Reviewer’s report

Title: Single tooth torque correction in the lower frontal area by a completely customized lingual appliance

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Reviewer: Julia Cohen-Levy

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This article is a retrospective case series of 3 patients, that were successfully orthodontically treated for a single lower incisor torque correction with a completely customized lingual appliance. Success was observed in, that both incisor alignment and mostly periodontal status, with little side effects, as evaluated by the available techniques, i.e. intra-oral photographs, plaster cast models and orthopantomograms.

First, one must realize the impressive results that were achieved by the clinicians who treated those cases. The clinical interest of these results is of importance, as these gingival recessions, although rare, are particularly feared by orthodontists, and very challenging to treat, often requiring a multidisciplinary approach. The limited number of patients, 3, does not remove anything of the impact of this article, as the improvement of gingival recessions speaks for itself; recession improvement was clearly shown on 2 cases of lingual recession and 1 case of buccal recession, one being particularly extreme (13mm).

The chosen method to evaluate apical resorption is elegant, even if the gold standard is a standardized intra-oral technique, described by Linge BO and Linge L). Since, the chosen crown/Total length ratio method allows conclusions when comparing orthopantomograms after orthodontic treatment. It should be underlined that direct measurements on panoramic radiographs could not be used because of poor reproducibility, differential magnification and distortion created by the technique. On the contrary, relative values (ratio), as used in this study, allow precise evaluation of root shortening, because it eliminates the root shortening created by crown proclination -or lengthening caused by crown retroclination-. Still, accurate and standardized radiographic techniques are needed to ensure validity of those measurements, and should be reported (for instance the same settings and machine being used for a single patient).

In order to reproduce the results and statistical tests, the intra-observer measurement error (3 measurements) should be reported, and standard deviations added in all tables, not only the mean of 3 patients.

However, we regret that no precise periodontal data/risk factors were available, at baseline and after proper treatment: inflammation, bleeding on probing, biotype, plaque control, smoking habit, amount of keratinized tissue or presence/stretching from a muscular insertion... Given the
retrospective design of the study, we understand that baseline data could not be collected, but periodontal status after treatment would be interested to develop. Long-term success and the need for monitoring or further periodontal treatment could be mentioned.

Last, the legends in table 2 might be confusing, as the words "apex 42/41" in the table are used to describe the gingival apical limit of recession, an NOT the apex of the root, as described in the figure legend. These measurements were indeed taken on plaster cast models and could not describe root apices movements.

To conclude, this is a very good case-report of single-tooth torque correction, with very interesting results. Within the limits of a retrospective study, the precision of orthodontic correction with this customized lingual technique was confirmed. I would only recommend minor corrections.

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