



# questions & answers



by  
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Paul S. Petrungaro, D.D.S., M.S., F.I.C.D., F.A.C.D., D.I.C.O.I., graduated from Loyola University Dental School in 1986, and completed an independent study of periodontics at the Welsh National Dental School in Wales, U.K. He completed his residency in periodontics and has a specialty certificate in addition to a Master of Science degree in periodontics from Northwestern University Dental School. He is the former coordinator of implantology, Graduate Department of Periodontics, at Northwestern. Dr. Petrungaro has been in the private practice of periodontics and implantology since 1988, and holds licenses in both Illinois and Minnesota. He has given numerous seminars and lectures on advanced periodontal, prosthetic, and implant interrelationships, bone regeneration and esthetic tissue formation, the use of transitional implants, and the use of platelet-rich plasma in bone grafting throughout the U.S., Europe, Canada, Australia, and South America. In addition, he has authored numerous articles on all of the above, along with the topics of cosmetic bone grafting and implant procedures. He is also a fellow of the International College of Dentists and the American College of Dentists.

## Interdisciplinary Challenges in Esthetic Dentistry

### CLINICAL QUESTION:

*What current surgical stent design will translate the parameters for esthetics in implant restorations to the surgeon from the esthetic/cosmetic dentist seeking esthetics and function for their implant patients?*

### SOLUTION:

Surgical stent design continues to be a topic of intense discussion in regard to the placement of implants throughout the oral cavity, and especially in the anterior esthetic zone.

The approach utilized by the author is incorporated into the immediate restoration procedure, which is ideal for establishing the foundation for esthetic soft and hard tissue contours supporting implant fixtures in the esthetic zone.

The surgical guide/provisional system discussion involves the use of the Master Diagnostic Model® (MDM®) (Valley Dental Arts; Stillwater, MN) waxing technique that allows for the esthetic and functional replacement of both the hard and soft tissue structures requiring alteration in the surgical and restorative plan, with one change: A removable tooth complex in wax, with supporting "wings" to add stability to the recreation for treatment planning purposes. Fabrication of an esthetic temporary restoration completes the temporary/stent portion of the TempStent™ method, developed by the author. The esthetic temporary restoration also serves as a surgical guide for the proper placement of the implants, and easily converts to an esthetic provisional restoration that will be seated at the initial surgical appointment.



Figure 1: Preoperative view of the maxillary left anterior sextant.

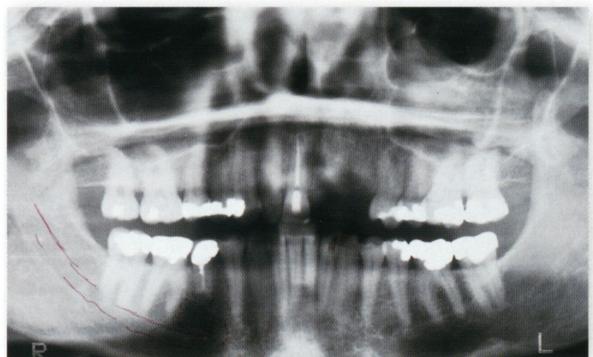


Figure 2: Preoperative panoramic radiograph.



Figure 3: Master Diagnostic Model®.



Figure 4: Occlusal view of the MDM® of the maxillary anterior sextant.



Figure 5: Occlusal view of the MDM after removal of the tooth component, depicting planned soft tissue contours.



Figure 6: TempStent™ provisional/surgical guide.



Figure 7: Occlusal view of TempStent<sup>TM</sup> marked for the appropriate coring sites.



Figure 8: Occlusal view of the TempStent after coring the access opening.



Figure 9: Confirmation of the TempStent clinically, and initiation of the drilling sequence.



Figure 10: Prepared stock abutments prior to retrofitting the TempStent.



Figure 11: Converted TempStent surgical guide into the esthetic provisional restoration.



Figure 12: Cementation of the esthetic provisional restoration.



**Figure 13:** Immediate postoperative clinical view.



**Figure 14:** Immediate postoperative panoramic view.



**Figure 15:** The 2-week postoperative view.

The following case report demonstrates the incorporation of the TempStent method into the immediate restoration procedure and how coordination of the pretreatment surgical and restorative phase has been clinically observed to simplify the esthetic implant restoration process. The technique also is applicable to conventional implant surgical and restorative treatment protocols with temporization completed at the conventional Stage II procedure.

## CASE REPORT

A 44-year-old healthy non-smoking female presented for implant reconstruction of the maxillary anterior (Figs 1 & 2). The patient had under-

gone facial trauma, and also required the extraction of the endodontically treated central incisor. After a comprehensive consultation with her esthetic/reconstructive dentist, the patient opted for implant reconstruction in the anterior maxillae.

## FABRICATION OF THE TEMPSTENT™

After maxillary and mandibular study models were obtained, a facebow transfer was taken using the KaVo Protar Articulator (KaVo America Corporation; Lake Zurich, IL). The articulated models were then sent to the lab, and a complete Master Diagnostic Model was obtained of the area to be restored (Fig 3), with the

modification of the wax teeth being removable. Waxing of the full contour of the soft tissue to be replaced aids in the surgical planning (Figs 3 & 4), in addition to providing important information regarding emergence profile formation (Fig 5), placement of the implant collar, abutment preparation, and how these all relate to the transitional and final esthetic prosthesis. Fabrication of the transitional that mimics the waxing of the teeth (Fig 6), with the support "wings" added (Fig 7), provides for stability of the TempStent in its use as a surgical stent. Coring of the esthetic provisional provides for ideal fixture placement and allows for the prepared abutments to be retrofitted to the TempStent easily and efficiently.

After confirmation of the fit of the TempStent intraorally (Fig 9), the initiation of the coring procedure for implant placement is accomplished. The placement of four tapered screw-vent Paragon implants (Sulzer Dental; Carlsbad, CA) is followed by preparation of stock abutments. The abutments are then seated over the implants placed (Fig 10), and the TempStent is converted to the esthetic provisional restoration (Fig 11). After cementation with a strong temporary cement (Fig 12), (Improv, Nobelbiocare USA; Yorba Linda, CA) the buccal contours of the alveolar bone are veneered with a platelet rich plasma/grafft complex, and the soft tissues augmented with a PRP/Acellular Dermal Matrix Graft (LifeCell Corp.; Branchburg, NJ) reconstituted tissue graft. Closure is then accomplished with 5.0 Monocryl sutures (Ethicon Inc.; Sommerville, NJ) (Fig 13). An immediate postoperative panoramic

radiograph depicts the implant/TempStent complex and the results of the immediate restoration procedure (Fig 14). Figure 15 shows the 2-week postoperative clinical view.

The TempStent method for surgical stent-provisional restoration fabrication provides a guide that allows the communication between the esthetic dentist, surgeon, and dental laboratory to be easily transferred between the members of the dental implant team. Initial specifications as to the final contours of the teeth planned, in addition to the relationship of the bone and soft tissues and how they relate to the planned temporary and final restoration, can be determined and initiated at the first and only required surgical procedure. Additionally, the TempStent method allows for a user-friendly system for provisionalization of dental implants at the initial surgical visit. *AD*

If you have any clinical questions or dilemmas that are troubling you or your practice either on a routine basis, or relating to a specific case, please submit your concerns, with clinical slides or photographs, and our panel of experts will provide the best solutions. The panel will answer all submissions on a timely basis. Specific questions and their answers will be published on a significance basis in subsequent issues of the journal.

Please submit your clinical questions and dilemmas to:

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# SILENT AUCTION! for GIVE BACK A SMILE™

The Give Back A Smile program, sponsored by the American Academy of Cosmetic Dentistry Charitable Foundation, Inc., provides free consultation and treatment to those in financial need, to restore the smiles and lives of survivors who have sustained dental injuries due to domestic violence. When a smile is lost due to unfortunate circumstances, it has not only a devastating physical effect, but it damages a person's self-esteem and social confidence as well. Give Back a Smile helps reinstate a patient's passion to live, self-confidence, and faith in the goodwill of others. The program represents how AACD members all over the world help change lives -

one smile at a time. In July 2001, the AACD was one of eight organizations in the world to receive the Award of Excellence and the prestigious Associations Advance America Summit Award for the Give Back A Smile program. The American Society of Association Executives, in Washington, D.C., sponsors this yearly national competition to recognize the charitable organizations that make the most effort to advance American society.

**2002 SILENT AUCTION**  
The Give Back A Smile program will host its yearly Silent Auction event from Wednesday,

May 8, through Friday, May 10, 2002, in the exhibit hall at the 18th Annual AACD Scientific Session in Honolulu, Hawaii. The silent auction features items donated by AACD members and private corporations to raise money for the program, and all proceeds gathered from the evening go directly to the aid of the survivors. To view the most up-to-date list of auction items, or for information on how you can participate in this worthy cause, please visit [www.aacd.hawaii.com](http://www.aacd.hawaii.com). Here is a list of some of the exciting items that are already up for bid as of January 2, 2002!

**GBAS Silent Auction, continued on page 47**