

be regarded as a “controlled” tooth trauma, and therefore, pulp obliteration and occasionally pulp metaplasia are observed in transplanted teeth with developing roots.

Later, the authors stated that “autotransplantation to an artificially formed socket during prolonged healing of sinusitis had a risk of ankylosis due to possible absence of a PDL attachment and concern for failure because of the close proximity between the sinus base and the transplanted tooth apex.” Andreasen<sup>4</sup> examined the role of the PDL in relation to replantation and transplantation and concluded that the loss of PDL facing the alveolar bone does not prevent its regeneration after replantation and transplantation. In fact, in most cases, the PDL is not present at the recipient site after mechanical preparation of the artificial socket. This, however, is not expected to prevent the formation of normal PDL structures after transplantation because vital PDLs residing on the root surface of the transplanted tooth can proliferate and restore the complete PDL of the transplant. Furthermore, it has bone-inducing capacity<sup>5</sup> and the potential for a complete reformation of the alveolar bone.<sup>6</sup>

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## Authors' response

We thank our colleagues for their keen interest in our clinical article and for their comments and suggestions to make it better. We appreciate the explanation on the etiology of pulp obliteration and incomplete apexification. Reading through the reference articles, we learned about the tissue metamorphosis or pulp metaplasia phenomenon. We hope that your in-depth explanation will fill in the gaps in our study.

We believe that your opinion on ankylosis is that an artificially formed socket itself does not affect ankylosis. Although it is not well expressed in our article, we think that damage to the periodontal membrane during surgery or as a result of inflamed sinuses or insufficient bony support can affect ankylosis in a complex way. In “Retrospective study of 100 autotransplanted teeth with complete root formation and subsequent orthodontic treatment” by Kokai et al,<sup>1</sup> 100 autotransplanted teeth in 89 patients were examined over a mean observation period of 5.8 years. Root resorption, ankylosis, mobility, pocket depth, and inflammation at the recipient site were investigated clinically and with radiographs. The survival rate of the autotransplanted teeth was 93.0%. However, 15 of 100 transplanted teeth showed ankylosis alone or ankylosis plus root resorption. In addition, our finding that tooth autotransplantation to the opposite jaw negatively influences the success rate is in agreement with that of a previous study.<sup>2</sup> We once again thank you for your thoughtful advice and sharing knowledge.

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