Clinical Comparison of Root Length Measurements with Electronic Apex Locator and Conventional Radiography in Mandibular Deciduous Teeth

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Abstract

Statement of Problem: Success in pulpectomy of deciduous teeth greatly depends on the accuracy of root length measurements which have mostly been done radiographically. However, X-ray risks and patient cooperation have usually been a challenge for the clinicians.

Purpose: The clinical comparison of root length measurements with electronic apex locator and conventional radiography in 4-6 year old children's mandibular deciduous teeth was the aim of the present study.

Materials and Method: In the current clinical trial, 15 mandibular molars with 60 canals in 4-6 year old patients who had the treatment plan of pulpectomy were chosen. The measured root lengths with apex locator and parallel technique radiography were evaluated with the same reference point. Data were analyzed using simple linear regression, coefficient of correlation, coefficient of variability and also graphic Bland Altman Plot.

Results: The accuracy of electronic apex locator measurements in ±0/5 from apical foramen was 85%. In all cases without considering pulp situation, the difference between the two techniques was not significant.

Conclusion: The electronic apex locators are recommended for root length measurements of the deciduous mandibular molars without apical resorption, disregarding the pulp status, especially when initial radiographic films are available.

Key words: Electronic apex locator, Mandibular deciduous teeth, Pulpectomy, Radiography