

Intraoral welding of implants abutments with a prefabricated titanium bar

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INTRODUCTION: The burden of being edentulous and the functional limitation caused by this phenomenon have been committed to paper since ancient times. The lack of stability and retention especially of the lower denture are responsible for the majority of functional problems complaints. Problems associated with an atrophied mandible have been a challenge for oral and maxillofacial surgeons and prosthodontists for a long time. It is not always possible or advisable to install five to six endosseous implants in the edentulous mandible. Therefore the treatment concept of a removable overdenture anchored to two to four endosseous implants was introduced. The superstructure connecting the implants with the overdenture has been evaluated in several studies.

METHODS: Another technology related to implant-supported prosthodontics is welding mesostructures directly in the oral cavity or on the working cast. Mesostructures obtained by welding efficiently meet the requirements of passivity for supporting implants. It is a fact that mesostructures obtained by casting technology present imperfections due to cumulative errors along the technological process. This, many times cast mesostructures are torn apart and the pieces are connected together again on the working cast using laser welding. Nowadays laser welding of mesostructures is a must for obtaining the passivity for a better prognosis. For even a greater precision a new concept was developed, which is the welding of the mesostructure directly in the oral cavity so that errors due to modification of the abutments positions during transportation are avoided. The objective of this article was to introduce a prosthetic concept for an accelerated rigid splinting of multiple implants for same-day immediate loading by utilizing the Syncrystallization technique. Titanium implant abutments are welded with the titanium bar in the oral cavity using the Syncrystallization Unit. The welding process is electrical and protected by an argon gas supply (Syncrystallization). The equipment allows the welding of metallic elements directly in the mouth. The two elements to be welded are placed between the two electrodes of a

welding clamp. The energy contained in a previously unloaded battery of capacitors is transferred to the electrodes of the welding clamp. Current flowing through the contact points, being in contact with the parts to weld, warms up to the point of fusion, achieving a solid, welded junction.

RESULTS: The advantages of the new technique are: (1) reduction of treatment time for immediate temporization at stage one surgery; (2) predictable fixation and immobility of implants in the early stages of bone healing; and (3) less time spent for repairing provisional restorations as a result of no or less frequent fracture.

DISCUSSION & CONCLUSIONS: In case of immediate loading of implants, adequate stability and immobility of the implants are very important for bone formation at the implant-bone interface. The problems are related to the mesostructure and/or suprastructure design so that surgical stage is not affected. This method can optimize the dental treatment in the considered cases.

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