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Clinical contribution

A modified Thermoplastic Retainer

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ABSTRACT

The aim of this article is to describe a method for fabricating a new esthetic maxillary retainer. To fabricate this retainer it is necessary to fit a segment of orthodontic wire in the maxillary molar and premolar region, followed by plasticization of the model. In order to allow occlusal finishing the occlusal and incisal surfaces of the plate are removed. The described retainer can be a useful alternative to the orthodontist for esthetic orthodontic retention.

1. Introduction

After orthodontic movement and treatment of malocclusion the teeth tend to return to their initial positions[1]. This tendency, called relapse, may be eliminated with the use of retainers[2]. Thus the aim of orthodontic retention is to maintain the teeth in ideal static and functional positions[3]. The length of time during which the retainer must remain in place is related to the patient's age, characteristics and severity of the malocclusion, habits and other etiological factors, mechanics used and the orthodontist's clinical experience[2–4].

There are various types of retainers used in the maxillary arch[2–6]. Usually, these retainers are orthodontic plates with orthodontic wire around the vestibular faces of all the teeth[7].

Nevertheless, there has been a growing demand for esthetic orthodontics in dental offices, especially among adults. With the aim of meeting this demand, esthetic brackets appeared, with the great advantage of being transparent[2,3]. After having undergone treatment with esthetic brackets, patients refuse to use retainers with visible orthodontic wire.

In an endeavor to overcome this obstacle, thermoplastic retainer plates appeared. These appliances have the advantage of being esthetic and the disadvantage of occlusal interferences[8]. With the intention of eliminating this disadvantage, the aim of the present study is to demonstrate the fabrication of a modified esthetic retainer.

2. Fabrication Technique

Having obtained the plaster cast of the maxillary arch, segments of section 0.8-inch stainless steel orthodontic wire are fitted around the teeth from the lingual face of 17 and 27 to the vestibular face of 15 and 25 (Figure 1). These wire segments are fixed onto the plaster model with fast drying, cyanoacrylate adhesive (Superbond®, São Paulo, Brazil). The dental cast with the fitted wire must be taken to the plasticizer, where

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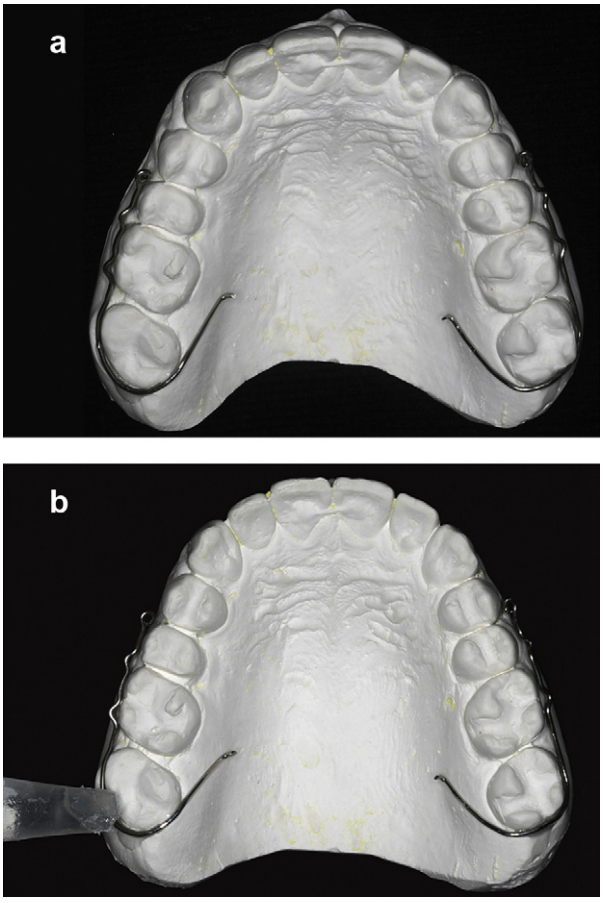

Fig. 1 – a. Occlusal view of the mandibular model with the segment of stainless steel wire around it; and b. Bonding of the wire segments with fast drying adhesive.

it will be plasticized with the use of 2 mm thick acetate plate (Bioart, São Paulo, Brazil) (Figure 2 a).

Next, the outlines of the plate are delimited using a red pen (Figure 2 b-d), to facilitate cutting with a diamond carborundum disk (Figure 3). Self-curing acrylic resin is then applied between the acetate of the plate and the clips in order to fix them, making the plate more rigid (Figure 3 b). Afterwards the plate is finished and polished was 1200 grit wet abrasive paper followed by polishing with pumice stone.

The plate is applied to the patient's mouth where a few adjustments are necessary.

3. Case Report

The patient V.S.F., 28 years of age, came to the dental office with the chief complaint of spaces between the teeth. The malocclusion initially presented was Class I with anterior open bite. The patient showed resistance to using a metal orthodontic appliance, and the use of monocrystalline ceramic brackets with esthetic wires was then suggested. After the malocclusion had been treated the orthodontic appliance was removed, and then the esthetic thermoplastic retainer was put in place (Figure 4).

4. Discussion

Ponitz[9] was the first to describe an alternative to the traditional removable retainer in 1971: the clear thermoplastic retainer. The material for the device, made of a translucent acrylic sheet, was heated and either vacuum- or pressure-formed over the working cast. This thermoplastic retainer

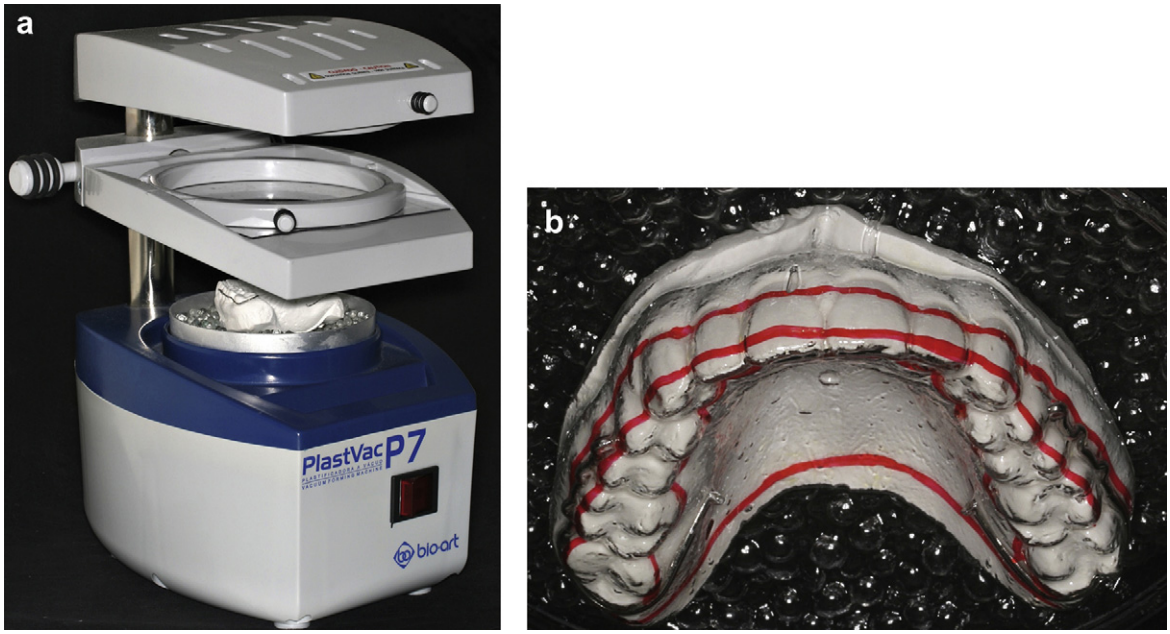

Fig. 2 – a. Model placed in the vacuum plasticizer; and b. Anterior view of the areas to be cut with disc.