Letters to the editor*

Induced ankylosis of primary canines

I have just finished reading and re-reading the very interesting article, "Induced ankylosis of primary canines for absolute anchorage in the treatment of a patient with Class III malocclusion and cleft soft palate" (Zhang M, Liu S, Chen S, Yu F, Zhong C, Huang J, Lu H. Am J Orthod Dentofacial Orthop 2019;155:398-410). This case report is a useful addition to our arsenal of treatment strategies for early intervention in patients with Class III maxillary retrusion, and I applaud the extent of the improvements that were obtained and the relative stability of the results.

However, as a frequent reviewer for the *American Journal of Orthodontics and Dentofacial Orthopedics*, I was frustrated with the reviewing and editing of the article itself. I believe that careful attention to the details of articles is critical to their quality and usefulness, especially when the original authors' first language is not English.

There are many questions that should have been asked by the reviewers and answered by the authors, before this article was published. Providing answers to the following questions would have improved the clinical usefulness of the article:

1. Why were primary canines chosen to be ankylosed? Why not primary molars with their much larger root structures?
2. A "rigid splint" to promote ankylosis of the canines is mentioned. What was this? What was the design? What was the rationale for its use?
3. It was stated that the primary canines were left in the splint for 3 months. Why was this time period chosen? Is there any support in the literature for that time period?
4. How was it determined that the primary canines were truly ankylosed?
5. If they were ankylosed, how do you explain the spaces that occurred between them and the first primary molars (Figs 4 and 5)?
6. Why were brackets placed on the primary incisors, none of which were ankylosed?
7. What are the upside-down surgical hooks for on the archwire? I assume they were what the elastics were attached to (see next question), but I do not see that they would have been mechanically useful in those positions. Would they not have given an upward and forward vector on the maxilla, rather than the downward and forward vector I think one would want?
8. Why "alternately use maxillary deciduous canines and deciduous incisors as abutments for maxillary protraction to encourage anterior maxillary growth?" This made no sense to me.
9. For how long did protraction continue?
10. Did the ankylosed primary canines need to be extracted or did they exfoliate normally?
11. For how many years was this patient in active treatment? From the photographs and text, I calculated that it was about 7 years. Was this necessary and appropriate?
12. Figure 5 was just Figure 4 repeated. I am not sure if this was an author error or a layout/editing error, but it should have been caught by someone.
13. Where did the change from Figures 1 to 4 come from? It was implied that Figure 4 is simply the appearance of the appliance after the 3-month waiting period for ankylosis was over, but the patient is almost out of anterior crossbite at this point.

I would greatly appreciate if these questions were answered so that their answers can be attached to the article itself to improve it.

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Authors' response

We are very grateful for your interest in our study and are happy to discuss the comments.

We read the article that reported intentional ankylosis of deciduous canines to reinforce maxillary protraction.[1] A tentative attempt was made to use this way to treat our patients. Animal experiments have proved that intentional extraction and replantation of teeth would induce ankyloses.[2-7] In 1985, Kokich et al[8] reported a case in which intentionally ankylosed deciduous canines were used for protraction. After that,

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