

Immediate-Loaded Implants in the Digital Workflow: Relevance of the SIP and VIP Concepts for the Predictability of the Toronto FP1

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ABSTRACT

Immediate implant loading, integrated into digital workflows, currently represents a reliable and predictable clinical procedure.

Implant planning based on CBCT and intraoral scans makes it possible to define SIP (Slightly Inclined Palatal) and VIP (Vertical Implant Position) for the subsequent realization of an ideal prosthetic rehabilitation [1].

The correspondence between VIP and SIP is fundamental for the biological, functional, and aesthetic success of implant-supported rehabilitations. This aspect is particularly relevant in Toronto-FP1 prostheses, characterized by tissue preservation and the absence of prosthetic replacement of the soft tissues.

SIP represents the digitally planned implant inclination, while VIP describes the vertical position of the implant in relation to the gingival and bone tissues.

This case report analyzes the role of the digital workflow and the SIP/VIP concepts, according to the protocol of Dr. Ignazio Scuto, in the predictability of immediate implant loading surgery.

The clinical case describes a Full-Arch FP1 rehabilitation on six implants in the upper arch, in which the digital workflow supported, from the initial study phase, the three-dimensional planning of the implants and the aesthetic analysis [2].

The patient had presented a periodontal condition for many years which, despite several therapeutic treatments performed at different dental practices, persisted over time. Despite the treatments performed, the patient had not experienced a significant improvement in her oral health.

Due to this situation and her persistent dissatisfaction with the condition of her oral cavity, the patient decided to seek an immediate alternative in order to obtain a more functional and aesthetic clinical solution.

Keywords: Immediate Loading, SIP-VIP, Toronto FP1 Prosthetic Planning, Digital Workflow.

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Introduction

Modern implant dentistry is evolving, alongside the development of digital systems, toward an increasingly prosthetically driven approach.

Immediate implant loading, initially indicated exclusively in selected cases, is now applied

in an increasing number of clinical situations thanks to modern implant surfaces and advanced diagnostic techniques.

The digital workflow makes it possible to integrate the different diagnostic, surgical, and prosthetic phases with the aim of increasing precision, reducing treatment times, and

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simultaneously improving the predictability of the outcome.

Digital Workflow and Implant Planning

The digital workflow used in this case is based on the integration of data obtained from CBCT and preoperative intraoral scans.

The data are processed using CAD software in order to define the ideal implant position in relation to the new prosthetic project and the anatomy of the underlying bone tissues.

Guided surgery makes it possible to accurately transfer the digital planning to the surgical phase, while modern CAD/CAM technologies allow the provisional restorations to be fabricated within a few hours, thus making implant loading within 24 hours possible.



Figure 1: Frontal photo



Figure 2: Occlusal photo

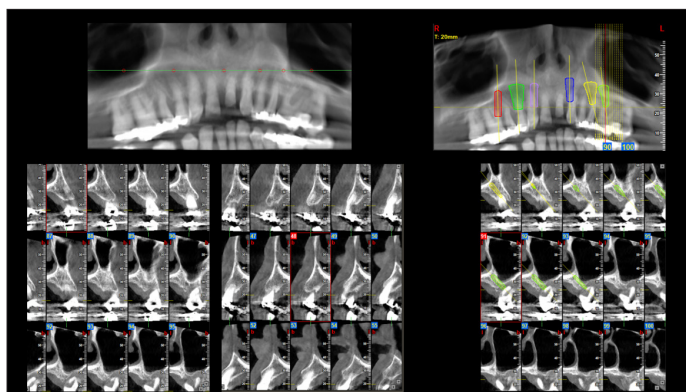


Figure 3.0: Planning surgery

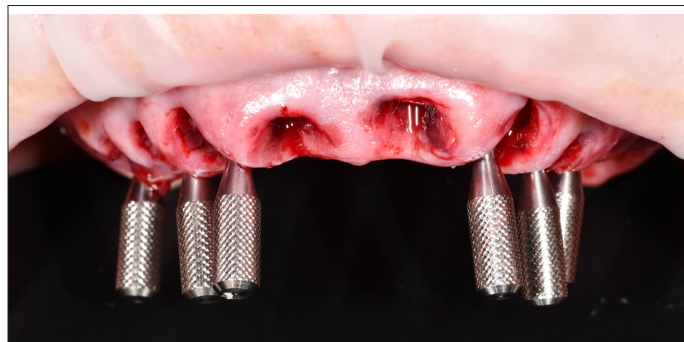


Figure 3: M.U.A. positioning

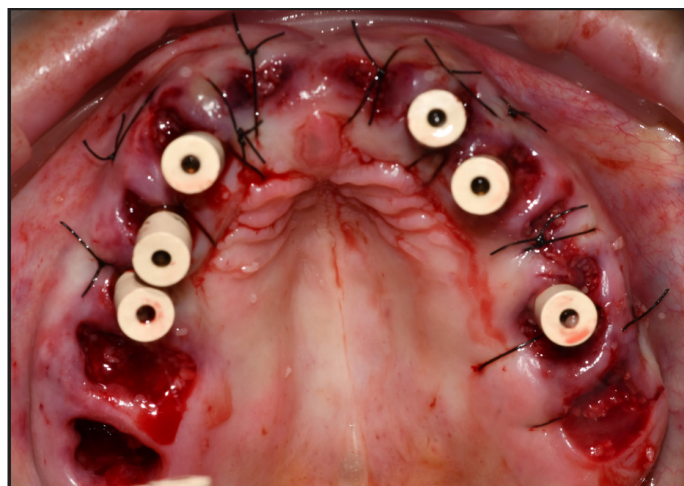


Figure 4: Scan body positioning

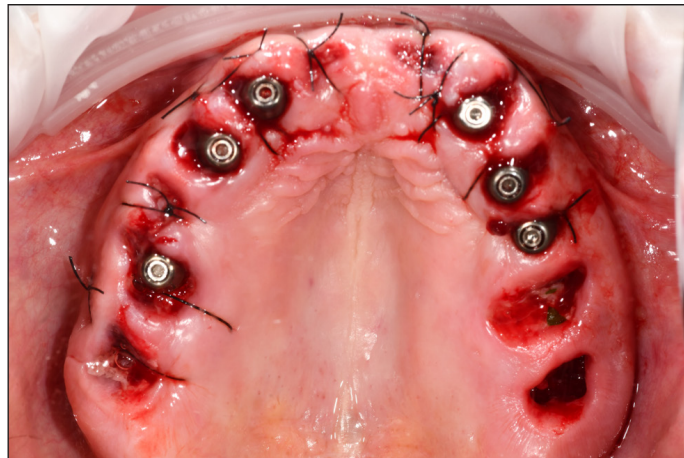


Figure 5: Photo with MUA caps



Figure 6: PMMA post-surgery



Figure 7: Frontal picture PMMA

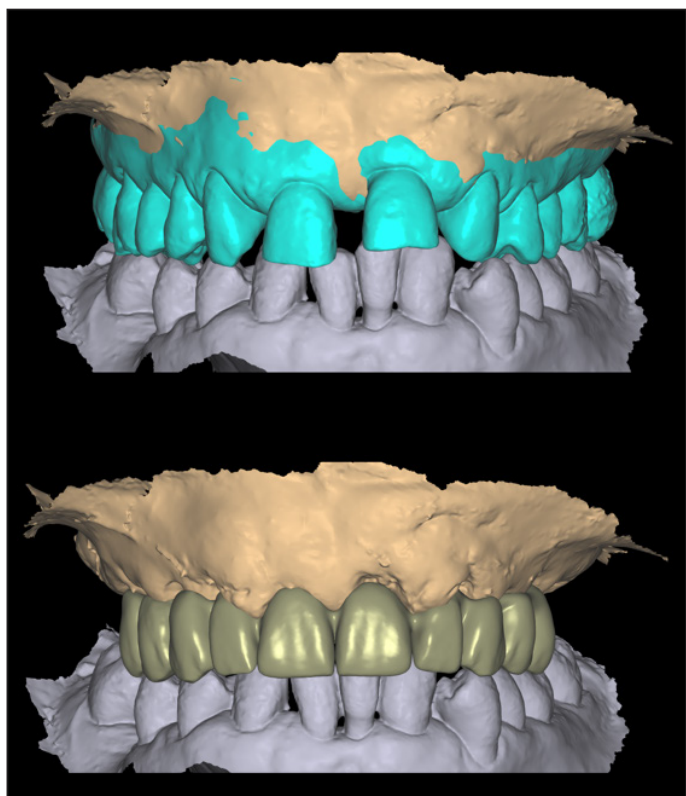


Figure 8: Planning with Exocad



Figure 9: Panoramic X-ray (OPT)

Megagen AnyRidge implants

Discussion

Immediate implant loading presents high success rates in the presence of sufficient primary stability (torque $\geq 30/35$ Ncm), favorable bone conditions, and homogeneous distribution of occlusal loads on the prosthetic structure [3].

A critical factor for overall aesthetic success is the relationship between VIP and SIP.



Figure 10: Definitive work



Figure 11: Definitive work

Discrepancies between vertical position and surgical inclination can negatively affect the prosthetic emergence profile, biomechanics, and aesthetics of the rehabilitation.

A lack of correspondence between VIP and SIP may result in prosthetic overcontouring, difficulties in oral hygiene procedures, and a non-optimal distribution of occlusal forces.

This aspect is particularly important in Toronto-FP1 rehabilitations, in which there is no replacement of the soft tissues by the prosthesis and the implant position directly influences the final prosthetic outcome [4].

The use of digital workflows makes it possible to reduce such discrepancies and to improve both surgical and prosthetic precision.

Furthermore, CAD/CAM technologies provide high levels of accuracy and reproducibility in the fabrication of provisional and definitive rehabilitations, while also facilitating communication between the clinician and the dental laboratory.

Conclusions

Immediate implant loading based on a digital workflow represents a predictable and clinically effective procedure.

The correct application of the VIP and SIP concepts is essential to achieve a prosthetically ideal implant position and to ensure

the success of rehabilitations, particularly in Toronto FP1 cases.

The introduction of standardized digital protocols improves surgical and prosthetic precision and contributes to achieving functional and aesthetic outcomes that are more predictable, safer, and significantly faster to achieve [5].

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