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[Home](#) > [Vol 96, No 9](#) > [Wangsrimgkol](#)

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Alveolar Bone Graft Evaluation Agreement using Cone Beam Computed Tomography in Cleft Lip and Palate Patients: A Pilot Study

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Abstract

Objective: To develop and test assessor agreement using a new cone beam computed tomography (CBCT) examination method for evaluating the outcome of alveolar bone grafts in cleft lip and palate patients.

Material and Method: Twenty patients with complete cleft lip and cleft palate who had undergone alveolar bone grafting with CBCT follow-up 3-6 months postoperative at the Faculty of Dentistry, Khon Kaen University were recruited into the study. Four trained clinical assessors (two orthodontists, an oral surgeon and an oral radiologist) had made a judgment of three outcome measurements: 1) cemento-enamel junction (CEJ) to marginal bone level of the teeth adjacent to the cleft site, 2) marginal bone level to root apex of the teeth adjacent to the cleft site, 3) labio-lingual alveolar bone grafted thickness. Repeat measurements were made by the same assessors.

Results: The Kappa values of intra-assessor agreements of each assessor were 0.82, 0.91, 0.91 and 1, respectively, while the inter-assessor agreements for the first and second time of determinations were 0.81 and 0.74.

Conclusion: This CBCT method for scoring alveolar bone graft outcomes produced good agreement among four assessors, which suggests its potential use to evaluate the success of alveolar bone grafting. In the future, this new method of alveolar bone graft evaluation should be compared with the standard method for testing validity.

Keywords: Alveolar bone graft, Cone beam computed tomography, Cleft lip and palate

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