CASE OVERVIEW

A healthy 35 year old female patient presented with a 15+ year old resin-retained fixed partial denture (FPD) replacing tooth 13 (FDI). Her chief complaint was that the FPD needed to be replaced but she was dissatisfied with the esthetics of her smile. Clinical examination revealed a significant buccal-lingual deficiency present at the 13 site, recurrent caries at tooth 14 (FDI) resulting in the debonding of the FPD, a large overhang distal of tooth 12 (FDI), as well as uneven gingival margins throughout the anterior sextant. A periapical radiograph revealed adequate bone height for implant placement, although with reduced bone height distal to 12, leading to reduced papilla support.

The treatment plan called for osteotome site preparation with simultaneous GBR, crown lengthening on tooth 22 (FDI), and following implant placement, papilla augmentation in order to further satisfy the patient's esthetic requirements. The 27 month photos and radiograph document the successful functional and esthetic results.

Figure 1: A 35 year old female patient presented with an unesthetic 15+ year old resin-retained FPD replacing tooth 13.

Figure 2: A significant buccal-lingual bone deficiency is present at the tooth 13 site as well as uneven gingival margins. There is recurrent caries at tooth 14 and an overhang distal of tooth 12 resulting in loss of interdental papillary height.

Figure 3: Preoperative radiograph shows adequate bone height for implant placement but reduced bone height distal of tooth 12.
Figure 4: Preoperative view, following caries removal at teeth 14 and 12. The patient declined orthodontic treatment to extrude tooth 12.

Figure 5: A Straumann Standard Plus Implant (Ø 4.1 mm, Regular Neck, length 12 mm) was placed to the desired apico-coronal position. Note the implant shoulder is approximately 2 mm below the desired cemento-enamel-junction positions of the neighboring teeth.

Figure 6: The buccal alveolar bone was grafted with bovine bone mineral and a double layer of a resorbable collagen membrane was placed over the graft.

Figure 7: Tension-free, semi-submerged closure was obtained using both 6.0 monofilament suture and resorbable 5.0 chromic gut suture.

Figure 8: A retracted anterior view immediately post-surgery shows that crown lengthening was performed on tooth 22 to more closely match the contralateral incisor.

Figure 9: The restorative phase began 3 months after implant placement with the fabrication of a provisional acrylic restoration to create the desired emergence profile.

Figure 10: Removal of the provisional reveals the 5.5 mm solid abutment and the soft tissue emergence profile. Note the papilla does not completely fill the embrasure and the distal of tooth 12 is exposed.

Figure 11: A papilla augmentation procedure was performed. Briefly, a partial-to-full-thickness incision was made at the muco-gingival junction and the entire muco-gingival complex displaced coronally.
Figure 12: A connective tissue graft was harvested from the tuberosity region and sutured into the papillary area between teeth 13 and 12. The suturing technique is illustrated in the photograph.

Figure 13: 2 weeks after augmentation, the provisional was modified in order to shape the papilla. Note the tissue blanching as the provisional is seated.

Figure 14: Impression material was applied around the provisional seated on the master cast. This recorded the desired emergence profile so that it could be duplicated in the final restoration.

Figure 15: Result at the 27-month follow-up. The final restoration was seated 7 months after implant placement. Note the improved papilla height and tissue contours.

Figure 16: Final anterior retracted view. Note the improved symmetry at the gingival margins and incisal edges.

Figure 17: A radiograph taken at the 27-month follow-up appointment demonstrates ideal bone levels associated with the implant.

Figure 18: Photograph of the patient's smile and anterior tooth esthetics 2 years after implant placement.