



Luke Kahng, CDT

Combo Case: Expertise Required

Using skill and experience to work on a case that featured multiple issues, requiring multiple techniques and multiple solutions for optimal results.

When this particular situation was first being considered, the patient and dentist were interested in creating a four unit implant case involving tooth numbers 7-10. But the patient had some cosmetic concerns with re-creating his smile that led to a change in plans. The technician offered his opinion that perhaps if the dentist prepped the canines, esthetics would be better maximized. The patient, a 70-year-old male, agreed.

The challenge, then, for the technician, was to choose a color that would complement the many variations of color he could see throughout the patient's teeth. There was a deep saturation of grey, brown and a pinkish tone to his maxillary teeth, with the mandibular dentition being a large assortment of colors as well. For best esthetics, the design of the tooth structure was going to have to include the gingival to the incisal edge,

with pink porcelain being utilized for the gum tissue area. In addition, the teeth shape would have to be considered.

CASE STUDY

The initial view image (fig.1) shows crowns on tooth numbers 8 and 9 that were twenty years old in age. The picture was one year old at the time of presentation because the case had

EXPERTISE FIXING MULTIPLE PROBLEMS



Fig. 1 Initial view



Fig. 2 Occlusal view



Fig. 3 Custom shade matching



Fig. 4 Titanium implants



Fig. 5 Second stage build-up



Fig. 6 After fire, bisque bake stage



Fig. 7 Technician markings to delineate texture, shape and 3D appearance creation



Fig. 8 Staining with GC Lustre Paste



Fig. 9 Implants placed on numbers 7-10 and 12



Fig. 10 Immediate try-in



Fig. 11 #11 try-in



Fig. 12 Color check



Fig. 13 Kneeling view



Fig. 14 After try-in



Fig. 15 Color harmony, patient very happy with results

been in planning process for that long. The doctor planned to extract numbers 7-10 and place implants. There was also noted a huge gap between the teeth, creating a black triangle that would need to be masked. Teeth numbers 6 and 11 would be prepped because they were too dark and the contour and color were not acceptable. In order to make his smile better in proportion and dimension, it was necessary to consider all six of the anterior maxillary teeth. In **figure 2**, we see the occlusal view, noting the large gap in #11 with the amalgam. This would be corrected with the addition of a crown.

01 **Figure 3** is a view of the mandibular teeth with the technician matching the color using a variety of LSK121 ceramic shade tabs. He decided after studying the dentition that the tooth to match was #25 since its color was brighter with a healthier appearance. This color became his target for the fabrication of the maxillary crowns and bridge. Technicians are often confused about which tooth to match when they see a large variety of color. In the author's opinion, it is best to try and duplicate the one that is most likely to blend and create coordination for the patient's overall smile appearance.

02 In **figure 4**, titanium implants were placed that had been produced by the GC Milling Center.

03 In fabricating the second stage porcelain build-up (**fig.5**), the author used GC TO colored porcelain. Because the teeth were somewhat longer than the author liked, he added pink porcelain GU gum color with GO colored enamel to the top of that. In this way he was not creating one solid pink color, but rather a natural appearance with clear color in between the layers.

04 After firing, the bisque bake stage is shown (**fig. 6**). The author was especially interested in producing good form and contour between teeth numbers 6 and 11. For better esthetics, he would do some grinding in order to mimic natural contouring.

05 In order to complete the grinding, he drew black lines on the restorations in order to mark where he would be creating texture and shape (**fig 7**). From the incisal to the gingival the red area demonstrates the three-dimensional appearance he wanted to form through grinding.

06 After grinding, he began staining the restorations with GC Lustre Paste (**fig. 8**). It was important to note that the gingival area was not completely pink in color, but had a dark brown tone to it. For the middle section, he used external luster paste and the incisal 1/3 revealed a brown color all throughout, with orange blending inside. In between the teeth he placed dark brown staining for natural looking esthetics. The key to his coloration was the Lustre Paste blending from the gingival to the incisal. It was not consistent in nature, rather more patchy in application because that is nature's way. The restorations were fired at 880°C.

07 Pictured is an occlusal view of the implants placed on teeth numbers 7-10 and 12 (**fig. 9**). In addition, the dentist prepped teeth numbers 6 and 11. The bridge and the single unit crowns were all porcelain fused to high noble metal with porcelain butt margins. During the immediate try-in phase, the author placed the restorations half-way into the area in order to see the color and texture and compare it to the patient's natural dentition (**fig. 10**). Crowns fabricated for teeth numbers 6 and 11 were also tried in to compare the right and left sides of the mouth with the lower dentition to

make sure there was a correct duplication with the porcelain (**fig. 11**). The left canine had been correctly duplicated using the lower dentition as a guide (**fig. 12**). The correct amount of enamel and dentin color had been applied.

08 During try-in, the author asked the patient to bite down. The author knelt down and photographed the patient to illustrate color matching in between the lower and upper teeth. The color is natural in appearance which gave everyone a feeling of successful achievement (**fig. 13**). The match is harmonious and the patient very happy with the final results (**fig. 15**).

CONCLUSION

The importance of shaping the teeth from the gingival to the incisal areas cannot be overemphasized. Also, the size of the teeth needs to fit with the rest of the patient's natural dentition. Custom shade matching was accomplished through careful analysis and planning as to which tooth to match. There is always question as to whether the patients we are working with want to complete both the maxillary and mandibular areas of their mouth, and once that is know, an effective plan can be created. After that is in place, it can be completed. **lab**