TREATMENT OF GROWING PATIENTS WITH ANDRESEN ACTIVATORS. A CASE REPORT

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Abstract

The purpose of this case report was to investigate the clinical effectiveness in reducing large overjet with an Andresen activator, a cheap and effective appliance for growing patients cases. Treatment with Andresen appliances showed a higher reduction for the ANB angle. Conclusions: the period of orthodontic treatment was reduced because the peak of bones’ growth occurred concomitantly with the eruption of the second molar.

Keywords: Angle Class II Malocclusion, Andresen activators, growing patient.

1. INTRODUCTION

Class II malocclusion is the most prevalent arch malrelationship in Caucasian populations, affecting 15% up to 27% of its people [1]. Modifications are necessary when the patient has unbalanced growth between the upper and lower jaws. This type of treatment can be applied only to patients who are still growing. Correction of a Class II division 1 malocclusion with functional appliances is a common treatment approach in young patients [2]. The activator, a widely used functional appliance, prevents the mandible from sliding backward and transfers the force to the maxilla, which is essentially the anchorage unit for the anteriorly displaced mandible [3]. The literature provides a large number of studies investigating the effects of activator’s appliance and the response to the treatment [4]. The activator consists of acrylic components and wire components. All removable orthodontic appliances are composed of porous materials in which microorganisms infiltrate, attach and can form biofilms [5].

2. CASE REPORT

The case report describes the orthodontic treatment of an 11 year-old male patient, with an uncrowded Class II division 1 malocclusion, presenting a good archform and a full unit distal occlusion during the second transitional period of mixed dentition, who addressed the clinic with the main complaint of having excessively protruded teeth (Fig. 1). Clinical examination revealed a satisfactory hygiene and a low caries prevalence.
Patient’s face presented muscle hypotonia and an everted lower lip. The patient also lacked passive lip closure (5.0 mm), and a rather hypotonic upper lip. His lower lip was both hypotonic and everted. Although the profile was quite slightly convex, the naso-labial angle was normal and the smile line was tending from normal to high. Intraoral assessment (Fig. 1) revealed a Class II division 1 malocclusion, 8 mm overjet, increased overbite and deep bite. Lower midline was 2 mm shifted forwards right.
Cephalometric assessment (Fig. 2) and the values measured during the treatment revealed a severe Class II skeletal pattern (ANB = 5°), with a retrognatic mandible (SNA = 79°, SNB = 74°). A counterclockwise rotation tendency was observed in patient’s profile (SNGoGn= 31°). Upper and lower incisors were proclined (Interincisal angle = 122°), with increased axial inclination (I/NA = 39°; i/ NB = 14°). The increased overjet was due to the presence of a significant skeletal class II discrepancy, caused primarily by mandibular retrognathia. As a result of a retrognathic mandible and reduced vertical facial proportions, there is a lip catch, the lower lip lying habitually behind the upper incisors.

**Treatment plan**

Functional correction of Class I occlusion by means of combined maxillary retraction and mandibular advancement, with reduction of overjet and overbite values using the Andresen appliances for correction of uncrowded Class II division 1 malocclusion (Fig. 3).

3. RESULTS AND DISCUSSION

Teeth have been reported as the fourth most common feature causing unfavourable social responses, including bullying. Overjet is related to teasing and reduced self-concept [6,7]. Overjet reduction (Fig. 4) was increased significant during the 17 month-active treatment period.
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Fig. 4. Facial and intraoral pictures after the treatment

Fig. 5. Lateral cephalometric tracing after the treatment, Steiner analysis

The antero-posterior skeletal pattern has improved, the maxilla has been restrained, the mandible has come forward and the ANB angle was reduced (Fig. 5). The lower facial profile was considerably improved and lip catch disappeared. The upper incisors have been proclined and the lower incisors retroclined, along with a decrease in the SNMP angle value. This functional stage treatment with Andresen appliance efficiently reduced the overjet, so than fixed appliances are effective in finishing the case.
4. CONCLUSIONS

This present study suggests that class II corrections can be achieved with the Andresen appliance. This appliance appears to have mostly dentoalveolar effects with smaller but significant skeletal effects.

References