Kedo File System for Root Canal Preparation in Primary Teeth

Abstract
Endodontic instruments play a vital role during root canal preparation. Biomechanical preparation in primary teeth is performed using the adult endodontic files. There are various disadvantages during use of adult endodontic files in primary teeth namely the length and taper of the files. Recently, an exclusive paediatric endodontic file system has been introduced for cleaning and shaping of primary root canals. This short communication describes the use of exclusive Kedo-SH manual and Kedo-S rotary file system in primary teeth.

Keywords: Kedo-S, Kedo-SH, primary molars, pulpectomy

Introduction
Pulpectomy is the preferred treatment of choice for non-vital primary teeth. Root canal preparation in primary teeth is a challenging and time-consuming procedure.[1] Various instrumentation techniques such as hand, reciprocating and rotary are used in primary teeth.[2] Numerous studies have been reported in literature, comparing the use of adult endodontic hand, rotary files for root canal preparation in primary teeth.[3,4] Kedo file system is an exclusive endodontic file used for preparing root canals of primary teeth.

Brief Report of Cases
Case-1 with Kedo-S (rotary files)
A five-year-old child was reported with a chief complaint of pain in his right lower posterior region. The pain was localized, sharp and aggravated during intake of cold foods. Pain was present during night. The patient’s medical history was found to be noncontributory. Following clinical and radiographic examination, he was diagnosed with dental caries in relation to right lower primary second molar [Figure 1]. The tooth was anaesthetized using 2% lignocaine with 1:2,00,000 adrenaline (Lignox, Indoco Remedies Ltd. Mumbai, India). Access opening was prepared using #330-pear shaped bur (Mani, Inc, Tochigi, Japan). Canals were located with a size 15 K-file. (Mani, Inc, Tochigi, Japan). Working length was determined using pre-operative radiograph and measured 1 mm short of the apex. D1 Kedo-S rotary file (Reeganz Dental Care Pvt. Ltd) was used to prepare the mesiobuccal and mesiolingual canals and E1 rotary file was used to prepare the distal canal. Three percent sodium hypochlorite (NaOCl) was used as an irrigant solution and normal saline was also used as an irrigating solution in between instrumentation. Ethylenediaminetetraacetic acid (EDTA) gel was used as a lubricating paste during canal preparation with rotary files (RC helps Prime dental products Pvt. Ltd, India). The root canal space was obturated with Metapex (Meta Biomed Co. Ltd. Chungbuk, Korea). The coronal seal of the tooth was done with glass ionomer cement (GC Fuji II, Tokyo, Japan) [Figure 2]. Appropriate stainless steel crown (3M ESPE, St, Paul, MN, USA) was cemented using type I glass ionomer cement. Three months postoperative follow-up revealed no furcal radiolucency in relation to right lower primary second molar [Figure 3].

Case-2 with Kedo-SH (Manual files)
A four-year-old child was reported with a chief complaint of pain in his left lower posterior region. Pain was localized, dull in nature. The pain was present during night. His medical history was found to be noncontributory. Following clinical and radiographic examination, he was diagnosed...
with dental caries in relation to left lower primary first molar [Figure 4]. The tooth was anaesthetized. Access opening was prepared using #330-pear shaped bur (Mani, Inc, Tochigi, Japan). Working length was determined using pre-operative radiograph and measured 1 mm short of the apex. Mesial and distal canals were located using 15 size white kedo-S hand file, followed by extirpation of pulp using 20 size yellow kedo-S hand file. Mesiobuccal and mesiolingual canals were prepared using D1 kedo-S Hand file and the distal canal with E1 Kedo-S hand file. Irrigation and obturation was similar to case one [Figure 5]. Appropriate stainless-steel crown (3M ESPE, St, Paul, MN, USA) was cemented using type I glass ionomer cement. Three months postoperative follow-up revealed no furcal radiolucency in relation to left lower primary first molar [Figure 6].

Discussion

Kedo pediatric file system for primary teeth

Kedo file system consists of kedo-S (kids-Endodontic-Shaper), an engine drive Nickel-Titanium (Ni-Ti) rotary file system [Figure 7] and Kedo-SH [Figure 8] hand use file system consisting of stainless steel and Ni-Ti files.

The Kedo-S rotary file system consists of three files namely D1, E1 and U1. All the files are made up of nickel-titanium alloy with a triangular cross-section and a non-cutting tip. The files also have a negative rake angle with variably variable taper (VV). The Kedo-S files are 16 mm in length with 12 mm cutting blades (working area of the files). D1 of the kedo-S rotary file system consists of 0.25 ISO tip diameter with a VV taper of 4–8%. This file is specifically designed for the narrower canals in primary teeth, namely mesiobuccal and mesiolingual in mandibular molars and mesiobuccal and distobuccal in maxillary molars. The E1 file consists of 0.30 ISO tip diameter with a VV taper of 4–8%. This file is specifically designed for the wider canals in primary teeth, namely distal canal(s) in mandibular molars and palatal canal(s) in maxillary molars. The U1 file consists of 0.40 ISO tip diameter with a VV taper of 4–8%. This file is specifically designed to prepare maxillary and mandibular anterior primary teeth.

The Kedo-SH manual file system consists of six color-coded files with standard 16mm length and 12 mm flutes. The white-coded K file is made up of stainless steel with 0.15 tip and 2% taper. This file is specifically designed to access the initial patency of the canal in
primary molar teeth. The yellow-coded H file is made up of stainless steel with 0.20 tip and 2% taper. This file is specifically designed for removal of pulpal tissue from the canals in primary molar teeth. The red-coded file corresponds to the D1 rotary file, which is made up of nickel-titanium alloy with 0.25 tip and 4–8% taper. This file is used to prepare the mesiobuccal and mesiolingual in mandibular molars and mesiobuccal and distobuccal in maxillary molars. The blue-coded file corresponds to the E1 rotary file, which is made up of nickel-titanium alloy with 0.30 tip and 4–8% taper. This file is used to prepare the wider canals in primary teeth namely distal canal(s) in mandibular molars and palatal canal(s) in maxillary molars. The green-coded H file is made up of stainless steel with 0.35 tip and 2% taper. This file is specifically designed to remove the pupal tissue from the canals in maxillary and mandibular primary incisors. The black-coded file corresponds to the U1 rotary file, which is made up of nickel-titanium alloy with 0.40 tip and 4–8% taper. This file is specifically designed to prepare maxillary and mandibular anterior primary teeth.

Conclusion

The Kedo-S rotary file system and Kedo-S hand file system can be used as an effective tool for root canal preparation in primary teeth.

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Conflicts of interest

There are no conflicts of interest.

References

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