NEODENT®
A Straumann Group Brand

CLINICAL CASE

SOLUTION TO PRECISELY CONVERT A DENTURE INTO IMPLANT FIXED FULL ARCH PROSTHESIS IN THE LABORATORY

A smile for eveyone solution

NeoArch® Solution

Helix® Implant

CLINICAL CASE

Solution to precisely convert a denture into implant fixed full arch prosthesis in the laboratory

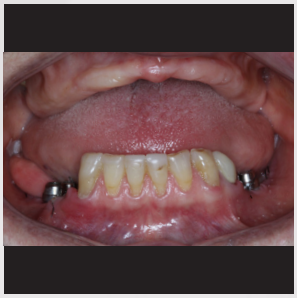
RESPONSIBLE SURGEON

DR. GENINHO THOMÉ

BRAZIL

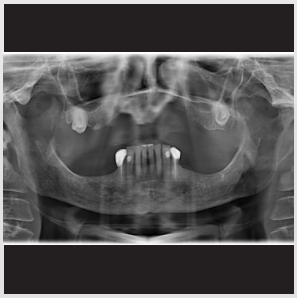
- CEO of ILAPEO College;
- Scientific President of Neodent®;
- Master and PhD in Implantology;
- Chairman of the Board of Directors of Neodent®.

Collaborating team:
Dr. Carolina Accorsi Cartelli.



PATIENT MEDICAL HISTORY

Patient without systemic changes, completely edentulous in the maxilla and partially in the mandible, attended the office with a conventional upper denture, natural teeth in the anterior region of the mandible and implant-supported prostheses in the posterior regions of the mandible. An initial computed tomography (CBCT) was performed for bone assessment, which revealed that the patient had an atrophic maxilla.



PLANNING

After evaluation, prosthetic planning, anatomical impression, adjustment of the orientation planes in wax and tooth testing in wax were carried out. With the approval of the tooth assembly, a multifunctional guide was created by duplicating the tooth assembly. The prototype of the patient's jaw was requested and using it together with CT and reverse planning, it was decided that GM Zygoma-S implants would be performed unilaterally and Helix GM® Long.

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DESCRIPTION OF THE SURGICAL PROCEDURE

The drilling sequence was performed following the manufacturer's instructions and the GM Zygoma-S 3.75 x 35 mm implant was placed in the posterior region of the left maxilla. In the right posterior region, it was possible to place a 3.75 x 22.5 mm Helix GM® Long implant, and in the premaxilla, Helix GM® implants were placed in the canine regions, on the right side 3.75 x 11.5 mm and on the left side 3.75 x 10 mm. In the midline, a 5 x 8.5 mm Helix Short implant was placed. The patient's bone condition was type III and all implants obtained final torques between 45 N.cm and 60 N.cm.

The abutments were then installed: in region 26, the GM Exact Mini Conical Abutment 60° with 1.5mm transmucosal height was used, in regions 16 and 23 the GM Exact Mini Conical Abutment 30° with 2.5mm height, in the region of the 23 GM Exact Mini Conical Abutment 17°, 1.5 mm height. A continuous suture was then performed.

LABSIDE PROSTHESIS PREPARE SEQUENCE

After the implant surgery and GM Mini Conical Abutment placement, an impression was taken with the aid of a multifunctional guide, from which the models were obtained. In the laboratory, the models were mounted on a semi-adjustable articulator, with the bonding of the prosthesis in maximum intercuspation with the antagonist model, to ensure adequate internal wear. At this time, the Mini Conical Abutment Copings NeoConvert™ were fixed to the Mini Conical Abutment Analog using the Pin Capture NeoConvert™ and the Digital Driver Pin Capture NeoConvert™, which limits the maximum torque to 10 N.cm. In this way, with the prosthesis joined to the antagonist arch in the articulator, it was possible to observe the points of contact between the cylinders and the interior of the prosthesis, which guided the wear to create niches for capture.

LABORATORY COPING CAPTURE SEQUENCE

In the next step, the dental technician, placed a thick layer of acrylic resin on the inside of the temporary prosthesis and added small increments to the upper portion of each cylinder. Then, the prosthesis-antagonist assembly was articulated against the model with the cylinders installed and pressed until the acrylic resin final set. Next, with the help of a #31 spatula, a lever movement was performed with support in the posterior region of the prosthesis, to detach the fixing pins, making it possible to remove the prosthesis with the captured cylinders.

FINISHING AND INSTALLATION SEQUENCE

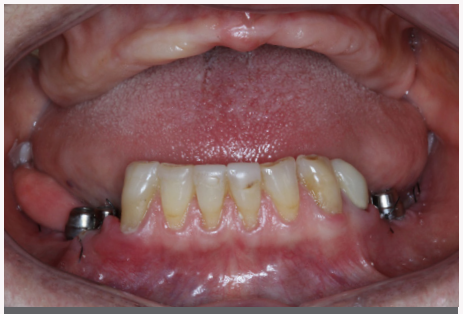
The prosthesis detached from the model carried the Pin Capture NeoConvert™ on the inside of each Mini Conical Abutment Coping NeoConvert™. Next, the Drill Guide for Handpiece 1.5mm NeoConvert™ was used, positioned on the inside of the prosthesis and fitting exactly into the base of each cylinder.

The first drilling was carried out in the direction from the internal to the external portion of the prosthesis, using the First Drill Handpiece NeoConvert™, inserting until the "stop" of the same. Next, the Second Drill was used in the same direction to increase the drilling diameter. Finally, the Third Drill was used in the opposite direction, from the external part towards the internal part of the prosthesis, to complete the construction of the chimney, allowing the Neo Mini Conical Abutment Coping Screw Ti 4.1mm to be inserted.

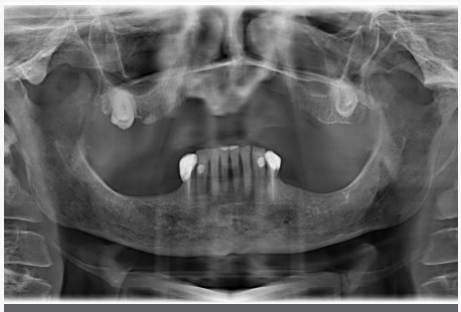
At this moment, the Mini Conical Abutment Polishing Protectors were placed on the base of the cylinders to begin the step of excess removal, finishing and polishing of the prosthesis, always maintaining the internal design of the prosthesis in a non-retentive way to promote hygiene. It is important to ensure that all excess acrylic is adequately removed from the internal portion of the prosthesis, so that the limits of the cylinder exit are fully visible and uncovered by acrylic, allowing a perfect adaptation between the cylinders and the abutments. Once finishing is completed, the prosthesis was installed, and final occlusal adjustments was performed.

NEODENT® MATERIALS

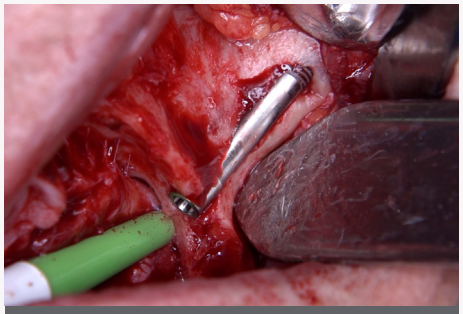
- Mini Conical Abutment Copings NeoConvert™
- Mini Conical Abutment Analog
- Pin Capture NeoConvert™
- Digital Driver Pin Capture NeoConvert™
- Drill Guide for Handpiece 1.5mm NeoConvert™
- First Drill Handpiece NeoConvert™ 1.5mm
- Second Drill Handpiece NeoConvert™ 1.5mm
- Third Drill Handpiece NeoConvert™ 2.0mm
- Neo Mini Conical Abutment Coping Screw Ti 4.1mm
- Mini Conical Abutment Polishing Protectors
- 2 Helix GM® 3.75 x 11.5 e 3.75 x 10 mm
- 1 Helix GM® Long 3.75 x 22.5 mm
- 1 GM Zygoma-S 3.75 x 35 mm
- 1 Helix Short 5 x 8.5 mm



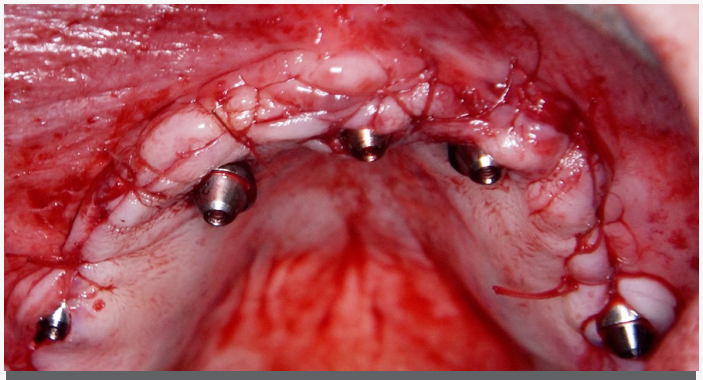
1. Intraoral presurgical clinical aspect.



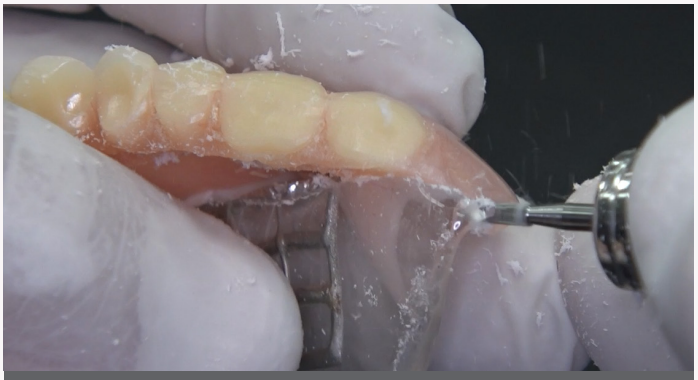
2. Intraoral presurgical radiographic aspect.



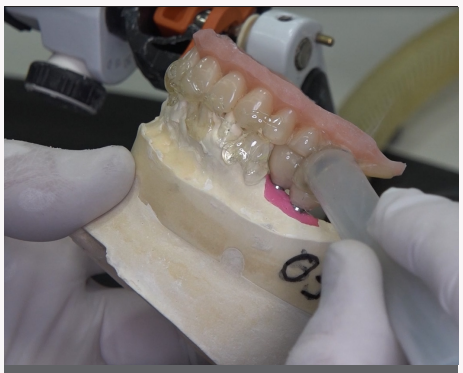
3. Intraoral aspect after the placement of the GM Zygoma-S with 45 N.cm of torque.



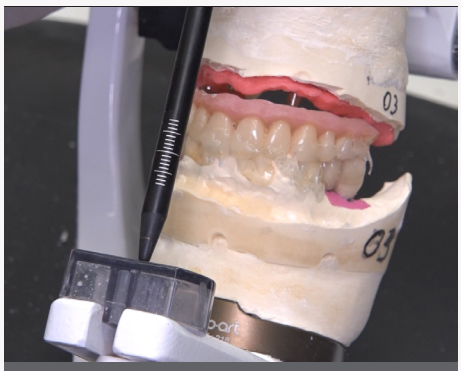
4. Intraoral aspect after the surgery of implant and abutment placement.



5. Removal of the acrylic portion of the palate of the denture.

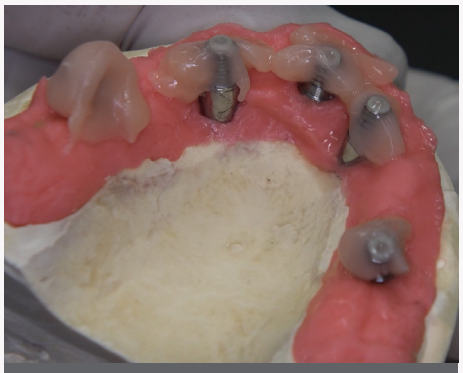


6. Bonding of the antagonist model to the denture in maximum interscupation.

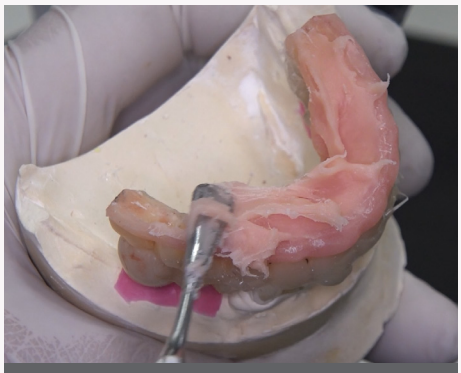


7. Assemble on semi-adjustable articulator for correct creation of retentive niches and capture of the Mini Conical Abutment Coping NeoConvert™.

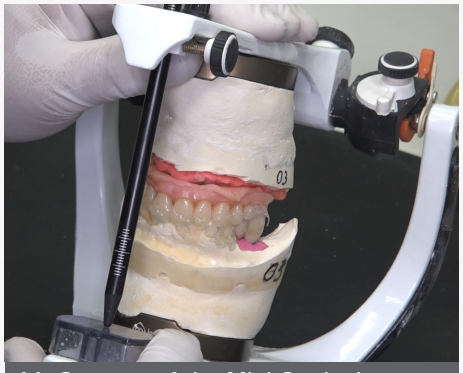
8. Installation of the Mini Conical Abutment Coping NeoConvert™, fixed by Pin Capture NeoConvert™ .



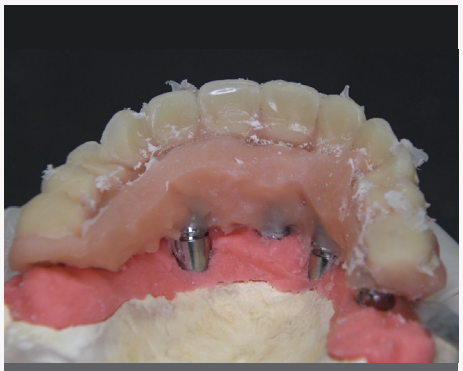
9. Accommodation of the acrylic resin in the Mini Conical Abutment Coping NeoConvert™ for the capture.



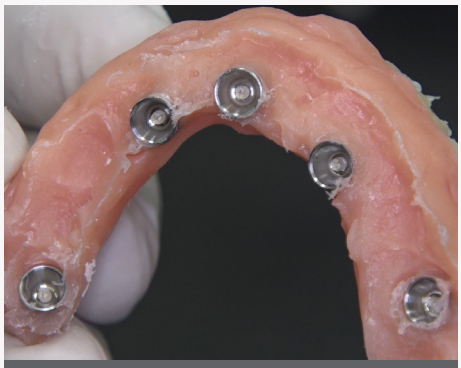
10. Full coverage of the capture niches in the base of the prosthesis with acrylic resin.



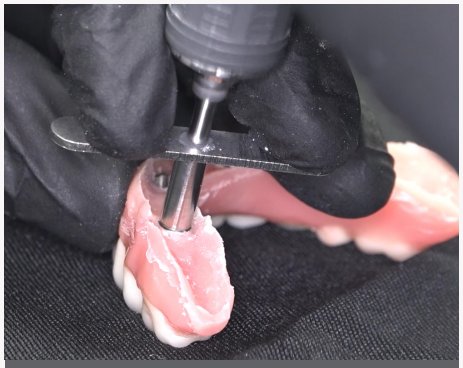
11. Capture of the Mini Conical Abutment Coping NeoConvert™ by articulating the upper model with the denture filled with acrylic resin and bonded to the antagonist.



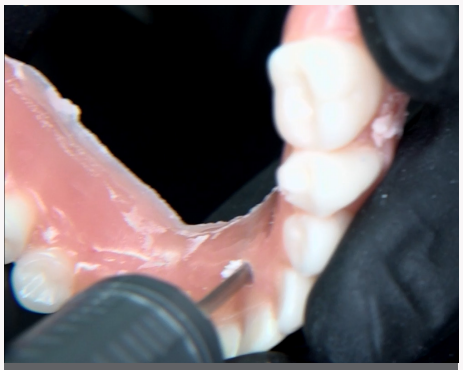
12. Separation of the model and the denture with the captured Mini Conical Abutment Coping NeoConvert™.



13. Aspect of the prosthesis detached from the model with the Pin Capture NeoConvert™ inside of each the Mini Conical Abutment Coping NeoConvert™.

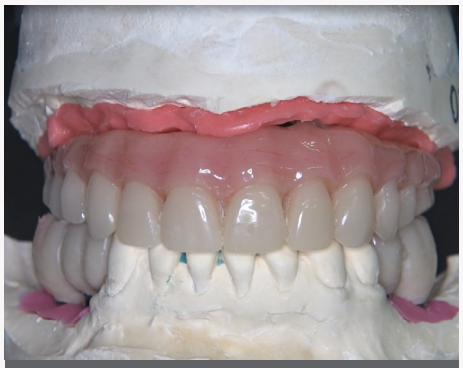


14. Drilling and removal of the Pin Capture NeoConvert™ using the Drill Guide For Handpiece 1.5mm NeoConvert™.

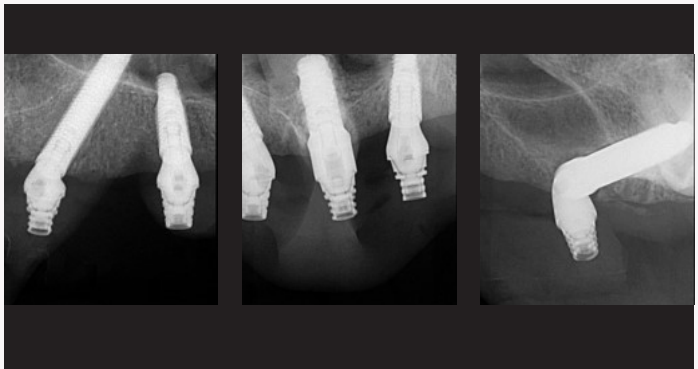


15. Drilling in the opposite direction, from the outside towards the inside of the prosthesis to complete the construction of the chimney, allowing the Neo Mini Conical Abutment Coping Screw Ti to be inserted.

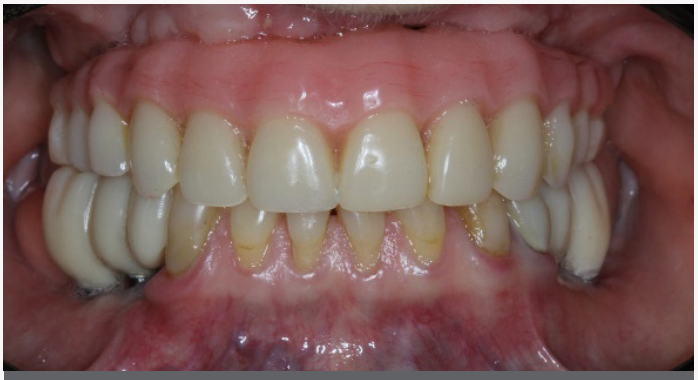
16. Installation of the Mini Conical Abutment Polishing Protectors to the step of excess removal, finishing and polishing the converted prosthesis.



17. Final aspect of the converted prosthesis.



18. Final radiographies, after the installation of the converted prosthesis.



19. Final aspect of the converted prosthesis installed.

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It is the clinician's exclusive responsibility to evaluate the patient's health conditions and viability of the procedure. The reproduction of this clinical case does not imply the success of similar procedures, as it will depend on the clinician's technique and ability, on patient's conditions on the previous and post procedure.

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