

# Modified Thermoplastic Plate: A New Proposal for Correction of Exaggerated Overbite in Mixed Dentition

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*Exaggerated overbite can be corrected by several treatment modalities. As the primary objective is to correct the problem by addressing its root cause, treatment options are closely related to etiology. Therefore, the main treatment strategies are: the extrusion of posterior teeth, intrusion of teeth (maxillary/mandibular) or the combination of these. The purpose of this paper is to describe the fabrication of a modified thermoplastic plate (MTP) for correction of exaggerated overbite in mixed dentition and describe a clinical case treated with this device. MTP favored the extrusion of posterior teeth, in addition to being shown to be a device that was easy to manufacture and effective in the treatment of excessive overbite, enabling patients to return to normal condition during the development of occlusion.*

**Keywords:** Orthodontics; Malocclusion; Dental intrusion; Orthodontic Extrusion; Overbite; Children.  
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## INTRODUCTION

Exaggerated overbite is a type of vertical malocclusion with a multifactorial etiology and requires an elaborate and specific differential diagnosis.<sup>1</sup> The etiology may be related to alterations in the growth of the mandible and/or maxilla, dentoalveolar alterations and even changes in the functions of the lips and tongue.<sup>2</sup>

As is the case with any other malocclusion, there are different treatment modalities for exaggerated overbite, either extruding posterior teeth, intruding anterior teeth or its combination<sup>1</sup>. The aim of this article is to describe the fabrication of a different appliance to correct exaggerated overbite.

## FABRICATION OF THE PLATE

Having obtained the working models (Figure 1A) a barrier is made with No.7 wax, which will serve as a protective shield for the plaster to be added for construction of a bite plane (Figure 1B-C). After the plaster has set the barrier is removed, taking care to avoid melting during the setting process (Figure 2A-B). The template with the bite plane is taken to a vacuum plasticizing device fitted with a 2mm

acetate slide (Figure 3A-B). When the model is plasticized the limits of the plate will be delineated with a pen and then cut with a carborundum disc (Figure 3C-D). On conclusion of cutting, a transparent acrylic plate is obtained (Figure 4A). To make it more resistant, self-polymerizing resin will be added in the space of the bite plate (Figure 4B-C). Resin inclusion is a must to protect the region that will bear the greatest forces when the patient occludes. To finalize, the plate will be finished and polished with 600 and 1200 grit abrasive water paper and pumice stone, respectively.

## MECHANISM OF ACTION

Once adapted in the anterior region, the mandibular incisors will touch on the bite plane disoccluding the posterior teeth. The lack of posterior contact will allow the teeth to extrude, correcting the overbite in the anterior region. Correction is facilitated when this appliance is used in patients in the active growth phase.

## CASE REPORT

An 8 years 10 months old child, sought treatment, complaining that the anterior mandibular teeth touched against the maxillary gingiva. On examination, he presented Angle's Class I malocclusion with exaggerated overbite and a trend towards horizontal facial growth (Sn-GoGn=25°) with discrepancy model: zero, criteria based on Moyers analysis. In view of the patient's report and needs, the option was taken to perform interceptive treatment extruding the posterior teeth. For this purpose a MTP was fabricated. The patient was instructed to wear the plate 24 hours *per* day for thirty days, and remove it only at meal times and during tooth brushing (Figure 5). After 30 days the bite was corrected (Figure 6 and 7).

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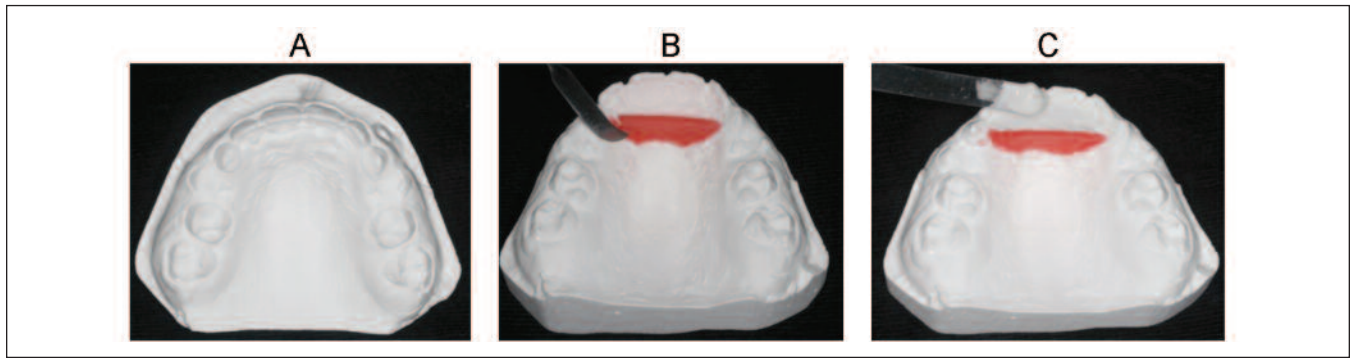


Figure 1.

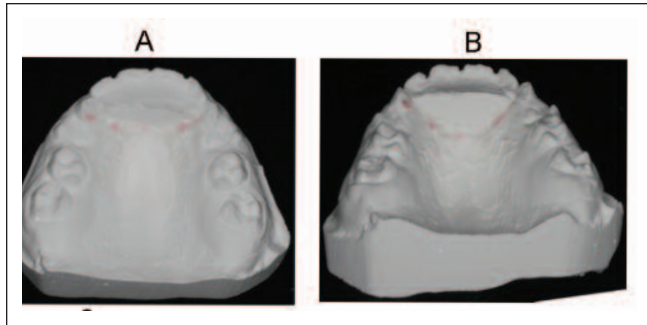


Figure 2.

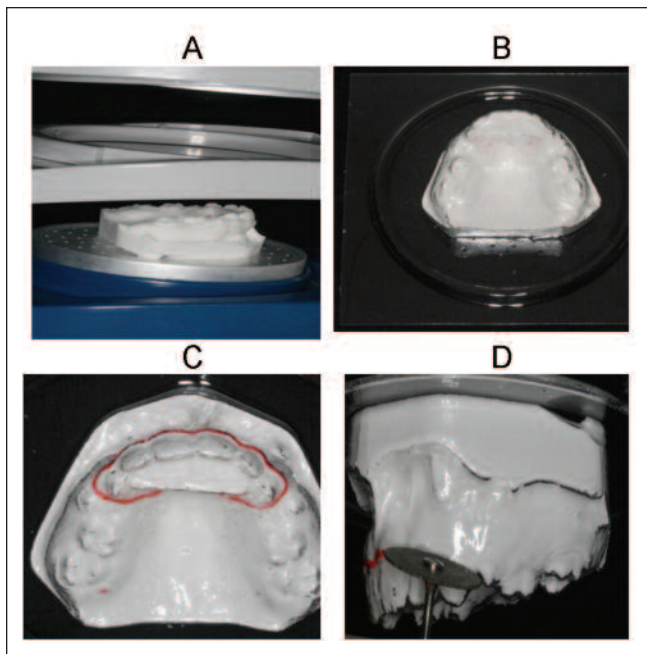


Figure 3.



Figure 4. Diagnosis

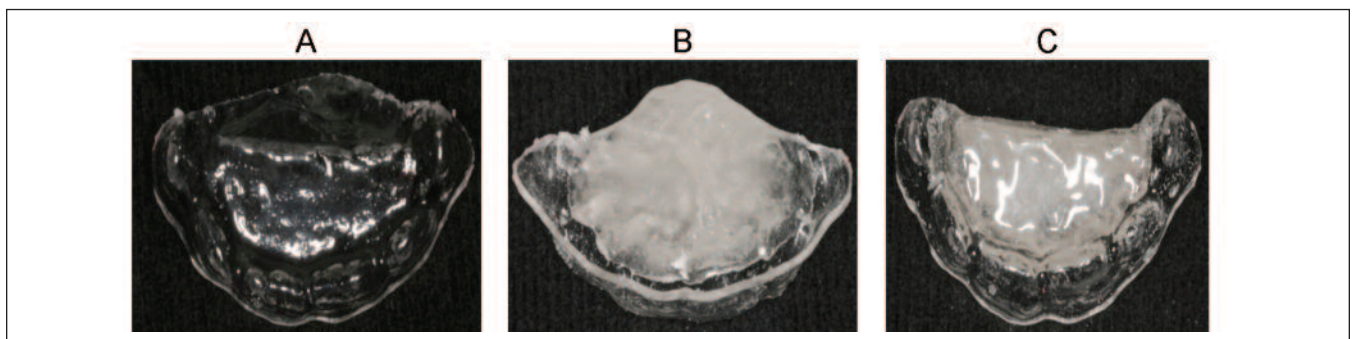


Figure 4.

**CONCLUSION**

The Modified Thermoplastic Plate is easy to make, esthetic and a low cost appliance for the correction of exaggerated overbite. It restored the patient's occlusion to a situation of normality during its development.



**Figure 5.** Adaptation of the plate



**Figure 6.** Final Result

**REFERENCES**

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**Figure 7.** Facial appearance

