

orificiilor radiculare, care frecvent sunt subminate de dentină. Este clar că, o procedură care ar simplifica diagnosticarea lor ar fi microscopul operațional, de care, cu regret, în țară posedă doar câțiva stomatologi.

Ne rămâne să fim foarte atenți și grijulii în procesul de studiere a planșeului camerei pulpare, apelând la sistemele de mărire de 4-6 ori cu ochilarii cu lentilă. Să nu uităm de regulile Troup (2004) — localizarea centrică a orificiului radicular într-o rădăcină prezintă doar un singur canal magistral, pe când poziția lui excentrică va insista depistarea mai multor orificii radiculare. Subminările dentare vor fi înlăturate cu freze nr. 1-2, care vor fi localizate fără turații sub dentina subminată, iar apoi ea pornită în turații din intern spre extern.

Vom menționa că, canalele radiculare magistrale au fost prelucrate instrumental dominant cu ProTaper universal (Dentsply, Maillefer). Prioritățile principale ale acestei sisteme sunt: simplitate în exploatare; eficacitatea excelentă de tăiere a dentinei; forma finală previzibilă a canalului preparat; instrumentele sunt organizate de faile cu conicitate în progresie, fapt care rezolvă cerințele Șilder — conicitatea să fie capabilă să accepte masa de obturație.

Face de menționat micșorarea ulterioară de interacțiune între instrumentul ProTaper și rumegușul de dentină apărut în timpul lucrării. Faptul dat favorizează la preântâmpinarea anclavărilor, înșurubărilor și supratensionărilor failor, micșorându-se pericolul

de fracturarea a instrumentului și majorării efectului de scoatere spre mâner a rumegușului dentinar.

Concluzii

1. Frecvența dinților șase a maxilei (16, 26) cu trei canale magistrale în rădăcina anterior-jugală este de 76,8%, iar cu două canale este de 23,2%.
2. Tratamentul de succes endodontic a dinților șase a maxilei poate fi obținut prin cunoștințele profunde a morfo-structurii geometrice a canalelor radiculare și activitățile de vizualizare a planșeului camerei pulpare prin sistema de mărire a câmpului de vedere de cel puțin 4-6 ori și executarea procedurilor instrumentale și de medicație cu folosirea ProTaper-sistemei, sol. de Hipoclorit de sodiu 3%, largalului de 17% EDTA și obturarea tridimensională cu sistema sealer-fealer la fierbinte.

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Data prezentării: 08.04.2017.

Recenzent: Anatol Cușnir

COMPARATIVE STUDY OF ENDODONTIC INSTRUMENTS SHAPING PROPERTIES

Summary

Manual instrumentation compare to rotary system in Endodontic system were investigated in patients that approach Stomatological Therapeutical Department of University clinic Nr.1 in Toma Ciorba 42. We got 40 patients between ages 18–55, 20 male and 20 female. 25 of the patients with diagnose of Pulpitis and 15 with diagnose of apical periodontitis. 25 of the patients were treated in one visit of endodontic treatment and 15 of the patients were treated in two visits of endodontic treatment. The patient were treated by different method of endodontic files, manual and rotary systems.

Key words: Endodontic treatment Manual files, rotary files, Pro-taper, SAF, Dia-PT.

Rezumat

PROPRIETĂȚILE MECANICE ALE INSTRUMENTELOR ENDODONTICE. STUDIU COMPARATIV

Studiul comparative al acelor endodontice s-a efectuat la Clinica Stomatologică Universitară Nr.1, Toma Ciorba 42. S-au studiat 40 pacienți cu vârsta cuprinsă între 18–55 ani, dintre care 20 sex masculine 20 sex feminin. După stabilirea diagnoisticului s-a determinat, 25 pacienți cu pulpit și 15 cu periodontită apicală. La 25 pacienți tratamentul endodontic a fost realizat într-o vizită și la 15 în două vizite.

Cuvinte cheie: Tratament endodontic, acele de mână, acele rotative, Pro-taper, SAF, Dia-PT.

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Introduction

Endodontic therapy is a branch in dentistry concerned to anatomy, physiology and pathology of dental pulp and periradicular tissue, including the normal pulp. This specialty of dentistry is managed with etiology diagnosis, prevention, and treatment of the dental pulp and the periradicular tissues that surround the root of the tooth. Treatment of pulp inflammations divided into several steps: mechanical and chemical preparation, shaping and obturation.

In the Past decades we have seen a great improvement in the field of endodontic that include many changes in the practice, such as in materials, techniques, equipment, anti-microbial agents, instrument design, and the types of metals used to manufacture endodontic instruments.

One of the main important stages during endodontic treatment is chemo-mechanical preparation of the root canals includes both mechanical instrumentation and antibacterial irrigation, and is principally directed toward the elimination of microorganisms from the root canal system. One of the main objectives of root canal preparation is to shape and clean the root canal system effectively and maintaining the original configuration without creating any iatrogenic events such as instrument fracture, external transportation, ledge, or perforation. Cleaning considered to the sufficient removal of debris, bacteria and smear layer from the root canal. Debris is defined as dentin chips and residual vital or necrotic pulp tissue attached to the root canal wall. The smear layer is a surface film approximately 1 to 2 µm of dentin particles, residual pulp tissue, and bacterial components that remain on the root canal wall after instrumentation. Therefore, proper cleaning is essential in order to provide an adequate seal and to prevent failure.

A variety of instruments and techniques have been developed and described for this critical stage of root canal treatment, involve different variety of instrument from manual to rotary, this instrument differ in their function, shape, size, material of manufacturing.

Goals and Objectives

1. Study about different methods in preparation of root canal in endodontic system.
2. Compare between manual and rotary technique in root canal preparation.
3. To find out the advantages and disadvantages manual files compare to rotary system.
4. To evaluate the efficiency of rotary instruments in mechanical preparation of root canal.

Material and Methods

The aim of this study is to evaluate different methods that are used in endodontic root canal preparation in patient that approach the Stomatological Therapeutical Department of University clinic Nr.1 in Toma Ciorba 42.

Method	Only Manual	Manual and Pro Taper	Manual and Dia-PT
Number of treated teeth	20	12	8
Pulpitis			
sum	Acute diffuse pulpitis	Chronic gangrenous pulpitis	Chronic fibrous pulpitis
sum	Chronic granulating periodontitis	Chronic granulomatous periodontitis	
25	11	9	5
15	6	9	

Evaluation of extracted teeth

In addition to evaluation of the patient, I choose to perform a research on extracted teeth, in order to evaluate the preparation of the root canal. I choose 8 extracted upper and lower incisors and perform in them endodontic treatment with different methods of preparation and shaping of root canal.

From each group of teeth that was prepared with the same endodontic system, I filled one tooth with cold lateral condensation using GuttaPercha and Ah+.

After the teeth were prepared they were placed in wax plates and was done X-ray from two directions: Buccal and Proximal.

The systems that were used are Dia PT, SAF, Pro-taper and K-file .

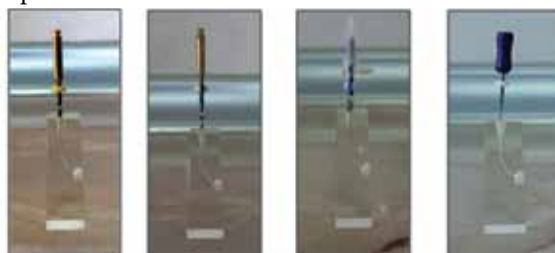


Fig. 1. Dia PT, Pro-Taper, SAF and K-file respectively from left to right



Fig. 2. X-ray of tooth that were prepared with Dia-PT from buccal and proximal side



Fig. 3. X-ray of tooth that were prepared with SAF from buccal and proximal side



Fig. 4. X-ray of tooth that were prepared with Manual files from buccal and proximal side

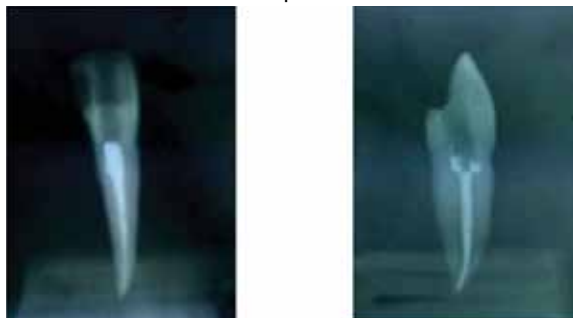


Fig. 5. X-ray of tooth that were prepared with Pro-Taper from buccal and proximal side

Clinical case:

Medical and dental history:

Passport Data:

Name: patient V.

Gender: Female.

The place of birth: Chisinau.

Date of birth: 1985.

Address: Chisinau.

Profession: Nurse.

Subjective Examination

Chief Complains: Severe pain in lower jaw left side, the pain is irradiating pain to the ear. The patient has spontaneous pain at night, during mastication the pain is increase.

Anamnesis Vitea: Unremarkable.

Anamnesis Morbi: the patient is regularly attending to the dentist for examination.

Clinical Examination: Extra oral Examination was unremarkable. Intra oral examination revealed bad oral hygiene status with supra and sub gingival calculus. On clinical examination tooth number 37 was examined with deep caries and destruction of tooth walls.

-Probing and percussion was painful.

-The tooth was not mobile.

Dental Formula:

			P	C						P	P	P	C		
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
													R	P	

Radiographic examination: on X-ray is seen in teeth 37 was seen deep caries cavity that reached till the pulp chamber, at level of tooth apex was not seen dilatation of PDL.

Diagnosis: Acute diffuse pulpitis based on the patient complains, clinical examination and X-ray.

Endodontic Treatment:

Injection of anesthesia- Spina spix Sol.Septanest 4% 1.7 ml. Tooth nr. 37 was isolated with rubber dam. With round bur was removed the caries cavity and was prepared the accesses to pulp cavity. Pulp orifices were found with probe and the entrance to the orifice was enlarged with gates glidden. Working length was measured with Apex Locator for 3 canals:MB-16mm, ML-17mm and Distal-18mm.Instrumental preparation was done first with K-file ISO 10 and then enlarging the canal till ISO 40 by step back technique. During instrumental preparation was done irrigation of the root canals with 5% sodium hypochlorite, 17% of EDTA solution. The root canal was dried with paper points and filled by cold lateral condensation with Ah+and guttapercha, the cavity was sealed with flowable composite SDR and solid composite Estelite sigma. Final X-ray control of the investigation.



Fig. 6. X-ray of tooth nr.37 before endodontic treatment

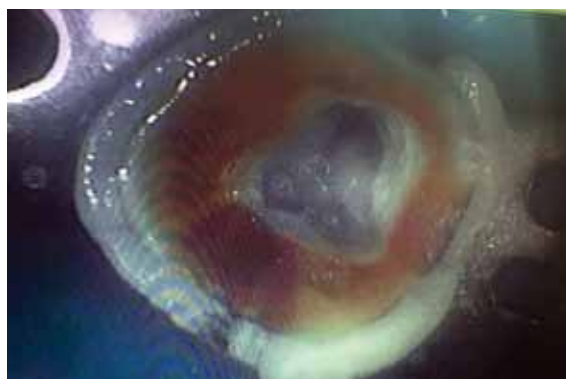


Fig. 7. Tooth nr.37 canal orifice

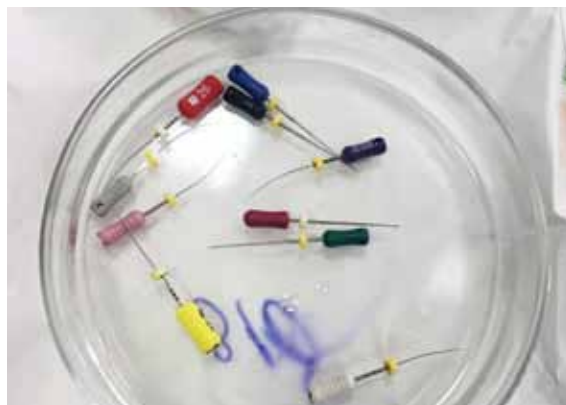


Fig. 8. Manual files that were used during mechanical preparation



Fig. 9. Tooth nr.37 after mechanical preparation



Fig. 10. Tooth nr.37 after filling the root canals



Fig. 11. X-ray of tooth nr.37 after filling of the root canals

Conclusion

1. Nowadays beside the manual files that are manufactured from stainless steel or nickel titanium are available also rotary systems as Pro Taper, SAF, Dia-PT, Wave One and Mtwo and other rotary system. The rotary files are all connected to handpiece and differ by different direction, shape of the file, material and cross-section and torque.

2. Manual system and rotary system are both effectively remove debris from root canal, however, time for root canal preparation is significantly shorter using the rotary system than using the manual system. In case when anatomy of root canal is difficult

for enlargement and shaping, in curved canal or C-shaped canals, should used SAF.

3. The advantages of rotary system compare to manual files are preparation and shaping the root canal much more smoothly and consistently, and in conical shape, procedures are more reliable with less chance of complications. Rotary instrument ensures faster endodontic procedure however in the same time removing of dentin is more excessive, except SAF which is micro-invasive preparation of root canal.

4. Pro Taper and Dia-PT are similar in their shape and cross section, and their features in root canal preparation is similar, however, self adjusting file is micro-invasive technique, due to the fact that the file adapt the shape of the root canal, and combines mechanical preparation with irrigation of the root canal.

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Data prezentării: 16.02.2017.
Recenzent: Gheorghe Nicolau