# Protocol for manufacturing an adhesive prosthesis in composite resin reinforced with Interligfiberglass

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***Theoretical Framework and Clinical Case Report***

Patients who have lost some dental element and need to restore the lost tooth area are part of the clinical routine. For these cases, the main restorative option is the dental implant followed by prosthesis on implant. However, other situations should be considered as patients who don't have financial conditions for implants or cannot undergo surgical procedures but wish to restore the lost tooth area. For these cases, conventional fixed prostheses of 3 elements could be an option but they require large wear of neighboring teeth which would unnecessarily cause injury to the dental structure. Even when the patient can receive the implant, it is often not possible to restore the area in question immediately after placing the implant, and a restorative procedure is required to restore function and esthetics with adequate strength to withstand the chewing forces, until the prosthesis on implant is performed. In this context, composite resin restorations reinforced with fiberglass are an excellent option that presents longevity. Authors (Valittu et al., 2004) showed a survival average of 93% in 55 months and (Frese et al. in 2014), 85.6% in 54 months. The high success rate combined with the fact that specialized laboratory service is not needed and low abutment teeth wear, makes this procedure feasible and indicated for solving several cases. The following clinical case report aims to detail the steps of making aprosthesis reinforced with fiberglass,enabling the professional visualize the step-by-step manufacturing protocol process and reproduce it in the dental office environment.

Figure 1- After molding the silicone by addition, the model is leaked with special plaster. In the plaster image we can observe the details and pattern of the occlusal-proximal boxes made for insertion of the fiberglass reinforced prosthesis Angelus Interlig and composite resin. The proximal boxes should have the bucco-lingual opening wider than their occlusal portion, and should also be expulsive to allow cervico-occlusal insertion of the prosthesis. The depth of the cavity should be 2 to 2.5 mm and the opening corresponding to 1/3 of the isthmus.

Figure 2- A thin layer of insulating material is applied on the plaster to prevent the resin from adhering to it. This layer should coat the abutment teeth cavities and the pontic area.

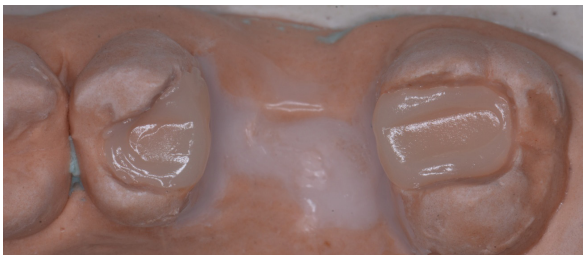

Figure 3- A layer of approximately 1.00 mm of composite resin is placed on the cavities and the space for insertion of the fiber is created in a rectangular shape in the resin itself. This layer will be cured after inserting the fiber.

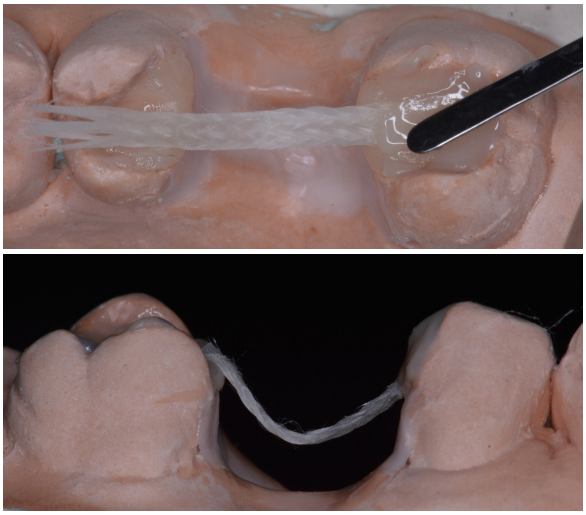

Figure 4- The fiber must be cut in the perfect size considering the insertion in two dental elements and going through the bottom of the pontic, as can be seen in the figure above. The fiber is positioned, then another layer of resin is placed on Interlig– Angelus fiberglass. As it is a pre-impregnated fiber there is no need for fiber treatment. Then, light curing is performed for 40 seconds in each abutment tooth.

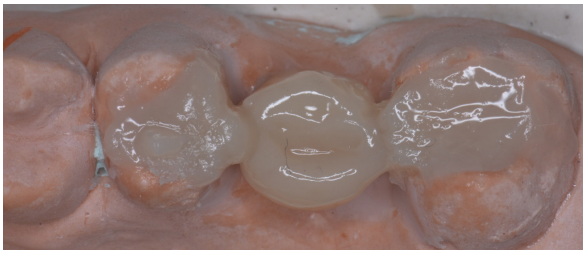

Figure 5- To begin the pontic construction, it is recommended the construction of its central part in composite resin with opacity similar to dentin, to later create an enamel layer.

Figure 6 - Conclusion of the reconstruction with chromatic enamel resin followed by achromatic enamel.

Figure 7- Final aspect of the adhesive prosthesis reinforced with Interlig – Angelusfiberglass.

Figure 8–6-month follow-up for the reported case.

***Conclusion:***

From what has been described, we can consider that the use of fiberglass can work to strengthen adhesive prosthesis in composite resin, increasing its resistance and providing reliability and longevity to the procedure. The step-by-step described will enable the dentist to reproduce the procedure in the dental office achieving esthetics at the lowest cost and without damaging the abutment teeth.

***Summary of technique for manufacturing an adhesive prosthesis in composite resin reinforced with Interligfiberglass***

***Surface treatment and sealing:***

1. Etching the adhesive prosthesis base with phosphoric acid 37% for 30 seconds.

2. Applyingactively Silane Angelus with a brush during 60 seconds.

3. For dental structure, it is necessary to perform adhesive procedure compatible with the adhesive system used (e.g. 2 or 3 step, self-etching or total acid etching, etc.). Self-adhesive sealing systems, which don't require treatment of the dental surface, are suitable for sealing this type of prosthesis.

4. Applying the sealant to the prosthesis and the tooth and positioning it.

5. Removing the excess and light curing.

6. Adjusting the occlusion