The 4th Regional Dental Meeting and Exhibition

Medan, Indonesia

18 – 20 November 2009

Dr. Sam'an Malik Masudi
Pusat Pengajian Sains Pergigian

SHORT LECTURE

Seq. #8. California Room (10:30 am - 12:30 pm)

Time	Topic / Speaker	Moderator
10:30	**Correlation between mother's periodontal disease with the occurrence of low birth weight infant** **ANDI SUMIDARTI**, University of Hasanuddin	
10:45	Treatment of gingival recession with coronally [illegible] **JETI ERAWATI**, [illegible]	Aini Hariyani
11:00	**Increased arterial stiffness in patients with periodontitis** **ERMA SHAIDATUL AKMAL, ERRY MOCHAMMED ARIEF, ASIA REHMAN, SHANTY A/P MUNANDY,** Universiti Sains Malaysia	
11:15	Discussion	
11:30	Serial extraction [illegible] [illegible], University of [illegible]	
11:45	Early childhood caries (ECC), risk factors, prevention and treatment TAQWA DAHLMUNTHE, IVO ASTRIA, University of Sumatera Utara	Essie Octiara
[illegible]	[illegible]	
12:15	Discussion	

Seq. #9. California Room (2:00 pm - 4:00 pm)

Time	Topic / Speaker	Moderator
2:00	**[illegible] with status of periodontal disease in senior high school adolescences in Medan** [illegible], University of Sumatera Utara	
2:15	Use of propolis as an antibacterial agent in dentifrice ERISKA RIYANTI, DEDE HADIDJAH, ALLIN PERAMA ISWARI University of Padjadjaran	[illegible]
2:30	**[illegible] fluoride topical application for early childhood caries** **FAJRIANI FERRY**, University of Hasanuddin	
2:45	Discussion	
3:00	**A scanning electron microscopic study of smear layer removing by using of syringe irrigation and polymer-based rotary file for fluid agitation on prepared root canal surface** **M. THAUK S, M MASUDI, M.M.T Do, Z.B. ARIFFIN** Universiti Sains Malaysia	Trimurni Abidin
3:15	**Bond strength investigation of dentistry's composite restoration interlayers for incremental filling techniques** **SUBHAINI, SRI FITRIYANI, SANTI CHISMIRINA** University of Syiahkuala	
3:30	**Mutagenicity analysis of three types of glass ionomer cement** **ENDANG SUPRASTIWI**, University of Indonesia	
3:45	Discussion	

A scanning electron microscopic study of smear layer removing by using of syringe irrigation and polymer-based rotary file for fluid agitation on prepared root canal surfaces

[Pemeriksaan SEM untuk melihat efisiensi pembuangan lapisan "smear" dengan metoda irigasi syringe dan irigasi menggunakan "rotary-file" berbahan polimer]

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ABSTRACT

Removing of smear layer is an essential step for endodontic success. Smear layer is formed during and after canal preparation. The aim of study was to compare the cleaning efficiency of smear layer using syringe irrigation method and using polymer-based rotary file for fluid agitation on prepared root canal surfaces under scanning electron microscope (SEM) study. A total of 32 extracted mandibular second premolar teeth were used. All teeth were randomly divided into two groups, Group 1 (G1) and Group 2 (G2). For irrigation, all teeth in G1 were irrigated alternate use of 5% NaOCl and 17% EDTA by irrigation syringe with 27-gauge needle. For G2 irrigation procedure was the same as G1, but for final irrigation, canal was filled with 5% NaOCl and polymer-based rotary file with the rotation speed of 600-900 rpm at 30s was used for agitation of fluid. All teeth in both groups were split longitudinally and prepared for SEM evaluation. The presence of smear layer was evaluated from photomicrographs at x1000 magnification taken in the apical, middle and coronal third of the canal surfaces. A five category

scoring system was used. Blind evaluation was performed by three trained observers for scoring. Statistical analysis was carried out using Mann-Whitney test. The result showed that smear layer score was statistically significantly lower after using polymer-based rotary file than after syringe irrigation. In conclusion using polymer-based rotary file is more efficient than syringe irrigation for smear layer removing especially on the apical third of the prepared canals.

Keywords irrigation, scanning electron microscopy, smear layer.

INTRODUCTION

Removal of smear layer from the root canal system prior to obturation is one of the important steps in endodontic treatment. Smear layer is composed of an amorphous layer of organic and inorganic materials and it sometime contains bacteria.[1]

Smear layer is compacted against the dentinal wall as a result of rotary action of endodontic instruments and it acts as a physical barrier interfering with adhesion and penetration of the sealer into the dentinal tubule.[2] It sometimes can be forced 0.5 to 1mm during instrumentation into the dentinal tubules so that it will form a smear plug in the dentinal tubules that reduces dentine permeability up to 78%.[3]

Dautel-Morazin et al.[4] indicated that the removal of smear layer improved the sealing ability of the root canal system and the smear layer produced by instrumentation of the canal wall must be removed.[5]

Smear layer is acid soluble and it can be dissolved by fluid with pH between 6.0 and 6.8.[6] A correct choice of two or more irrigants is fundamental to enhance the cleaning