COMPENSATORY TREATMENT OF SKELETAL CLASS III MALOCCLUSION WITH SELF-LIGATION APPLIANCE

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ABSTRACT

We present an account of a case of a malocclusion Class III with anterior crossbite where the chosen therapeutic option was the compensatory treatment. The compensatory orthodontic treatment of poor class III occlusion has been the first choice in dental offices because it is less aggressive to patients, especially in cases of mild or moderate skeletal involvement. We used to treat the Roth prescription with self-ligating brackets of the GAC brand - In Ovation R and the wires following the same brand with the projector. A positive horizontal overlap was achieved with the aid of further acrylic stand, made of laboratory, intermaxillary elastics and flaring bows with TMA wire. The excellent patient compliance with treatment, as well as the precise brackets and accessories are essential for the proper conduct and completion of the case. After 11 months, treatment was completed with very satisfactory results that will be presented throughout this work.

KEYWORDS: Malocclusion, Class III, Class III skeletal, self-ligating brackets.

1. INTRODUCTION

The Class III malocclusions, in orthodontics, is as complex and difficult cases to diagnose and treat, especially the origin and the different factors involved in this type of malocclusion. Thus, the dentoalveolar recognition and analysis of skeletal features are essential and possible, often a favorable compensatory treatment[1].

Studies show that 65% of Class III malocclusions are associated with maxillary deficiency, and in 30% of cases, this retrusion is due to a mandibular protrusion. Studies show that 65% of Class III malocclusions are associated with maxillary deficiency, and in 30% of cases, this is due to a retrusion mandibular protrusion. To identify this dysfunction, there is a consensus that it should intervene as early as possible to allow a suitable environment that provides the normal growth and facilitate the anterior maxillary advancement, improving occlusal relationship. In the adult stage, two types of treatment are the most commonly applied: the compensatory orthodontic treatment, orthodontic treatment associated with orthognathic surgery. Due to the high costs and risks that orthognathic surgery involves many patients are afraid to carry out combined treatments, and the compensatory treatment a satisfactory option for these cases. In this context, the techniques for Orthodontic Camouflage Class III have been improving more and more, with various types and prescription and brackets available for sale. Among these brackets are the self-ligating systems, which provide a lower bracket-wire friction when compared to the conventional system[2].

The self-ligating brackets are an important ally in modern orthodontic therapy today. Its main advantage is the lower friction with the orthodontic wire and the possibility of applying lighter and more biocompatible forces, reducing the risk of root resorption and periodontal damage in addition to the decrease of patient visits to the orthodontist's office during treatment[3].

The friction is defined as the greatness contrary to the movement of a body in tangential relationship to the surface of another, operating in the opposite direction to the same displacement trend. Associated with the use of elastic Class III, this system has been shown very efficient, since less resistance to movement, the upper front elements (incisors and canines) moved labially easily, and the lingual lower anterior elements, disguising the appearance of Class III present in this patient, and exercising a very satisfactory dental correction[4,5].

The objective of this paper is to present a case with Class III malocclusion and anterior crossbite treated with self-ligating system and intermaxillary elastics, culminating in excellent cosmetic result and occlusal harmony.

2. CASE REPORT

EPS patient, leukoderma, male, 39 years old, attended the dental clinic with complaints related to anterior crossbite and dismissing the possibility as surgical correction. In the early extraoral photographs, the patient

concave profile with with the lower face in balance and presence of passive lip seal (Figure 1). In the early intraoral photographs, the patient had severe anterior crossbite, with molar ratio of Class III right subdivision, and respect of Class III bilateral canines with coincident midlines (Figure 2).

Figure 1. Photographs initial extraoral.

Figure 2. Severe anterior crossbite, molar ratio of Class III right subdivision.

Figure 3. Initial panoramic radiograph.

The initial panoramic radiograph showed the presence of all permanent teeth including the upper and lower third molars. (Figure 3). The lateral teleradiography (Figure 4) showed a relationship deficiency in the maxilla and mandible (ANB = -4.5 degrees), horizontal growth standard (Pl Ocl = 3.5 SN / Sn.Go Me = 23, 5 / FMA = 16), protruding incisors, slightly vestibularized (1-NA = 5 mm / 1.NA = 25) lower incisors retruded and slightly lingually (1 NB = 2 / 1.NB = 21.3) (Figure 4 and Table 1).

Figure 4. Lateral teleradiography.

Table 1. Initial and final cephalometric variables.

CEPHALOMETRIC VARIABLE	INICITIAL	FINAL
MAXILLARY COMPONENT		
SNA (degrees)	77	77
A-Nperp (mm)	- 4,5	-4,1
Co-A (mm)	90	91
MANDIBULAR COMPONENT		
SNB(degrees)	82	81
P-Nperp(mm)	2,8	2
Co-Gn(mm)	122	123
RELATIONSHIP BETWEEN MAXILLA AND MANDIBLE		
ANB (degrees)	-4	-3
GROWTH PATTERN		
SnGo.Gn (degrees)	62	63
SnOclusal (degrees)	3,2	7,5
FMA (degrees)	12	15
DENTO ALVEOLAR COMPONENT		
1.NA	24	35
1-NA	5	8
1.NB	21	17
1-NB	3	0
IMPA	95	92

Objectives and Clinics Alternatives

The clinical development of this treatment aimed at aligning and leveling the upper and lower teeth, positive overjet (correction of anterior crossbite) and the correction of the molars and canines relationship.

Considering these objectives were addressed three treatment options: the extraction of two lower premolars, to correct the anterior crossbite; the ortho-surgical treatment; and dental compensation with orthodontic self-ligating brackets and intermaxillary elastics. The patient rejected the two surgical treatment options. He tirelessly sought a conservative treatment; did not need any surgery or tooth extraction.

Treatment Progress

They used the In-Ovation R appliance, Roth prescription master 5x5 slot 0.022 'x 0.030' 'brand GAC (Figure 9). The Home alignment and leveling was performed

with round wire nickel-titanium, Gauge 0.014 "in the upper and lower arches. It was continued with the sequence of upper and lower arches recommended by the manufacturer of the bracket, ie wires 16x25, 18x25 and 19x25 all nickel-titanium.

This alignment and leveling phase was accompanied by a rise acrylic lower arch, which provided the disocclusion region of the anterior teeth. After phase alignment and leveling, with 5 months of treatment, it began using arc upper buccal with 2 loops mesial to the molars, and away 2 mm of the buccal of the upper and previous elements, made of wire 17x25 TMA which, combined with the lower acrylic uprising provided the unwinding bite altogether (Figure 5).

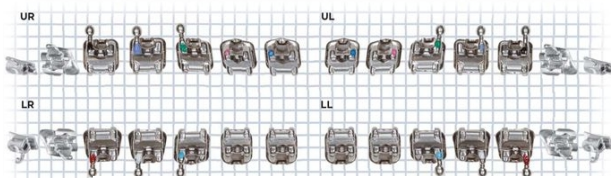

Figure 5. Alignment and leveling phase, accompanied by an uprising in acrylic on lower arch. **Fonte:** site GAC –www.GACortomax.com.br

Next, the patient used class III elastic 3/16 "(heavy), promoting force of 250 g on each side, to obtain Class I bilateral. Ideal arches steel wire were made for small occlusal refinements. After 11 months, self-ligation appliance was removed and the patient was instructed to use higher Hawley plate and lower fixed containment indefinitely. (Figures 6 and 7)

Figure 6. Patient with class III elastic 3/16 "(heavy), promoting force of 250 g.

Figure 7. Detail of the oral cavity of the patient with class III elastic 3/16 "(heavy), promoting force of 250 g.

Treatment Results

Final intraoral photographs show a very satisfactory correction of anterior crossbite with the presence of passive lip seal and harmonious face.

The anteroposterior relationship of the canines, which was the beginning of treatment of Class III has also been corrected. The patient was very pleased with the final result.

The cephalometric measurements after treatment show a similar maxilla positioning the initial measure compared the skull base, but a significant protrusion and buccal of the upper incisors in relation to their apical base (measured 1.NA and 1-NA; Table 1), which characterizes the "camouflage" orthodontic achieved through the use of intermaxillary elastics and flaring arches. Dental relations showed an improvement of molar ratio and the vertical and horizontal overlap. The patient profile has not changed.

Figure 8. Final extraoral photographs

Figure 9. Final intraoral photographs

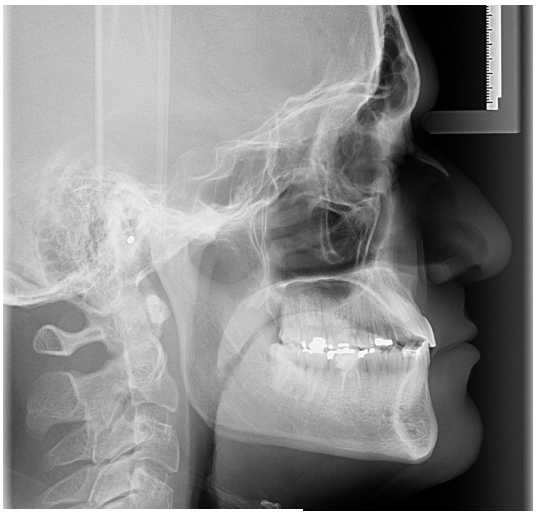

Figure 10. Final panoramic radiograph.

Figure 11. Final lateral teleradiography.

3. CONCLUSION

The orthodontic prescription used by the self-ligation appliance In-Ovation R system, combined with mechano therapy with intermaxillary elastics for correction of Class III skeletal and dental in the individual undergoing the study proposed in this work showed a satisfactoriness progression of orthodontic treatment with rehabilitation of dental relations proposals. Therefore, it was concluded that malocclusion Class III is likely to interventions dysfunction that bring good results in the long term and provide the resumption of a quality of life for individuals affected by this problem, and that the system can contribute positively self-ligation appliance in orthodontic practice, when properly indicated in these cases.

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