

Letters to the editor*

Rapid maxillary expansion to treat halitosis in children: An alternative approach?

Regarding the article "Effect of rapid maxillary expansion on halitosis" published in *AJO-DO* in November 2018 (Sezen Erhamza T, Ozdiler FE. *Am J Orthod Dentofacial Orthop* 2018;154:702-6), we congratulate the authors for their innovative study. The use of a halimeter and organoleptic methods combined with acoustic rhinometry and plaque, gingival, and periodontal indexes to diagnose halitosis in children was very well addressed. Nevertheless, one of the references cited by the authors stated that "it is mandatory to perform a very good anamnesis/history and an objective test in all patients with halitosis complaint."¹ Therefore, we wonder whether the children's own halitosis complaint or the parents' report of their children's halitosis was investigated during the anamnesis to select the patients. If there were reports, for how long did they have halitosis? Did they have true halitosis? Were the children evaluated by an ENT specialist to exclude otolaryngologic and respiratory diseases? Were they selected solely based on the inclusion criteria (ie, maxillary constriction, deep palatal vault, bilateral crossbite, and presence of first premolars and first molars)? Was the halitosis just an additional finding in the case group? The main reason to carry out the rapid maxillary expansion in the patients of the case group was not clear: Was it the halitosis complaint or orthodontic requirements? Other information stated in another reference cited by the authors is that "oral malodour on awakening is common and generally not regarded as halitosis."² Why were all measurements performed in the morning before breakfast, without brushing the teeth? Could the patients have just transient oral malodor rather than true halitosis? In addition, when analyzing Tables I and III, it seems that the control group demonstrated lower scores for halimeter, organoleptic, plaque, and gingival indexes (89.56 ± 26.22 , 1 [1-3], 0.60 ± 0.43 , and 0 [0-1.31], respectively) compared with the case group. Should not both groups have been paired in T0? Although "all subjects received oral hygiene instructions to maintain their usual oral hygiene procedures at every appointment,"³ we hypothesized that perhaps the patients of

the case group were somehow more motivated to improve their oral hygiene because of their orthodontic treatment, as highlighted by the authors in the introduction when referring to citations 18, 19, and 20. We would like to respectfully clarify these questions before advocating rapid maxillary expansion as an alternate approach to treating halitosis in children, with or without orthodontic requirements.

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Authors' response

First, thank you for your time and consideration in reviewing our paper. Below, please find the requested explanations.

The inclusion criteria did not include halitosis. We only aimed to evaluate whether halitosis values changed. Because there was no previous study on this issue, we did not expect any change. Our findings, however, indicated a significant decrease in halitosis values. Therefore, as you mentioned, detailed research can be conducted with patients who present with halitosis complaints.

The aim of the study was to investigate whether maxillary expansion in patients with maxillary constriction would result in changed halitosis values. Rapid maxillary expansion (RME) was performed in patients with crossbite and maxillary constriction; that is, all were treated for orthodontic reasons, not for halitosis. Only children without respiratory problems (such as influenza, colds, or allergies) were included in the study.

In the literature, halitosis measurements are performed before breakfast and morning tooth brushing.¹⁻⁴

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