incisors was desired, it ended up otherwise. The same goes with execution of Class II correction. At best, the finishing stage showed an end-on molar relationship. In fact, the greatest difficulty I had to face was in post-adolescent patients with moderate to low mandibular plane angles. The management of second premolar extraction space closure further led to increased treatment duration. All these concerns point to the notion that the conventional wisdom noted by Schoppe is not always so wise.[2] One would argue that there could have been negligence in executing controlled mechanics. I could always deny this argument because I have meticulously tried all the means. At the same time, I could be wrong as well. But my experience constitutes my data. Furthermore, I could not find a plausible answer to my concern in the literature.[3,4]

When the effort to manage the lower second premolar extraction space is high stake, I come to a consensus to manage the situation with first premolar extraction. I sensed the advantage in executing the treatment tactics with first premolar extraction regardless of the type of extraction space closure (A,B, or C). I envisaged that closing the lower second premolar extraction space by mesial movement of a wider first molar root into the reduced buccolingual width of bone at the alveolar ridge (corresponding to the extracted second premolar site) is difficult and involves slower tooth movement. Instead, at the first premolar extraction site, the tooth movement often smoothly progresses more quickly and with less tipping. With first premolar extraction, both the second premolar and canine roots are juxtaposed in the alveolar ridge of similar dimension. In that context, our clinical acuity should deal only with the issue of differing anchorage values for a planned and predictable type of extraction space closure. Furthermore, Bennett and McLaughlin[5] asserted that it is important to start space closure without delay, to avoid the risk of bone narrowing in the extraction site, which can occur within 3-6 months. If narrowing occurs, mesial movement of the wide first molars is more difficult. A systematic review calculated the horizontal loss to be 3.8 mm and the alveolar height to be 1.24 mm 6 months after extraction of teeth.[6]

I understand that my delineation is an extreme case of differing viewpoint. However, as an inquisitive orthodontist, I always ask if I am missing or embracing the "big picture."

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Authors' response

Thank you for the letter and comments about our article, "Class II correction: Extraction or nonextraction?" (Vaden JL, Williams RA, Goforth RL. Am J Orthod Dentofacial Orthop 2018;154:860-76). We are appreciative of the fact that the writer found the correction of the malocclusions were done in a "deliberate conscious effort with laser-sharp focus from the very start" and that the patients whose treatment were shown had excellent results, both facially and dentally.

Regarding whether the decision to extract mandibular second premolars was made according to a formula or clinical judgment, out answer is that the extraction decisions were a combination of both. All formulas have loopholes and all clinical judgments need to be examined. Both formula and clinical judgment are used in planning treatments such as the ones described.

The force system used to close the mandibular extraction space was explained in detail in the article. We don't think we need to add anything to the description of the force systems used. It has been our experience that these force systems adequately close a mandibular second premolar extraction space and facilitate a tight contact of the mandibular first molar with the mandibular first premolar.

The diagnostic "formula" that was used was a total dentition space analysis with an added computation in the middle arch area for the Class II correction.[1-3] The occlusal disharmony, or space needed for Class II correction, must be computed along with any tooth arch analysis when premolar extraction is considered. Occlusal disharmony is measured by articulating the

casts and by using the maxillary first premolar cusp and its relationship to the mandibular first premolar–second premolar embrasure as a reference. One can measure mesially or distally from the maxillary first premolar buccal cusp to the embrasure between the mandibular first and second premolars. This measure is made on both sides and it is then averaged to determine the occlusal disharmony. This disharmony must be computed along with any space requirements in the middle arch area in the mandibular arch.

The clinical judgment for the mandibular second premolar extraction is probably described best by Sherwood R. Steadman, from Saint Paul, Minn, in his discussion of the article "An analysis of second premolar extraction procedures" by R.J. Schoppe (Angle Orthod 1964;34:292-302). Steadman stated that, "Extraction of second premolars in preference to first premolars in selected patients (1) permits more rapid mesial movement of molars, (2) permits less lingual movement of incisors, (3) is probably the best means of gaining space when a minimum of space is necessary, (4) tends to alter the profile less, and (5) tends to hasten closure of the extraction space."

We very much appreciate the letter and hope that our explanation provides some insight into the reasons for the extraction of the mandibular second premolars in these selected low to moderate mandibular plane angle patients.

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