

Corticotomy-assisted slow maxillary expansion with bone allograft assessed with cone beam computed tomography in young adults

Noha Ayman Ghallab, Eman Mohii and Mohammed Khalifa
Cairo University, Egypt

Introduction: There is low evidence regarding the effect of slow palatal expansion in the treatment of bilateral posterior cross-bite. In adults the treatment had always been directed to surgical maxillary expansion. Therefore, this study aimed at evaluating corticotomy-assisted slow palatal expansion using cone beam computed tomography (CBCT).

Material & Methods: The study included 6 females, 19-20 years old, with bilateral posterior cross-bite and Class III malocclusion. CBCT was taken pretreatment (T_0), immediately post-expansion (T_1) and 3 months following the end of orthodontic treatment (T_2). Four banded quad-helix appliance assisted with buccal corticotomy and bone allograft was used for expansion. The expansion was activated every 2 months. Fixed orthodontic appliance was performed to continue the treatment of the cases. CBCT was used to measure and record amount of expansion and tipping of premolars and first molars. The bone fenestrations were also recorded as scores. Data were statistically analyzed.

Results: The bilateral posterior cross-bite was treated in 8.5 months. The amount of expansion increased significantly from T_0 - T_1 ; 5.58 ± 0.77 mm, yet it was non-significant from T_1 - T_2 ; 1.16 ± 0.34 mm. There was a significant increase in mean tipping angle from T_0 - T_1 without a significant increase from T_1 - T_2 . Regarding buccal bone fenestrations, there was a significant increase from T_1 - T_2 (1.59 ± 1.19 , 1.79 ± 1.18 mm, respectively). An inverse correlation was found between bone fenestration and cervical and middle buccal cortical bone thicknesses at T_1 and T_2 .

Conclusions: Corticotomy-assisted expansion with quad-helix was an efficient treatment modality of bilateral posterior cross-bite in young adults. Moderate bone fenestration was recorded at the end of expansion.

Biography

Noha Ayman Ghallab graduated from Faculty of Oral and Dental Medicine, Cairo University, Egypt, in 1997; and in 2002, she finished her MSc degree and received her PhD in 2005 in Periodontology and Oral Medicine. From 2012 till present, she is an Associate Professor of Oral Medicine and Periodontology at Faculty of Oral and Dental Medicine, Cairo University. She published 12 articles in peer-reviewed international dental journals, supervised more than 20 Master's and PhD Thesis and is a Peer-reviewer in 4 international dental journals. She attended the International Congress of European Federation of Periodontology "Europerio 8", London 2015, with an e-poster.

noha.ghallab@dentistry.cu.edu.eg

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