CASE PRESENTATION

Staged Extraction and GBR Before Implant Placement

JOHN LUPOVICI, DDS

is a periodontist and Diplomate of the American Board of Periodontology practicing in New York City. A faculty member at the New York University College of Dentistry, he is an international lecturer and a widely publicized author on clinical topics.

ROBERT RAIMONDI, DDS

performed the final restoration in this case. He maintains a private prosthodontics practice in New York, NY. He also teaches at the Brooklyn VA General Practice Residency, the Manhattan VA Advanced Education in Prosthodontics Program, and the New York Hospital at Queens Advanced Education in Prosthodontics residency program.

Implants no longer can be deemed successful simply based on their ability to retain a functional restoration. The faithful re-creation of natural esthetics also is imperative. To solve the challenge of achieving natural esthetics in compromised situations, several techniques and materials have been developed to restore deficient alveolar bone and maintain existing bone and soft tissue. This case is an example of a collaborative surgical and restorative clinical treatment to achieve an esthetic replacement of a compromised maxillary central incisor.

A 31-year-old male patient presented with asymptomatic external resorption of the right central incisor. An extraoral examination revealed a moderate to high smile line that displayed approximately 2 mm of gingiva when he smiled. Intraoral and radiographic examination revealed external palatal resorption to the maxillary right central incisor, in conjunction with a thin gingival biotype.

While a variety of bone-augmentation strategies are documented to have a record rate of success, we chose a staged extraction and guided bone regeneration technique because of the patient's prominent smile line in conjunction with thin gingival biotype.

Following administration of local anesthesia, tooth No. 8 was atraumatically elevated from the alveolus and socket augmentation was performed with a mineralized allograft particulate using Symbios Mineralized Cortical/Cancellous Granules (DENTSPLY Implants) and a collagen sponge. The patient was provided with a nonload-bearing Essix retainer. Three months after the extraction and augmentation, implant placement using OsseoSpeed (DENTSPLY Implants) was performed.

Six weeks after implant placement, implant integration was confirmed. An open-tray impression was made in a custom tray. Based on the patient's original tooth, a custom ATLANTIS Abutment—zirconia (DENTSPLY Implants) was reverse-engineered. The abutment was then delivered and torqued to 25 Ncm, and a provisional restoration was fabricated. Over the course of 3 months, the tissue was matured before fabrication of the final restoration. The final restoration was then delivered successfully.

Figure 1—This preoperative facial view of the patient's maxillary anteriors showed asymptomatic external resorption of the right central incisor. Note the thin gingival biotype.

Figure 2—A radiograph displayed external resorption of tooth No. 8.

Figure 3—Tooth No. 8 was atraumatically elevated from the alveolus. Care was taken to avoid traumatizing the facial alveolus. All granulation tissue was carefully curetted from the socket, and then was filled with the particulate mineralized allograft—Symbios Mineralized Cortical/Cancellous Allograft Granules (DENTSPLY Implants).

Figure 4—A 2 mm-thick slice of a collagen wound dressing material was placed over the graft to better contain the particulate material. The tissues were sutured, and there was no attempt to achieve primary closure.

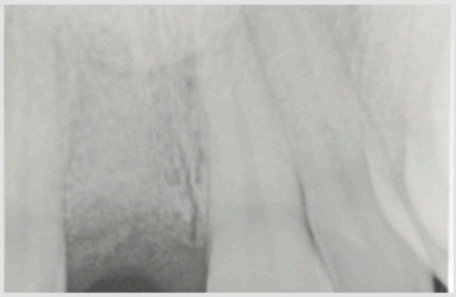

Figure 5—Three months after extraction and augmentation, the patient presented for implant placement. Hard tissue preservation was radiographically and clinically confirmed.

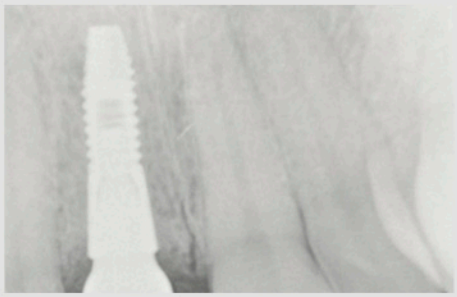

Figure 6—Six weeks after implant placement, a radiographic confirmation of implant integration was taken. Note the preservation of crestal bone.

Figure 7—Three months after implant placement, there was successful integration with healthy surrounding peri-implant tissue.

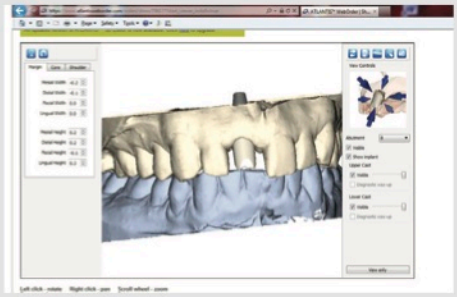

Figure 8—Using the ATLANTIS 3D Editor feature within the online ATLANTIS WebOrder system (DENTSPLY Implants), the technician and restorative dentist were able to modify the abutment design before milling. An ATLANTIS patient-specific abutment (DENTSPLY Implants) was used.

Figure 9—One-piece ATLANTIS Abutment—zirconia (DENTSPLY Implants) are shown before delivery.

Figure 10—The ATLANTIS Abutment— zirconia in Vita A2 (Vident) was then placed.

Figure 11—A final restoration was fabricated out of lithium disilicate using IPS e.max (Ivoclar Vivadent). Marco Boschiroli was the dental technician. The restoration was then cemented using Calibra Esthetic Resin Cement (DENTSPLY Caulk).

GO-TO PRODUCTS USED IN THIS CASE

ATLANTIS

Like their cement-retained offering, the ATLANTIS Crown Abutment is uniquely designed based on the final tooth shape and is available for all major implant systems. The abutment is uniquely designed based on the final tooth shape and is available for all major implant systems.

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OSSEOSPEED

The full range of OsseoSpeed TX implants covers all indications, including cases with limited vertical bone height, the replacement of maxillary laterals and mandibular incisors with narrow horizontal space, and both anterior and posterior situations.

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