

PERBEDAAN KERETAKAN DENTIN PASCA PREPARASI SALURAN AKAR ANTARA *SINGLE FILE SYSTEM* DAN *MULTI FILE SYSTEM* DENGAN TEKNIK ROTASI KONTINU

INTISARI

Salah satu tahap yang penting dalam perawatan saluran akar adalah preparasi saluran akar. Tahap preparasi sendiri memiliki efek negatif yang sulit dihindari, yaitu dapat menimbulkan keretakan dentin. Instrumentasi menggunakan instrumen putar NiTi dapat menimbulkan tekanan tambahan dalam saluran akar gigi. Instrumen *file* NiTi saat ini terdiri dari *single file system* dan *multi file system*. Tujuan dari penelitian ini adalah mengkaji perbedaan keretakan dentin pasca preparasi saluran akar antara *single file system* dan *multi file system* dengan teknik rotasi kontinu.

Subjek penelitian berupa 12 gigi premolar mandibula yang telah diekstraksi dan disimpan dalam buffer formalin selama 1 hari. Subjek dibagi menjadi 2 kelompok (masing-masing kelompok terdiri dari 6 gigi), yaitu yaitu kelompok preparasi saluran akar menggunakan *single file system* dan kelompok preparasi saluran akar menggunakan *multi file system*. Preparasi kedua kelompok ini menggunakan teknik rotasi kontinu dengan kecepatan 300 rpm dan *torque* 2,5 N/cm². Subyek dibelah secara horizontal menjadi tiga bagian (koronal, tengah, dan apikal). Keretakan dentin yang diamati dengan mikroskop stereo perbesaran 25X dan 40X. Data yang diperoleh dianalisis dengan Uji *Chi Square*.

Hasil uji statistik menunjukkan tidak terdapat perbedaan yang signifikan keretakan dentin pasca preparasi saluran akar antara *single file system* dan *multi file system* ($p > 0,05$). Kesimpulan dari hasil penelitian ini adalah keretakan dentin pasca preparasi saluran akar dengan gerakan rotasi kontinu pada *single file system* sama dibandingkan dengan *multi file system*.

Kata kunci: keretakan dentin, preparasi saluran akar, *single file system*, *multi file system*, teknik rotasi kontinu

THE DENTINAL CRACK DIFFERENCES OF SINGLE FILE SYSTEM AND MULTI FILE SYSTEM AFTER ROOT CANAL PREPARATION WITH CONTINUOUS ROTATION TECHNIQUE

ABSTRACT

One of the important stages of root canal treatment is root canal preparation. The preparation itself has a negative effect that is difficult to avoid, which could cause a dentinal crack. The instrumentation using NiTi rotary could cause additional pressure in the root canal. Nowadays, the NiTi file instrument consists of a single file system and a multi file system. The purpose of this study was to evaluate the difference of dentinal crack after root canal preparation between a single file system and a multi file system with continuous rotation technique.

Experimental specimens consisted of 12 mandibular premolar teeth which had been extracted and stored in formalin buffer for 1 day. Specimens was divided into 2 groups (each group consisted of 6 teeth), which are the root canal preparation group using a single file system and the root canal preparation group using a multi file system. The preparation of these two groups were using continuous rotation technique with a speed of 300 rpm and torque of 2.5 N/cm². Roots were cut horizontally into three parts (coronal, middle, and apical). The dentinal crack was observed under a stereomicroscope with 25X and 40X magnification. Data were analyzed using the Chi Square test.

The statistical test showed that there was no significant difference in dentinal crack after root canal preparation between a single file system and a multi file system ($p > 0.05$). This research concludes is that the dentinal crack after root canal preparation with continuous rotation technique of the single file system has proven equally the same to multi file system.

Keywords: dentinal crack, root canal preparation, a single file system, a multi file system, continuous rotation technique