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Comment on vertically fractured teeth without root canal fillings

LETTER TO THE EDITOR

Tofangchiha M, Bakhshi M, Fakhar HB, Panjnoush M. Comment on vertically fractured teeth without root canal fillings. Dent Traumatol 2011;27:143-6. doi: 10.1111/j.1600-9657.2010.00973.x. Epub 2011 Feb 1.

I read the above article written by Tofangchiha et al. with great interest. I would congratulate the authors for their effort in the preparation of the article. Authors compared two different intra-oral radiographic systems (CCD and film) in the detection of vertical root fracture (VRF). No significant difference was found between both techniques.

Vertical root fracture (VRF) is a complication that can occur during or after root canal treatment and requires extraction. VRF is usually iatrogenic and can occur after the insertion of retention screws or pins. Another etiology of VRF is excessive occlusal force, particularly in restored teeth. Endodontically treated uncrowned posterior teeth are most at risk (1–3).

However, in this study design, no endodontic filling materials were placed after preparation of root canals. Apart from the two-dimensional nature of intra-oral radiographic systems, the most important limiting factor in the detection of VRF is the masking effect of root canal fillings, screws, and pins. As VRF is almost always a complication seen in endodontically treated teeth, this study design is debatable and it cannot be applicable to the real clinical conditions. In this study, masking effect of filling materials was not an issue, which can be considered as a flaw of the design.

In addition, it can be understood from the reference list that not all the relevant literature was discussed or cited. Considering the publication date of the article, there are several articles concerning VRF detection in terms of diagnostic abilities of different radiographic systems which could be discussed. Most recent literature used endodontically treated teeth when evaluating VRF diagnosis. I hope that the authors will consider my constructive comments in their future work.

Kıvanç Kamburoğlu
Department of Dentomaxillofacial Radiology,
Faculty of Dentistry, Ankara University,
Ankara, Turkey

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Answer from authors,
Thanks for your precise reading of our article and your constructive comments.

We read the letter to the editor, and we should state that you were right on claiming that VRF is usually seen in endodontically treated teeth. But you should consider that the main purpose of this study was to compare the accuracy of two different imaging systems in the detection of VRFs. To my opinion, as the experimentally produced fracture line would be evaluated by the two systems in a same condition, it is not critical to fill the root canals, because the resultant masking effect would be same for both of the systems. Moreover, we used Monagham method in producing VRFs in our study, and if we filled the root canals after inducing VRFs, displacement of fractured parts would be a probable result. The purpose of Kamburoglu study in filling 1/3 apical of root canal is probably to keep streak artifact effect of CBCT images. This artifact is not discussed in two evaluated methods in our study. The reference 2 is probably a compliment to reference 3, and the sampling method was same for both of the articles. We tried to mimic the clinical conditions using Monagham method in producing VRFs, so the fracture lines are at any direction. However, in Kamburoglu study, fracture lines are produced only in a bucco-lingual direction and cannot completely present the clinical conditions. Regarding the fact that aims of reference 1 are the same as ours, it would have been better to discuss it in our study. However, results of this study are in accordance with reference 1, while our sample size was more than three times larger than reference 1.

Best regards,

Mahin Bakhshi

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