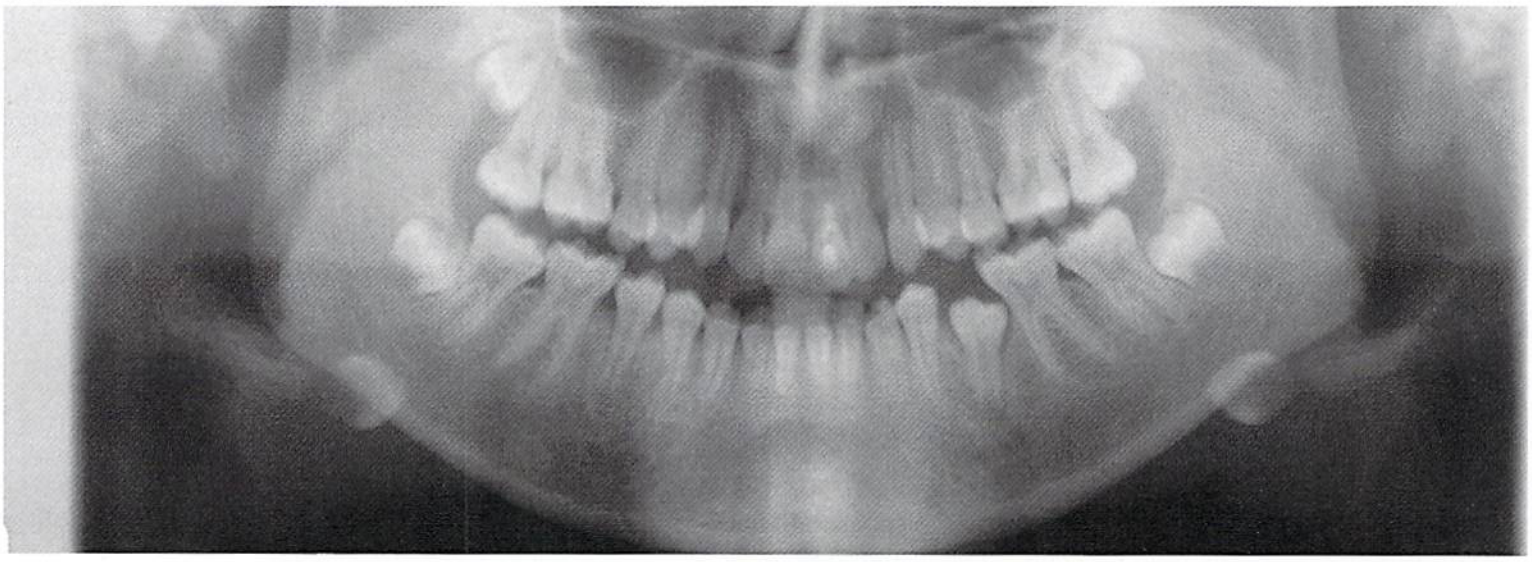

Figure 2. Panoramic image at initial examination

Treatment Progress: Following appliance placement in the upper and lower arches, the upper left central was extracted. An ovate pontic was fabricated from the extracted tooth and placed on the upper arch wire on the same day.

Towards the end of the patient's treatment, a panoramic radiograph was taken to check root parallelism and bone height preservation. The radiograph displayed satisfactory maintenance of the vertical bone level in the extraction socket of the upper left central.

Figure 3A. Patient KN after extraction of her upper left central incisor

Figure 3B. Placement of an ovate pontic fabricated from the extracted tooth on the archwire and in the extraction socket

Figure 4. Panoramic radiograph after 23 months of orthodontic treatment. Note maintenance of vertical bone level

CONTINUED FROM PAGE 6

Treatment Results: The patient's orthodontic treatment was completed in 24 months, and following appliance removal, an upper Hawley retainer with a new ovate pontic was delivered.

Figure 5. Debond appointment after removal of her fixed appliances

Figure 6. Debond appointment. A Hawley retainer with an ovate pontic was fabricated to hold space for her upper left central incisor.

The patient was then referred back to her general dentist for a bonded Maryland bridge to hold the space until she was ready for implant placement.

Retention: The following records were taken at recall, 9 months after the completion of orthodontic treatment. These records were repeated at her next recall visit, 5 years after debonding.

Figure 7. Nine month recall after removal of her fixed appliances. A bonded Maryland bridge was placed by her general dentist with an ovate pontic for the upper left central incisor.

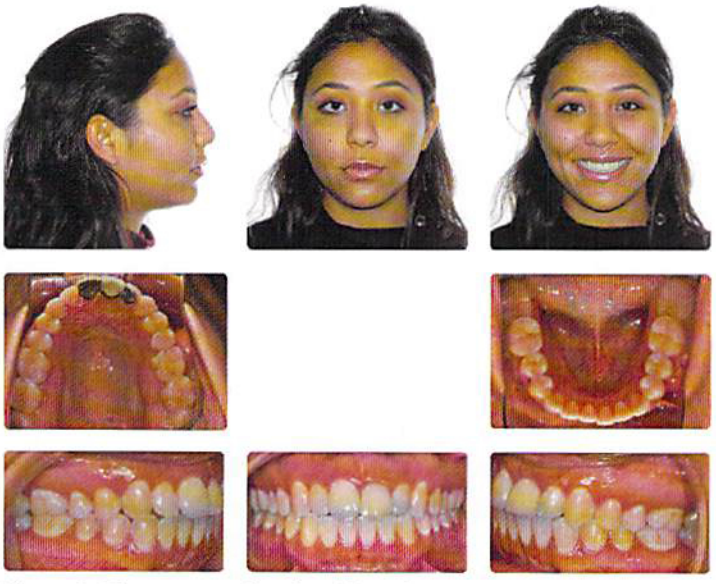

Figure 8. Five year recall after debond. Retainers were last worn 4 years ago.

Discussion: Ankylosed permanent teeth in growing patients are typically managed in one of two ways[5]. The first approach involves preserving these teeth as space maintainers until patients are ready for implant placement. While this allows for the maintenance of buccolingual bone dimension, increasing infra-position of the tooth with growth creates a vertical bone discrepancy that complicates future implant placement.

The second approach involves extraction of the ankylosed tooth. While this approach moderates the risk of a vertical bone discrepancy with the adjacent teeth, it results in both buccolingual and vertical bone loss which complicates implant placement in the future.

CONTINUED ON PAGE 8

CONTINUED FROM PAGE 7

An alternative approach in this situation is the use of an ovate pontic in the extraction space during and after orthodontic treatment. This case report demonstrates how this was successfully accomplished in a growing patient. Our records taken five years after the completion of treatment, and seven years after extraction of the tooth confirms the successful maintenance of both buccolingual and vertical bone dimension. This will allow for ease of implant placement in the future without the need for supplemental procedures such as bone augmentation.

References

[1]Gahan, M., Nixon, P., Robinson, S., & Chan, M. (2012). The ovate pontic for fixed bridgework. Dent Update , 407-8, 410-2, 41.

[2]Liu, C. (2004). Use of a modified ovate pontic in areas of ridge defects: a report of two cases. J Esthet Restor Dent , 273-283.

[3]Campbell, K. M., Casas, M. J., & Kenny, D. J. (2005). Ankylosis of Traumatized Permanent Incisors: Pathogenesis and Current Approaches to Diagnosis and Management. Journal of Canadian Dental Association , 763-8.

[4]Malmgren, B., & Malmgren, O. (2002). Rate of infraposition of reimplanted ankylosed incisors related to age and growth in children and adolescents. Dental Traumatology , 28-36.

[5]Thá Rocha, S. R., & Moro, A. (2010).. Dental Press J Orthod , 40.e1-10.

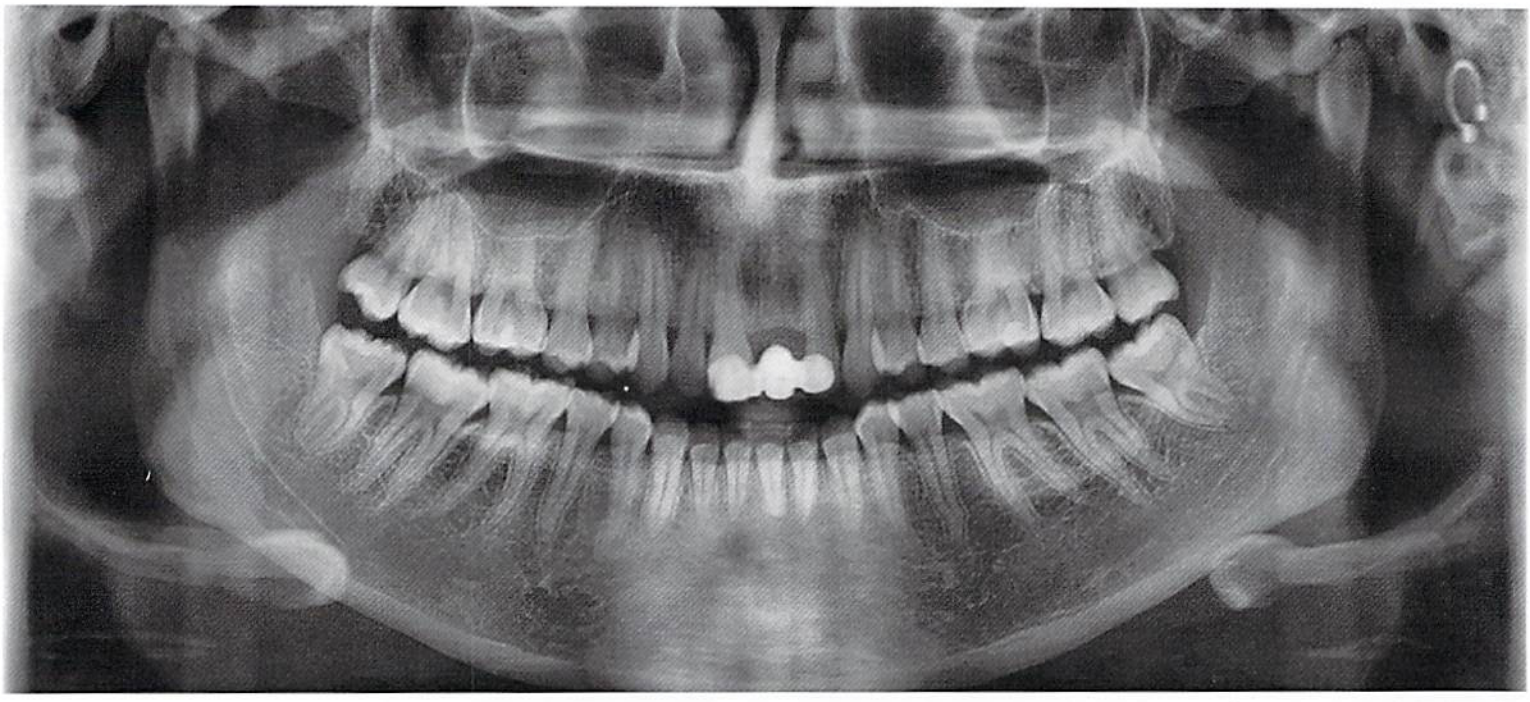

Figure 9. Panoramic image demonstrating maintenance of apico-gingival bone dimension 5 years after the completion orthodontic treatment, and 7 years after extraction of the upper left central incisor.

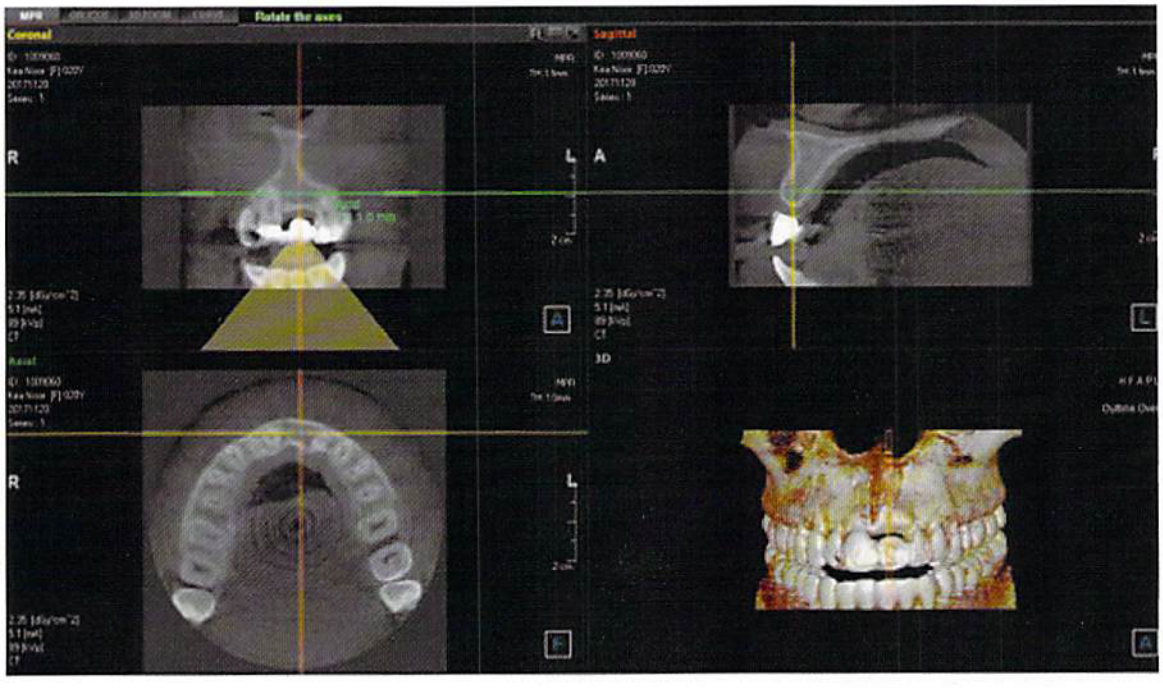

Figure 10. CBCT illustrating maintenance of vertical and buccolingual bone dimension 5 years after the completion of orthodontic treatment and 7 years after extraction of the upper left central incisor.