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Editorial

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Maintaining bites closed: A 50−year quest

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Abbreviation: TAD: temporary anchorage device

Writing an editorial for the first time is not an easy task one can do. Therefore, I will cover a topic I have been involved since 2012 at the beginning of my short orthodontic carrier: Open bite long−term stability!

Despite this modern era of digital orthodontics we are living in, some issues such as open bite long−term stability remain controversial due to the poor understanding of the complex causative factors related to malocclusion etiology, regardless of the appliances and protocols currently known.[1] Orthodontic treatment must be directed to, not only correct the malocclusion to address patients´ esthetic and functional impairments, but also maintaining its results in the long−term. Treatment of anterior open bite, as well as many other malocclusions, depends on its etiology, severity and the time that is set, ranging from the simple abandonment of a deleterious habit such as thumb sucking to a complex orthognathic surgery involving both the maxilla and mandible.

More than 50 years ago, Dr. Daniel Subtelny wrote an article in which he stated: "severe open bites should not be treated".[1] Why is that? The answer is Relapse! Nowadays, even with important advances in diagnosis and treatments such as skeletal anchorage and surgical approaches, the available systematic reviews and meta−analyses point out to a moderate stability rate regarding open bite treatment.[2−4] According to the current literature, different treatment protocols (extraction; non−extraction; vertical elastics; molar intrusion; surgical; occlusal adjustment) produces a wide range of clinical stability (50% to 85%).[5−10] Considering only non−surgical open bite treatment, molar intrusion (mini−screws and mini−plates) seems to be the most stable treatment approach (80% of clinical stability).[11,12] Dr. Greg Huang from Washington University at Seattle has been making great efforts on conducting researches, publishing articles, and especially organizing the Open Bite Study across America in order to understand how open bites are diagnosed and treated among U.S orthodontists.[10] Only 10% to 13% of American orthodontists enrolled in the research use TADs or recommend surgery, and 40% of the patients had prior orthodontic treatment.[13]

When we take a look at the surgical stability one can find a surprising variety (50% to 85%) influenced by the bone fixation type and anteroposterior correction. My Ph.D thesis (results are to be submitted to publication) retrospectively compared the open bite long−term stability of surgical cases with and without maxillary segmentation with a follow−up mean time varying from 3 to 7 years. No significant difference was found regarding clinical stability when segmentation was performed. However, as well known in the literature, the type of fixation influenced the relapse/stability rate, the rigid internal fixation provided more stability than wire fixation. The sample was also divided considering the anteroposterior discrepancy (Class II X Class III) and results showed that Angle Class II relapses much more than Class III−we do not know how to explain why, just some speculations such as condylar resorption, muscle adaptations, etc..[2,3,9,14−24]. The relapse of mandibular plane correction is, usually, associated with overbite relapse in surgical−orthodontic treatment of Class II and III open bite patients.

The problem of producing an evidence−based status of open bite long−term stability is the difficulty regarding study design. An ideal clinical trial should take more than seven years (2−year treatment plus 5−year post−treatment) to be completed using 3−d computed tomography in at least three time−points (initial, post−treatment−appliance removal and retention).[25] Maybe over the next 50 years, our quest for searching the most stable way to treat *apertognathia* should be successfully completed and I would like to live until there, even holding my walking stick, to finally disagree with doctor Subtelny!

I would like to dedicate this editorial to my demanding and inspiring mentor Dr. Guilherme Janson from Bauru Dental School, University of São Paulo, Brazil who guided me over the last 6 years and also to the memory of Dr. Daniel Subtelny, who was a pioneer on the understanding of this complex and challenging malocclusion.

Figure 1: With Dr. Janson in Washington, D.C at the AAO Annual Session−2018.

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Figure 2: With Dr. Subtelny and Dr. Janson in New Orleans at the AAO Annual Session−2014.

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