Lateral implant custom shade matching

How custom shade matching helped give this patient the esthetic smile she desired.

by Luke S. Kahng, CDT

This case study presentation describes how I selected material and matched adjacent teeth, surface texture and contouring when fabricating restorations for the laterals.

The 30-year-old female patient sought to replace her lateral implants, which, at 3.0 narrow, had a tight neck area in the gingival area. The dentist and I both sought to increase the gingival width and make it broader. However, we noted the gingival line for the laterals was cosmetic compared to the centrals and the canines.

During custom shading, I took a look at the patient’s opacity and translucency with saliva in the mouth, and again without saliva in the mouth. There was a definite color differentiation between tooth Nos. 8 and 9 even though they were natural dentition. Central No. 8 had a white horizontal line in the gingival and No. 9 did not. The incisal 1/3 on tooth No. 9 had deep translucency compared with No. 8, which also had a slighter stain to it than No. 9.

Because of this, I chose gold abutments for this case. Gold is much stronger than zirconia and the hue is a natural color that I knew would blend well with the gingival area of the patient’s new restorations.
With the provisional teeth in place for tooth Nos. 7 and 10, it is obvious that the color is too white (Fig. 1). Tooth No. 8 has a yellow orange tone and the temporary does not; it has a greyish tone to it. Fig. 2 shows a pre-operative view of tooth Nos. 7 and 10 without the abutments in place.

After insertion of the gold abutments from GC Milling Center, I checked on the incisal 1/3 translucency (Fig. 3). In the impression stage, retraction was held for 15 seconds (Fig. 4) to get an accurate assessment of opacity for the natural dentition. I noted there was a dull color because of dehydration.

Fig. 5 shows the zirconia copings before I fabricated the zirconia crowns on top of the gold abutments. Fig. 6 is a mirrored image of the restorations. The natural teeth color aspects are all different with layering on top of the stain. How color and staining appear on the teeth depends on the patient’s habits. Crack lines and other characteristics all play a role in the dentition’s appearance (Fig. 7).

I followed the natural, extracted teeth for guidance as I stained the color onto the restoration. A subtle application to the mesial distal area in this case gave me the color I was seeking. With GC IQ Lustre Paste, I could use more color for overlay staining and could easily increase or decrease the colors (Fig. 8).

After finishing the restorations, they were placed in the patient’s mouth (Fig. 9) for a color and fit check.

There was a lack of translucency noted so I applied L3 (a light grey color) to match the distal area of the crown. Next, I applied L1—light blue, tan and white mixed together, pre-baking (Fig. 10).

I mimicked the adjacent teeth from the gingival to the incisal to create a natural looking color (Figs. 11 and 12). Upon immediate insertion, opacity and translucency were checked (Figs. 13 and 14). Note the incisal edges of the teeth are not even. I was able to duplicate this natural incisal edge and make the restorations slightly brighter than the other teeth, creating a more natural appearance (Fig. 15).

The patient was happy with the end result. When we really look at the images provided, we can understand the natural, existing dentition and the segmented gingival, mesial and distal 1/3 colorations. By communicating all these aspects with the patient beforehand, it made it easier to fabricate the restorations because everyone involved was on the same page.

The images demonstrate the difference between tooth Nos. 8 and 9 and also the size differences between Nos. 7 and 10. Tooth No. 10 has a gap while the space for No. 7 is not as large, meaning there was no symmetry between the teeth. Also, No. 7’s axis was heading in a different direction. So, not only did color have to be taken into consideration when formulating and fabricating this case, shape, incisal edge position and space between the teeth had to be corrected as well. The patient was happy and gratified with the time involved and the end result.

**CASE STUDY**

**CONCLUSION**

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**ABOUT THE AUTHOR**

An accomplished dental technician with more than 20 years of experience, Luke S. Kahng, CDT, is the founder and owner of LSK121 Oral Prosthetics, a dental laboratory in Naperville, Ill. He has published more than 85 articles in dental journals, and his lectures have taken him across the United States and internationally. He is the creator of the Chair Side Shade Guide Seasons of Life, 3.0, 4.0, 5.0, 6.0 and 7.0 ceramic shade tabs, which were invented to facilitate effective communication regarding color between doctors, patients and technicians.