



2011 AAID Annual Meeting – 2nd Place – Poster Presentations

Accuracy of CBCT and 3D Stereolithographic Model in Identifying the Anterior Loop of the Mental Nerve

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Purpose: The objective of this ex vivo cadaver study was to determine the accuracy of cone beam computed tomography (CBCT) and 3D stereolithographic (STL) model in identifying and measuring the anterior loop length (ANLL) of the mental nerve.

Materials and Methods: A total of 12 cadavers (24 mental nerve plexus) were used for this study. Standardized CBCT scans of each mandible were obtained both with and without radiographic contrast tracer injected into the mental nerve plexus. STL models of the two acquired CBCT images were made. ANLL were measured using CBCT, STL and anatomy. The measurements obtained from the CBCT images and STL models were then analyzed and compared with the direct anatomic measurements. Paired sample t-test was used. P values less than .05 was considered statistically significant.

Results: The mean difference between CBCT and anatomic measurement was 0.04mm and not statistically significant ($p = .332$) while the mean difference between STL and anatomic measurement was 0.4mm and statistically significant ($p = .042$). There was also a statistical significant difference between CBCT and STL ($p = .048$) with the mean difference of 0.35mm.

Conclusion: CBCT is an accurate and reliable method in determining and measuring the ANLL while the STL over or underestimated the ANLL by as much as 1.51mm and 1.83mm respectively.