Original Article
บทความวิจัยต้นฉบับ

The Correlation between Electronic and Radiographic Working Length Determination in Resin Model: a Laboratory Study

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Abstract

The aim of the study was to evaluate the correlation between the electronic and the radiographic working length determination in a simulated resin jaw model. Fifty-one extracted human upper central incisors of 3rd year dental students' exercises were used in this experiment. After the access opening, students practiced to use the electronic apex locator (EAL) on teeth embedded in resin jaws and fixed in the phantom heads under the supervision of instructors. The working length (WL) determined by EAL was statistically compared with that obtained from a radiograph of the same tooth. The acceptable criteria for WL determination by EAL was for the file which is short and beyond the radiographic apex ± 0.50 mm. Intraclass correlation coefficient between EAL and radiograph according to the acceptable criteria revealed 0.710 (95% CI = 0.538, 0.825). The reliability coefficient equaled 0.7090. There was a good correlation between EAL and radiograph regarding the working length determination in the simulated resin jaw model. The use of electronic working length determination in the resin jaw model not only obtains suitable teaching purpose but also reduces the number of radiographs required for WL estimation.

Key words: Electronic apex locator, Radiograph, Resin jaw model