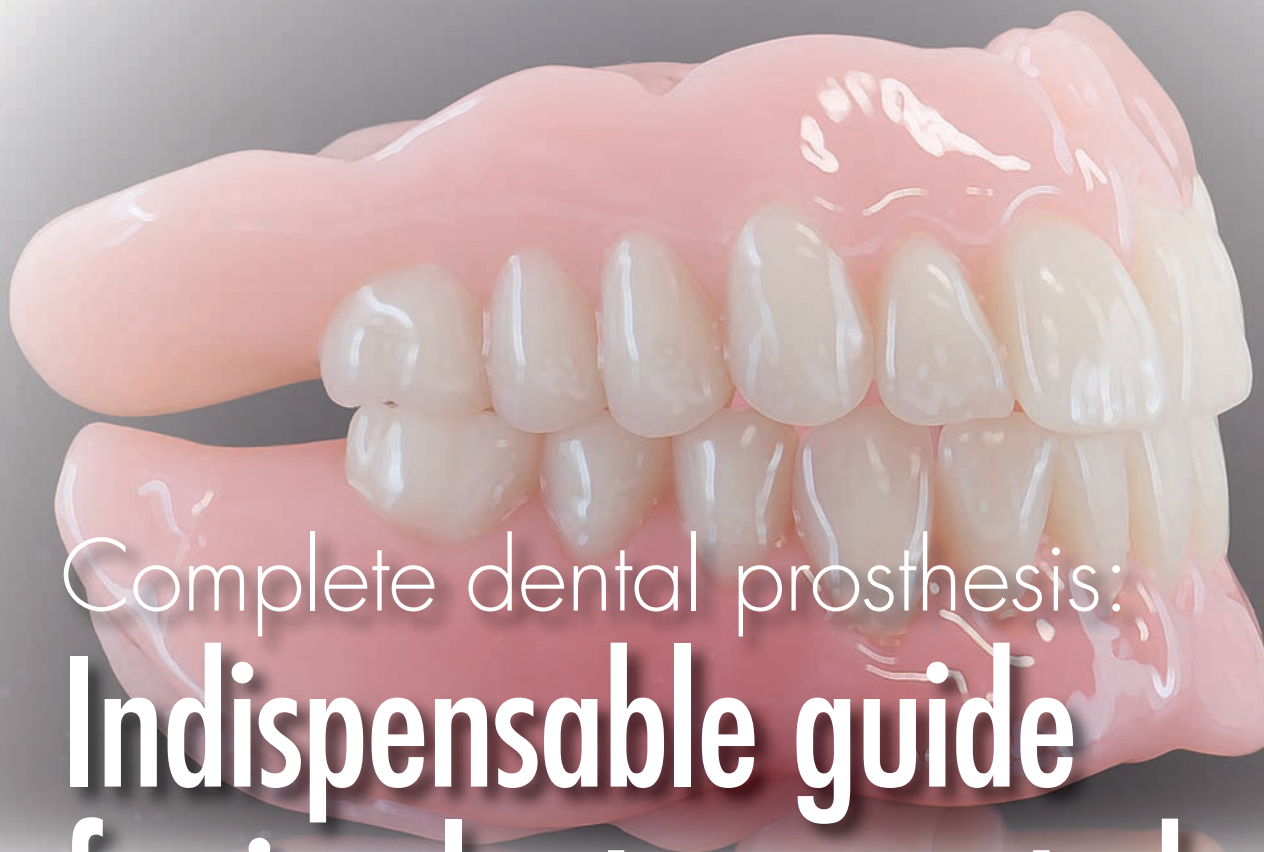


Complete dental prosthesis: Indispensable guide for implant-supported overdentures


Alessio Casucci


Rodolfo Cologresi

The edentulous state affects many essential aspects of a patient's life, their masticatory and phonetic functions, their appearance and even their social relationships. Although the edentulous patient's rehabilitation can be successfully met thanks to a complete dental prosthesis, in some cases, however, problems of instability and poor retention can appear, primarily concerning the lower denture. The use of osseointegrated implants allows to successfully manage all these inconveniences, even though implant rehabilitations may also present functional and aesthetic problems or require frequent maintenance interventions. It is therefore recommended to perform, right from the preliminary stages, an accurate surgical and prosthetic evaluation in order to intercept and reduce possible complications of the final restorations. To this intent the basic principles of the complete dental prosthesis can be a valuable support in planning future rehabilitations on implants. The case reported in this paper describes the rehabilitation of an edentulous patient with a complete upper prosthesis and a lower implant-supported overdenture


Fig. 1


Fig. 2


Fig. 3

Fig. 1 - 3 — Photo of front, profile and detail of smile

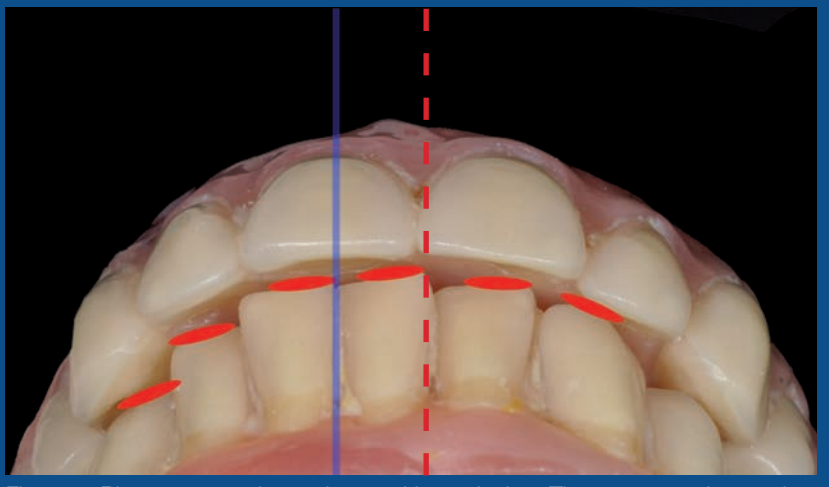


Fig. 4 — Picture of prostheses inserted in occlusion. The contact points of the lower anterior teeth on the upper prosthesis are highlighted by the red lines, showing a remarkable shift of the lower dental midline

Introduction

The functional and aesthetic restoration of edentulous patients is still nowadays a contemporary theme in prosthetics. In recent decades, the phenomenon of tooth loss has been greatly reduced thanks to the important achievements in the field of prevention of caries and periodontal disease. However, the marked tendency towards population ageing keeps the demand for this kind of rehabilitation constant in absolute terms [1, 2]. For many years already, the complete prosthesis has allowed to successfully treat most edentulous patients [3, 4, 5, and 6]. However, the management of the lower denture is often difficult due to lack of retention and poor stability [7, 8]. The adaptation to this type of rehabilitation is a very complex process influenced by various anatomical, functional and psychological aspects, and this is why it is not routine in all patients, as has been well-documented [9]. Therefore, the instability of the complete prosthesis affects not only the chewing function but also the patient's social life [10]; this greatly reduces the satisfaction of people more interested in their social life, and especially of women [11]. The advantages of mandibular implant-supported overdenture have been widely highlighted by many clinical studies [12, 13, 14, 15, 16, 17, 18, and 19]. This type of prosthesis can be planned on a variable number of implant abutments (one to four) onto which can be positioned different retentive components. The overdenture on two intraforaminal implants with attachments is currently the most scientifically validated solution on an international level. The advantages of this type of rehabilitation are mainly linked to the improvement it determines in the quality of life of edentulous patients [20], as well as the very favourable price-efficiency ratio of the treatment. Several authors at the Consensus Conference at McGill University [21] in 2002 had already identified this rehabilitation mode as a "potential treatment standard" for the edentulous mandible. However, the scientific literature has often reported problems related to the maintenance of the retentive components and to

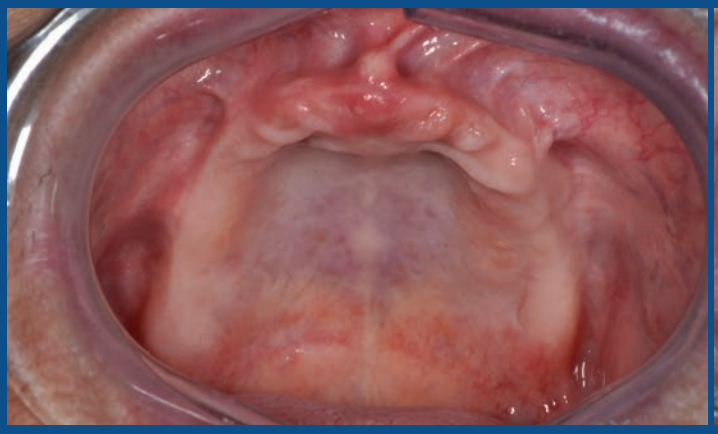
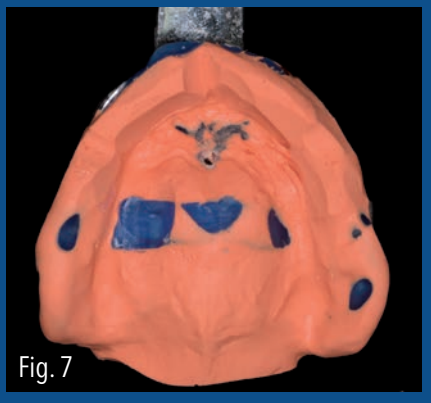
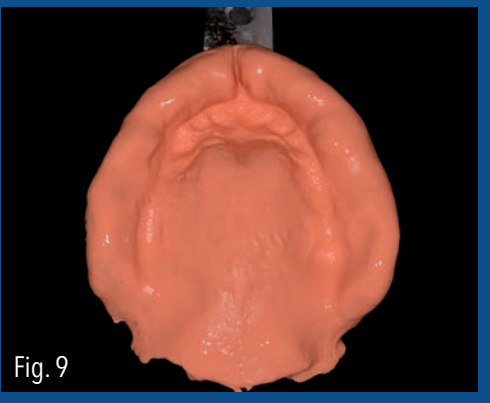
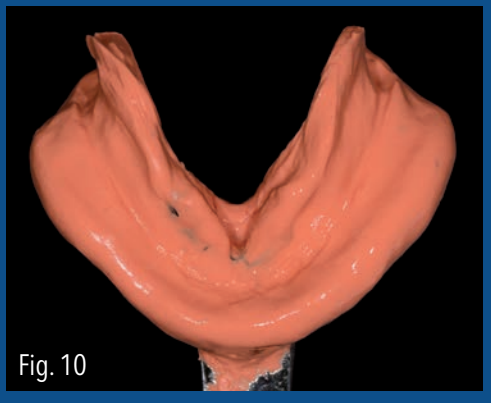


Fig. 5 — Operation area, prepared for submerged wound healing

Fig. 6 — Reduced long-term temporary restoration from the basal view, directly after implantation







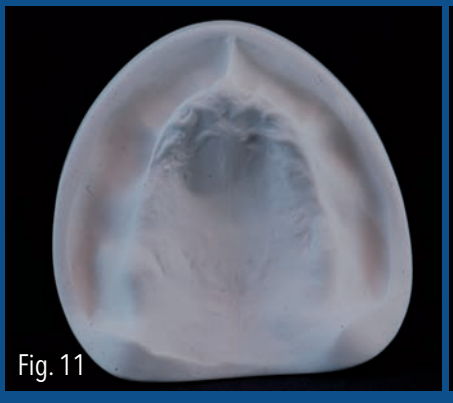


Fig. 7 - 10 — Phases of preliminary impressions

Fig. 11 - 12 — Preliminary model and construction of the impression tray

the fracture of the prosthesis itself [22, 23, and 24]. The attachments are exposed to stress, distortion and wear, which determine a premature loss of retention [25, 26]; this is why a great number of solutions are offered on the market. Furthermore, the fracture risk of the product increases when the prosthesis is thin; to overcome this drawback, in addition to the use of non-voluminous attachments and the insertion of reinforcing structures, it may be necessary to schedule a resective plastic surgery of the alveolar ridge to be performed during implant surgery [27,28]. It has been reported that about 10-12 mm of space are required between the soft tissues and the occlusal table [29]; in this evaluation it is necessary to not only consider the occlusal planes, but also to respect the neutral zone in order not to invade the necessary functional spaces of the tongue and cheeks [30].

Some studies have also pointed out that in the case of rehabilitations with complete upper prostheses combined with lower implant overdenture or fixed rehabilitations with reduced posterior occlusal support, one can recreate the underlying mechanisms of the combined syndrome [31, 32]. This effect seems to be promoted by an excessive anterior occlusal contact that affects the pre-maxilla [33]. It is not uncommon to find some conditions

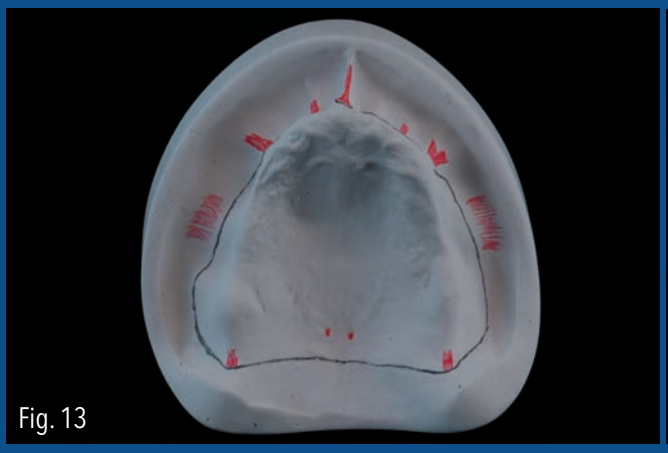


Fig. 13

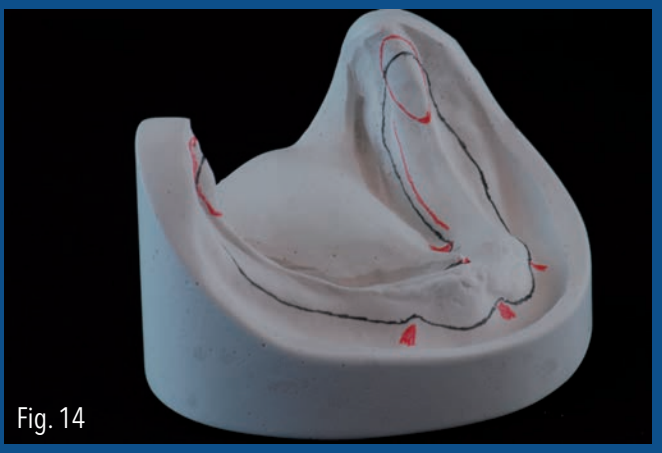


Fig. 14

Fig. 13-14 — Alignment of the tray - Marking the lay out


Fig. 15

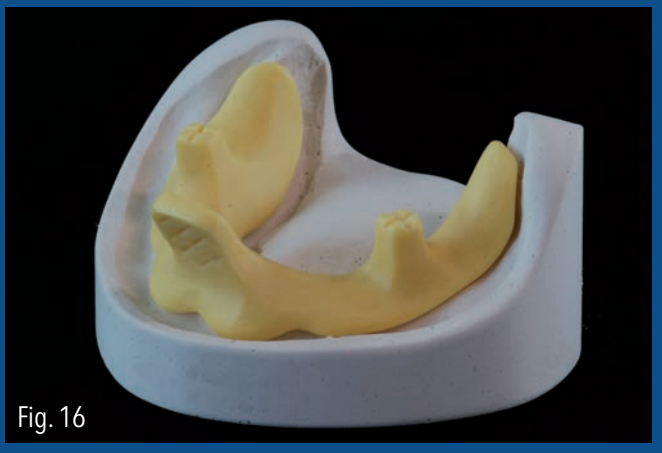


Fig. 16

Fig. 15-16 — Length and thickness control of the impression tray

wherein the anchorage structures impose an overexposure of the anterior teeth, which not only creates an aesthetic discomfort, but also a dramatic loss of functionality of the upper prosthesis [34]. The realization of an implant-supported or implant-anchored prosthesis must therefore comply with the construction aspects of a full prosthesis in order to be able to intercept and reduce the maintenance and functionality problems of future implant restorations. It is therefore essential to determine parameters such as the occlusal plane, the correct allocation of spaces between the upper and the lower jaw, the vertical dimension of occlusion (VDO), to establish a stable and repeatable centric relation (CR) and to properly set up the mounting of the teeth according to phonetic and aesthetic criteria. This preliminary analysis is ultimately functional to the correct setting of the treatment plan and to efficient communication with the patient. The aim of this paper is to describe the diagnostic and rehabilitation pathway of an edentulous patient treated with a complete upper prosthesis and an overdenture on two implants.

Ca p rt

A 68-year-old patient, edentulous U&L arches restored with prostheses for about 3 years, requested a new rehabilitation. The patient did not show any significant pathology (Fig. 1 - 3). At the interview during her first visit, she complained having to stabilize the prostheses with large amounts of adhesive and in spite of this, the presence of an unreliable seal made her insecure while chewing and in her social life. The patient also reported often using anti-inflammatory mouthwashes to cope with frequent irritations of the upper anterior area. She was generally satisfied from an aesthetic point of view, but requested to be able to obtain a better support of the upper lip with the new rehabilitation.

Cln ic a luations

For the reasons of instability expressed already 3 months before the prosthetic visit, two implants had been placed in the intraforaminal area in position 33 and 43. Considering the prostheses worn by the patient, it was noted that, even though the patient's rehabilitations offered a sufficient coverage of the support areas, their adaptation to the tissues was insufficient. From an occlusal point of view, both the lower prosthesis, which was derived from a partial skeletal prosthesis, and the upper one showed obvious signs of wear of the occlusal


Fig. 17

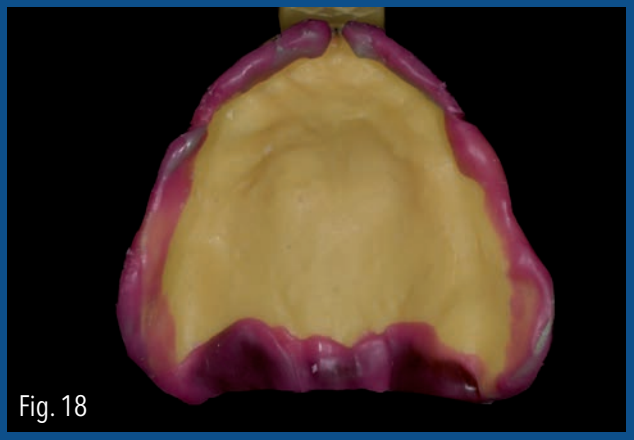


Fig. 18

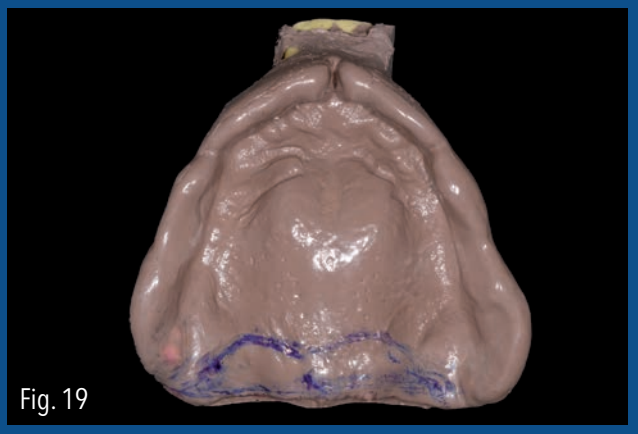


Fig. 19


Fig. 20

Fig. 17-20 — Final stages, peripheral rimming and final impressions

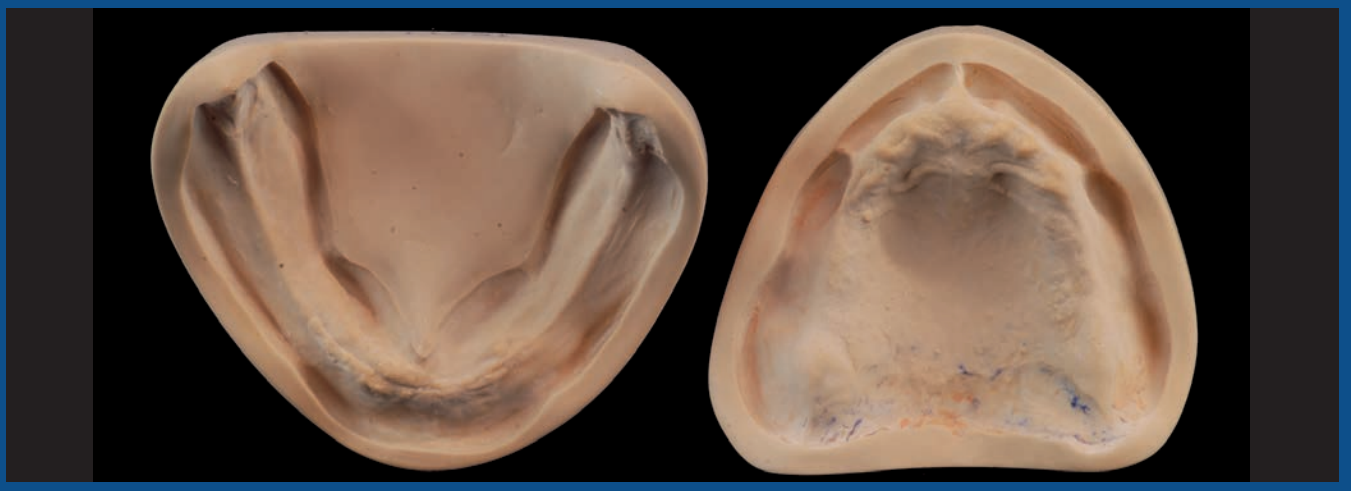


Fig. 21 — Master models

Fig. 22

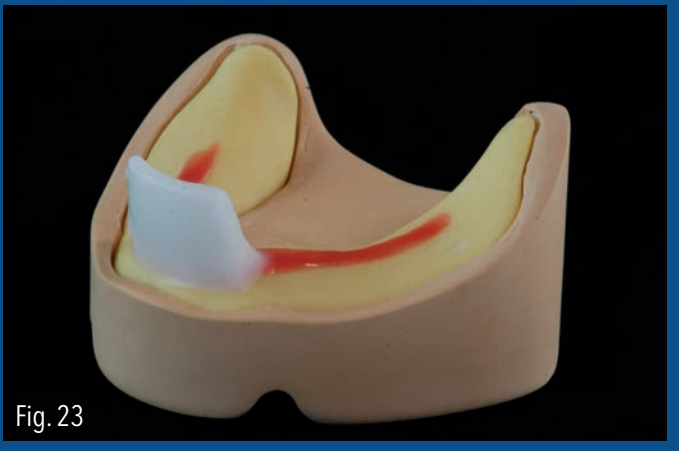


Fig. 23

Fig. 22-23 — Plates stabilized with wax rims

surfaces and there was also a strong anterior occlusal contact that caused a significant rotation of the upper prosthesis with resulting displacement (Fig. 4). Phonetic evaluation showed an excessive clearance between the arches probably due to wear and bone resorption [35]. The self-sustaining stability test of the masticatory units under load reported a noticeable displacement of the upper prosthetic body for the elements of the second quadrant. The clinical evaluation of the mucosa highlighted the presence of inflamed mucosa in the area around the incisive papilla and a mobile crest (Fig. 5 - 6). The evaluation of the OPG showed the presence of two implants in the front area in position 32-33 42-43.

Trtaen tPla

The established treatment plan was to build a new complete upper prosthesis and a lower overdenture anchored on the two implants. The treatment goals were to restore the VDO and reduce excessive free space; Furthermore, following the indications of the patient, to improve the stability and the seal of the upper prosthesis and to plan an effective retention system on the lower implants. Variables to be defined by the diagnostic mounting:

- Choice of the retention system.
- Assessing the need to place a metal reinforcement in the lower prosthesis.

Cln icla d laboratory p otocoP rtaen a y ipn ieo n

In the first session, two Neocolloid Normal Setting alginate impressions (Zhermack, Badia Polesine, RO) were taken. We used Schreinemakers impression trays, on which we placed the wax (Zeta blue extra soft wax, Zingardi Industry, Novi Ligure, GE) to stabilize and support the impression material. On the surface of the tray, we applied the adhesive for alginates Fix Adhesive (Dentsply, P.O. USA).

The impressions were taken in two stages. We first used a high-viscosity material, and dried this first impression

Fig. 24-25 — Ratings of phonetic phonemes "f", "v" and "s"

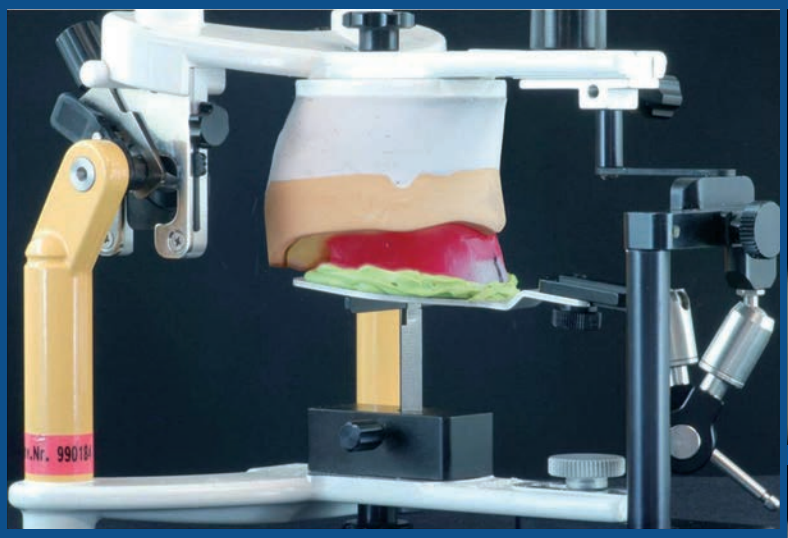


Fig. 26 — Articulator mounting with average values

Fig. 27-29 — Anterior teeth mounting

for about 20 sec. with a gentle stream of compressed air. We then removed the undercuts and relined the impression with a low viscosity material (Fig. 7 - 10).

Elimination of the plaster residues and reconstruction of the impression tray

In the laboratory, the alginic acid residues were eliminated from the impressions by gently brushing on dental plaster and rinsing them thoroughly, and then they were cast using Elite Model type 3 plaster (Zhermack, Badia Polesine, RO) mixed with distilled water, according to the instructions of the manufacturer. The models obtained were squared and finished (Fig. 11 - 12).

After having analysed the support areas, we marked the layout of the future individual trays on the models. In this phase, anatomical knowledge as well as muscular dynamics of the person marking the layout is essential (Fig. 13 - 14). We then eliminated the undercuts with Tenatex Red wax (Kemdent, Swindon, United Kingdom), also being careful to place a layer of wax in the front to exclude any compression of the tray during the final impression taking.

At this point, the models were wet and insulated with Isolating fluid (Ivoclar Vivadent, Schaan, Liechtenstein). The trays were made with Elite SC Tray EVO self-curing resin (Zhermack, Badia Polesine, RO). The foundations were finished by giving the edge a thickness of about 2-2.5 mm, except for the lower one in the sublingual area and the upper one in the area of the retrozygomal fossa where we left a thickness of 3-4 mm (Fig. 15 - 16).

Functional impressions

The second session allowed us to take functional impressions. We first checked the trays, as their stability and the absence of sharp areas are essential requirements. The length limits were first checked visually with the reference of the transition area between adherent mucosa and free mucosa, then by using a silicon-based paste (Fit Checker II, GC, Tokyo, Japan). The trays were lined with thermoplastic paste of different texture (ISO Functional, GC, Tokyo, Japan and Isocompund Red, Kerr, Italy) in order to seek for a selective pressure in the internal seal areas. The peripheral edge was modelled first by using the muscle dynamics, through functional movements of the lips, cheeks and the patient's tongue, and then a light trimming was performed to activate the frenulum. Before recording the impressions, the rimming was moved into the external areas to avoid hyperextensions related to the overlap of impression material. These operations obviously did not affect the inner seal areas. The upper tray was perforated in both the palatal and the anterior area to facilitate the leakage of the impression material, thus reducing the displacement of the tissues (Fig. 9). Once the adhesive had been applied on the surface of the tray (Universal Adhesive Kerr, Italy) the final impressions were taken with a polysulfide mixture (Permlastic Light and Regular, Kerr, Italy) (Fig. 17 - 20).

Creation of the antagonist models and packaging of the stabilization plate

The fingerprints were carefully boxed in order to preserve the edges, then we developed them using an Elite Stone type 4 plaster (Zhermack class, Badia Polesine, RO), vacuum mixed with distilled water according to manufacturer's directions (Fig. 21).

The stabilized plates were made


Fig. 30


Fig. 31


Fig. 32


Fig. 33

Fig. 30-33 — VDO and CR confirmed with aesthetic test

with Ivolen self-curing resin (Ivoclar Vivadent, Schaan, Liechtenstein) after eliminating the undercuts from the models with wax (Tenatex Red; Kemdent, Swindon, England) and isolating them (Isolatin Fluid Ivoclar Vivadent, Schaan, Liechtenstein). The plate was then brushed with a thin layer of sticky wax (Cera adhesive Kerr, Italy) in the ridge area where we later placed the preformed wax rims (Pam Wax, Italy). For the upper one, the incisal margin of the rim was placed in front 22 mm from the upper labial groove and 8-10 mm from the incisive papilla with an angle of about 10 ° in the sagittal plane. The upper occlusal plane was set with the Rim Former (Candulor, Switzerland) by placing this instrument at the back at the level of the pterygomaxillary notches and in front in the position described above. The rear edge of the rim was set at the medial limit of the tuberosity. For the lower rim however, the distance between the lower labial groove and the incisal margin at the level of the incisors was set at 18 mm. This was placed on the centre of the alveolar ridge and was tilted forward by 8-10 ° in the sagittal plane; the width of this small phonetic rim was adjusted by simulating that of some of the lower incisors (about 15-20 mm) [36]. The rims were modelled by simulating an arch and following the shape of the residual ridge. In the anterior region they were prepared with a thickness of about 2-4 mm; in the molar region the upper one was set with a thickness of 8-10 mm (Fig. 22 - 23).

Ca tricr e ta ion reo rd

In this phase, the wax rims were adapted to the support needs of the lips. The upper rim was set parallel to Camper's plane and to the bipupillary axis in the frontal plane using the Fox device. By using the phonetic tests, phonemes "f" and "v" for the upper range and "s" for the lower one, we determined the length and anterior-posterior position of the rims, which at the end of the recording will simulate the future assembling of the teeth. After distributing, the spaces between the upper and lower floor we determined the VDO [37] and marked both the median line and that of maximum reveal (Fig. 24 - 25).

We then recorded the CR after finding a stable and repeatable position. We also took a face-bow transfer (transfer bow UTS 3D Ivoclar Vivadent, Schaan, Liechtenstein), with the reference of Camper's plan To complete the information about the size and shape of the front teeth we used the Form Selector (Ivoclar Vivadent, Schaan, Liechtenstein) with which we chose the shape B62 Phonares II (Ivoclar Vivadent, Schaan, Liechtenstein).

Mountingo n the a ticuto ra d ante ior tu p

The models were positioned on a Stratos 200 average-value articulator (Ivoclar Vivadent, Schaan, Liechtenstein) (Fig. 26). The mounting of the front teeth was set by using all the information recorded during the clinical stage: the occlusal plane, the median line, the position and the anterior-posterior tilt. This simplified the positioning of the individual elements; in fact, it was sufficient to create a breach in the upper rim starting from the median line to get the necessary space for the corresponding tooth. Then, while respecting the ratio with the occlusal plane and the tilt in mesiodistal direction, the front teeth were fixed with modelling wax (Pam Wax, Italy). A few abrasions, a few horizontal alignments of the incisal margins and slight rotations were set with the aim to adapt and harmonize the assembly of the teeth to the patient's aesthetic needs (Fig. 27 - 29). The same approach was used for assembling the lower elements; setting the overjet and the overbite is extremely important as they tend to exclude any possibility of occlusal interference in the front area during the function, thus reducing traumatic forces in the premaxilla area.

Fig. 34 — Mounting the posterior teeth

Fig. 35 — Completed mounting of teeth

Fig. 36-37 — Trial

Anterior teeth selection

Before proceeding to mount the posterior teeth, we made a quick aesthetic test of the anterior group and a control that confirmed both the VDO and CR recorded previously (Fig. 30 - 33).

Mounting the posterior teeth

The mounting of the posterior teeth was performed by taking as a reference the upper occlusal plane obtained through objective examination and with the help of the Fox plane in the oral cavity. The palatal cusps of the molars and premolars were placed in contact with the plane while the vestibular ones were raised in ascending order from fourth to sixth by tilting the long axis of the teeth in a vestibule-palatal way; we thus set the Spee and Wilson curve (Fig. 34).

The palatine cusps were positioned in contact with the occlusal plane; the vestibular cusps were lifted from the occlusal plane, setting the compensation curves. The horizontal discrepancy between the upper and lower alveolar ridge required a cross mounting on the left side and a tooth by two teeth mounting on the right (Fig. 35). The implants were then waxed with hard modelling wax (Pam Wax, Italy) taking care to set the thickness of the flange and modelling the prosthetic bodies with the final volumes.

Control mounting

At this stage, in addition to verifying aesthetics and phonetics, the patient had the opportunity to comment on the mounting of the teeth with her family. We also controlled static behaviour by checking the autonomous stability of every single posterior element. From a clinical point of view we rechecked the repeatability of the centric relation. We did not altogether note any changes to be made on the mounting (Fig. 36 - 37).

Elaboration of the spaces

After checking again the occlusal contacts by compensating for some slight shifts that the teeth had suffered because of the dimensional variations of the waxes, we made two Platinum 95 Shore silicone masks (Zhermack, Badia Polesine, RO) of the lower prosthesis, one on the vestibular side,

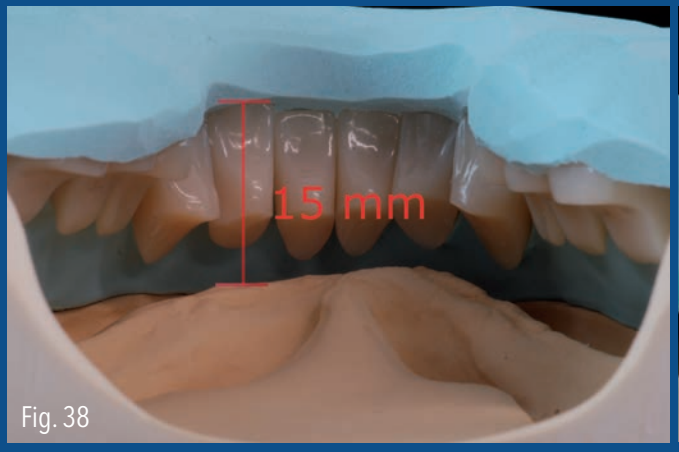


Fig. 38-39 — Silicone masks


Fig. 40


Fig. 41

Fig. 40-41 — Prosthesis ready for finalization

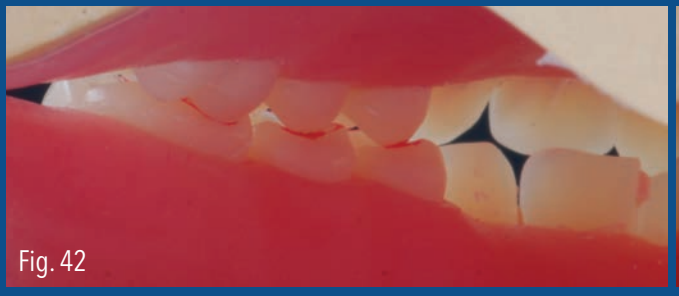


Fig. 42


Fig. 43

Fig. 42-43 — Remounting, reocclusion stages

the other on the lingual side (Fig. 42 - 43). The silicone masks showed a gap of about 13/15 mm from the mucosal profile in the crestal area and the incisal margin of the lower incisors; moreover, the use of the lingual mask showed a space of only 8-10 mm between the profile part of the lingual edge and the mucosa for the implant in position 32-33; on the right side however, the space was of 12 mm (Fig. 38 - 39).

Choice fth p osth tic la tem ts

From the analysis performed with the use of the mask, we chose Equator abutments (Rhein' 83, Bologna) for their reduced height and their horizontal encumbrance within the prosthesis. We were also able to assess the need to insert a reinforcement ferrule and, in this case, we decided that the space was more than sufficient to exclude its construction. We therefore decided to finalize the denture, and to proceed after delivery to the uncovering of the implants, then to the positioning of the abutments and in the end to the direct attachment of the retention components inside the prosthesis.

Finlaio no fth e p osth is

The prostheses were then prepared for finalization, the contacts between the elements in articulation will be checked again and we will then make the final waxing (Fig. 40 - 41). We proceeded with the resin finishing using traditional self-clamping flasks (Zhermack, Badia Polesine, RO); we used a self-polymerizing resin with hot polymerization cycle (Ivoclar Vivadent, Schaan, Liechtenstein-based Implant). Once the prostheses are polymerized we proceeded with their unflasking, and before removing them from the master models, we repositioned them in the articulator where selective grinding was performed in order to remove the occlusal upside that occurred because of the contraction of the resin during polymerization. We also carried out minor adjustments on the slopes of the pits in the lower arch for ease of movement and to avoid horizontal interference during functioning (Fig. 42 - 43).

Note the absence of anterior contacts. The elements were then finished and polished for delivery (Fig. 44 - 45).

Dlee y f the prosthe ic en ta nd p st-ine tionco ntrol

Upon delivery of the prostheses, they were placed in the oral cavity and left to adapt for about 10-15 min. while making the patient bite cotton rolls placed bilaterally between the arches. We then proceeded to the control of prosthetic bases and edges with a silicone-based paste (Fit Checker II,


Fig. 44


Fig. 45

Fig. 44-45 — Elements ready for delivery

Fig. 46 — Control after 24 hours, after one and two weeks: excellent adaptation to the new prosthetic body

Fig. 47 — Uncovering

GC, Tokyo, Japan). The patient was instructed concerning the use and cleaning of the prostheses. Controls were made after 24 hours, after one and two weeks, and showed excellent adaptation to the new prosthetic body. The patient reported a few pressure points during the first controls and an improved stability of the prostheses during mastication (Fig. 46).

Uncovering the implants and checking the healing

3 weeks after delivery, the implants were uncovered and the prosthesis was reworked and relined with tissue conditioner (Sofreliner Tough S Tokuyama Dental Corporation, Japan) (Fig. 47). 15 days after uncovering, we recorded the transmucosal route of the two implants using the universal "BG" meter (Rhein ' 83, Bologna). It was of 2 mm for the implant inserted in position 42-43 and 3 mm for the implant inserted in position 32-33 (Fig. 48 - 49).

Positioning the healing abutments and anchoring the prosthesis

The abutments were placed in the mouth with a Torque 25 N, followed by the retentive components (Fig. 50-51). We created with silicone paste (Fit Checker II, GC, Tokyo, Japan) the necessary space to fit the retentive parts by eliminating any interference to the complete housing of the prosthetic basis (Fig. 52 - 53). The retentive components were then attached to the prosthesis in occlusion with a cold-self-polymerizing resin (Tokuyama Rebase II fast Tokuyama Dental Corporation, Japan). After removal from the mouth, the resin was polymerized for 15 min. at 2 bar in water at 45° C, then finished and polished (Fig. 54 - 55). The patient was then instructed concerning the insertion and removal of the prostheses and the hygiene maintenance manoeuvres.

Follow up after 12 months

During the period of inspection carried out after delivery, the patient reported excellent adaptation levels after 12 months, mainly due to the improved stability of new prostheses and the absence of tenderness in the premaxilla. An occlusal control was also performed, which did not reveal any anterior contacts. The level of hygienic maintenance was considered with an absence of peri-implant tissue inflammation and bleeding on probing.

No prosthesis retention problems occurred during the 12 months control period, after which the retention of the attachments fully met the demands of the patient.

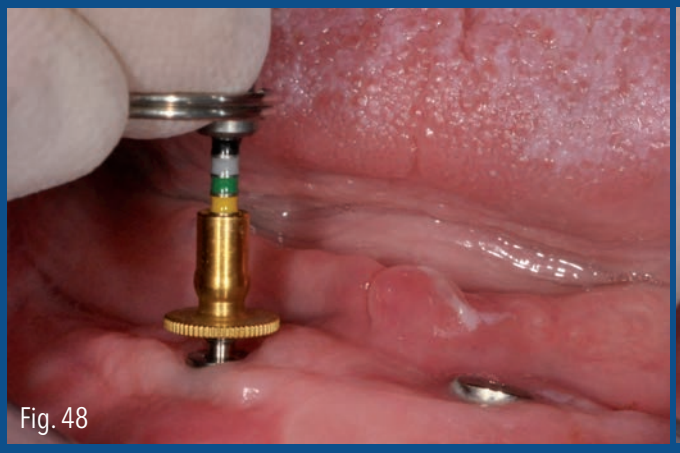


Fig. 48


Fig. 49

Fig. 52-53 — Transmucosal route measurement


Fig. 50


Fig.51

Fig. 54 - 55 — Positioning the Equator abutments and the retentive components


Fig. 52


Fig. 53

Fig. 52 - 53 — Checking space to house the retentive components

Discussion

In the construction of overdenture prosthesis, it is necessary to assess the presence of the space required for the prosthetic components and the retention systems. Inadequate space may result in excessive encumbrance of the prosthesis, frequent fractures of the same or of teeth close to the retentive components [38]. There can also be frequent detachments of retentive components or their loss of retention; all this very much increases the maintenance costs and creates many inconveniences for the patient [39]. Nowadays, the great availability of retention systems available on the market can confuse the clinician in selecting the most appropriate solution; this gives rise to the need to adopt a simple technique, which allows to reduce costs and to facilitate the choice of the prosthetic abutments or of the retentive system. This work documents the stages of realization and analysis performed during the rehabilitation of a patient with lower overdenture and complete upper prosthesis. Regarding the clinical history of the patient, the presence of a strong anterior contact for many years probably favoured the establishment of mechanisms underlying the combined syndrome [40].

The presence of an anterior mobile crest, often painful, was handled successfully by reducing the anterior contact with the new implants. It will however be necessary to periodically check the occlusion in order to combat phenomena such as the wear of the occlusal surface, resorption of the alveolar ridges or sinking due to the resilience of the mucosa. As reported in a great number of studies, the complete prosthesis still remains the basis for the analysis and construction of all rehabilitations aimed at the functional and aesthetic restoration of edentulous patients, whether it be a prosthesis with mucousal support, or implant support, or mixed [41,42]. The construction of a diagnostic setup can allow the creation of radiological and surgical templates, which can already constitute a useful reference in the pre-surgical planning. However, as in the case presented, this type of analysis is often excluded and the prosthetic pathway is dealt with once the implants have already been placed; we must therefore deal with the rehabilitation, adapting to compromises that are not always optimal for the success of the implants and for patient satisfaction. It is therefore necessary, even in these cases, to carefully analyse the spaces with the diagnostic setup in order to avoid mistakes in choosing the retentive solution and to establish proper communication with the patient about the rehabilitative solutions available. As reported by numerous studies, clear and comprehensive communication with the patient promotes their involvement in the rehabilitation, with important results in terms of ultimate satisfaction; this also reduces the misunderstandings that often lead to litigation [43]. The mandibular overdenture anchored to non-splinted implants mentioned in this work is supported by an extensive literature, which describes results comparable, in terms of patient satisfaction, to retentive solutions placed on bars [44]. The choice of this type of solution was made after assessing the available space delineated by the diagnostic assembly. It has been confirmed that the bar anchorage solutions, while requiring less maintenance, require higher initial production costs and need a 12-14 mm encumbrance. In the clinical case described, the free space from the mucosa to the incisal edge of the teeth was less than 12 mm and approximately 10 mm considering the lingual denture border; these considerations therefore excluded the bar anchorage solution since this choice would have reduced the overall resistance of the product.

Equator attachments (Rhein ' 83, Bologna) were selected for their encumbrance, which made it possible to easily manage the reduced lingual thickness available in the left lingual area. Furthermore, the attachments we used reported encouraging clinical and in vitro results even in the presence of a few degrees of disparallelism between the abutments. Another important aspect that we assessed was the need for a reinforced structure that would reduce the fracture risks [45]. In this case, the thickness of the prosthetic body with attachments


Fig. 54


Fig.55

Fig. 54 - 55 — Fixing the retentive components (positioning the resin to fix the attachments and prosthesis just removed from the mouth)

of just over 2 mm in height and 4 mm diameter were sufficient to give the product its proper rigidity and strength. We finally decided to fix the components in the mouth after the prosthesis had already overcome the tissue resilience for several weeks. This procedure demonstrated clinical reliability, comparable to the fixing of the components in the lab, with the advantage of reducing the clinical laboratory steps [46]. The follow-up visit conducted after 12 months, although not suitable to demonstrate an effective long-term success of the rehabilitation, ruled out prosthetic or implant maintenance problems during the most critical period [40].

Conclusion

This paper describes the steps taken in the implementation of a rehabilitation with a prosthetic lower overdenture on two implants and a complete upper prosthesis, highlighting how a thorough preliminary analysis, based on the principles of the complete prosthesis, can be a valuable aid to meet the functional and aesthetic requirements of the patient. Sd

(Please find the bibliography - online)