

# Methodical bias for comparison of periodontal ligament injection and local infiltration anesthesia for routine extractions in the maxilla

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## Dear editor

We read the article by Al-Shayyab<sup>1</sup> with great interest, though we think that there is a methodical bias.

Usage of standard dental syringes with 27-gauge needles is not recommended for periodontal ligament (PDL) injections as they are very unlikely to achieve the correct pressure needed for successful single tooth anesthesia. In accordance with this, specialized syringes with short 30-gauge needles are commonly used all over the literature.<sup>2</sup> The author addresses this in the “Discussion” section and writes that “a standard conventional dental syringe was used in the present study, not a special PDL syringe, since the former is readily available in the clinic and proves equally successful when a standard 27-gauge short needle was used,” citing Malamed from 1982 (a time during which the modern PDL syringes were not developed yet<sup>3</sup>) and Madan et al who write that “intra-ligamentary injection technique is equally effective when a standard 27-gauge needle is used”.<sup>4</sup> The second assumption refers to the needle only, not the syringe. In addition, this needle issue is not proven by any reference or study. Therefore, one might come to the conclusion that PDL was not carried out correctly. Also, the authors did not evaluate pulp or tissue anesthesia and started the extraction procedure after a latency period of 5 minutes in all cases. In accordance with this, the success rates of the PDL injection cannot be given, but would be of interest.

Whereas for infiltration anesthesia, 1.8 mL was injected buccally and an additional 0.3 mL on the palatal side, PDL consisted of 0.2 mL on the mesial aspect of each root of the tooth. In accordance with this, one may consider this as infiltration with additional palatal nerve block. Besides, it is difficult to estimate how a mesial injection was possible, for example, for a three-rooted maxillary molar. How did the author approach the mesial side of the distal root? Normally, PDL is recommended at least in the mesiolingual and distolingual aspects. In addition, the newer literature shows that the injection PDL in four sites is significantly more successful than in two sites.<sup>5</sup>

In conclusion, the study of Al-Shayyab rather compares infiltration plus palatal block with a special, unusual and not suitable form of PDL. Therefore, from our point of view, generalization of the results should not be carried out, and further studies on conventional PDL in the maxilla are needed.

## Disclosure

The authors report no conflicts of interest in this communication.

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## Author's reply

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## Dear editor

I would like to thank you for giving me the opportunity to respond to the concerns raised in Kämmerer and Daubländer's letter. I would also like to thank Kämmerer and Daubländer for giving their time to express their concerns and interest in my article.

In their letter to the editor, Kämmerer and Daubländer expressed potential concerns with the statement written in the "Discussion" section of my article, which should be read in light of the data from the three used references altogether, not separately. Malamed<sup>1</sup> that stated although "special" PDL syringes can be used effectively and safely, a conventional local anesthetic syringe is equally effective in providing PDL anesthesia. The use of a 30-gauge needle for PDL injection is too fragile to withstand the pressure without bending. However, great clinical success, with no increase in patient's discomfort, is achieved using the more readily available 27-gauge short needle.<sup>1</sup> I agree that differences between the two syringes, as well as the needles, may exist, but necessitate further studies rather than recommending one over another. Special dental syringes were dedicated to the PDL technique in the 1970s.<sup>2</sup> The success of PDL injection is judged when resistance to the deposition of anesthetic solution is felt.<sup>1,2</sup> Pain during extractions can be evaluated after a 5-minute latency period without evaluating pulp or testing tissue anesthesia.<sup>3</sup> This contradicted the recommendation in the letter referenced by a meta-analysis<sup>4</sup> on PDL injection in the mandible, which is not necessarily applicable to the maxilla, and would indicate that the PDL in the study was carried out in accordance with the literature.<sup>1,3</sup>

Palatal injection employed in the study cannot be considered as the palatal nerve block, as the anesthetic is not deposited

close to the greater palatine nerve trunk.<sup>3</sup> For PDL injection, the local anesthetic was deposited on the mesial aspect of buccal and palatal roots, which provided adequate visibility of the injected site and maintained control of the needle.<sup>1</sup> However, the needle was repositioned and the injection repeated when no backward pressure was felt during injection.<sup>1,2</sup> Furthermore, I would like to draw the attention of Kämmerer and Daubländer that their argument of two or four sites for PDL injection is based on a retrospective study<sup>5</sup> related to PDL for molars diagnosed with asymptomatic irreversible pulpitis in the mandible, which is not necessarily applicable to posterior maxillary extractions. Such an argument has to be considered for future PDL anesthesia for maxillary teeth, rather than imposing one methodology over another.

In conclusion, the study still compares routine buccal and palatal infiltration with a special, usual and evidence-based form of PDL. Therefore, within the limitations of the study, generalization of the results should be carried out, and the conclusion of Kämmerer and Daubländer is not supported by specific references. However, I would agree that further studies on conventional PDL in the maxilla are needed.

## Disclosure

The author reports no conflicts of interest in this communication.

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