



Daily suggestion: accelerated orthodontics

Sugerencia del día: movimiento dental acelerado

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The objectives of contemporary orthodontics are function, aesthetics, stability and integrity of the support tissues. Routinely the orthodontist achieves these goals through different philosophies, mechanics or forms of treatment. Technological development and scientific application of biomaterials combined with findings regarding the biology of orthodontic dental movement have produced modifications in the way in which orthodontic treatment is performed.

The human being has a taste for change and for acquiring temporal trends in different areas, sciences, behaviors or thought philosophies as may be observed in the fashion of clothing, architecture (minimalist tendency, Art Deco, futuristic...) or diet (Mediterranean, organic, high in protein...). This «human being» feature may be applied to a myriad of activities and conditions, particularly in the way in which patients are treated in health areas.

Historically, in orthodontics there has been the domain of different trends in treatment that unfortunately instead of being used as another alternative for the correction of malocclusions become promoted as the solution to all evil. This results in an unsuitable application which demerits the efficiency of therapeutic tools by being used in cases in which its employment is not indicated as has happened with the indiscriminate use of penicillin which Alexander Flemming discovered in 1928 and that has resulted in bacterial resistance.

Some examples of these trends in orthodontic treatments have been: the abuse of treatments with dental extractions, indiscriminate arch expansion, distalization in every case or demonizing friction in orthodontic systems by using only self-ligating brackets. From here we focus on Accelerated Dental Movement which has generated a lot of interest nowadays. It includes different approaches and modalities: the non-surgical or non-invasive¹ ones such as micro vibration² or pharmacological therapy³ and the invasive or surgical ones that have been grouped under the name of surgically-assisted orthodontics (SAO). SAO requires performing one or more cuts at cortical bone level, this procedure

is called corticotomy.⁴ Different authors have formulated protocols for corticotomies and hence register or patent their technique, for example: Wilckodontics⁵⁻⁹ Piezosurgery,¹⁰ Piezocision¹¹ or Speedy orthodontics.^{12,13} All these treatment protocols share the same biological mechanism called accelerated regional phenomenon (ARP), a concept developed by Frost. This phenomenon affects the bone pattern resulting in a temporary phase of accelerated dental movement.⁷⁻¹⁴

Because of the hardships that orthodontic appliances represent mainly due to the aesthetic factor and diet limitation, as well as a high requirement of oral hygiene, alternatives have been sought to accelerate orthodontic treatment. These arguments justify, to some extent, the search for a faster way to perform treatment but do not determine that speed is a priority.

Currently, accelerated dental movement has caused furor in orthodontics to the extent of wanting to perform it in all patients. The three problems with the abuse in the application of these procedures, which are closely related, are:

1. Lack of clinical, technical and scientific training before performing treatment.

It is alarming and disturbing to face an empirical clinical reality in the twenty-first century; the lack of scientific culture makes periodontists suggest corticotomies when the orthodontist should be the one to indicate how, when and why plan them since the beginning of treatment. The lack of real training and study before starting this treatment modality coupled with the frivolity of some specialists in exploring without appropriate learning is alarming. It is important to mention that the lack of scientific knowledge among different specialties promotes

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delegating responsibilities; if an orthodontics specialist does not know about the subject he or she might ask the periodontist to perform corticotomies and thus deliberately free him or herself of responsibility and devote him or herself only to what they know, a situation that is unacceptable in a treatment of this kind.

2. Lack of understanding of the role each specialist plays in interdisciplinary treatment between periodontics and orthodontics.

The orthodontist evaluates and determines whether the case is suitable for applying SAO. In words of Serge Dibart, pioneer and author of the Piezocision technique:¹⁰ «The periodontist operates through indication of the orthodontist...»; not because this is a question of power, but the orthodontist is the one who will perform dental movements and by knowing bone biology, will also predict tissue response to stimuli.

3. Lack of implementation of a suitable protocol independent of the technique used.

The times of intervention of each specialist must be established from the beginning of treatment for its correct development, taking into consideration the chosen modality.

Function, aesthetics, stability and integrity of the support tissues are sought through different treatment philosophies and mechanics. Function and aesthetics are goals in which the orthodontist can obtain excellence. Occasionally, the orthodontist compromises the integrity of the support tissues (compensating a surgical case for example), and the stability of the case (which remains an enigma: why some cases are more stable than others despite being equal). It has been said that SAO favors retention and integrity of the support tissues, however, there is no solid scientific evidence for such a statement at this time.

SAO is an extraordinary therapeutic tool for the contemporary orthodontist that delivers the benefits of a shorter treatment time and may provide more integrity to the support tissues mainly with techniques where a bone graft is used.

I conclude with some questions: does SAO radically change the way of treating orthodontic patients? Is it the ideal way, what the specialty was looking for, what we have been expecting? Must we change the way we currently treat our patients? Initially the answer is no; SAO is one more element of all the tools used by the orthodontist to provide attention for the patient with malocclusion. SAO is a therapeutic tool with many advantages and risks but by improving the technique

and understanding better the involved biological and mechanical mechanisms, it could revolutionize orthodontic treatment entirely.

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