



Zygomatic Implant-Supported Bar Overdenture for a patient with Atrophic Maxilla: A Case Report

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Objective: To present a case of 68-year-old female with atrophic maxilla who was successfully rehabilitated with quad-zygoma implant-supported bar overdenture.

Introduction:

- Zygomatic implants were introduced by Branemark (1998) for maxillectomy patients.
- Self-tapping, screw-shaped fixtures - engage zygomatic buttress to gain primary stability /anchorage.
- Limitation - surgical parameters dictated by anatomy of zygomatic bone.
- 8 different lengths : 30 mm to 52.5 mm.
- 45 angulated head to create a restorative platform that is accessible to the restorative dentist and parallel to platforms of vertically placed implants.
- Indicated in severe maxillary atrophy in completely edentulous patients with significant sinus pneumatization- Quad zygoma - first option of choice
- Rescue implant in patients who previously had bone grafting and implants that failed.

Case Presentation:

The patient presented with inability to wear maxillary complete denture due to palatal tissue soreness. History included TMJ surgery, rheumatoid arthritis, failed maxillary implants and failed bone grafting attempt. She was taking immunomodulatory medication and had limited manual dexterity. She desired implants without the additional bone grafting procedures and a palate-less solution. Clinical and radiographical evaluation demonstrated severely atrophied maxilla, with bone deficiency in all 3 zones (Bedrossian classification), eliminating guided bone regeneration/sinus grafting options and mandating the need of zygomatic implants. Considering the limited manual dexterity, need of lip support, degenerative TMJ changes, and restorative space, it was decided to rehabilitate her with quad zygomatic implant-supported bar retained overdenture. Four Southern Zygan Implants (40mm at #3, 52.5- mm at #6, 50mm at #11, 37.5mm at #14) were placed. After 4 months healing period, multi-unit abutments were placed, and an implant-supported bar retained overdenture was fabricated.

Results-Outcome/Follow-up:

The patient was satisfied with the retention, comfort, and esthetics of the prosthesis. The 3 - month and 6- month follow-up visits revealed adequate retention/ fit of prosthesis with minimal wear of locator nylon inserts and healthy peri-implant tissues. The prognosis for the patient is fair due to progressive TMJ changes owing to her systemic condition.

Discussion:

Zygomatic implants were preferred over traditional implants for this patient as she had history of failed bone grafting and failed traditional implants. A zygomatic implant supported bar overdenture was preferred over fixed complete denture because of the need of lip support and long-term maintenance/hygiene issues because of limited manual dexterity due to patient's systemic condition. Implants splinted with a bar was used as patient desired a palate-less solution and splinted systems offers greater stability and retention along with better biomechanical distribution of forces among implants.

Conclusion: Zygomatic implant supported bar retained overdenture can be considered a safe and predictable option for the rehabilitation of patients with atrophic maxilla.

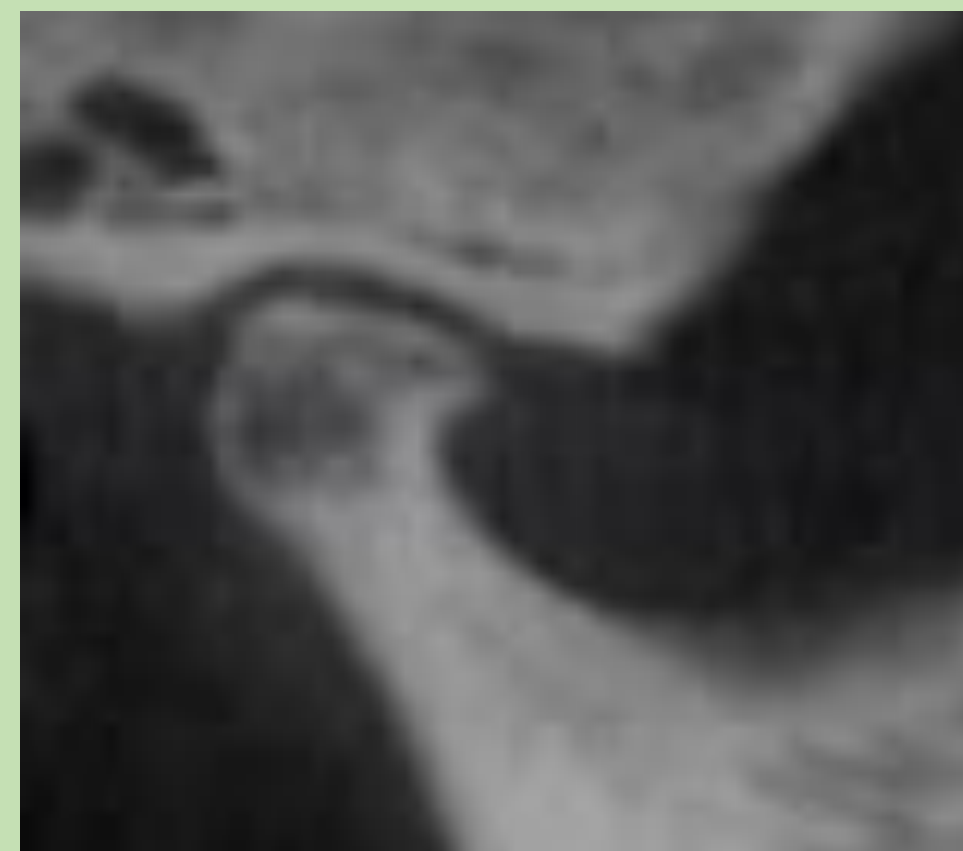
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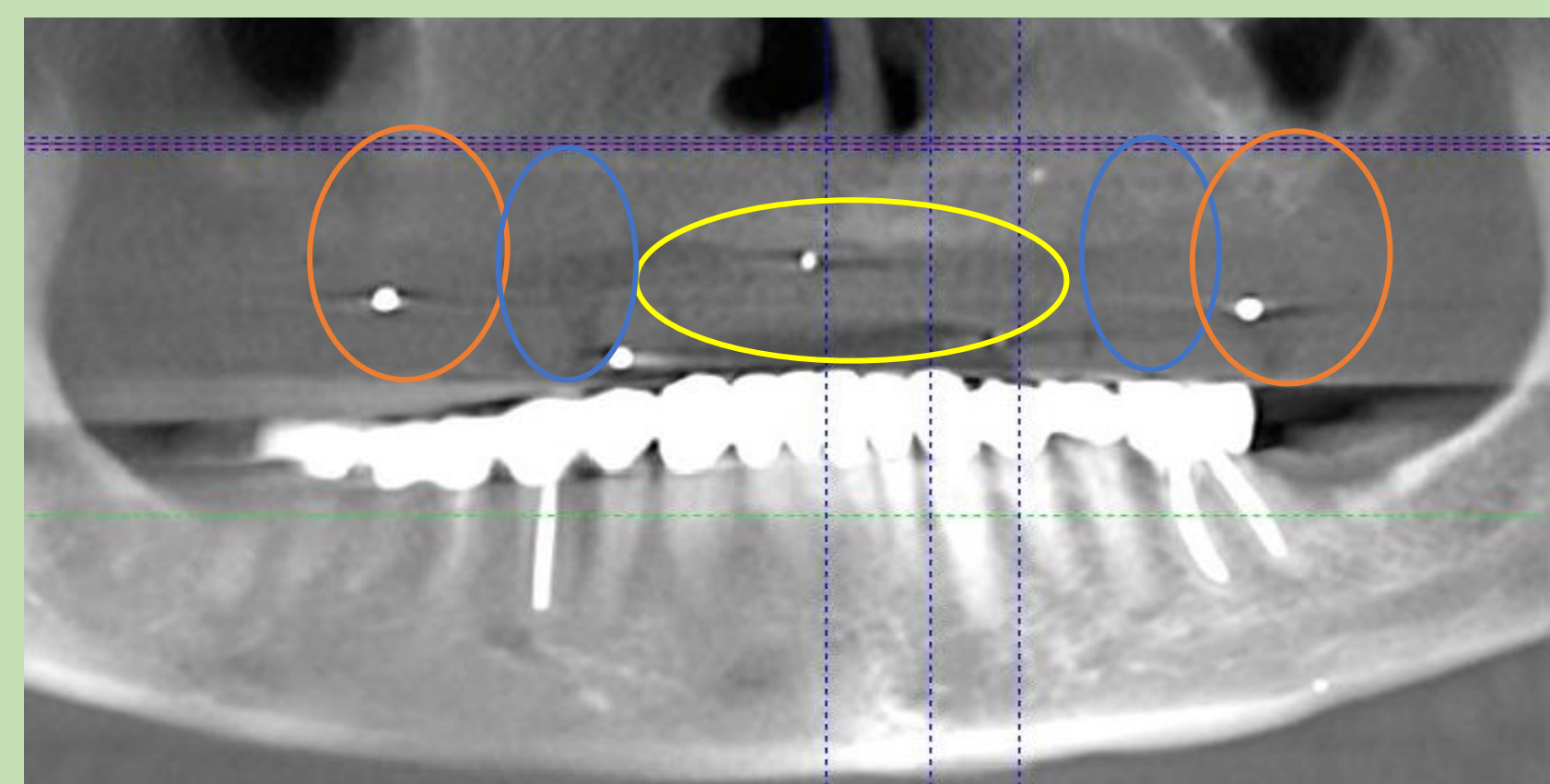
Edentulous maxillary arch



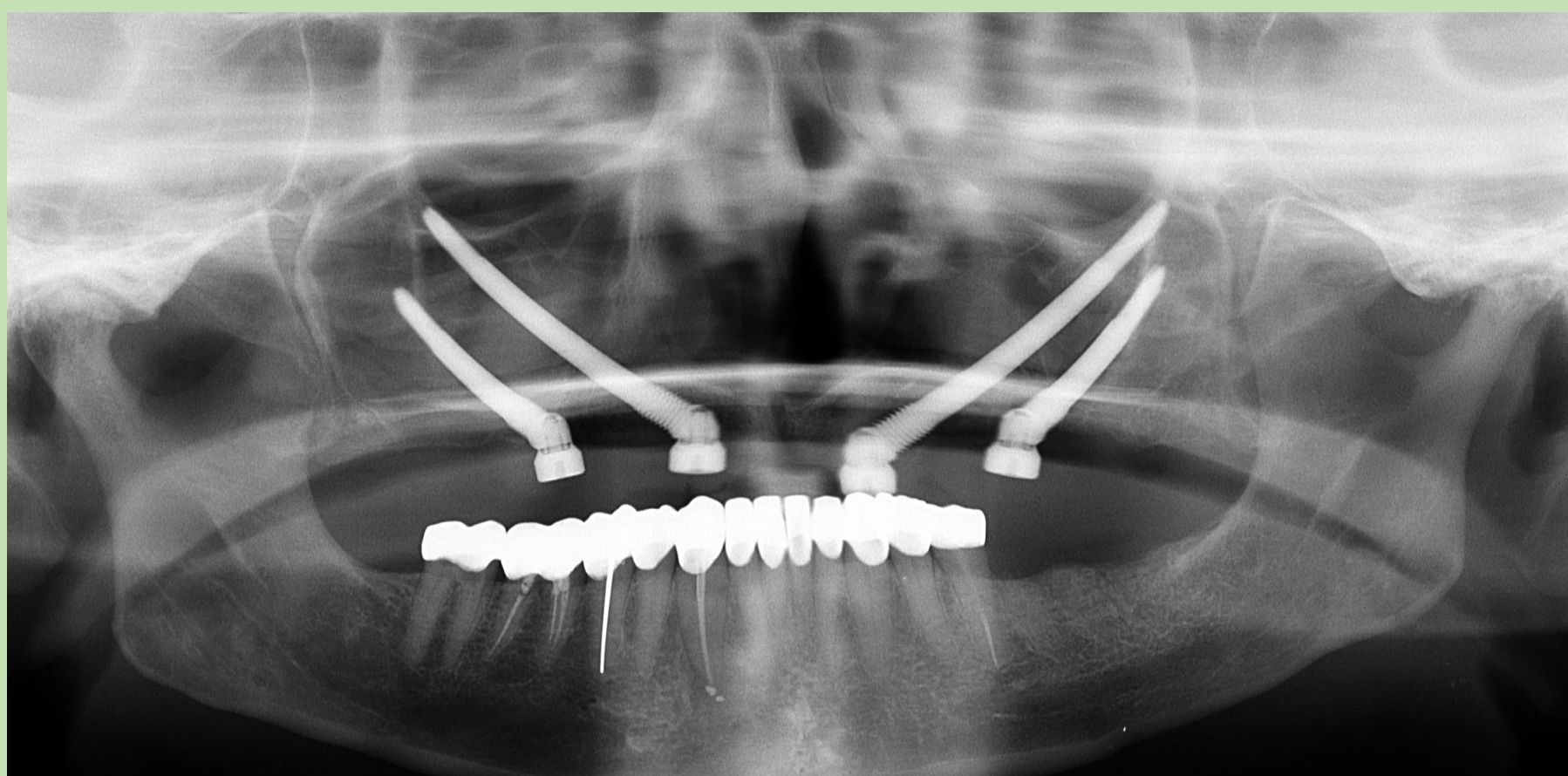
Atrophic Maxilla



CBCT showing degenerative changes of RA- osteophytes, erosion, flattening of condyle



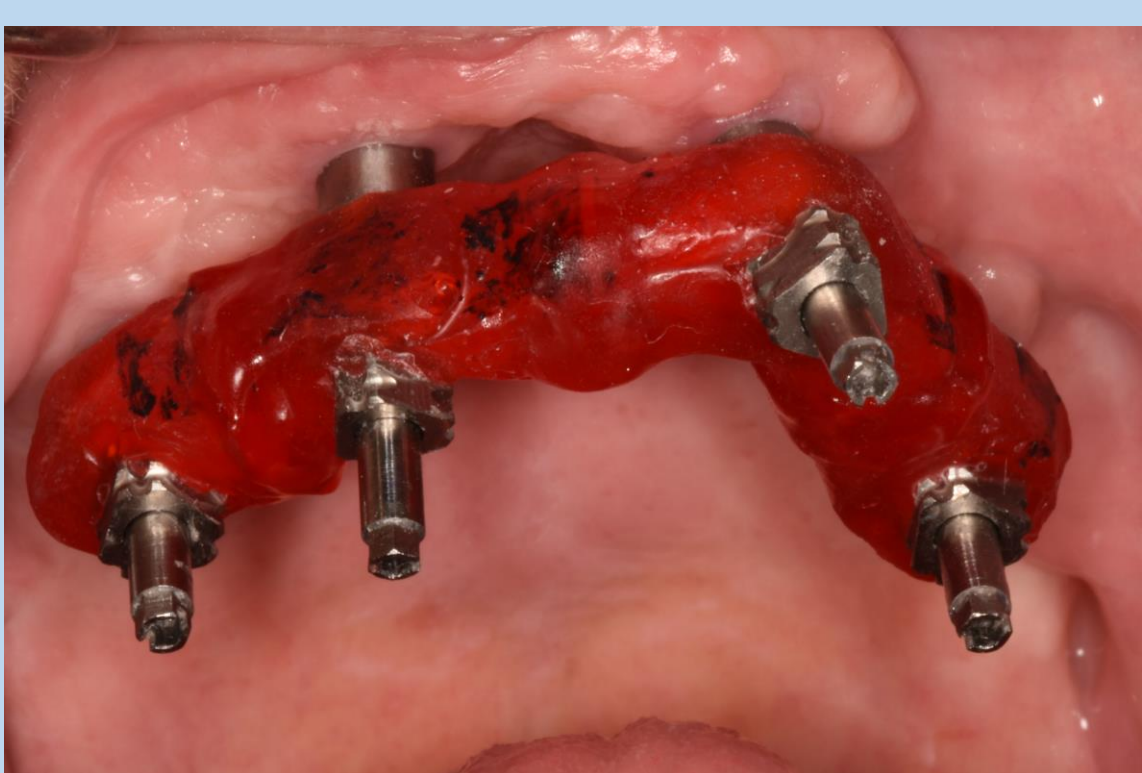
Dual scan with fiduciary markers showing bone deficiency in all 3 zones (Bedrossian classification)



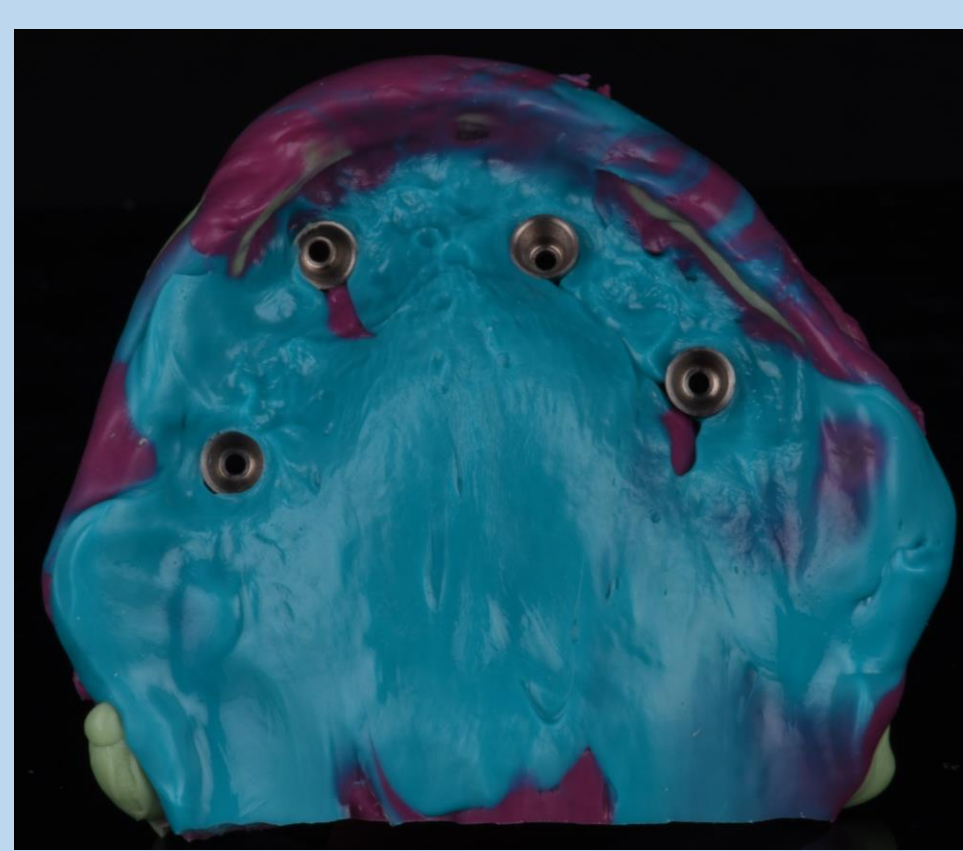
Placement of four zygomatic implants



Multiunit abutments placed over zygomatic implants



Primo-pattern jig splinted intraorally



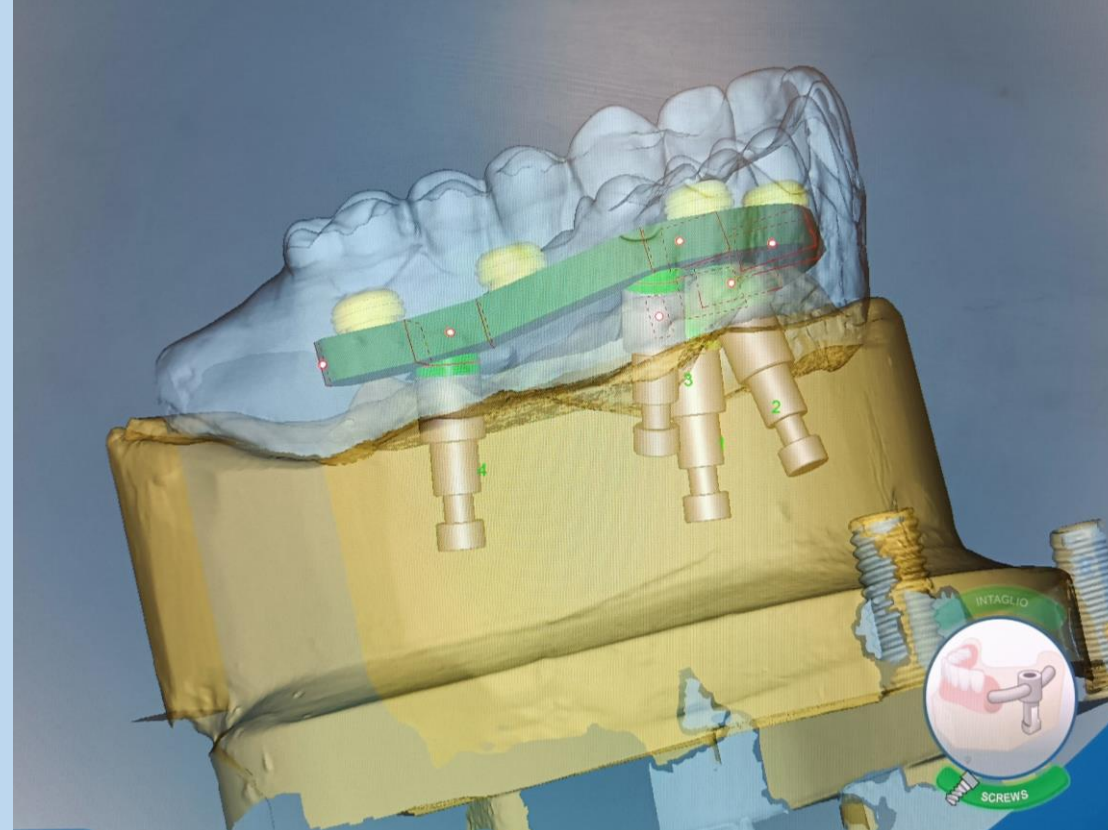
Final PVS impression



Jaw relation



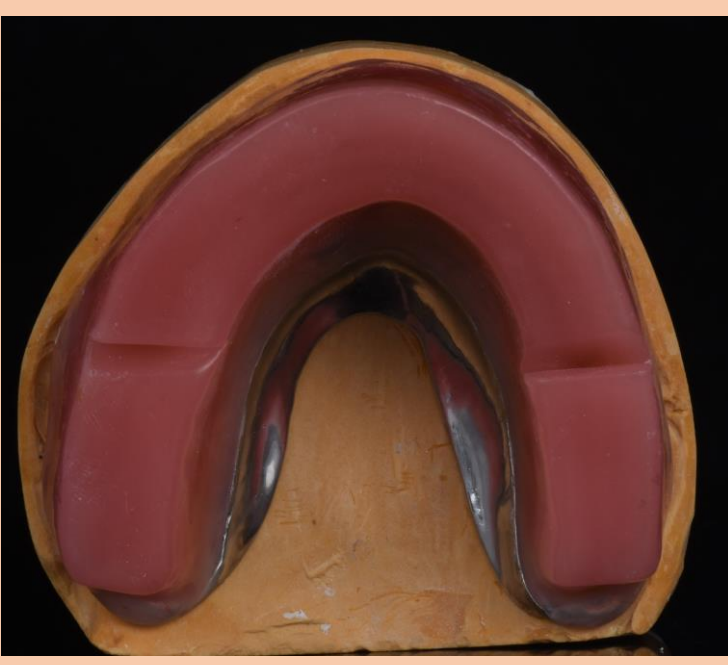
Teeth try-in



Scan with DTX studio for bar fabrication



Passive fit of bar verified intraorally



Wax rim with horseshoe major connector fabricated over bar



Teeth setup transfer using matrix



Teeth setup transfer finished



Finished bar overdenture prosthesis



Rehabilitation with zygomatic implant supported bar overdenture

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