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Utilizing a New Full-arch Treatment Solution for the immediate fixed provisional prosthesis

It is widely understood by the dental laboratory, as well as our clinician customers that many edentulous patients desire a reliable, comfortable, esthetic, full-arch denture that is fixed rather than removable. This is in large part because a fixed prosthesis provides them with full function and appearances, most like having natural teeth.

Fulfilling patient desires meant that screw-retained, fixed full-arch restorative solutions such as All-on-4 and DIEM have been the typical treatment solution. Traditional screw-retained fixed solutions do provide the patient with a fixed prosthesis, however, it is well-known in the dental industry that these screw-retained options can be more complicated, costly, time-consuming and at times more esthetically challenging than the removable restorative options. These compromises have been accepted for many years primarily because when patients want and/or need fixed full-arch rehabilitation there was no other choice available but this case demonstrates another option. The following case report shows clinical/technical results the author experienced utilizing this new fixed attachment system, and highlights how the system for fixed full-arch cases can be a simplified, time saving, esthetic outcome for the clinician, dental laboratory and patient.

A 62-year-old female patient presented with a chief complaint of not being able to wear her new lower denture that was fabricated six months prior, due to discomfort throughout the alveolar ridge.

The patient has had prior experience with dentures, successfully wearing a complete upper denture for many years without any issue. During the original treatment plan of the lower arch, her remaining lower teeth were extracted and an immediate denture was placed. A few months later, it was relined to improve the fit but she continued to experience discomfort.

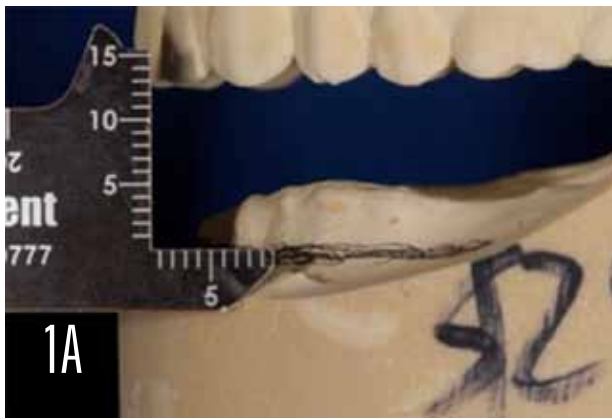
Upon discussing the case with the restorative doctor and oral surgeon, we all agreed that a fixed solution would be the best restorative option. The patient, however, had a limited budget concluding that a conventional immediate load protocol with screw retained provisional and a fixed hybrid with a milled titanium frame as the definitive restoration was not an option.

The newly introduced LOCATOR F-Tx Fixed Attachment System by Zest Dental Solutions appeared to be a good alternative for this patient because it required less chair time, was more cost-effective because the system did not require a milled titanium framework, and since no screws were needed to affix the prosthesis, the result could be more esthetic and structurally reliable. After discussing this

option with the team, we all agreed that utilizing the new system could accomplish the ultimate treatment goal of a fixed full-arch restorative solution.

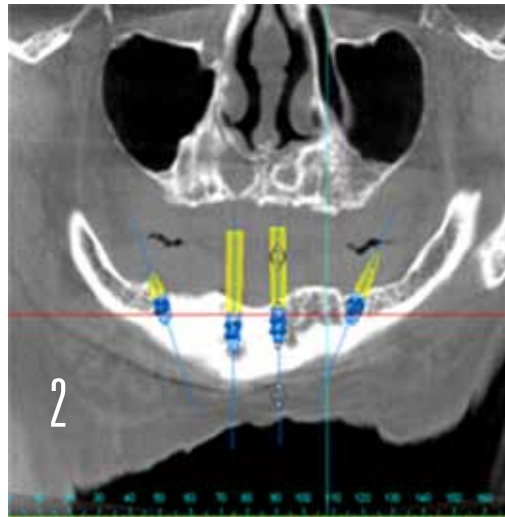
Pre-surgical and prosthetic planning

In preparation for surgery, measurements were taken to ensure enough inter-occlusal space for the LOCATOR F-Tx Abutments and Denture Attachment Housings (**Fig. 1a** pre-surgical measurements and **Fig. 1b** pre-operative panoramic radiograph). After the measurement evaluation, it was determined that a 2-3mm bone reduction would be necessary prior to placing the dental implants. An implant work-up was completed by the oral surgeon, maximizing the anterior/posterior (AP) spread of the dental implants in order to minimize any cantilever in the definitive prosthesis (**Fig. 2** CT scan planning). A conventional denture was then fabricated ahead of time to be converted to a LOCATOR F-Tx Provisional Prosthesis for delivery at the time of surgery (**Fig. 3** conventional denture).



The alveoplasty was completed, dental implants were placed and the team began the restorative phase of the procedure. The appropriate LOCATOR F-Tx Abutment heights were selected based on the tissue depth. The goal was to ensure the height of contour of the spherical portion of the abutment and be equal to the gingival height or slightly sub gingival (**Fig. 4** LOCATOR F-Tx Abutment engaged with Abutment Driver). The LOCATOR F-Tx System features all-in-one packaging that is sterile, each package includes an Abutment (with cap to deliver the abutment to the implant site), denture attachment housing with pre-inserted processing ball, an extra processing ball, as well as one Blue (Low), Tan (Medium) and Green (High) Retention Ball (**Fig. 5** LOCATOR F-Tx all-in-one packaging).

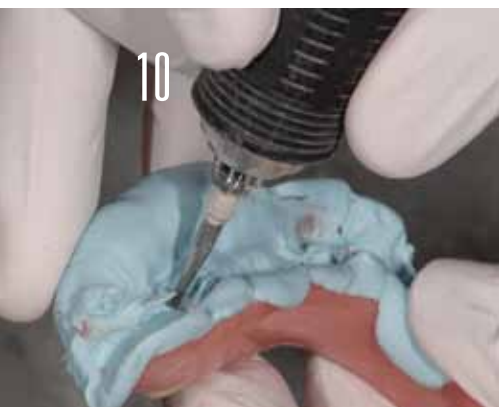
The LOCATOR F-TX Abutments were placed onto the dental implants and each abutment was then torqued according to the implant manufacturer's recommendations (**Fig. 6a** placement of the LOCATOR F-Tx Abutment and **Fig. 6b** LOCATOR F-Tx Abutments torqued into place). Once all four abutments were torqued, LOCATOR F-Tx Healing Caps were placed and the clinician proceeded to suturing (**Fig. 7** LOCATOR F-Tx Healing Caps).

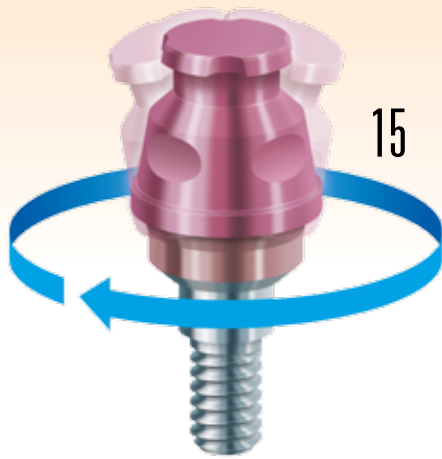


Upon suturing completion, a direct technique was used for processing the LOCATOR F-Tx Denture Attachment Housings into the prosthesis. A wash impression was taken using the denture to mark the location of each abutment (Fig. 8 wash impression). The bite was then stabilized using a silicone putty bite fork that was made at the time of the denture fabrication (Fig. 9 bite stabilization). Once the impression was complete, the denture was prepared to accommodate the Denture Attachment Housings. At each abutment location, the intaglio of the denture was

marked with the CHAIRSIDE Vent Bur, drilling through the impression (Fig. 10 marking the abutment location in the denture). Next, a CHAIRSIDE Recess Bur was used to create the desired depth recesses for the LOCATOR F-TX Denture Attachment Housings (Fig. 11 recesses are made in the denture to accommodate the Denture Attachment Housing). A vent hole was also placed in the lingual of the denture to visualize full seating and for all excess CHAIRSIDE material to vent (Fig. 12 vent holes are created for visualization and excess materials to vent).

Pick up of the Denture Attachment Housings into the provisional prosthesis
 LOCATOR F-Tx Denture Attachment Housings with pre-inserted black Processing Ball (included in the all-in-one packaging) were placed onto each of the LOCATOR F-Tx Abutments (Fig. 13 LOCATOR F-Tx Denture Attachment Housings placed on the LOCATOR F-Tx Abutment). A rubber dam was then placed over the Denture Attachment Housings to protect the surgical site and sutures during the pickup of the provisional prosthesis (Fig. 14 rubber dam placed over the Housings to

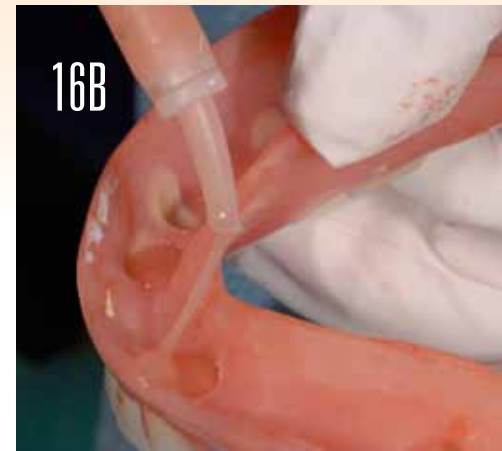




protect the sutures). During this stage, each Denture Attachment Housing was oriented to be parallel to each other and to maximize esthetics of the prosthesis. This process was simple and quick due to the unique spherical design of the coronal aspect of the LOCATOR F-Tx Abutment as it allows the Denture Attachment Housing to rotate in any direction (Fig. 15 LOCATOR F-Tx Denture Attachment Housing rotating on the Abutment). CHAIRSIDE Attachment Processing Material was injected onto each Denture Attachment Housing and undercut, also into the recesses of the denture (Fig. 16a-b CHAIRSIDE Attachment Processing Material injected on top of the Housings and inside the recesses of the denture). The patient was then asked to close into occlusion using the silicone bite index to stabilize the bite (Fig. 17 patient closed into occlusion allowing the CHAIRSIDE material to set)

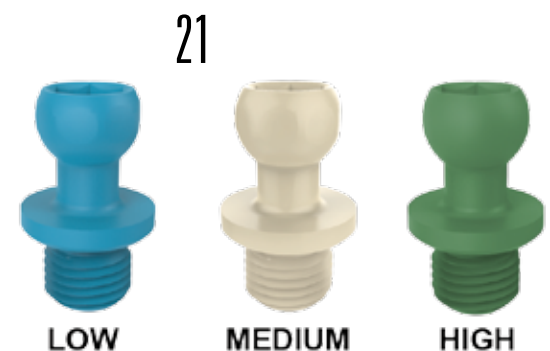
Delivery of the completed provisional prosthesis

The denture was then removed from the mouth (Fig. 18 denture removed from the mouth), the denture flanges were removed and the prosthesis was polished. The black Processing Balls were replaced with the least retentive (Blue) LOCATOR F-Tx Retention Balls included in the packaging (Fig. 19 replacement of the LOCATOR F-Tx black Processing Balls with the final Retention Balls and Fig. 20 final LOCATOR F-Tx blue Retention Balls placed using the dedicated Hex Driver



and finger tightened only). The LOCATOR F-Tx Attachment System includes PEEK Retention Balls that are available in varying levels of retention based on the specific needs of the case (Fig. 21 LOCATOR F-Tx Retention Balls).

Because the LOCATOR F-Tx Fixed Attachment System did not require screws or sub-gingival cement to secure the prosthesis to the Abutments, the Completed Provisional Prosthesis had no screw access channels which maximized



esthetics and increased strength (Fig. 22a-b LOCATOR F-Tx provisional prosthesis with no screw access channels).

The prosthesis, with the Blue Retention Balls was delivered to the patient by aligning the balls within the cavities of the F-Tx Abutments and firmly snapping it into place (Fig. 23a-b final provisional prosthesis delivered to the patient).



Conclusion

- With this system, the process of converting the denture to the fixed provisional took less chair time than a conventional full-arch immediate load protocol.
- Because the definitive restoration for LOCATOR F-Tx does not require a milled titanium framework, the cost of the definitive restoration is significantly less making a fixed solution available to more patients.
- Tooth fractures are common on a conventional hybrid, and it can take 20-30 minutes to remove and to replace back into the mouth after the repair is completed. The time to remove a LOCATOR F-Tx hybrid is minimal making managing a tooth fracture much more efficient. **JDT**

About the Author

Tom Wiand, CDT, has been the owner and general manager of Wiand Dental Laboratory for nearly 25 years specializing exclusively in removable prosthetics, implant assisted/supported dentures and now the All-on-4. Tom serves as an adjunct instructor at the Arizona School of Dentistry and Oral Health. Tom is also a dental technician alliance member of the American College of Prosthodontics (ACP) and an active NADL member. He also consistently donates his time, talents and resources to the AzDA DDS program, A.T. Stills C.A.R.E program, the Arizona Mission of Mercy and the Smiles Beyond the Bars.



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