Accuracy of computer guided implant placement with 3D printed surgical guide in implant over denture.

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Abstract:

Objectives: The aim of the study was to evaluate theaccuracy of surgical templates forguided implant surgery using 3D printing.

Patients & Methods: twenty-four patients were examined for implant placement. Each implant site was planned virtually and a 3D printed surgical guide was made. The implant had been installed using the surgical guide. Postoperative CBCT was performed, and the images were superimposed on the virtual planning images. The amount at the coronal, apical, and angular deviation was calculated.

Results:mean angular deviation of the implants placed in partially and completely edentulous patients 4.1±0.1 and 3.3±0.78 degrees respectively. The mean deviation in coronally was 1.5±0.3 and 1.1±0.5 mm in partially and completely edentulous patients respectively. While the deviation at the apical portion showed a mean 2.1±0.3 and 2.2±0.5 mm in implants placed in partially and completely edentulous patients.

Conclusion:A high accuracy in implant placement can be achieved using 3D printed surgical guide.

Key words: Surgical Guide, Implant placement, CBCT, 3D printing, virtual planning.

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