

A FULLY DIGITAL WORKFLOW FOR A STAGED TRANSITION FROM A TERMINAL DENTITION TO IMPLANT REHABILITATION

Introduction

Intraoral scanning as a digital impression technique is a useful alternative to impression materials for periodontically affected teeth with mobility of third grade and inadequate bone support (final stage). Frequently, there is a risk of extraction for these teeth during analog impression techniques. Digital methods provide simplicity, ease and precision in maintaining and transferring the desired vertical dimension from terminal dentition or the interim prosthesis to the final restoration.

Case Description

An initial digital impression was obtained through intraoral scanning, where the existing vertical dimension was recorded. This vertical dimension was considered acceptable both aesthetically and in terms of function and it was decided to maintain it. This was followed by digital extractions and a digital diagnostic wax-up of the maxillary dental arch, which was imported in a surgical planning software program and was aligned with the dicom files of the CBCT, for guided direct implant placement planning. After direct implant placement was ruled out due to extensive periapical lesions and inability to safely choose acceptable implant sites, extractions of all maxillary teeth with preservation of the canines were performed. The canines were prepared in the same appointment and scanned with post-extraction and edentulous spaces. On the 7th postoperative day, stitches were cut and the placement of a fixed transitional tripod metal-acrylic restoration was performed on the prepared canines.

The risk of tooth extraction during impression was eliminated and the delivered interim restoration required minimal occlusal equilibration. The vertical dimension was maintained without the process of cross-mounting on a mechanical articulator. Finally, the patient's aesthetic appearance and function were restored.

Discussion

The digital workflow:

- i. is a useful alternative to preserve desirable elements during the transition to final restoration.
- ii. is a useful technique for designing and simulating complex perio-prosthetic cases.
- iii. reduces clinical and laboratory time and provides satisfactory clinical accuracy.