

Rotary Instrumentation in Primary Teeth

Endodontic treatment is a major and increasing portion of the activity of pediatric dentists evolving from hand instrumentation to rotary, each of which method has its merits and demerits. The major concern of hand instrumentation in primary teeth is increased preparation time, especially in young children with limited cooperation. The other concern is inconsistency of quality tapered preparation leading to further problems in obturation thereby compromising the clinical prognosis.

From the introduction of NiTi alloy in endodontics by Walia *et al.* (1988), instruments spinning 360° within root canal were developed with the following objectives: simplicity, speed, safety in addition to stress reduction for both the clinician and patient. Therefore, rotary instrumentation represents a significant evolution in endodontics which increasingly results in a faster, safer and better quality preparation. The use of rotary systems demands a thorough previous training as it reduces the operator's tactile sense. Rotary instrumentation in curved molar root canals of permanent teeth has been shown to be time efficient, with increased patient comfort and lower risks of flare-up.

Since primary root canals have complex and variable morphological features, it is difficult to prepare them. Since most of the primary molar root canals are flattened, narrow, curved and ribbon-shaped with myriad anatomic variations, the impact of these design modifications on root canal preparation on primary teeth is not clearly known. Rotary biomechanical preparation of primary teeth was first described by Barr *et al* (1999,2000) with ProFile .04 taper rotary instruments, which was cost-effective and efficient resulting in consistently uniform and predictable obturation. Later, many authors have reported clinical success in primary molars with a modified protocol using ProTaper, Hero Shaper and K3 rotary files.

Application of protocols for permanent teeth to primary teeth may lead to lateral perforation on the inner root surface, especially in curved molar roots. The abrupt cervical constriction, with a shelf of dentin overlying the canal orifice results in an acutely curved root canal orifice in primary molars which should be removed to improve the straight-line access and reduce the risk of instrument separation. Orifice enlargement files may be used only for early coronal enlargement and to facilitate straight-line access.

Each rotary file should be inspected for unwinding or distortion before introducing into the canal as separation can occur without any visible signs of previous permanent deformation within the elastic limit. Only light pressure should be applied during preparation while using torque controlled Endo-motors. Although most manufacturers recommend their files to be used only once, various authors have recommended multiple uses of these files. In my opinion, number of times each file to be used should be an individual decision of the operator depending on various factors.

To conclude, modified rotary instrumentation protocol is the time efficient way to do root canal preparation of primary teeth in pediatric dentistry.

Thanks & Regards,

Dr. Prasad K Musale

Professor of Pedodontics and Preventive Dentistry,
M. A. Rangoonwala College of Dental Sciences and Research Centre,
Pune, India.

E-mail: pedoprass@gmail.com

Contact No: +91 - 9822077597



Dr. Prasad K Musale

*Professor of Pedodontics and
Preventive Dentistry*