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Accuracy of computer-aided surgical guide to place implant

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PURPOSE: The purpose of this study was to evaluate the accuracy of computer-aided template to place dental implant by comparing the three-dimensional positions of planned and placed implants. **MATERIALS AND METHODS:** Oral implant therapy was performed on eligible patients using computerized tomography (CT)-based software planning and computer-aided design/computer-assisted manufacture stereolithographic templates. A second CT scan was obtained after surgery. Preoperative and postoperative CT images were compared (planned vs actual implant positions), and the accuracy of this type of image-guided therapy was assessed. **RESULTS:** A patient, 62 year old woman was treated in Kosei Dental Clinic, and a endosteal implant was inserted with the computer-aided method. There were no major surgical complications. With regard to accuracy, a implant was available for comparison; lateral deviations at the coronal and apical ends of the implants was 1.2 mm and 0.3 mm, respectively. Depth deviation was 0.5 mm and angular deviation was 5.3 degrees. **CONCLUSIONS:** Based upon this clinical study of the patient, deviations from planned implant positions existed in the coronal and apical portions of the implants as well as with implant angulation. The deviations were less than 2 mm in any direction and less than 8 degrees.