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Impressions for Implant Dentistry Made Easier

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"The key to contemporary restorative dentistry is the fabrication of healthy, maintainable, aesthetic, and functional prostheses."¹ I believe that a truer statement could not be said concerning the field of restorative dentistry. How do we get from the beginning to the end of the journey? That is the real clinical challenge. We can all remember our first alginate impression in dental school. The first hurdle to overcome was getting the material from the bowl, to the tray, to the mouth without it "setting up" too soon. The next challenge was preventing our partner from gagging due to an overloaded tray. After that the tray had to be removed without tearing the impression to pieces. The final hurdle was now routine.

The concepts of implant dentistry are now well documented though research and clinical success. We no longer think of implant dentistry as a distant choice in our treatment planning but often a first course of treatment. Implants are gaining in popularity by both doctors and patients. "In 2001, the European dental implant market was valued at 144.4 million dollars, a substantial 12.3% increase over 2000. By 2006, this market is expected to generate revenues of 269.8 million dollars, representing a 13.5% compound annual growth rate from 2002 to 2006. There is tremendous potential for expanding the dental implant market in Europe. Only 20% of all dentists in Europe currently offer dental implants as part of their treatment scheme for tooth loss."² The article quoted goes on to discuss the three aspects that are driving this growth. They are (1) Clinical penetration (2) Patient awareness (3) Technology.

Clinical Penetration

Clinical penetration is really the ability for all restorative dentists to understand the importance of implant dentistry from its surgical to restorative procedures. Dentists will soon realize that if they are not talking about and plant placement. providing implant services, the patient is going to find an office that does.

Patient Awareness

Patient awareness is becoming a big factor as related to implant services. The patient is becoming an informed consumer about advanced dental options. Marketing strategies are routinely used by medical companies that drive patients to physicians for elective cosmetic services and medications. We have all seen the Viagra ads on television. Patients are learning about implant placement in consumer magazines. When a patient is given only the option of a three-unit bridge, many will now say, "I don't want to ruin two good teeth. Am I a good candidate for implants?"

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Figure 1. The patient presented with upper and lower partials, requesting a fixed restoration in the lower arch.

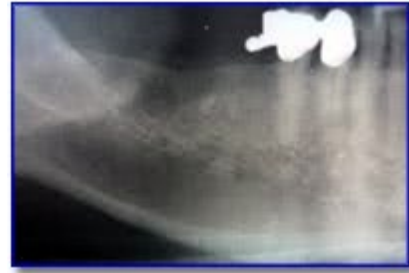


Figure 2. X ray shows sufficient bone for implant placement.

Technology

Technology continues to improve and is really a huge factor in getting dentists to consider incorporating implantology in their practices. Manufacturers are working very hard to reduce treatment times. Implant companies are also trying to reduce the cost of their product and the number of components necessary to restore patients "back to function". The introduction of one stage, immediate-loading implants has pushed the envelope to further reduce costs to both patients and doctors.

"Immediate provisionalization enables the maintenance of aesthetics and phonetics during the provisional period as well as significant soft tissue management."³ This increased speed dentists and patients are demanding must be looked at very carefully. "...we need further research that will give us a better understanding specific to implant materials, bone qualities, and the timing and magnitude of biomechanical loading of those implants. Our treatment goals should always be to make implant dentistry even more predictable."⁴

Time Saving

Considering the above factors, I am presenting a method that will simplify implant impression taking. With this easier process, time will be saved that should translate into cost savings for dentists and patients alike. Dr. Americo Fernandes has introduced an implant system called **BASIC** [1 (888) 888-7564] utilizing clinically pure titanium implants that have the same integration success as all the other implant systems. In his article, "Simplicity Is Always Best," he states: "Each dentist has to determine his or her level of comfort with respect to implantology."⁵

Many implant protocols are technique sensitive. Brian Monteith's article shows the unreliability of traditional screw retained prosthetic systems.⁶ Additional concerns include the complexity of a system after the implants have integrated into the bone. Dentists come up against a range of prosthetic problems from having the incorrect transfer abutments necessary for the impression to having the wrong size screw with which to insert the restoration.

Disadvantages

The goal of the paper is demonstrate the ease in which impressions can be obtained after integration of the implant fixture, utilizing one specific system. Other systems use different methods to obtain the relationship between the implant fixture and the rest of the dental complex requiring restoration. Impression protocols can be divided into two categories - closed or open tray technique. The closed method calls for the removal of the impression and the placement of the transfer back in the impression. The placement back into the impression leads to potential inaccuracies. The open tray method has the transfers screwed into the abutment; impression material is used to "lock" the transfers into the tray and then the transfers are unscrewed from the fixtures. This is a time consuming process.

H & H Technique

The H and H method of taking impressions, which I have developed for conventional crown and bridge, can be easily used with the BASIC system; at the time of surgical placement of the implant, it is possible to use the transfer device to "pick up" the device and gain the proper implant orientation.

The H and H system is a dual-arch impression technique which utilizes the hydrophobic and hydraulic properties of silicon impression materials.⁷ The success of this procedure is related to using an impression material that has a durometer rating of about 85 so that the preliminary impression does not distort or flex when the secondary wash material is placed. The simplicity of the H and H impression technique makes the impression phase more comfortable for the patient and quicker for the practitioner without losing accuracy.⁸

Clinical Case

In the case presented, BASIC implants were placed in the alveolus using a "cookie cutter" approach minimizing the tissue damage that is usually seen when full flaps are made. After the placement of the implants, transfer devices were inserted into the BASIC implants and a preliminary impression of Blue Velvet was taken.⁹

The tray was removed and the transfer devices that may have been picked up are replaced back into the implants. The secondary wash material of FlexiVelvet¹⁰ is added to the Blue material, placed back in the mouth with the proper orientation and the patient is instructed to bite down very hard. To insure proper positioning, the preliminary impression is placed on the maxillary arch and the yellow is introduced using the tip end of the gun.

This method guarantees that the tray is in the proper position when the patient closes. The FlexiVelvet material picks up the fine details of the margins of the crowns without the use of cord but also picks up the transfer devices to gain the proper orientation of the implant fixtures. The restoration was taken to completion.



Figure 3. BASIC implants placed using proper surgical protocol.



Figure 4. The implants at time of placement using the "cookie" cutter method to gain access to the implant sites.



Figure 5. Transfer devices in place at the time of the implant placement.



Figure 6. Note the parallelism of the implants to allow withdrawal in the impression.



Figure 7. Check retractors in place to allow for visualization of the tray placement and insuring the patient is in maximum intercuspation.



Figure 8. Blue Velvet in place with hand holding the mandible.



Figure 9. Close up of the Blue Velvet showing that it is not engaging the embrasure spaces or over the partial.



Figure 10. The Flexi Velvet was place while the tray was still in the patient's mouth. The transfer device would be placed back in implant site for the secondary impression, if it had come out with the Blue Velvet.

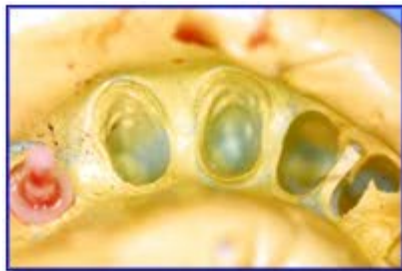


Figure 11. Completed H and H impression showing margins of teeth #'s 27 and 28.



Figure 12. Transfer copings picked up in the H and H impression.



Figure 13. Healing caps in place while implants integrate.



Figure 14. Three months later the implants with the healing caps off.



Figure 15. Lab work completed for the two crowns and the three implant supported crowns.



Figure 16. Radiograph showing implant supported crowns and crowns on 27 and 28.



Figure 17. Final restorations.

Conclusion

By utilizing the H and H impression technique with the BASIC implant system, the number of appointments is reduced. Overall this can have a positive effect on reduced costs and patient acceptance of implant treatment.

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Notes:

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3. Park, Kwnag Bum et al, Immediate Implant Placement with Immediate Provisional Crown Placement: Three Case Reports, Practical Procedures & Anesthetic Dentistry, vol 14 no. 2 2002 page 147.
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7. Hoos, Jeffrey et al, Innovative Impression Technique, Henry Schien self education.
8. Hoos, Jeffrey and Kaplowitz, Gary, Profitable Dentist, August 1998, September 1998, August 1999.
9. Blue Velvet, Trade name of a product from JMorita.
10. Flexi Velvet, Trade name of a product from JMorita.

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