Implant-supported total prosthesis in the daily routine

By Dr. E. Veralli and Odt. Luca Ruggiero

In this clinical case, we demonstrate how the use of overdentures are a viable choice among the restoration options for edentulous patients. The clinician must carefully assess the suitable number of implants to support an overdenture to identify the ideal restoration solution. A systematic review of the literature reveals a lack of information about the ideal number of implants for a removable restoration in an edentulous patient; however, most studies propose to insert two to four implants in the mandible. We will illustrate all laboratory clinical stages according to Prof. Gerber’s methods. These steps will lead to the production of an overdenture with OT Cap attachments and OT SpheroBlock abutments on four implants in the lower jaw and complete prosthesis with mucous support for the upper.

Introduction
In a total edentulism, the prosthesis with a mix of implant support and mucous support represents the boundary between the resilient prosthesis (mucosal supported) and the rigid prosthesis (implant supported). The prosthesis retained with OT Cap attachments or OT Equator is a hybrid prosthesis that must comply with a set of parameters typical of traditional prostheses. Numerous scientific studies demonstrate that two implants are sufficient to stabilize mandibular complete dentures and to improve significantly the edentulous patient’s quality of life. Four implants can noticeably improve the prosthesis retention.

Clinical case
In an initial interview, the patient asked for a more stable and esthetic prosthesis that would help improve social- and private-life interactions by removing the
fear that the lack of teeth — or the prostheses — would be noticeable.

After evaluating with the patient the costs and benefits of the various therapeutic options, we chose a solution with SpheroBlock Abutments. Two implants of 3.5 mm and two of 3.0 mm diameters convinced us to abandon the option of a bar because of insufficient implant support.

We placed four implants in the mandibular arch, and after osteointegration, the clinician proceeded with the preliminary and final impressions.

After the master models (Figs. 1, 2) were created, in the laboratory two resin bases with occlusal rims were used for registration of intermaxillary relations.

In the dental office, the occlusal rims were leveled and adapted individually, establishing a first provisional DVO with the use of conventional methods (Figs. 3, 4). Then the models were mounted in the articulator, taking as reference the Bonwill and Balkwill triangles (Fig. 5).

We analyzed the shape of the jaw, as well as the three-dimensional interalveolar relationships, as is usually performed for a full dental prosthesis with mucous support.

We traced on the exterior face of the model the trend of the ridge, to ensure proper implant placement according to the method of Prof. Gerber, using rulers and a compass profilometer. With the latter we also drew the trend of both upper and lower wax rims (Figs. 6–8).

A silicone key was used to record all information concerning the position and dimensions of the upper wax rim, previously set up in the office (Fig. 9). Only with the silicone key complete were we ready to remove the wax from the basis.

Using the CRS 10 set, we decided to give support to the basis with the same self-curing resin (Figs. 10–12). Our concern was that recording the intraoral relation with conventional hard wax could introduce minor deformations. We delivered this set to the dental office together with a new upper rim basis for taking of the face bow (Fig. 13).

The patient’s movements of protrusion and laterality were tracked on the bottom plate, which was smeared with a suitable marker to record the relative trajectories (Fig. 14). With appropriate material, we blocked the final centric relationship (Fig. 15), and we placed the face bow (Fig. 16) for the orientation of the models.

The articulator was mounted with the universal face bow accessory (KaVo, Quick, Ivoclar, Sam).

We first fixed the upper model and then the lower (Fig. 17). Next, guided by the silicone keys, we assembled the teeth respecting the upper front esthetic refer-

Fig. 17: The final set up in the articulator.

Fig. 18: Assembling group upper front.

Fig. 19: Assembling group inferior frontal.

Figs. 20, 21: Mounting diatoric areas.

Fig. 22: OT Sferoblock micro on the model.

Fig. 23: Steel housings for OT cap micro.

Figs. 24, 25: Prostheses in the flasks.

Fig. 26: Prostheses cured.
Particular attention was given to the lower front teeth to ensure a tooth-to-tooth relationship starting from the canines to enable mounting of the posterior teeth according to the method of Prof. Gerber (Fig. 19).

We drew a vertical line in the upper premolar, which started at the mesial fossae and continued on the vestibular surface. We drew a vertical line on the lower premolar that started at the cusp and continued to vestibular. The two lines needed to overlap one another perfectly (Fig. 20).

We completed the assembly of the molars, and the prostheses (Fig. 21) were sent to the dental office for routine checks.

We chose four OT micro Sferoblock with the appropriate transgingival height (Figs. 22, 23), and the lower model was duplicated with the OT Cap’s analogues. The prostheses were then cured with resin using traditional techniques and the flasks (Figs. 24, 25), eventually placed in the articulator for selective grinding (Fig. 26).

The prostheses were finished and polished (Figs. 27, 28), the abutments screwed and prosthetic delivered to the patient (Figs. 29, 30).

Conclusion
Dentures with mucous support and retained by attachments still must respect all of the prescriptions and principles followed to create the rational basis of a conventional full denture.

Materials and equipment: Candulor articulator; Teeth Physioset ct and ct Cydoliform Candulor; flasks JST Candulor; Resin C-plast Candulor; Esthetic resin Candulor; CRS set Candulor; OT Sferoblock micro Rhein’83; Cuff Height measurer Rhein’83; OT Cap micro Rhein’83; Parallelometer key for OT Cap Rhein’83; Waxlectric Renfert; Waxprofi Renfert.

Three secrets to esthetic anterior CEREC CAD/CAM restorations
Live Sept. 3 webinar shows how to achieve optimal restorations

Most dentists regularly using CAD/CAM technology in their practice become proficient with posterior restorations. But anterior restorations are more challenging in terms of line angles, incised edges, emergence profile, texture and characterization. This has led many dentists to avoid or dread anterior restorations with CAD/CAM technology.

Esthetic results combined with the convenience of same-day dentistry leave patients thrilled with their experience, promoting loyalty and referrals to your practice. In a live webinar, ‘Demystify Anterior CERECs: 3 Secrets to Esthetic Restorations,’ at 8 p.m. ET, Sept. 3, at www.dtstudyclub.com. Photo/provided by Pacific Dental Services.