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Comparison of fracture and deformation in the rotary endodontic instruments: Protaper versus K-3 system

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Introduction: Fracture of rotary instrument in the root canal space is considered as a serious procedural accident in endodontics. The best way to manage such accidents is to avoid use of deformed endodontic file.

Materials & Methods: An experimental study was done on the extracted human teeth to compare the fracture and deformation of the two endodontic files system namely, K-3 and Protapers. A record was kept of any file deformation or fractured during root canal preparation. The location of fracture was also noted along with the identity of the canal in which fracture took place. Chi-square test was applied to compare the deformation and/or fracture in the two rotary systems.

Results: The incidence of fracture was similar in the two groups. Most of the fractures occurred in mesiobuccal canals of maxillary molars and buccal canals of premolars. However, the likelihood of file fracture increases 5.65 folds when the same file is used more than 3 times.

Conclusions: There was no difference in K-3 and Protaper files with respect to file deformation and fracture. Irrespective of the rotary file system, apical third of the root canal space was the most common site for file fracture.

Biography

Sana Ehsen Nagi has completed her Specialty Training at Aga Khan University and Hospital in the field of Operative Dentistry. She is active in research work in the field of Endodontics, Implant Dentistry and has also worked on systematic reviews and is still conducting researches on many projects in the field of Restorative Dentistry.

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