Peter Domagala, DDS maintains a private practice limited to periodontics and dental implants in Gurnee, IL. Dr. Domagala lectures both locally and nationally on periodontics, implant dentistry and oral medicine. He is a former Assistant Clinical Professor at the College of Dentistry at the University of Illinois, and an active member of numerous organizations, including the Chicago Dental Society.

Gerald Mackey, DDS maintains a practice in Gurnee, Illinois focusing on interdisciplinary dentistry. He is a third generation dentist (all are graduates of University of Illinois).

Using a Straumann® Bone Level Implant

Figure 1 *A pre-operative x-ray demonstrates extensive endodontic treatment and an apical radiolucency.*

Figure 2 *The ovate pontic extended approximately 2 mm into ext. socket.*

Figure 3 *A view twelve weeks post extraction. The removable prosthesis was worn 24 hours a day to help maintain soft tissue contours.*

Numerous studies[1-3] have demonstrated that when a tooth is lost, the loss of the adjacent dental papilla often occurs. The regeneration of a lost dental papilla is one of the most challenging procedures in all of dentistry. The following case report features the use of an ovate pontic design and a temporary meso-abutment to help maintain the dental papilla while bone regeneration and osseointegration are occurring.

Figure 4 *Implant placement has been accomplished and the PEEK healing cap is in place. The PEEK healing cap is adjusted in the mouth with a high speed handpiece, light pressure and copious irrigation.*

Figure 5 *The prepared meso-abutment hash undercuts for added retention.*

Case Report

A 37 year old female presented with pain on tooth #9. Review of the patient's dental history revealed a traumatic injury to the anterior maxilla more than 20 years prior. Approximately 15 years later the patient had pain and swelling. Successful apical surgery was performed. Clinical examination revealed an 8 mm probing depth and a buccal sinus tract.

Due to the presence of the sinus tract and isolated probing depth, a vertical root fracture was suspected. Exploratory surgery was performed. An immediate implant was not deemed to be the ideal treatment plan due to the likely loss of buccal bone as a result ofthe prior apical surgery. Minimally traumatic tooth removal was performed without reflecting a flap, a demineralized freeze dried bone allograft was placed in the extraction socket, and an ovate pontic removable interim prosthesis was fabricated. The ovate pontic extended into the extraction socket approximately 2 mm. Customization of the apical portion of the prosthesis was accomplished with flowable composite mechanically attached to the acrylic meso-abutment, utilizing an undercut.
After 6 months of healing regeneration of bone had occurred and the soft tissue papilla was maintained with the help of the ovate pontic design.

The presence of adequate keratinized tissue and alveolar bone allowed implant placement

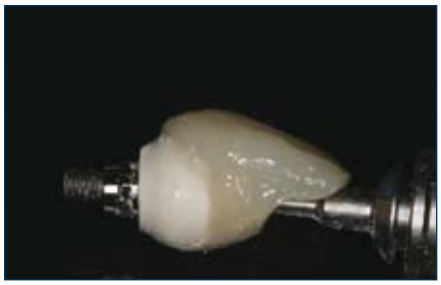

Figure 6 *A view of the temporary meso-abutment prior to delivery. Note the buccal contours which will support the soft tissues. The tissue height is adjusted by altering the buccal emergence contour with flowable composite. Flowable composite is added or taken away from the buccal height of contour, depending upon whether the tissues need to be moved apical or coronal to their existing height.*

to be performed utilizing a flapless approach. A PEEK healing cap was placed and properly adjusted to maintain the interdental papilla during the healing process. The removable prosthesis was relieved to fit over the PEEK healing cap.

Because an SLActive surface implant was utilized, the patient was referred for restorative treatment after 12 weeks of additional healing. The use of a SLActive surface allows for a shorter healing time. The patient was also unhappy with the unnatural appearance of tooth #8. It was determined that more ideal esthetics could be obtained by restoring both tooth #'s 8 and the implant in the position of tooth #9.

A diagnostic wax-up was created and a putty stent was fabricated. The PEEK healing cap was removed and a temporary meso-abutment was placed. It was prepared in a manner ideal for crown preparation. Additional undercuts were added to the meso-abutment to aid in the retention of the temporary restoration, as no chemical bonding occurs between the acrylic meso-abutment and bis-acryls. The putty stent was filled with bis-acryl and placed over the prepared #'s 8 and 9. A cut q-tip was used to block out the access hole of the temporary meso-abutment. The bis-acryl was allowed to cure completely, and the undercuts were removed with a highspeed handpiece. The temporary meso-abutment was removed from the implant and any marginal defects were repaired with flowable composite.

The temporary restorations remained in place for 10 weeks, to ensure that the soft tissue contours were stable.

An indirect impression with an open tray was performed. A putty impression was taken of the temporary meso-abutment to exactly reproduce the soft tissue contours. The temporary restoration was attached to an analog. The analog was embedded in bite registration material. The apical one-third of the temporary restoration was covered with die silicone. After 10 weeks final impressions were taken and the final restorations were delivered.

Discussion

Every effort should be made to minimize bone and soft tissue resorption after tooth removal. If at all possible treatment is performed without reflecting papillae. Although this cannot be accomplished in every case, as much treatment as possible should be performed without reflecting the interdental papillae. Either an immediate implant with a PEEK temporary cap, or an immediate provisional restoration is utilized. The temporary meso-abutment provides an inexpensive and easy method of obtaining soft tissue support. If an implant cannot be placed, an ovate pontic should be immediately delivered to support the soft tissues.

Figure 7 *The provisional restorations are in place. After 10 weeks the soft tissues remained stable.*

Figure 8 *The temporary meso-abutment has been screwed into implant analog, allowing the laboratory to exactly duplicate the emergence contours of the crown as it relates to the soft tissues. This is critical to maximizing esthetic treatment outcomes.*

Figure 9 *One year post operative, the soft tissues remained stable.*

Figure 10 *A one year radiograph of an implant restored with a synOcta abutment, with a PFM crown on the implant and a LAVA crown on tooth #8 .*

References

1 Araujo MG, Sukekava F, Wennstrom JL, Lindhe J. **Tissue modeling following implant placement in fresh extraction sockets.** *Clin Oral implants Res 2006;17:615-24.*

2 Araujo MG, Wennstrom JL, Lindhe J. **Modeling of the buccal and lingual bone walls of fresh extraction sites following implant installation.** *Clin Oral Implants Res 2006;17:606-614.*

3 Wilson TG, Sehenk R, Buser D, Cochran D. **Implants placed in immediate extraction sites: A report of histologic and histometric anayses of human biopsies.** *Int J Oral Maxillofac Implants 1998;13:333-341.*