NEODENT
A Straumann Group Brand

CLINICAL CASE

GM ZYGOMA-S: REVOLUTIONIZING SOLUTIONS FOR ATROPHIC MAXILLA

Smile for Eveyone solution

NeoArch® Solution

CLINICAL CASE

GM Zygoma-S: Revolutionizing Solutions for Atrophic Maxilla

RESPONSIBLE SURGEON

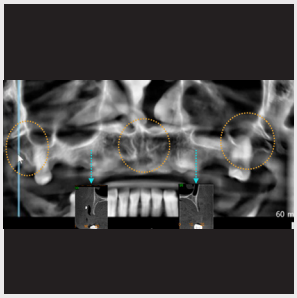
DR. YERKO LEIGHTON FUENTEALBA

CHILE

Specialist in Oral and Maxillofacial Traumatology - Universidad de Chile

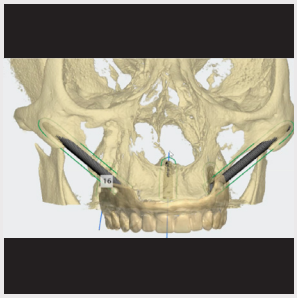
Professor, Department of Oral and Maxillofacial Surgery and Traumatology - Faculty of Dentistry, University of Chile.

Maxillofacial Surgeon attached to the Head and Neck Surgery team of the FALP clinic. - Arturo López Pérez Oncology Foundation



PATIENT MEDICAL HISTORY

Hypertensive and diabetic patient, 62 years old, presented with the absence of maxillary teeth, except for the remaining teeth #17 and #27. Severe maxillary atrophy was observed.



PLANNING

The surgical and prosthetic procedures were virtually designed. Extraction of the remaining teeth was scheduled, followed by the planning of one Zygoma GM™ implant (4.0 x 50 mm), one GM Zygoma-S implant (3.5 x 50 mm), and three Helix GM® implants (3.75 x 16 mm). Implant positioning was determined based on the available bone in the pterygoid and zygomatic regions, as well as the anatomical location of the palatine canal.

GM ZYGOMA-S: REVOLUTIONIZING SOLUTIONS FOR ATROPHIC MAXILLA

DESCRIPTION OF THE SURGICAL PROCEDURE

First, the extraction of the remaining dental elements was performed. After the extraction, the nasopalatine canal was emptied, followed by the installation of the Helix GM® (3.75 x 16 mm), positioned vertically. Next, two Helix GM® implants (3.75 x 16 mm) were installed, anchored in the pterygoid region, allowing for the absence of a cantilever. Subsequently, the zygomatic implants Zygoma GM™ and GM Zygoma-S were installed, avoiding the palatal region.

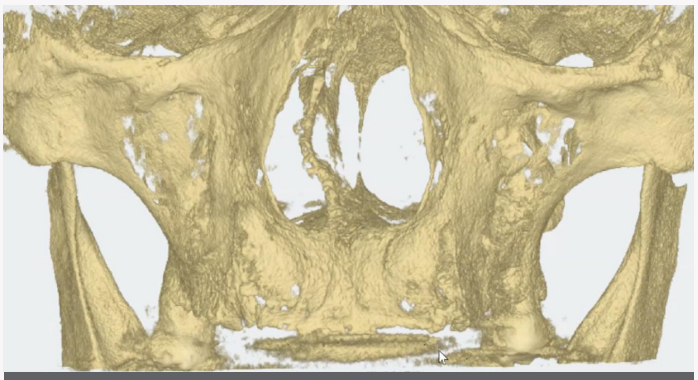
PROSTHETIC DESCRIPTION

Four GM Mini Conical Abutments were installed at a 45° angle to redirect the prosthetic emergence profile toward the occlusal surface, simulating the trajectory typically achieved with vertically placed implants. A GM Mini Conical Abutment was placed on the implant located within the nasopalatine canal. Following this, the implants and components were picked up for the fabrication of the definitive prosthesis. Immediate loading was feasible. The final prosthesis was cemented onto a metal framework, achieving excellent esthetic outcomes.

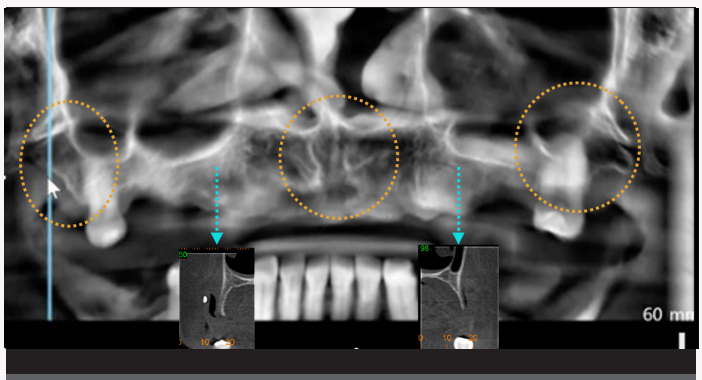
NEODENT® MATERIALS

- GM Zygoma–S
- Zygoma GM™
- Helix GM®
- GM Mini Conical Abutment
- GM Mini Conical Abutment 45°

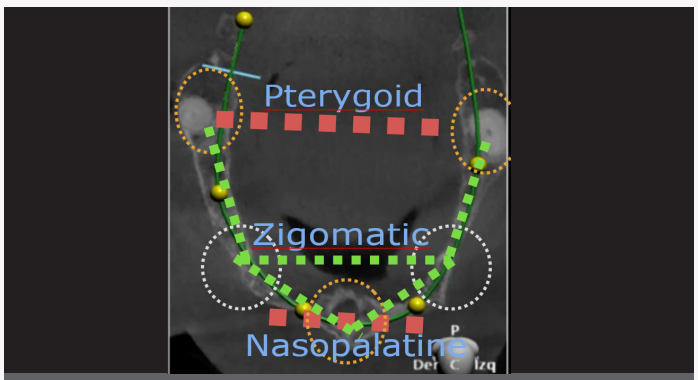
1. Initial radiographic aspect.



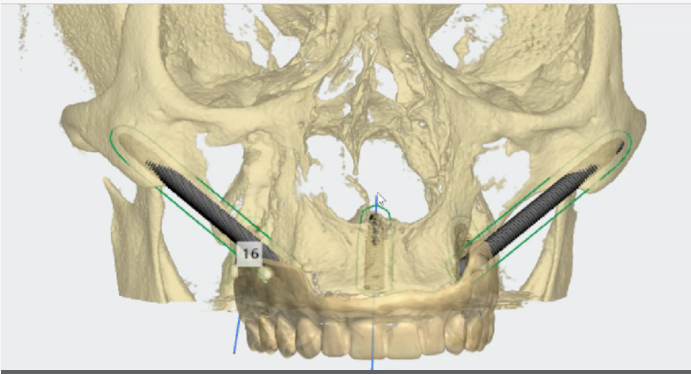
2. Initial CT scan.



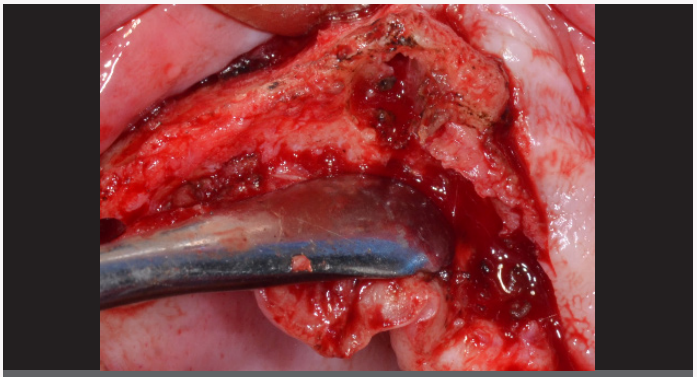
3. Bone availability assessment.



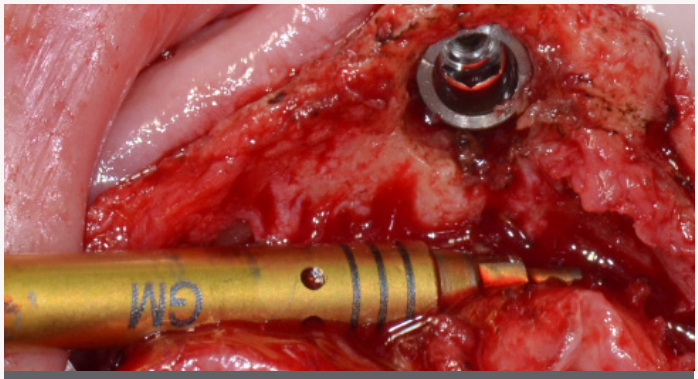
4. Pentagonal distribution of implants.



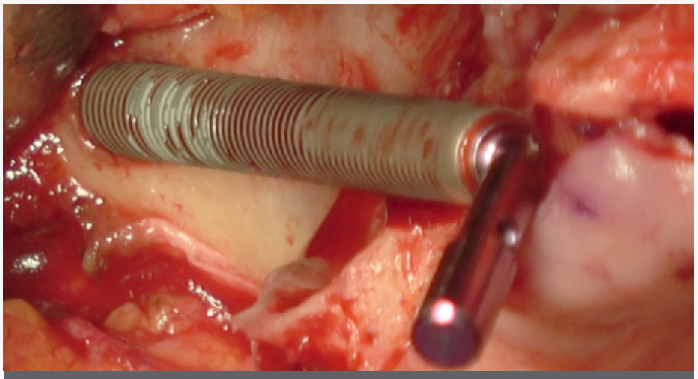
5. Planning of implants position in the software.



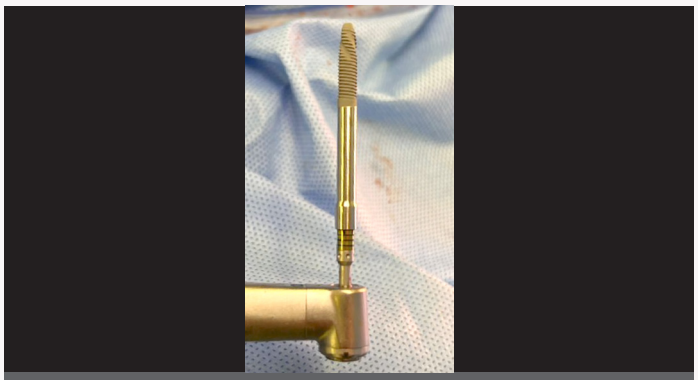
6. Emptying of the nasopalatine canal.



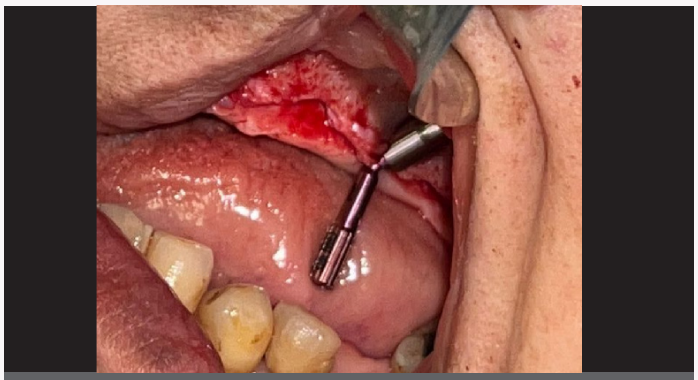
7. Installation of the Helix GM implant
in the nasopalatine canal.



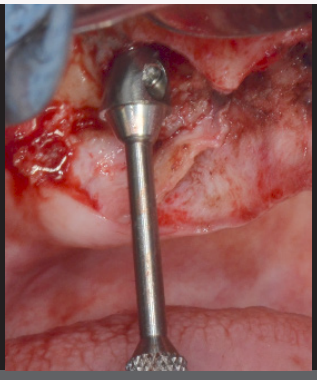
8. Positioning of the Zygoma GM™ implant.



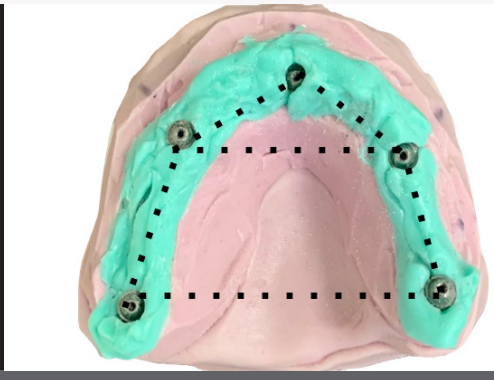
9. Capture of the GM Zygoma–S implant.



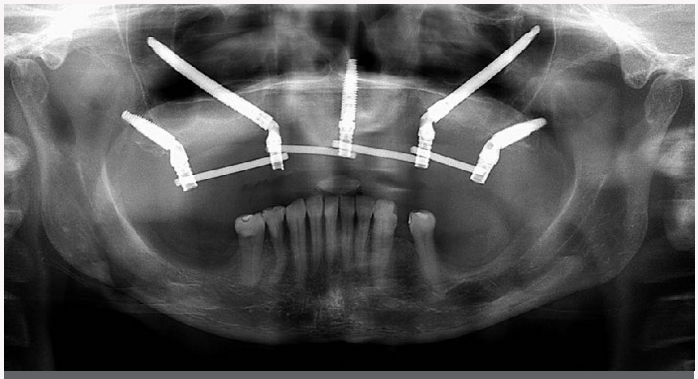
10. Confirmation of the implant angulation.



11. Installation of the abutment at 45º in the pterygoid region.

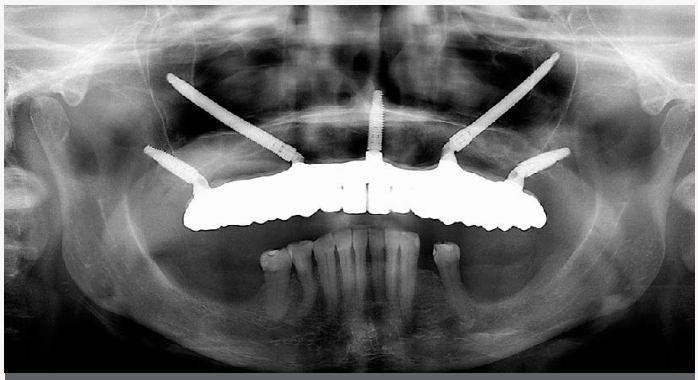


12. Confirmation of the implants distribution in the model.



13. Control radiograph.

14. Definitive prosthesis.



15. Final radiographic aspect.

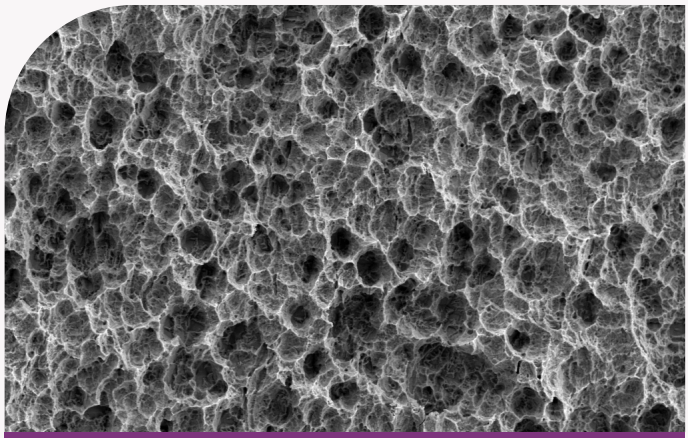
TIPS AND LEARNINGS

For elderly patients with atrophic maxilla and systemic diseases, the surgical and prosthetic approach must be carefully planned to ensure success and safety. The choice of specific implants, such as GM Zygoma-S, Zygoma GM™, and Helix GM®, is crucial due to their compatibility with the available residual bone. Installing implants in strategic regions, such as the pterygoid and zygomatic areas, can eliminate the need for a cantilever, providing greater stability. Additionally, the use of 45° angled Mini Conical Abutments helps direct the implant exits towards the occlusal surface, improving the distribution of masticatory forces. The possibility of immediate loading is a significant advantage, allowing the patient to have a functional prosthesis right after surgery. Besides these benefits, this approach significantly reduces treatment time and costs, as it avoids the need for bone grafts, which would take longer and be more expensive. These combined strategies make it an ideal solution for complex cases, offering predictable, aesthetically pleasing, and economically viable results.

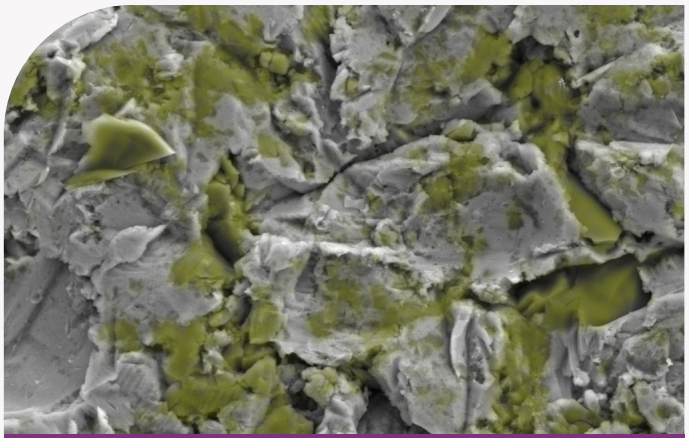
NEODENT® SURFACE RELIABILITY

Moderately rough implant surfaces leads to a stronger bone response[1]. However, the placement of these implants may result in particle detachment at the interface[2]. This is concerning because the manufacturing process involves bombarding the implant surface with particles, which may remain adhered to the surface[3]. Among these particles are aluminum ones, which may pose risks to patients, particularly when they are small enough to be phagocytosed[4]. For larger aluminum particles, the acceptable level of contamination remains undetermined.

Neodent® employs a unique decontamination process to ensure the purity of implant surfaces. This meticulous procedure effectively removes any residual particles from the manufacturing process, resulting in a rough surface composed solely of titanium. By eliminating contaminants, Neodent® enhances the biocompatibility and safety of their implants, promoting optimal osseointegration and long-term success.



Neodent® surface
(no contaminants detected).



Contaminated surface
(Titanium in gray and aluminum oxide in green).

*Images obtained by scanning electron microscopy at Neodent's Integrated Materials Laboratory.

REFERENCES

1. A. Wennerberg and T. Albrektsson, "Effects of titanium surface topography on bone integration: a systematic review," Clinical Oral Implants Research, vol. 20, supplement 4, pp. 172–184, 2009.

2. Duddeck DU, Albrektsson T, Wennerberg A, Larsson C, Beuer F. On the Cleanliness of Different Oral Implant Systems: A Pilot Study. Journal of Clinical Medicine. 2019; 8(9):1280. https://doi.org/10.3390/jcm8091280.

3. Schupbach, Peter, Glauser, Roland, Bauer, Sebastian, Al2O3 Particles on Titanium Dental Implant Systems following Sandblasting and Acid-Etching Process, International Journal of Biomaterials, 2019, 6318429, 11 pages, 2019. https://doi.org/10.1155/2019/6318429.

4. Senna P, Antoninha Del Bel Cury A, Kates S, Meirelles L. Surface Damage on Dental Implants with Release of Loose Particles after Insertion into Bone. Clin Implant Dent Relat Res. 2015 Aug;17(4):681-92. doi: 10.1111/cid.12167. Epub 2013 Nov 28. PMID: 24283455; PMCID: PMC4420732.

Experienced clinicians performed the procedures presented. The clinicians are fully responsible for the reliability of the information and for the procedures and results reported. Any review, dissemination, distribution, copying or other use of this information by persons or entities, without previous written permission, is prohibited. The presented material can be subject of reviews without previous notice. No liability is accepted for any errors or omissions in the contents.

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.

NUOVI SORRISI OGNI GIORNO

CHAQUE JOUR DE NOUVEAUX SOURIRES

новые улыбки каждый день

JEDEN TAG EIN NEUES LÄCHELN

NUEVAS SONRISAS TODOS LOS DÍAS

NYA LEENDEN VARJE DAG

NEW SMILES EVERY DAY

NOVOS SORRISOS TODOS OS DIAS

CHAQUE JOUR DE NOUVEAUX SOURIRES

102490_neodent_zygoma-S_clinicalcase_en_xx_A00_of_270625

NEODENT
A Straumann Group Brand