Matheus Melo Pithon[1,2]

INTERMITTENT ORTHODONTIC FORCE SHOULD ALWAYS BE CONSIDERED WHEN THERE IS A HIGHER RISK OF ROOT RESORPTION

Orthodontically induced inflammatory root resorption is a common unwanted side effect when performing orthodontic tooth movement. Genetic characteristics, biological factors and orthodontic treatment techniques can affect the degree and amount of root resorption. Mechanical factors in orthodontic treatment can be controlled by the clinician. These include the duration of force application, the amount of force applied and the type of orthodontic force. There is agreement in the literature that continuous forces lead to greater resorption than intermittent forces, nonetheless studies evaluating intermittent forces have evaluated them with large gaps between the activations. In order to evaluate a protocol that fits clinical routine, Australian and Turkish researchers developed an *in vivo* study[1] (Fig 1) comparing continuous force with intermittent force (28 days of activation and 7 days of rest). The authors concluded that in an orthodontic adjustment period of 4 weeks, intermittent force significantly reduced the amount of root resorption, compared to continuous force, although there was less tooth movement with intermittent force. According to the authors, this protocol is crucial in patients predisposed to orthodontically induced inflammatory root resorption.

THERE IS NO EVIDENCE OF INVISALIGN® EFFECTIVENESS IN THE CORRECTION OF MALOCCLUSIONS

The search for a method for invisible orthodontic correction linked to technological development made the dental aligners reemerge. Nowadays, there is a plethora of trademarks, among which Invisalign is undoubtedly the best-known brand as it has been the pioneer in this new phase of aligners and is the one spending more on merchandising worldwide. The heavy marketing promoted by Invisalign fascinates orthodontists all over the world, but can everything that is presented and promised

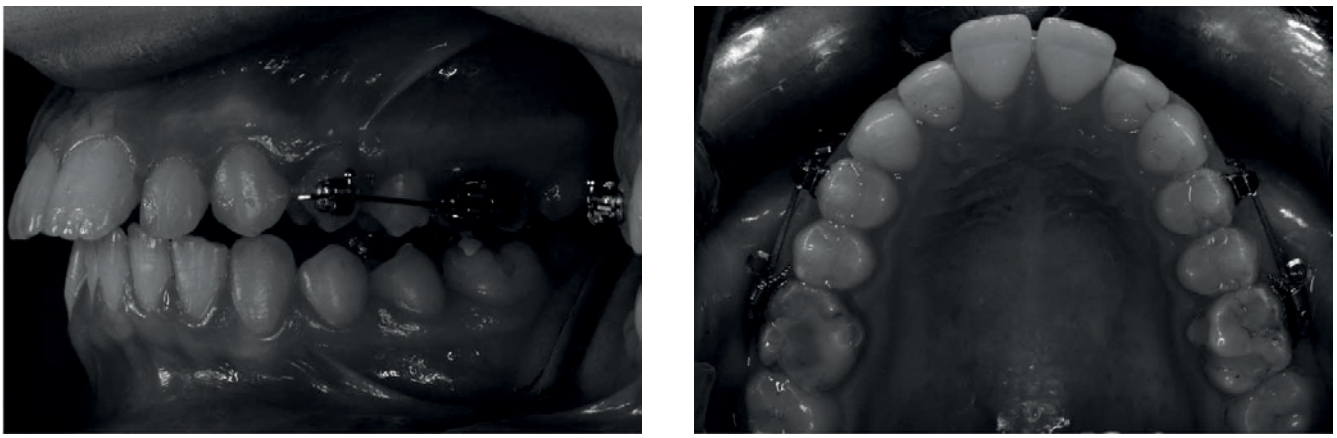

Figure 1 - Intraoral images of the TMA cantilever used. Source: Ozkalayci et al.[1], 2018.

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be achieved? With the proposal of elucidating this doubt, Greek and Swiss researchers developed a systematic review[2] that aimed to evaluate the available evidence regarding the clinical effectiveness of the Invisalign system. The results of this systematic review concluded that although orthodontic treatment with Invisalign is a treatment option widely used in mild to moderate malocclusion without extraction in the absence of growth, there is still no reliable evidence regarding its use in cases with a higher degree of complexity in growing patients. The authors draw attention to the fact that although this review included a considerable number of studies, treatment outcomes need to be interpreted with caution due to their high heterogeneity.

THE USE OF ULTRAVIOLET LIGHT REDUCES THE TIME OF ORTHODONTIC COMPOSITE REMOVAL BUT PRODUCES MORE DAMAGE TO THE ENAMEL

Removal of the fixed orthodontic appliance is undoubtedly the most awaited step in any orthodontic treatment. After all, one waits several months for the planned functional and aesthetic results. In order to achieve fullness of the planned objectives, it is necessary that the patients should receive their complete dental enamel, as it was in the initial consultation. The removal of the composite adhered to the enamel must be done following specific techniques, avoiding its damage. Recently, composites for orthodontic bonding have appeared in the market, which present in their composition agents that stand out in the presence of ultraviolet light (Fig 2). According to their manufacturers, such a feature would facilitate removal by decreasing clinical time and maintaining the integrity of the enamel, but are such attributions scientifically proven? In the search for an answer to these questions, Brazilian researchers developed an *in vitro* study with human molars.[3] The results obtained with the study led the authors to conclude that the use of UV light to remove the orthodontic composite after debonding produces results similar to the non-UV light removal technique on the surface of the enamel, but in less clinical time. However, there was a significant clinical trend with respect to marks produced in the enamel using UV in relation to conventional light. The authors emphasize the importance of a good professional training in the execution of this clinical procedure.

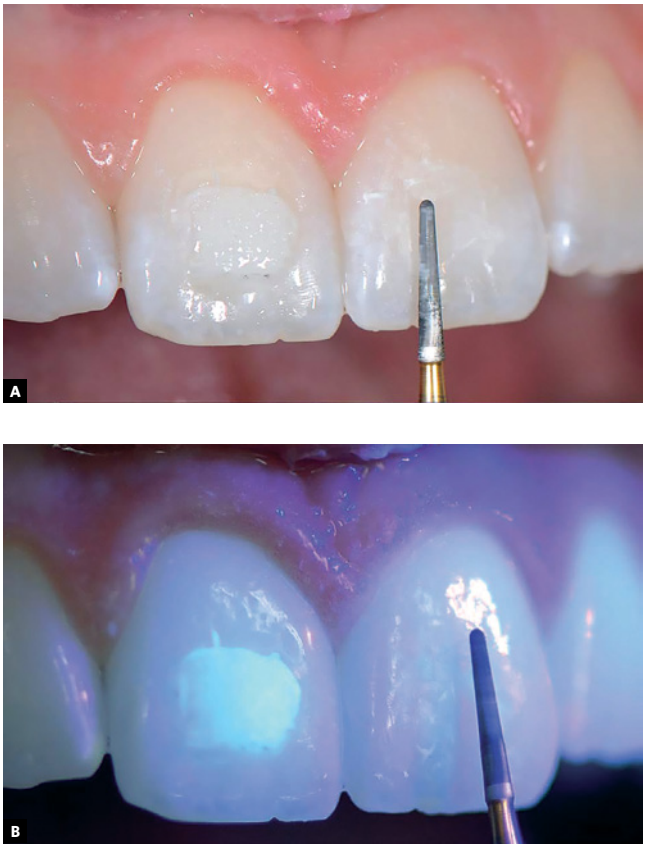

Figure 2 - Methods tested for composite removal: **A**) no light; **B**) with ultraviolet light. Source: Kaneshima et al.[3], 2018.

BOTULINUM TOXIN IS EFFECTIVE WHEN USED FOR A GUMMY SMILE FOR A PERIOD OF 8 TO 12 WEEKS

An attractive smile is seen as an important tool in facial harmony and of great relevance in social interaction. In the presence of great gingival exposure, the attractiveness of the smile decreases drastically as can be proven by several scientific studies already published. The treatment of open bite depends on its etiology and severity. Several procedures are available to correct it, such as gingivoplasty, orthodontic tooth intrusion, orthognathic surgery, and bone resection. However, these treatments are relatively complex and of a more interventionist kind. In cases where gingival exposure is caused by a hyperfunctional active upper lip, correction of gingival exposure has been successfully achieved using botulinum toxin type A (BTX-A). Still, doubts remain, mainly regarding it

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time of effectiveness. In the search for answers to this question, Brazilian researchers developed a systematic review with metanalysis[4] whose results revealed that the significant effect of a treatment with BTX-A on excessive gingival exposure tends to be stable up to 8 weeks post-application; however, such an effect may last until 12 weeks. The authors draw attention to the fact that more clinically well-designed clinical trials are needed to actually verify this issue.

EXTRACTION OF PREMOLARS DOES NOT CONTROL THE VERTICAL DIMENSION OF FACE

Extractions for orthodontic purposes have been the subject of discussion since the emergence of Orthodontics as a specialty. Tooth extractions are indicated in the presence of dental protrusion, sharp tooth/arch discrepancies, orthognathic pre-surgery decompensations, vertical control, among others. Although these principal recommendations are a consensus among us, orthodontists, there is still no evidence about the effectiveness of premolar extraction in vertical control. There are studies stating that control can be achieved and others that it cannot. In the face of this dichotomy of information, researchers in Greece and Switzerland decided to develop a systematic review[5] that aimed to evaluate the available evidence for the effects of orthodontic treatment with 4 extractions of premolars in the skeletal vertical dimension of the face compared to treatments without extraction. The authors concluded that there is no specific effect of the extraction of four premolars, when compared to the treatment without extraction, in the vertical dimension of the face.

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