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You cannot recreate what you do not see

The best way to break down a complext implant case.

Anterior implant cases can often present as many challenges as a single central restoration. Especially when the challenge of treatment planning must respect function, esthetics and material selection and each tooth requires a different consideration.

Breaking down a complex case should begin with mapping out what is presenting the greatest critical need first, because if you cannot see the processes elementally, you cannot recreate them with a strategy to meet each part's needs when creating a treatment plan.

CASE STUDY

01 In this particular case, the 60-year-old male presented with a variety of important factors. Occlusion, shade and characterized wear were all integral to the composition of the patient's smile line esthetics. Tooth #7 had been built up with a dark intrinsic stump shade visible at its core and the interproximal gingival height lacked natural fullness at the interdental papilla.

02 An implant replacement for tooth #8 required consideration of proper material selection when noting the wear of the lower protrusive function in occlusion. Additionally, #9 required characterizing esthetics to include crack lines mimicking the natural surrounding dentition, which showed prominence of crack lines from heavy functional and parafunctional loading. Given the dynamics of the varying requirements with respect to design of the restorations and their intended use, the treatment plan needed to

BREAKING DOWN A COMPLEX ANTERIOR CASE

Fig. 1 Preoperative image shows #7 core built-up, titanium abutment and tooth #8 included in treatment

Fig. 2 Customer shade tab created for matching crack lines and translucency

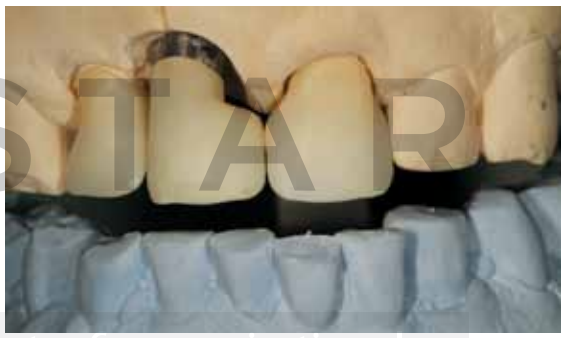

Fig. 3 Milled substructure try-in assessment

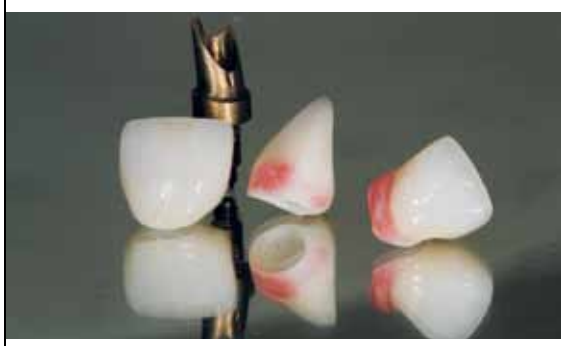

Fig. 4 Mirror image provides quality control

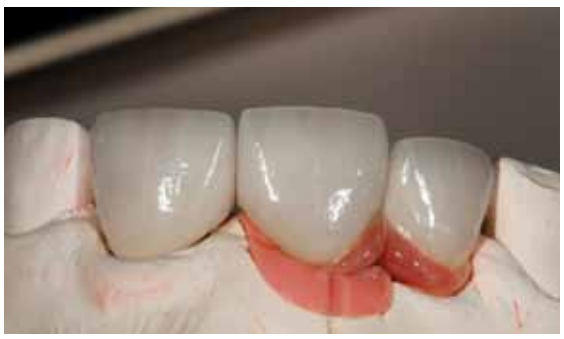

Fig. 5 Restorations seated for review of gum tissue porcelain

Fig. 6 Custom stain was added to interproximal and cervical aspects

Fig. 7 Symmetry reviewed at try-in visit

Fig. 8 Modification noted to specific contour

Fig. 9 Excursive pattern and tooth length are observed

Fig. 10 Canine rise and phonetic function assessed

Fig. 11 Restorations seated and bite viewed in centric occlusion

Fig. 12 Patient performed vowel sound enunciation

Fig. 13 Close up viewed for interproximal assimilation and canine excursion

Fig. 14 Magnified image showed detail of contour, shape and characterization

Fig. 15 Cemented restorations with patient lips at rest

consider all of these important factors as key elements to the goals of the outcome and natural harmony.

03 Due to the worn occlusal bite plane from the protrusive wear pattern, treatment consideration began with the material selection for the implant abutment. The choices needed to satisfy longevity of the material's life span and protection from the excessive wear of the porcelain against the patient's natural lower dentition with excursive movements (**Fig. 1**). The overall tooth shade was prohibitive for the choice of a porcelain fused to metal restoration because of the visible high translucency and craze lines.

04 All-ceramic restorations are contraindicated for edge to edge and cross bite occlusal relationship because of excessive stress during function, therefore ruling out the use of an all zirconium abutment for tooth #8. Instead, the fabrication of a titanium abutment was treated with a bronze anodization and a custom shade tab was made to achieve the proper translucency and crack lines of the incisal 1/3 to match the adjacent teeth (**Fig. 2**).

05 CAD/CAM designed, motion-milled Amann Girrbach zirconium copings were fabricated with high translucency zirconium blocks to include lingual backings and longer incisal edge lengths for the substructure of all three crowns. They were than preshaded, sintered, polished, glazed and tried back onto the model to check occlusal height with the lower opposing model. The gingival margin placement and interdental papilla were assessed (**Fig. 3**).

06 The finished build-up was layered over the copings using GC Initial ZRFS porcelain dentin shades A1 and C1 combined with enamel E-57 to required specifications. The mirror image allows greater quality control and shows the matched esthetics and the calcification characterization between the enamel and in the detailed mammelons as viewed from different angles (**Fig. 4**).

07 The porcelain crowns were seated back onto the model and the gum line assessed, along with the interdental papilla, for placement of the GC Initial ZR Gum shade porcelain, GM36 and GM 34, which were layered to create the shade blend from the cervical collar to the height of the gingival margin and checked for interference (**Fig. 5**).

08 Once completed, the patient presented for a try-in and the restorations were evaluated for custom staining. GC Initial IQ Lustre paste Body shade A was applied externally from the incisal to the gingival margin, adding warmth to the overall shade. The gum shade porcelain was reviewed for additional opacity interproximally between teeth #7 and #8 (**Fig. 6**).

09 The centrals were seated together and symmetry evaluated for specific contour and shape. The incisal length was evaluated and the mesial interproximal collar marked for adjustment and stain addition (**Figs 7 & 8**).

10 With the teeth hydrated, the color, tone and value were reviewed, along with the width and length in harmony with the edge-to-edge contact between the upper and lower protrusive movements (**Fig. 9**).

11 The teeth were dehydrated and with the teeth slightly apart and in canine rise, the phonetic function was evaluated (**Fig. 10**).

12 With upper and lower arches in centric occlusion, all three restorations were placed and, with lips at rest, the patient was asked to articulate the "e" sound for proper enunciation and tongue movement over the teeth (**Figs 11 & 12**).

13 Finally in close-up view, again the interproximal contour and shape was evaluated during canine excursion with all three restorations seated (**Fig. 13**). The magnified image showed the hydrated teeth with natural staining to the interproximal contacts, a perfect shade match of all three restorations and the gingival shaded porcelain created a natural contact in harmony with the patient's natural gingival line. The crack lines mimic the lower incisal characterization with just the right placement (**Fig. 14**).

14 The final cementation of the restorations occurred once they were placed and with teeth occluded; the natural looking esthetics showed teeth appropriately placed in relationship to the canine rise and the lateral excursion relieved (**Fig. 15**).

If a technician cannot see all the ways to create the most esthetic restorative outcome for a complicated case, they cannot do the work. Illustrate mapping the teeth involved in the case plan creates a visual assessment. Shade evaluating and customizing shade tabs provides accuracy to duplicate a case's characterizing features. Also, utilizing the materials that best suit the case's needs is an important part of the decision making when problem solving. Of course case planning involves both esthetic and functional needs, so the considerations must consider all of these factors to truly see it, so they can create it. lab