Title: Key factors in anterior open bite correction  
- Where to start and how to finish

Three learning objectives:

- Discuss the etiology of anterior open bite and treatment modalities;
- Evaluate upper airway dimension after anterior open bite correction;
- Discuss which factors affect the success of anterior open bite correction

Anterior open bite is difficult to treat because it results from the interaction of multiple etiologic factors such as heredity, unfavorable mandibular growth patterns, imbalance between the posture of the jaws, nasopharyngeal airway obstruction, digit-sucking habits, and tongue posture and activity. Proper diagnosis and treatment planning, successful treatment, and retention are important to the long-term stability of open bite treatment. In this lecture, the etiology of anterior open bite and various treatment modalities will be discussed along with biomechanics. After the lecture, clinicians will be able to treat and finish anterior open bite cases more efficiently and successfully.
Dr. Jae Hyun Park (JPark@atsu.edu) is a Professor and Chair of the Postgraduate Orthodontic Program at the Arizona School of Dentistry & Oral Health. He is a Diplomate of and Examiner for the American Board of Orthodontics. Dr. Park has received several awards for scientific and clinical excellence including the Charley Schultz Award (1st Place Winner in the Scientific Category at the Orthodontic Resident Scholars Program) and the Joseph E. Johnson Award (1st Place Winner at the AAO Table Clinic Competition) from the AAO. He also serves as an editorial board member of several peer-reviewed orthodontic and dental journals. He was recently invited to be a guest editor of "Seminars in Orthodontics." He was the chief editor of a recently published book entitled, "Computed Tomography: New Research," and recently co-authored a book, "Molar Protraction: Orthodontic Substitution of Missing Posterior Teeth." While working as a full-time faculty member since 2008, he has published more than 170 scientific and clinical articles in peer-reviewed orthodontic and dental journals including three cover pages in the AJO-DO. He also lectures nationally and internationally. Dr. Park is currently Editor-in-Chief of the Pacific Coast Society of Orthodontists (PCSO), Past President of the Arizona State Orthodontic Association and Thesis Committee Co-Chair of Northern California Edward H. Angle Society of Orthodontists. He was also recently appointed to replace Dr. Steven Dugoni as an ABO Director representing the PCSO. He will be the ABO President in 2024.

Dr. Alexander’s Tongue Exercise

- Click: push tongue against the palate for 10 seconds
- Slurp
- Squeeze
- Swallow

Masticatory Muscle Exercise

Open Bite Correction Exercises

Congratulations! Your doctor has recommended exercises to help with your orthodontic treatment. Bite exercises have been shown to make your orthodontic treatment more successful and go faster! You have been given a bite stick to help with your exercises. Please follow the directions listed below to achieve your smile.

Transitional dentition (baby and permanent teeth present)
- Bite and clench on bite stick for 5 seconds.
- Rest for 5 seconds.
- Repeat.
- 10 bites and clenches, 5 times a day (total of 50 times)
Bite on the back most _____ teeth on both sides.

Permanent dentition (no baby teeth)
- Bite and clench on the bite stick for 5 seconds.
- Rest for 5 seconds.
- Repeat.
- 30 bites and clenches, 5 times a day (total of 150 times)
Bite on the back most _____ teeth on both sides.

How to clean and care for your bite sticks?

Daily care: Rinse bite stick after every use and brush it with a toothbrush.
Weekly disinfection: Soak bite stick in water with clorox bleach or water with mouth rinse for 5-10 mins.
Orthodontic Treatment of Skeletal Class II Adolescent with Anterior Open Bite using Mini-Screws and Modified Palatal Anchorage Plate

This article presents a non-extraction orthodontic treatment case using mini-screws and a modified palatal anchorage plate (MPAP) to intrude the maxillary posterior teeth, and distalize the whole arch dentition and control the extrusion of the maxillary posterior dentition during distalization.

Keywords: Malocclusion, Skeletal Class II; Anterior Open Bite; Modified Palatal Anchorage Plate (MPAP); mini-screws

Anterior retraction with TADs

Before

After


Original Article

Three-dimensional evaluation of maxillary dentoalveolar changes and airway space after distalization in adults

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ABSTRACT
Objectives: To evaluate the changes in position of the maxillary dentition and the airway space after distalization using a modified C-palatal plate (MCP) in adult patients through CBCT images and to analyze the relationship between the amount of distalization and the changes in the airway space.

Materials and Methods: CBCT images of 33 adult Class II patients (22.2 ± 4.0 years old; 27 women and 6 men) treated by total maxillary arch distalization using the MCP were evaluated before and after distalization. The patients were divided into nonextraction and extraction groups. The changes in the airway space as well as the changes in the positions of the maxillary dentition were evaluated. The distalization effects were calculated and assessed using paired t-tests.

Results: After distalization, the first molar showed significant distalization and intrusion (P < .001) with no significant rotation of the crown and no significant buccal displacement of its root in the transverse dimension. There were no significant changes in the airway volume or the minimum cross-sectional area of the oropharynx.

Conclusions: The application of the MCP resulted in significant total arch distalization without a significant effect on the transverse dimensions or changes in the oropharynx. The MCP can be considered a viable treatment option for patients with Class II malocclusion. (Angle Orthod. 2018;88:187–194.)

KEY WORDS: Distalization; Modified C-palatal plate; Airway space; CBCT

Conclusions
• The application of a MCPP resulted in significant total arch distalization without a significant effect on the transverse dimensions or changes in the oropharynx airway space.

• MCPPs can be considered a viable treatment option for patients with Class II malocclusion.

Lee et al. Angle Orthod 2018;88:45-51.

Conclusions
• Comparing the treatment effects between MCPP appliances and buccal miniscrews, MCPP appliances showed greater distalization and intrusion with less distal tipping of first molars and more extrusion of incisors compared to buccal miniscrews.

Summary

Etiology & Treatment
• Resting tongue position should be considered the main factor leading to anterior open bite.

• Tongue cribs must be worn for at least 6 months or until the patient achieves positive overbite.

• To correct anterior open bite, tongue exercise and masticatory muscle exercise can be used.
Airway

- Oral examination including Mallampati score and tonsillar size should be considered when evaluating a patient for anterior open bite or OSA.

- The application of a modified C-palatal plate resulted in significant total arch distalization without significant effect on the transverse dimensions or changes in the oropharynx airway space.

- Orthodontic patients who had extractions do not have greater occurrence of OSA compared to similar patients with non-extraction.

References


