REMOVABLE IMPLANT-SUPPORTED PROSTHESIS

Fig. 1a — Initial situation
Fig. 1b — after implant surgery
Fig. 1c — former situation
The case under consideration concerns a patient of 76 years who has a upper fixed rehabilitation on natural teeth and implants, and a partially edentulous jaw with some residual teeth periodontally compromised (Fig. 1a). In Fig. 1 the x-ray refers to a previous situation when the patient was still rehabilitate with a fixed-removable prosthesis with an implant equipped with Sphero Block abutment that had been inserted to stabilize the prosthetic rehabilitation.

In the early stages of this rehabilitation, the evaluation the patient’s age and his expectations led to opt for an all-on-four restoration. Nevertheless, the diagnostic phase is one of the more laborious and delicate phases and the patient must be studied as a whole, anatomically, functionally and psychologically. After a deeper investigation, due of a lack of bone distally the mental foramen area, it has not been possible to extend posteriorly the implant’s support. Thus, in agreement with the patient, after the implant placement (Fig. 1b), it
**Fig. 8** — Lower master model with MUA analogs

**Fig. 9** — Lower master model with castable abutments

**Fig. 10a - 10b** — Evaluation of the prosthetic spaces with the silicone masks

**Fig. 11** — Teeth set-up right view

**Fig. 12** — Teeth set-up left view

**Fig. 13** — Teeth set-up buccal view

**Fig. 14** — Insertion axis assessment with the parallelometer

**Fig. 15 - 16** — Positioning of the Ot Equator attachments

**Fig. 17 - 18** — Positioning of the Ot Vertical attachments
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Fig. 19a - 19b — Bar completed before the investment and casting

Fig. 20 - 20b — Insertion axis perpendicular to the occlusal plane

Fig. 21 — Mouth aesthetic try-in

Fig. 22a - 22b — Aesthetic try-in in the mouth

Fig. 23 — Bar sitting on the implants check-up

Fig. 23a - 23b — X-ray check-up
has been decided to modify the original project by choosing a removable prosthesis with mixed implant and mucous support; this would guarantee an adequate masticatory stability, combined with an adequate extension of the occlusal area. It is important to underline here, that the patient’s former prosthesis failed due to his perioral, lingual and masticatory force; indeed he broke the abutments and some radicular element covered with Richmond crowns.

The old prosthesis was then used as a provisional prosthesis in order to fully evaluate all the parameters to avoid a future failure of the new prosthesis with a consequent fixing, as well as the patient’s expectations. Moreover, this prosthesis was also used to evaluate the position of the implants within the prosthesis body with some silicone masks. Due to the fontal placement of the implants and the vestibular prominence, a correct occlusal plane could be done but with a poor hygiene; for that reason it has been chosen to produce a reinforced removable prosthesis with a counterbar to be anchored on the implant bar.

In this stage it is important to underline the dialogue and cooperation between the technician, the dentist and the patient, since this decision was made only after the technical evaluation and accepted by the doctor; the latter then communicated this decision to the patient convincing and reassuring him that the removable prosthesis, was more convenient and safe than the fixed one proposed at the beginning. After the patient approval, we proceed to the final teeth set-up accordingly with the parameters collected to create a full mucous-supported denture (Fig.11 - 13).

In the construction of this type of prosthesis it is mandatory to pay attention to the insertion axis of the counterbar on the bar taking into account the occlusal plane. This particular factor, seemingly trivial, is fundamental for the long lasting of the prosthetic restoration. Underestimating this aspect, would in fact led to a premature wear of the retentive cap with the need of its continuous replacement with the eventual risk to wear also the metal and thus the shape of the retentive attachments. An apparently trivial error that would lead to the technical failure of the entire work. The insertion axis, considering also the main implant axes, should therefore be chosen with the parallelometer (Fig. 14); once assessed this axis, the modeling of the bar can start along with the positioning of the attachments (Fig.15-16-17-18), with the aid of the silicone masks (Fig.10-10a-20-20a-20b). It has been chose as retentive attachments four OT Equator and two Ot Vertical to give the maximum stability while maintaining the minimum resilience of the retentive caps (Fig.19). The cast bar is then checked both by the technician.
in the laboratory, and by the clinician in the mouth of the patient (Fig. 23), as long with the aesthetic try-in of the teeth set-up. (Fig.21-22b). In this session, also an x-ray was performed to check the correct seating of the bar on the implants connections (Fig.23a-23b). A careful polishing of the bar was performed (which will limit the formation of plaque) paying particular attention to the implant connections (Fig.24). To limit the lingual thickness

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**Fig. 28** — finished prosthesis left side

**Fig. 29** — finished prosthesis before delivering to the dental office

**Fig. 30** — macro and micro texture of the flanges

**Fig. 31** — bar screwed definitely on the implants

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of the counterbar, it has been decided to leave this part of metal exposed (Fig.25-26). After the placement of the teeth on the silicone masks, we proceed to the resin the counterbar with the use of a verticulator, injecting the resin. In this case, the resins used were of two different colors in order to better individualize the prosthetic work. At this point a double check of the occlusal pattern was performed before proceeding to a meticulous finishing of the aesthetic details that will individualize the prosthesis; those details will be maintained in the process of polishing (Fig.27-30).

**About the authors:**

Dr. Loredana Mazzaferri has degree in dentistry with honors in 1989 in the University of Ancona, she attended several courses of Periodontology and Prosthodontics.

Giunchi Emanuele, attended the Institute "L. Dehon - Villaggio del Fanciullo" in Bologna obtaining the Degree of Dental Technician in 1995. He worked as employee for about 6 years focusing mainly on complete and partial prosthetic dentures.

He became a co-owner of the dental laboratory Unilab Foschi, Giunchi and Cattin snc. in Ravenna in February 2002, involved in the complete and partial prosthetic dentures, fixed-removable prosthesis, and, later also in bites. In 2004 he attended a course in Milan focused on the "Diagnostic Approach to the Dysfunctional Patient".

In 2009 he involved himself in the study of the Gerber's technique with the Master dental technician Davide Nadalini a Candulor speaker, and mastered the aesthetic technique of flange colouring to emphasize the complete removable prostheses and the overdentures on implants.

Luca Cattin attended the Institute "L. Dehon - Villaggio del Fanciullo" in Bologna obtaining the Degree of Dental Technician in 1993/94.

He worked as an employee for 7 years focusing mainly on complete and partial prosthetic dentures, as well as with fixed-removable restorations.