COMMENTARY

Utilization of Digital Technologies for Fabrication of Definitive Implant-Supported Restorations[1]

THOMAS R. MCDONALD, DMD*

Implant restorations require a tremendous amount of coordination, timing, and precision to achieve excellent results. Although it has been reported that 50% of general dentists are placing implants,[2] many clinicians prefer a surgical specialist. With multiple clinicians for the same case, logistics can be challenging. In all cases, however, the precise transfer of the implant position and architecture to the dental laboratory is paramount. Impressioning, model/die production, articulation, and crown fabrication have great potential for error that experienced dental teams have accommodated successfully for years. Digital impressioning and fabrication, if accepted to be accurate, could alleviate many of the logistical and clinical challenges associated with implant restoration. Some categories of dental technology have been accepted by the profession with enthusiasm and are present in most practices, but other categories have been slow to gain acceptance. Most dentists are satisfied with conventional impression techniques. What they may view as the major disadvantages of the digital impression concept are the relatively high cost of purchasing the device, the continuing need for excellent soft-tissue management, the need to use only specific dental laboratories, and the fear of venturing into an unknown area.[3]

The authors of "Utilization of Digital Technologies for Fabrication of Definitive Implant-Supported Restorations" have presented an elegant technique for a completely digital restorative process. Turning over the entire clinical and laboratory process to the virtual world will be a "leap of fear" for most restorative dentists, but the authors have illustrated a process with a high level of precision and excellent esthetic results. In this technique, the most challenging clinical step is the proper placement and imaging of the implant healing abutment. Limitations include the purchase of necessary imaging systems and access to scarce laboratory support at this time. Experience will reveal the adaptability of complete digital fabrication for more complex esthetic restoration of anterior implants.

A great physiologic benefit of this technique is the limited access of the implant interface following healing. Many implant researchers have suggested that one should limit the number of times that the abutment has been disconnected and reconnected. Studies have indicated that the disconnection and subsequent reconnection of the abutment component of the implant compromised the mucosal barrier and resulted in a more "apically" positioned zone of connective tissue. The additional marginal bone resorption observed at test sites following abutment manipulation may be the result of tissue reactions initiated to establish a proper "biological width" of the mucosal–implant barrier.[4] The complete digital technique outlined in this article results in only one disconnection–reconnection event. This should result in the best possible physiologic outcome for the implant and restoration.

REFERENCES

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**Private Practice, Athens, GA, USA. Clinical Instructor of Oral Rehabilitation, College of Dental Medicine, Georgia Health Sciences University, Augusta, GA, USA*

This commentary is accompanied by article, "Utilization of Digital Technologies for Fabrication of Definitive Implant-Supported Restorations" Christopher D. Ramsey, DMD, Robert G. Ritter, DMD, DOI 10.1111/j.1708-8240.2011.00481.x.

 DOI 10.1111/j.1708-8240.2011.00482.x