A digital workflow for immediate placement and loading for full-arch implant rehabilitations

Abstract

Objectives: To present through a case report, a step-by-step digital workflow for immediate implant placement and loading in fully edentulous arches.

Methods:A healthy non-smoker 52-year-old female patient with a terminal dentition was treatment planned to receive an implant-supported fixed prosthesis. A digital wax-up was performed using natural teeth shapes in a CAD software(exoCAD), based on an initial smile design. The virtual wax-up was superimposed with patient's CBCT in order to plan the position of six implants, utilizing an implant planning software(coDiagnostix,DentalWings). Afterwards a virtual extraction of the remaining teeth was performed, except from 3 teeth that were in a strategically place. The model with the extracted teeth was combined with the data-set that was used for implant planning, in order to create a set of surgical templates.

After the extraction of hopeless teeth, except from the three strategically teeth, the surgical guide was fitted and anchor pins were inserted followed by the placement of the implants. Using the same position of anchor pins, a template was utilized for the verification of the 3D-position and the delivery, of the provisional restoration.

Results: In edentulous patients that are going to be restored, with full-arch implant prosthesis, three acceptable roots with a symmetrical distribution can be strategically maintained in order to increase the accuracy of guided surgery. Correct positioning of the anchor pins defines the accuracy of the whole procedure, by verifying accordingly the surgical templates, avoiding any misfit that can be originated by workflows that implement stackable surgical guides.

Conclusion: The proposed workflow can improve and simplify the prosthetically driven implant placement and delivery of the immediate provisional restoration in edentulous patients, combining a set of surgical guides in order to take advance of the accuracy of a tooth supported template and maintain this 3D-position through anchor pins until the delivery of the provisional prosthesis.