How do you desire tooth movement for your patients?

By EOS speaker Dr Raffaele Spena, Italy

Dr Spena is a lecturer at the Department of Orthodontics of the University of Ferrara in Italy. On 8 June, he will be presenting an EOS lecture titled “Fast, efficient or comfortable: How do you desire tooth movement for your patient?” from 10:00 to 11:20.

Thomas Widjo published a clinical report in which two cases had been treated with alveolar corticotomy and extensive grafting. The study revealed that after a surgical insult to the alveolar bone, the following rapid tooth movement could be explained with the RAP reaction described by Frost in 1983 more than the bone block movement previously described by Syu and Köle.

The paper stimulated an incredible volume of research and clinical works. Most of these however have been focusing on acceleration of tooth movement, reduction of treatment time and “expanding” non-extraction treatment possibilities. I had little interested in these aspects and soon developed a different perspective on alveolar corticotomy. From my experience, it is an effective and clinically applicable way to enhance tooth movement, reduce resistance to tooth movement and reduce anchorage needs thus improving anchorage control. Alveolar corticotomy is proposed to our patients as an adjunct to facilitate tooth movement in complex cases and risky clinical situations. It is not proposed as a way to reduce treatment time.

Alveolar corticotomy can be performed with open flap or flapless surgery. At the beginning, the open flap procedures were the only available choice. However, they required a good periodontal/oral surgeon. They were also expensive and sometimes too invasive compared to the advantages it provides. Nowadays, we limit the open flap corticotomies to those cases where a flap is raised to expose impacted teeth, when an orthognathic surgery is carried out or when grafting is needed for periodontal reasons. For an increasing percentage of cases, the flapsless corticotomy is preferred: small round or perforations around the teeth to move. The decortication can be performed in-office with help of the same procedure that is used to place minimally invasive aesthetic gel instead of needle, no sutures, no grafting. It is fast, painless, relatively inexpensive procedure with incredibly high acceptance by the patients. Since it simplifies the biomechanics, it can make the difference in specific cases when combined with skeletal anchorage.

The literature is still very negative or, at least, divided over self-ligating systems and alveolar corticotomy. However, studies and randomized clinical trials, very often concluding that “further studies are needed to get a final answer”, are necessarily looking at one or two aspects of the entire problem/topic/situation at a time. They are of great help to evaluate things, but necessarily not completeness (and often real clinical evidence). A clinician, that honestly has to decide what appliance or procedure to use in his practice, has to look at so many things that are difficult to find or all concentrated in one study.

Relationship between early orthodontic treatment and oral health-related quality of life confirmed

In Western countries like the UK, between 10 and 20 per cent of adolescents undergo orthodontic measures in some form. A recent meta-analysis conducted by researchers at the University of Sheffield’s School of Clinical Dentistry has indicated that treatment in those younger years may have a measurable impact on a person’s oral health-related quality of life (OHRQoL).

In their review, they found that levels of emotional and social well-being concerning OERQoL improved moderately in patients who were treated orthodontically before they were 18 years old. The findings are relevant, because until now, there has been little evidence that treatment actually improves OERQoL. The researchers included data from over a dozen studies reporting outcomes before and after orthodontic treatment that were conducted within the last ten years in countries like Australia, Brazil, Canada, China, Italy, the UK and the US. Of these, four were finally selected for using similar questionnaires to measure what young people thought about their teeth and how their dental appearance affected their life, before and after orthodontic treatment. All showed measurable and moderately large improvement in the areas of emotional and social well-being, according to the researchers.

“As practicing orthodontists we are constantly being told by our patients that they are pleased they had their teeth straightened and that they are no longer embarrassed to smile or to be photographed,” explained co-author Prof. Philip Bensen, who is also Director of Research at the British Orthodontic Society. “We wanted to find all the research that has tried to measure this effect with young people.”

While the findings are a first step to establishing a platform for exploring this issue further, Benson admitted that the number of participants included in the studies was small and that high-quality data is needed to substantiate the conclusion. A follow-up study investigating OERQoL in the under-18 age group under the supervision of co-author and student Jasmine Javid from as part of her doctoral research project is underway at the School of Clinical Dentistry.

The study, titled “Does orthodontic treatment before the age of 18 years improve oral health-related quality of life? A systematic review and meta-analysis,” was published in the April issue of the American Journal of Orthodontics and Dentofacial Orthopedics.