ABSTRACT

DIFFERENCE EFFECTIVENESS OF 0,2% CHITOSAN, 17% EDTA, AND CHITOSAN NANOPARTICLES ON ROOT CANAL CLEANLINESS

Background: *Irrigation plays an important role for the successful of the root canal treatment. EDTA was effective to remove smear layer but it has some disadvantages. Chitosan was biopolymer that can obtained by chitin deacetylation. Chitosan has chelating ability so that can be alternative choice.* **Objective:** *to compare chelating ability for smear layer removal in root canal treatment by using scanning electron microscope.* **Material and methods:** *Twenty-four mandibular first premolar were prepared using ProTaper NEXT up to X3 with aquadest irrigation throughout instrumentation. Samples divided into 4 groups (n=6) according to final irrigation solution; group A (control): aquadest, group B: 17% EDTA, group C: 0,2% chitosan, and group D: chitosan nanoparticles. The samples split longitudinally and examined by scanning electron microscope for smear layer at apical third.* **Results:** *Chitosan nanoparticles can remove smear layer with significant difference with the others group. 0,2% chitosan and 17% EDTA showed similar capacity for smear layer removal.* **Conclusion:** *Chitosan nanoparticles was more efficient than 0,2% chitosan and 17% EDTA for smear layer removal.*

Key words: *Root canal irrigation, chitosan, nanoparticles, EDTA, smear layer, chelating*