A STANDARD PROTOCOL FOR SIX IMPLANTS IN THE UPPER JAW

Thomas HAHN

1. PhD, St. Elisabeth University, Bratislava, Germany
Corresponding author: hahn2510@web.de

Abstract

The concept of telescopes on implants is a good opportunity for toothless patients. Instead of the prostheses with base reinforcement, the telescopic prosthesis has numerous benefits. Due to the prolonged suspension of the denture it assures, bones resorption will be avoided. Also, a simple take in and take off of the telescopic prosthesis, its easy cleaning and the almost absent inflammation it assures recommends it even for older patients.

Keywords: telescope, implants, bar prosthesis, electroplating industry, tertiary construction, complete denture

1. INTRODUCTION

Edentation drastically affects the quality of life. People who wear denture have a decent living. Denture assures the functions of eating, talking and chewing.

2. CASE REPORT

A patient who lost all his teeth came to the dentist for replacing his missing teeth with implants. For almost six months, he had a fully edentulous upper jaw. During the conversation with the dentist, they decided to fill in six implants on the upper jaw. First of all, the wax-up was built. During the wax try-in, focus was laid upon teeth position, form, size and colour, occlusion, occlusal height and the smile line, all such information being utilized for the development of the following steps, especially for designing the abutments and contouring the tertiary construction. Wax up impression was made with a silicone matrix, and implant impression was performed with an individual open-access tray. The master casts with gingival mask represents the basis of the subsequent steps.
3. TECHNIQUE

A combination of silver palladium alloys and galvanic secondary crowns is the best option for telescopic prostheses. The perfect matching of the telescopes will be made at a $2^\circ$ cone angle, a value necessary for balancing out the minimal accuracy of abutments.

3.1. Primary crowns

A common insertion direction is required for subsequent fit. The telescope will be milling in a standard way for a smooth and polished pressure surface. The minimum wall thickness of the telescope should not be below 0.5mm. The vertical height of the holding surface should be of minimum 7mm.

3.2. Secondary crowns

The secondary crowns on 12, 14, 23 and 25 were produced by electroforming. The abutments on 15 and 26 were made in cast gold an friction pins were eroded. The activating friction pins give the denture the necessary friction bonding. The telescopes have the same matching, although their manufacturing process is different.

3. Tertiary construction

The necessary information for producing the tertiary construction is provided by the previously prepared wax-up. The silicon matrix is again used to check the necessary space conditions and wax modelling. The tertiary construction was obtained by the one piece casting method in non-precious alloys. The secondary crowns and the tertiary construction should be cemented intraorally. This procedure is not allowed on the model. Intraoral cementing of the components ensures a tension-free seating (passive fit) for the prosthesis. The Weigl-protocol describes the procedure in detail. The idea is that only intraoral bonding ensures a tight fit. The impression and the master cast appeared as unsuitable.

Fixation in the mouth

After tried-in restoration and checking of occlusion and articulation, the secondary crowns were intraorally bonded onto the tertiary framework. After bonding the tertiary construction in the mouth, the articulation was once again checked, to prevent subsequent corrections. During intraoral cementing, the final abutments should be connected immediately. The old denture needs to be adjusted appropriately until completion of the new prosthesis. To simplify abutment connection, the dental technician fabricated a simple transfer key, using a calibrated torque wrench. When the secondary crowns are correctly placed on the abutments, they will be cleaned and degreased before secondary crowns'
bonding with the tertiary construction. Intraoral bonding eliminates any possible tensions and transmission errors. The minimal bonding gap could be compensated. The implant-borne tooth appears as a successful solution on long term. After bonding the construction, the articulation was again checked and pick-up impression (with tertiary construction) was made. At the end of the treatment session, the patient left the dental surgery with his old modified prosthesis, used as an interim restoration till completion of his new prosthesis.

The Completion – Choice of materials

Ceramics can be used for an aesthetic veneering of the frameworks, even if the results obtained are not always satisfactory. Ceramics raises the difficult problem of chipping, especially when the upper and lower jaws were restored. The problem of chipping seems to be even more serious when the patient has an implant-borne restoration - actually the reason for which the dental technician searches an alternative for ceramics. We decided to use composite Veneers Ceramage, as it can reduce the chewing pressure, a good solution for the function of the temporomandibular system.

Veneering with ceramage

After checking once again the absence of any tension upon the prosthesis, the work with Ceramage, assuring Veneers with natural shading transitions, was initiated. Ceramage provided a restoration with an extremely homogeneous, gingival-friendly and plaque-resistant surface.

Completion of restoration

The wax-up permits to obtain the right form and size of teeth, as evidenced by the try-in sessions. The prosthesis assures a harmonious and soft look appearance. The try-in involved checking of the occlusion, function, phonetics and aesthetics. It follows completion without any changes. Hard metal burrs are perfectly suitable to finish acrylic dentures. A silicon rubber and a goat hair brush are recommended for prepolishing. The perfect glossy polishing with high-lustre-buff and polishing paste guarantees an optimum aspect. Particular attention must be paid to base surface.

Insertion session

Incorporation of a denture does not imply a great effort. The primary elements were cemented, fitting of the tertiary construction was sound and the friction pins eliminated the need to correct the fit. Only occlusion was checked.

4. DISCUSSION

Due to their good handling, prostheses with base reinforcement are preferred. The patient is independent and easily able to take in and take out the telescope prosthesis. Another advantage is the easy cleaning of the telescopic prostheses for the patient. Even at old age, the patient can fit the prostheses without having to open complicated ties.

Even from a purely dental technical perspective, combined mucosal-implant-borne telescopic restorations are much advantageous than bar prostheses. Unlike bar restorations, the telescopic dentures can expand well and provide a better grip. Bar restorations do not assure optimal mouth fit, while the cost of the gold used is high. From a medical point of view, another problem is often associated with fatty atrophy. The bone loss statistics can hardly state the difference.
Secondary splinting of the telescopes evidences no difference in the primary blocking bars. However, the implant stability ratio is about 2% higher for bar restorations.

References