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An ideal implant bridge

Preparation for an All-on-5 hybrid zirconia all-ceramic bridge

Our case study patient involves a 50 year old woman whose case required screw-retained implants in order to create the most functional and esthetically pleasing implant bridge. Often clinicians will ask about procedure for a case of this nature because they would like to better understand protocol.

In the author's experience, an open tray impression is preferred from the laboratory's

side as the results are much more accurate. After the lab receives the open tray impression, they will pour up the impression and fabricate a bite block in order to get a correct bite record. After we receive the bite block and set the teeth, they will then put in the temporary abutment with jig then light cure it by engaging Primotec gel. The case is then sent back to the clinician.

LABORATORY PROCEDURE

1. Fig. 1 shows the placement of the five implants in the patient's mouth prior to be taken the impression with open tray (fig. 2).
2. In the mouth, the jig was tried in to check for rocking (fig. 3). During the tooth set-up, the denture teeth were tried in with the bite block (fig 4). At this time, it was noted that the

●●● PREPARING AN ALL-CERAMIC IMPLANT BRIDGE



Fig. 1 Five surgically placed implants



Fig. 2 Open tray impression taking



Fig. 3 Jig try-in



Fig. 4 Denture teeth try-in with bite block



Fig. 5 Temporary scanned with CAD/CAM



Fig. 6 Amann Girrbach Motion 2 Milling Machine



Fig. 7 Scan copied with white zirconia block



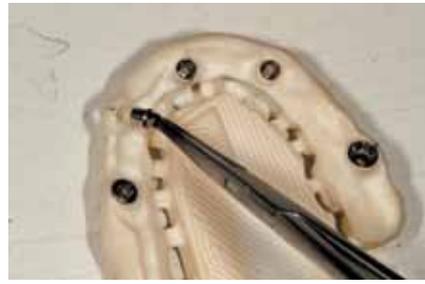
Fig. 8 Grinding upper restorations before sintering



Fig. 9 Placed in A1 dyeing liquid



Fig. 10 Upside down image of the access holes #11



Figs. 11 & 12 Restoration placed on titanium base



Fig. 13 Internal staining before firing



Fig. 14 A1 color and pink enamel base color



Fig. 15 Second bake at 810°C



Fig. 16 After firing stage, before cool-down



Fig. 17 Covering access holes for #11



Fig. 18 Mirrored arch view



Fig. 19 Porcelain crown to be cemented



Fig. 20 Mirrored image, final

11 The second time bake was then activated at 810°C with a two-minute cooling cycle (fig. 15). The next image demonstrates the after-firing stage, before cool down (fig. 16).

12 Covering the access hole is another zirconia coping—made up of two pieces—for #11, with build-up for tooth #11 as a continued process (fig. 17). Next is a mirrored arch view shown before the zirconium base was placed (fig. 18). The next mirrored image shows the finished access hole for #11, with a porcelain crown to be cemented in the patient's mouth to show the two-piece image (fig. 19). Next we see the mirrored, final image (fig. 20).

#11 access hole was too far out facially, so it was trimmed down and another created. Because it was canted, the correction was made to the left. Central #9 had a good incisal edge but #8 was longer than the temporary in size. The size, horizontal and vertical lines, color and pink color were all checked and matched. This was good information for the technician to keep in mind for the final restorations.

3 During the wax try-in stage, the temporary was scanned to set the access holes for the five implants (fig. 5). The entire design was finalized during this scanning with the Amann Girrbach Map 400 scanner (Fig. 6).

4 The denture teeth were tried in the patient's mouth in order to check for her opinion. She was happy with the results, so the scan was copied with a white zirconia block (fig. 7).

5 It was mirrored exactly and then taken out and ground with a carbide burr one mm down. The restorations were fully contoured and the facial trimmed. The porcelain created esthetic and natural looking restorations. The molars were sized correctly and only needed staining.

6 Next, the author completely ground the upper restorations in this mirrored image before sintering. Proper grinding is harder to accomplish before sintering (fig. 8).

7 The image we see here was taken from an upside down angle—flipped over 180°(fig 9). This angle shows the access hole underneath the restoration. The zirconia the author is using is pre-shaded but he added liquid in A1 color.

8 Tooth #10 was a titanium based restoration which he cut back with scissors to make sure that the zirconia abutment would fit the patient's mouth properly.

9 After cutting, he placed the restoration back on the titanium-based implant site (fig 10). In figures 11 and 12 the titanium base was fit to the zirconia frame base and screwed down to the model.

10 Before firing (fig 13), the author internally stained the restorations to create a life-like appearance. Restoration #11's zirconia coping was created with two pieces in order to cover the access hole for esthetic purposes. The color-base used was A1 with enamel applied, and the build-up porcelain used was GC Initial GU pink with overlay enamel color (fig. 14).

CONCLUSION

This case was created using the All on 4 technique. A denture was fabricated, with zirconia fused to porcelain. The All on 4 Hybrid bridge utilized all zirconia, but there are many available options for a technician to choose from. The decision depends on the implant company and the patient's particular situation. From the lab's standpoint, the technician must have knowledge and feel good about the results he or she thinks they will achieve with material choice. Bone density and overall health have to also be considered when we are discussing and planning for five implants. **lab**