The Brown

PerioDontaLetter

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From Our Office to Yours...

In the esthetic zone, the restorative dentist is faced with the challenge of restoring not only a dental implant but also preserving the anatomical shape of the gingival architecture and underlying supporting bone.

With proper placement of the implant body, adequate soft tissue and a temporary restoration that guides and shapes the tissue into lifelike contours, an implant restoration in the anterior region can appear similar to a natural tooth.

Screw-retained provisional restorations are especially advantageous in achieving this objective.

In this current issue of ***The PerioDontaLetter****, we discuss the management of the peri-implant gingival tissues to achieve an esthetic result.*

As always, we welcome your comments and suggestions.

Shaping the Gingival Tissue Around Dental Implants

Preserving or restoring the natural architecture of the gingival tissue around an implant requires a well-conceived treatment plan, a series of surgical and restorative procedures and appropriate timing to produce an optimal esthetic result.

A natural, healthy gingival architecture which mimics and blends with the natural dentition is both desirable and attainable.

Based on our understanding of the constancy of gingival tissue thickness surrounding teeth or implants and our knowledge of the healing of peri-implant tissues, it is possible to estimate the final position of the healed tissue around the implant restoration assuming the peri-implant alveolar bone is maintained.

If the bone levels at the implant site have been compromised by a

Figure 1. This lower central incisor was diagnosed with severe internal resorption.

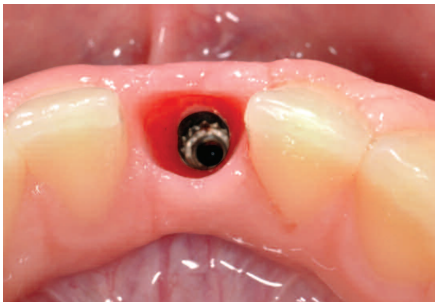

Figure 2. The tooth was extracted and an immediate implant placed.

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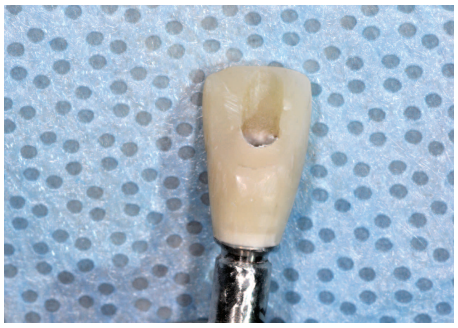
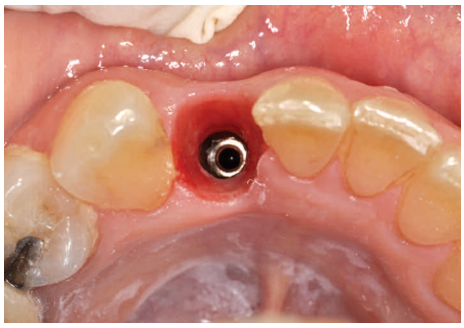


Figure 3. A screw-retained temporary crown was constructed to ensure a natural tissue emergence for the final restoration.



Figures 4 and 5. At the time of the final impression, the temporary crown was removed leaving an ideal gingival architecture for the final restoration.

poorly-executed extraction or infection, it will produce a negative effect on the clinician's ability to create an esthetically-pleasing outcome.

Extraction without grafting or delayed referral for implant placement can result in significant alveolar ridge resorption which compromises soft tissue support and the ability to achieve a truly esthetic result. Such sites are extremely difficult to repair "after the fact."

Managing the Soft Tissue Around Implants

Proper soft tissue management is directed towards preserving the papillae around the implant, a most demanding esthetic challenge.

Important case planning considerations include:

- Appropriate timing of implant placement relative to the time of extraction.
- Anatomical defects at the extraction site such as ridge resorption or loss of the facial plate.
- The patient's biotype. Thick biotypes are much easier to manage and maintain than thin, scalloped gingival tissues which are prone to recession and do not mask prosthetic margins well.
- Control of inflammation and maintenance of good oral hygiene.

Soft Tissue Healing

During the implant healing phase, the amount of tissue shrinkage can be crucial to the success or failure of the cosmetic result.

Therefore, when shaping the gingival tissue around implants, it is important to take into account the position and structural integrity of the labial bone and gingiva.

Maintaining a competent gingival seal is important in obtaining an esthetic result. A tight gingival cuff reduces the risk of peri-implantitis and other alterations in the appearance of the tissue.

Good gingival adaptation with keratinized tissue enhances plaque control, reduces recession and promotes the maintenance of long-term gingival health.

Figure 6. As a result of careful tissue shaping during the implant healing phase, the final restoration has a natural and esthetic gingival contour.

Temporary Healing Abutment

The healing abutment serves as a temporary replacement, allows for the formation of a sulcus and sculpts the shape of the gingiva. Anatomic healing abutments are available that mimic the shape of a natural root which produces favorable gingival contours.

Once the gums have healed and the implant is osseointegrated, the healing abutment is removed and the final restoration is placed on the implant. At this point, the gingiva should esthetically surround the implant crown.

Screw-Retained Provisional Crowns to Shape Implant Tissue

The use of provisional restorations in implant therapy is an important clinical step in restoring and enhancing gingival esthetics.

Screw-retained provisional restorations are especially advantageous in shaping the peri-implant tissues. These restorations establish natural and esthetic gingival contours including the papillae which will help the laboratory fabricate an anatomically appropriate and esthetic soft tissue model.

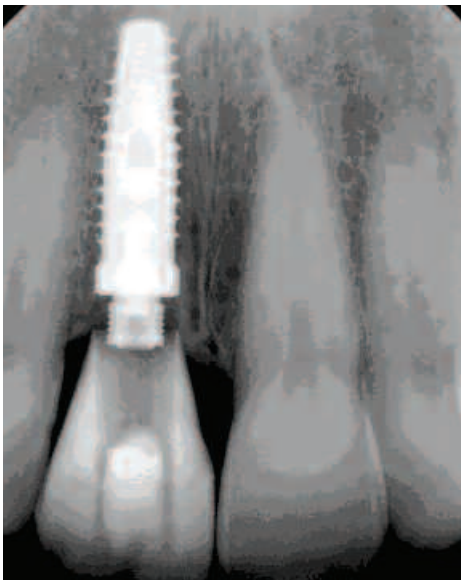
Provisional restorations may be placed at the time of implant surgery or after an appropriate healing period. A provisional crown is then fabricated as close as possible to the contours of the final restoration creating a good foundation for an esthetic result.

Screw-retained crowns are advantageous when modifying contours of the soft tissues. These crowns can be removed multiple times without the risk of a negative impact on the surrounding tissues from excess cement.

Customized Transfer Coping

Once the temporary restoration is removed, the gingival tissues

Figures 7 and 8. Immediate post-op radiograph reveals implant placement in the edentuoulous area of the upper right central incisor. (See Figures 8, 9, 10, 11, 12, 13 and 14.)



Figures 9 and 10. An immediate screw-retained temporary crown was fabricated and seated to support the gingival papillae and to preserve the anatomical shape of the gingival architecture.

Figures 11 and 12. Dental composite was added to the temporary crown to shape the distal papilla.

Figures 13 and 14. These photographs clearly show the esthetic gingival contours which were created by the temporary crowns.

Figure 15. The final restoration appears similar to a natural tooth.

tend to rapidly collapse over the implant platform. The custom impression coping solves this problem.

Following the shaping and maturation of the peri-implant tissue, the clinician needs to transfer this information to the working cast.

A custom impression coping prevents tissue collapse and allows the clinician to capture the molded soft tissue and appropriate emergence profile developed with the provisional restoration.

The Final Abutment

An ideal abutment fits passively, has correct emergence profile, and mimics the morphology of the peri-implant tissues.

Customized abutments are generally superior to stock abutments in achieving these objectives.

Immediate Implant Placement

Occasionally the clinician has the option to extract a non-restorable tooth with simultaneous placement of a dental implant. Immediate implant placement has been documented to reduce tissue loss following tooth extraction.

Soft Tissue Augmentation

When deficiencies in the hard and/or soft tissue prevent ideal placement of the implant, soft and hard tissue augmentation may be indicated to add bulk and/or increase the width of attached gingiva. Various surgical techniques are available to preserve or increase the soft tissue and create esthetic contours.

With proper placement of the implant body, adequate soft tissue and a temporary restoration that guides and shapes the tissue into lifelike contours, an implant restoration in the anterior region can appear similar to a natural tooth.

Conclusion

The management of the soft tissue around dental implants is both challenging and complex. However, when appropriately managed, it produces profoundly esthetic restorations.

Tissues must be handled with great care and surgical procedures should be as minimally invasive as possible.

A properly conceived provisional restoration is an essential component in guiding tissue contours.

While shaping and reconstructing tissue is an inspiring and satisfying achievement, achieving optimal outcomes of implant restorations should be predicated on the preservation of existing tissues.

Timing of treatment, especially as relates to extractions and the management of the bone, is critical to ensuring success.

As always, the team approach to the planning and execution of functional and cosmetically- acceptable implant supported restoration is essential.

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