CFAO GRADUATE STUDENT
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Reliability and accuracy of three-dimensional analysis of posterior cranial base landmarks

Alycia Sam, Kris Currie, Dena Sawchuk, Manuel Lagravere

Objective: To identify reliable and accurate landmarks in the posterior cranial base using cone-beam computed tomography (CBCT) for future use in craniofacial diagnosis and treatment planning.

Methods: Ten (10) dry skulls were imaged using an iCAT CBCT scanner, twice; once with gutta-percha and once without gutta-percha placed on 33 posterior cranial base and surrounding area landmarks.

Results: Intra-rater reliability in the x, y and z coordinates of all 33 landmarks were excellent (all above 0.946). Inter-rater reliability in the x, y and z coordinates were all excellent (all above 0.938). Accuracy of all the landmarks in the posterior cranial base were excellent.

Conclusion: The 33 identified landmarks showed acceptable intra/inter-rater reliability and accuracy when identified using CBCT images of the 10 dry skulls. These landmarks may be used for future 3D analysis of the posterior cranial base to assess growth in the anterior-posterior (A/P), transverse, and vertical dimensions.