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"Think Twice Cut Once"Approach Using One Shape For Radix Endomolaris-A Case Report

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Abstract;*This is a clinical case of a mandibular first molar with four root canals using a one shape rotary file system. Successful root canal treatment depends on proper cleaning, shaping and compact filling of the root canal under aseptic conditions. With the use of a new file system-one shape, a standard procedure can be carried out with minimal fatigue along the length of the file which virtually eliminates the risk of separation including its simplified handling of instrument sequences. Oneshape file system provides quality root canal shaping with one single instrument with remarkable design. With the use of this rotary file, a root canal treatment is approximately 4 times faster than a conventional treatment. Also, the overall duration of treatment is shortened.*

Key words:*Root canal anatomy, mandibular molar, Oneshape*

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I. 1.Introduction

The success of endodontic therapy can be predicted by the adequacy of preparation and filling of all root canals. Anatomical issues include the number of canals present in individual teeth, their identification and the ability to instrument them. Multi-rooted and multi-canal teeth typically require a more intricate endodontic procedure than single-rooted and single-canal teeth do.

The quest for simplifying the endodontic instrumentation sequence has been ongoing for almost 20 years, resulting in more than 70 different engine-driven endodontic instrumentation systems that are currently available to practitioners. The One Shape instrumentation system has effectively reduced the instrument sequence to a single NiTi instrument in continuous rotation Systems have been developed that combine the canal access, glide path, and shaping into a single integrated process prior to obturation. A single integrated process offers the advantages of root canal treatment that can be simpler, more efficient, and safer.[1,2,3]

II. Case Report

A 27-year-old male reported to the Department of Conservative Dentistry & Endodontics with a chief complaint of food lodgement in the lower back tooth region. Pulp Vitality test indicated pulp necrosis.
The preoperative periapical radiograph showed a small area of thickened periodontal ligament around the root apices and possibility for additional canal (fig.1)

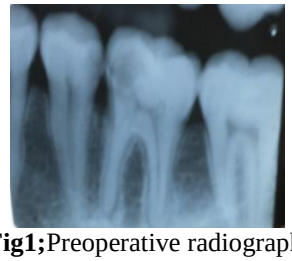

Fig1;Preoperative radiograph

A standard endodontic procedure was carried out after local anesthesia . A rubber dam was placed for endodontic access and the pulp chamber was exposed clearly. Examination of the pulpal floor with an endodontic explorer revealed 4 distinct canals-MB, DB, and ML,DL canal . K-type flexofile were used for gross removal of pulp tissue in the canals . After accessing, finding, achieving patency to a size 15 hand file, and then achieving straight-line access into the canal, the canal was irrigated thoroughly with sodium hypochlorite, 17% EDTA and saline as irrigating solution. Also,with the handpiece set at the recommended 400 rpm.Then the procedure was carried out as follows;

After exploring the 4 canals with #06, #08, #10 C-files root canal access were prepared with #1, #2 and #3 RGG The working length was determinined by using apex locator-MB=21mm, DB=21.5 mm, ML=21mm, DL=21.5mm,, respectively.

1. One Shape instrument was taken down to two thirds of the working length using an in-and-out movement without pressure while performing an upward circumferential filing movement in order to pre-enlarge the canal. It was withdrawed and cleaned and then canal was thoroughly irrigated using sodium hypochlorite.
2. One Shapeinstrument was placed into the canal again and taken to 3 mm from working length with an in-and-out movement without pressure. Then withdrawed and cleaned followed by irrigation to check the canal patency.
3.. Working length can be reached in one or more passages (file withdrawal, cleaning the file, irrigation and patency check) depending on the complexity of the canal anatomy.

Prepared canals were then obturated using the lateral condensation technique and Ah Plus as a sealer. (fig.2,3)

The One Shape instrument is delivered in a sterile blister pack and should be used on one tooth and then discarded.The practitioner can use their current endodontic motor and endodontic handpiece with the One Shape instrument.

FIG2;LOCATION OF CANAL ORIFICES

FIG 3.ESTABLISHING WORKING LENGTH

FIG4;POSTOPERATIVE AFTER OBTURATION

III. Discussion

A number of anatomical variations have been described in the mandibular first molar. The present report describes a four-rooted mandibular first molar with two mesial and two distal roots in which each of the four roots have an independent root canal; a case of radix endomolaris.

This case describes a mandibular first molar with two mesial and two distal roots. The instrumentation of these canals was carried out with ONE SHAPE files. The instrument works with minimal fatigue along the length of the file which virtually eliminates the risk of separation. It has a simplified handling of instrument sequences.

The instrument comes with a variable cross-section. An original and innovative instrument design.The instrument presents a variable cross-section along the blade. It has a One Shape principle i.e, 3 different cross-section zones. The first zone presents a variable 3-cutting-edge design. The second, prior to the transition, has a cross-section that progressively changes from 3 to 2 cutting edges. The last (coronal) is provided with 2 cutting edges. Guided down the glide path by 3 cutting edges, One Shape's flexibility assures a perfect respect to the original canal path and curvature. One Shape's variation of cross-sections offers an optimal cutting action in 3 zones of the canal. The variable pitch of One Shape reduces instrument screwing effects with ABC (Anti Breakage Control) which is a safety bonus i.e the instrument will unwind to avoid separation.Therefore,One Shape – the single file system for root canal shaping is a solution destined to practitioners who face the following difficulties:

- reluctance to adopt new techniques
- aseptic chain organization
- insufficient and inadequate root canal preparation
- appearance of overhangs and constraints
- mechanized instrument separation
- complex instrumental protocol
- long and difficult shaping

The instrument design combined with a continuous rotation movement guarantees a reliable efficacy all the way down to the apex without stress on the instrument.[4,5,6]

IV.CONCLUSION

Hence,endodontic research and technology are continually evolving to enable practitioners to identify, disinfect and obturate root canal system predictably and efficiently. Since the ultimate goal for patients and practitioners alike is the retention of natural teeth for a lifetime, endodontic therapy remains, and will continue to be, the primary treatment choice for teeth with pulpal and periradicular pathology.

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