

# Measurement of the Alveolar Cleft

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## **Background**

A precise assessment of the volume of alveolar defect in the patients of cleft can reduce the donor site morbidity. However, the volume of alveolar defect in the patients of cleft remained uncertain in the reviews. Two measurement methods designed by cone beam computed tomography (CBCT) has been used to evaluate the alveolar defect in this study.

## **Methods**

32 patients with cleft lip and palate (unilateral, UCLP, 22 patients; bilateral, BCLP, 10 patients) undergoing CBCT scans two-week prior to alveolar bone graft surgery were enrolled in this study. The volume of alveolar defects were measured in two methods, including 3D clay model and Simplant simulation. The authors compare the volume obtained from two methods.

## **Results**

In UCLP group, the mean average volume of alveolar defect measured by 3D clay model was  $1.09 \pm 0.24$  mL, and by Simplant simulation was  $1.09 \pm 0.25$  mL. In BCLP group, the mean average volume of alveolar defect measured by 3D clay model was  $2.05 \pm 0.22$  mL and by Simplant simulation was  $2.02 \pm 0.27$  mL. There was no statistically significant difference between these two methods, examiners, or different resolutions of CBCT.

## **Conclusions**

The volume of alveolar defects in patients with cleft can be obtained with the application of two different hand-on methods, including stereolithographic bio model and software manipulation. The volume of alveolar defect in UCLP and BCLP in our study can provide a reference for the surgeons when practicing alveolar bone graft surgery.