THE INFLUENCE OF FUNCTIONAL THERAPY ON FACIAL AND DENTAL STRUCTURES. CASE PRESENTATION

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THE INFLUENCE OF FUNCTIONAL THERAPY ON FACIAL AND DENTAL STRUCTURES, IN CLASS II DIVISION 1 CASES. CASE PRESENTATION (Abstract): In the era of fixed appliances, some orthodontic practitioners seem to forget about functional therapy. Functional appliances are the only capable of orthopedically changes during the growth spurt. Activators of all types, classic or opened, are elected appliances in growing subjects with class II/1 anomalies. The appropriate case selection, along with patient compliance, lead to improved facial aesthetic and dental occlusion, at affordable prices. With this case presentation, we want to show our protocol in the management of these cases. Keywords: ACTIVATOR APPLIANCE, FACIAL AESTHETIC, DENTAL OCCLUSION.

Class II division 1 malocclusions through mandibular deficiency are common in Eurocentric societies. Many studies have shown that orthodontic-orthopedic treatment with functional appliances during growth is capable to stimulate the anterior repositioning of the mandible and to correct the occlusion and the facial appearance as well (1-6). The classic activator is one of the most frequent used appliances in class II/1 treatment but one of its disadvantages is the large volume that makes it uncomfortable for the patient. One alternative could be the open activator that allows more lack of restrictions for tongue movements because the acrylic mass is reduced, that’s why it is more comfortable and can be worn almost permanently, not only during sleeping. (7)

CASE REPORT: A 12 years old male with class II/1 malocclusion. Extraoral examination revealed an ovoid facial pattern with short lower face, protruded lower lip and deep labial-mental fold, retrognathic chin and convex profile (fig.1).
Intraorally, the canine relationship was half a cusp class II on both sides, the right first molar was in class I and the left first molar was in half a cusp class II relationship. The upper incisors were extremely protruded. The upper right canine was expected to erupt. In the lower arch, there was a little crowding in the front teeth and the curve of Spee was very deep (fig. 2, 3). The over jet was of 9.1 mm and the overbite was of 5 mm. (fig. 4).

![Fig. 2. Pretreatment photographs of the dental arches](image1)

![Fig. 3. Pretreatment lateral occlusion](image2)

![Fig. 4. Pretreatment frontal occlusion](image3)

The lateral cephalogram showed a stage 3 in maturity of the cervical vertebrae, what means pubertal growth, the best time for functional treatment; 4 mm skeletal class II, deep bite (FMA angle=20°), upper incisors protrusion (I-Frankfurt line angle=123°) and normal position of the lower incisors (IMPA angle=90°). Gonion angle was decreased (120°), the angle of Y axis with Frankfurt plane was 57° that means an anterior direction of growth. The skeletal and soft tissue profile was convex (NAPog angle= -8.2°, GlSnPog angle= -22°) (fig. 5.)
The influence of functional therapy on facial and dental structures. Case presentation

Fig. 5. Pretreatment lateral cephalogram

The case was treated with an open activator (fig. 6).

Fig. 6. Open activator used

After one year of treatment, the over jet was completely reduced through upper incisor retrusion and mandibular advancement. The overbite was 1/3 with a leveled curve of Spee, because of lower lateral extrusion, that was obtained progressively trimming the lateral acrylic mass. The same appliance was used for retention until the completion of growth (fig. 7).

The skeletal and soft tissue facial profile was substantially corrected into a straight one (fig. 8, 9).

Fig. 7. Post-treatment frontal occlusion

Fig. 8. Tracings of pretreatment (blue) and post-treatment (red) cephalograms

Fig. 9. Post-treatment extra-oral photograph
DISCUSSION
Regarding our case and the existing theories in the literature about functional therapy, properly case selection is a guarantee for successful treatment and good results. The criteria that must be fulfilled are: the skeletal maturation at the peak (pubertal age), distal occlusion in canines and molars, moderate to severe overjet (up to 12 mm), skeletal class II because of mandibular posterior position sometimes associated with mandibular deficiency, deep-bite or normo-bite, mandibular counter clockwise rotation and good patient compliance. (8,9)
The reason for we have chosen an open activator was to allow the tongue to move anterior during the treatment, in the same direction with the mandible determined by the construction bite and to apply in the anterior third of the palatal vault. Also, it is more comfortable for the patient compared with a full, classic one.

REFERENCES