Rapid Maxillary Expansion for Obstructive Sleep Apnea: A Lemon for Lemonade?

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Rapid maxillary expansion (RME) is an orthodontic procedure that is mainly used in pre-pubertal individuals with maxillary skeletal constriction. RME often makes it possible to dramatically increase the transverse upper dental arch size within a relatively short period (e.g., a few weeks). Since expansion of the upper dental arch using RME would increase the space available for the soft tissue inside the oral cavity, including the tongue, the use of RME is reasonable for the treatment of pediatric patients with obstructive sleep apnea (OSA) and/or may have preventive role of future OSA development. However, even in open trials, only a few research groups have succeeded in reporting the outcome of RME in pediatric OSA.¹

It would be of interest to examine the percentage of adult OSA patients who likely would have benefited from RME during their teenage years. Both the sizes and the shapes of the upper and lower dental arches change with aging. However, once the permanent dentition is established without any typical sign of maxillary transverse narrowing—such as bilateral crossbite, during the teen years—the dental arches are unlikely to decrease in size as much as dentition that is narrow enough to be prescribed RME treatment. Accordingly, dental models of OSA patients, even those from adults, might provide a rough but adequate reflection of the past status of dentition within each subject. We recently demonstrated that the upper dental arch width in 164 Japanese adult OSA patients (45.0 ± 3.0 mm) was not narrower than the standard value in controls (45.65 ± 3.10 mm) ($p = 0.995$).²

The above finding simply indicates that a narrower upper dental arch is not a common feature of OSA patients, and thus the number of pediatric OSA patients who are indicated for RME treatment should be much less than argued, at least among Japanese. A main point of criticism in previous and perhaps future reports on RME for pediatric OSA overall may be the lack of detailed information concerning patient selection. In particular, information on the flow of patient recruitment is needed to determine the generalizability of the efficacy of RME for pediatric OSA. In addition to describing the inclusion/

exclusion criteria and the final number of enlisted subjects, it would be reasonable to clarify how many pediatric OSA patients were seen at the sleep center, how many patients were actually approached, and how many patients were excluded and/or refused for proper reasons.

While the authors believe that RME is still a fruitful option for pediatric OSA patients with a specific orthodontic abnormality, personnel working in sleep research should reconsider the real world and examine how much the lemon under discussion contributes both scientifically and clinically to making lemonade.

CITATION

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