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Fixed lingual mandibular growth modificator (FLMGM) effects on the TMJ: A case series study using cone beam computed tomography

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Introduction: A fixed version of removable double plate have been recently introduced, it is the Fixed Lingual Mandibular Growth Modificator (FLMGM).

Aim: This case series study aimed at evaluating short-term morphological and positional changes of TMJ osseous structures as a result of 8. 3 months treatment using FLMGM.

Materials and Methods: The study sample included 11 patients at pubertal growth spurt period with overjet more than 4mm, and skeletal Class II relationship associated with retruded mandible. Cone beam computed tomography, taken before and immediately after treatment, was used to three dimensionally evaluate the effects of treatment on the morphological and positional relationships of osseous structures of 19 TMJs.

Results: Visual inspection of two dimensional slices failed to prove significant morphological changes in 58% of condyles in all three dimensional planes. Metric measurements showed, generally, minimal but significant changes including increased condylar width, articular fossa width and condylar area by 0. 35mm, 0. 46mm, 5. 74mm2 respectively, while inclination of articular eminence was decreased by 4°. At the baseline, the anterior position of the condyle onto the articular fossa was physiological, and as a result of treatment, limited total displacements anteriorly and inferiorly relative to Frankfort plane, were noted in the condyle (1. 2mm), fossa (0. 7mm) and articular eminence (1mm), with preserving the original position of the condyle onto the fossa.

Conclusions: FLMGM treatment resulted in limited morphological and positional changes of TMJ's osseous structures. Adaptation ability represented by adaptive condylar growth and temporal remodelling might be essential to compensate the anterior displacement of the mandible.

Biography

Osama Alali has completed his PhD at the age of 33 years from Damascus University School of Dentistry. He is an Assistant Professor at the Department of Orthodontics-University of Aleppo, Syria and has more than ten years clinical experience in Orthodontics. He has developed the FLMGM appliance. He has published more than 10 papers in reputed journals and has been serving as an invited reviewer for the journal *Angle Orthodontist*.

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