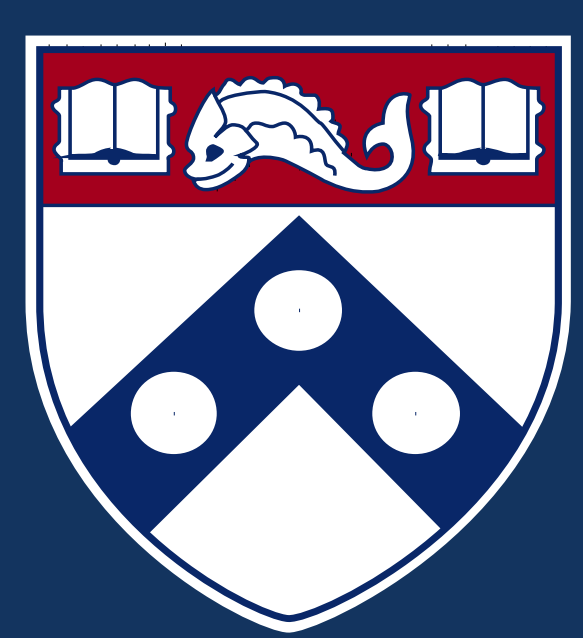




Digital workflow for fully guided maxillary and mandibular implant-retained hybrid prostheses with immediate load: A case report

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Introduction

Virtual treatment planning, involving radiographic, clinical and laboratory workflow, allows a seamless process to visualize and evaluate from esthetics and occlusal plane determination to implant positioning and immediate prosthesis fabrication. This case report illustrates prosthetically-driven implant planning and placement to support a full arch fixed dental prosthesis. Digital workflow was employed that included lab scanning, face scanning, 3D virtual implant planning, 3D printed interims and surgical guides as well as milled immediate fixed prosthesis.

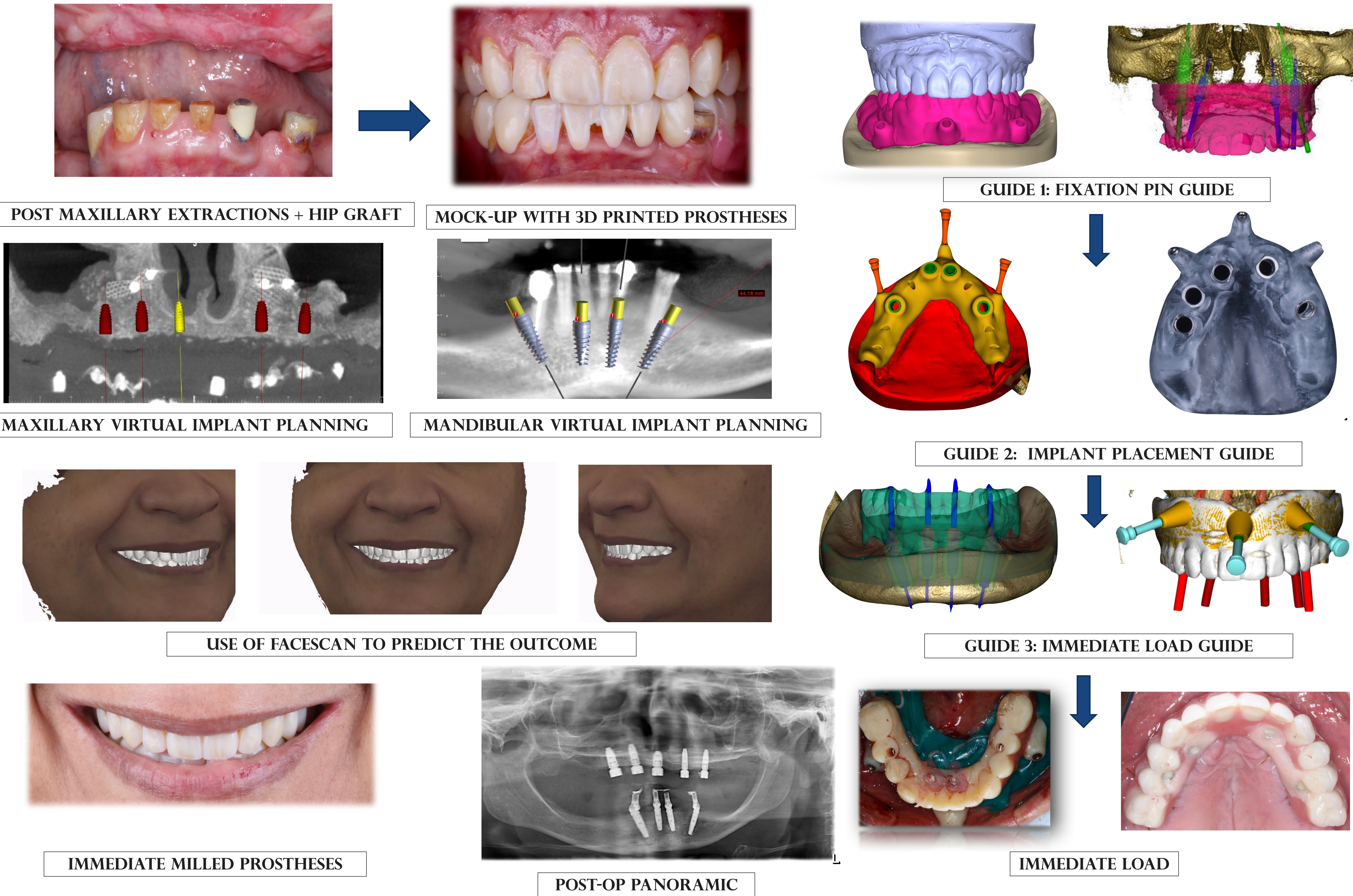
Case description

62-year-old female patient with maxillary and mandibular partial edentulism presented to the Graduate Prosthodontic clinic for maxillary and mandibular implant supported fixed dental prostheses. Patients' medical history was non-contributory. After extraction of hopeless maxillary remaining dentition and insertion of immediate denture, the planning of implant supported prostheses was initiated. After unsuccessful sinus augmentation, hip graft was performed to gain bone height and width in the posterior maxillary region. Facial scanner was obtained using face hunter 3D facial scanner (Zirkonzhan) with dynamics facial expressions to facilitate designing with harmony of patient's face three dimensionally. Patients' previously fabricated maxillary prosthesis and remaining mandibular dentition were used a reference to initiate the planning. 3D printed mockup of the digital design using In-lab software(Zirkonzahn) to evaluate intraorally for esthetics and phonetics. This design was used for planning and placement of mandibular and maxillary implants. 3 different surgical guides were created using fixation pins as the same reference point for all the 3 guides. Immediate mandibular and maxillary 3D printed interim fixed dental prostheses were inserted on the day of surgery.

Discussion

The fully guided implant placement derived from a digital workflow increased the predictability of bone reduction, immediate implant placement, and immediate loading of provisional implant-supported fixed dental prostheses. Use of conventional and digital workflows were combined to produced accurate surgical guides that led to predictable implant placement. Increasing the accuracy of planning with including the specific dimensions of the implant sleeves, fixation pins, implant navigation system and adjusting the height of the temporary cylinder helps reduce provider chair time and increased patients' comfort during the procedure. According to Tarnow et al.⁽⁴⁾. Immediate loaded all on 4 mandibular fixed dental prosthesis have over 99% survival rate, The patient was extremely satisfied with the treatment outcome.

Materials and methods



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Acknowledgements

Surgery performed by Dr. Albert Robles, Advanced Education Program in Periodontics, Penn Dental Medicine