

## Maxillomandibular advancement for treatment of obstructive sleep apnea

I congratulate AlSaty et al for their article in October 2020 (AlSaty G, Xiang J, Burns M, Eliliwi M, Palomo JM, Martin C, et al. Follow-up observation of patients with obstructive sleep apnea treated by maxillomandibular advancement. *Am J Orthod Dentofacial Orthop* 2020;158:527-34). The research provides valuable information about the airway changes in patients with obstructive sleep apnea syndrome (OSAS) treated with maxillomandibular advancement (MMA).

The authors indicated that the aim of their study was to follow-up airway changes in patients with OSAS treated with MMA procedure with or without genial tubercle advancement. Although the article mentions the cone-beam computed tomography parameters, it does not reflect on the clinical improvement in their sample patients. What was the qualitative outcome of the patient? Because the main purpose of maxillomandibular advancement is to make an improvement in the sleep-disordered breathing and a better quality of life, it is not clear if a follow-up was done on that aspect?

In the discussion, the authors wrote, "The MMA procedure has a higher efficacy for lowering the apnea-hypopnea index."<sup>1</sup> However, they did not mention if the apnea-hypopnea index was lowered in their study sample along with the improvement in the airway observed in the cone-beam computed tomography. It would be more meaningful in terms of clinical application if the authors included how the patients improved clinically. In Table IV, we see that the difference in total airway volume and minimal cross-sectional area between T4 (Follow up visit) and T3 (Immediately after MMA procedure) is significant. So, how did it reflect clinically with the patient's condition? Was there any relapse of OSAS or return of symptoms?

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## REFERENCE

1. Varghese R, Adams NG, Slocumb NL, Viozzi CF, Ramar K, Olson EJ. Maxillomandibular advancement in the management of obstructive sleep apnea. *Int J Otolaryngol* 2012;2012:373025.

## Authors' response

We appreciate the interest and the insightful comments on our article.

In our sample, we had a total of 25 patients who were diagnosed with moderate to severe obstructive sleep apnea syndrome (OSAS). The inclusion criteria consisted of patients who had pretreatment sleep study reports to confirm the diagnosis of sleep apnea but not posttreatment sleep data. We strongly agree that including posttreatment sleep reports would be more meaningful in terms of clinical application. However, most of the patients in the study were not willing to pursue the posttreatment sleep study because the OSAS symptoms disappeared, and their quality of sleep was significantly improved after the surgical procedure. This was why we were not able to include the posttreatment sleep data in our article.

However, we can share one of the typical cases for which we have the pretreatment and posttreatment sleep report: a 55-year-old male with a chief concern of excessive daytime sleepiness and fatigue. The initial polysomnography (PSG) report showed a moderate OSAS with an apnea-hypopnea index (AHI) of 21.2 events/h, an Epworth Sleepiness Scale score of 12/24, and a body mass index of 25.6 kg/m<sup>2</sup>. Two months after the maxillomandibular advancement procedure, another PSG study was performed. Based on the surgical criteria for successful treatment,<sup>1</sup> which includes a >50% reduction of baseline AHI and a posttreatment AHI <20, there was almost a complete resolution of the patient's OSAS with a postoperative AHI of 0.7 events/h and Epworth Sleepiness Scale score of 3. The lowest oxyhemoglobin saturation during sleep was elevated to 97%, and the body mass index decreased to 25.2 kg/m<sup>2</sup>.

In our study, a partial loss in oropharyngeal airway space was found during the short-term follow-up visit after the edema regressed. However, all patients reported improvement in the quality of sleep. This finding is consistent with the cephalometric and PSG study by Conradt et al,<sup>2</sup> reporting success in maxillomandibular advancement treatment that was stable over 2 years.

Thank you again for the opportunity to discuss our study. We look forward to a follow-up study with a longer follow-up period and posttreatment sleep study data.