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Digital Prosthodontic Rehabilitation for a Patient with Late-Stage Dementia

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Abstract

Edentulism presents unique challenges in patients with cognitive impairments, requiring clinical efficiency, adaptability, and patient-centered care. Significant cognitive and functional impairments, including an inability to follow basic instructions, posed difficulties in conventional denture fabrication for a 66-year old male patient with late-stage dementia. Given these limitations, an analog-digital combined approach was adopted.

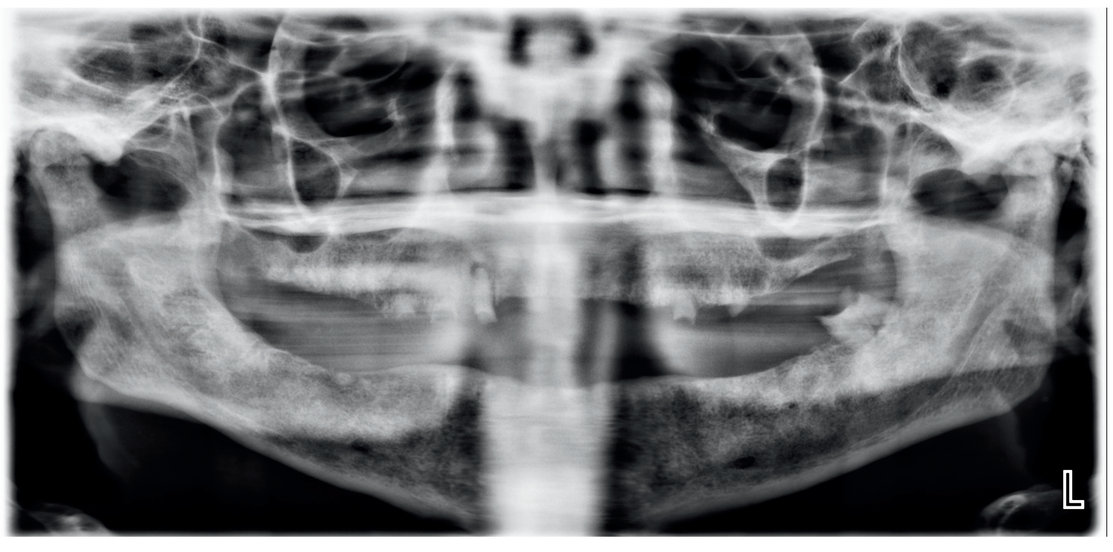
Record bases with occlusal rims were fabricated based on the preliminary alginate impressions, adjusted to the appropriate VDO with an arbitrary articulation, and scanned for digital try-in denture fabrication. The monolithic design enhanced the try-in denture durability and patient cooperation. At the teeth try-in appointment, a wash impression was made with temporary soft reline material (COE-SOFT™, GC America). Several necessary adjustments were noted. The try-in dentures were scanned, facilitating an iterative digital design workflow with the dental technician. Due to caregiver strain and the patient's fluctuating reliability, the definitive dentures were fabricated without an additional try-in appointment.

This patient scenario underscores the importance of integrating digital workflows in managing complex prosthodontic rehabilitation involving cognitively impaired patients. By maximizing available technologies and reducing the number of appointments, this approach optimized care in a challenging clinical scenario.

Patient's Chief Complaint & Oral Status

The patient's caregiver (his sister) expressed the chief complaint of "he is ready for dentures." The patient presented fully edentulous and healed after extractions of retained dental roots and alveoloplasty of buccal exostoses under sedation with the previous dentist. Additionally, a flat palate and poor neuromuscular control were observed.

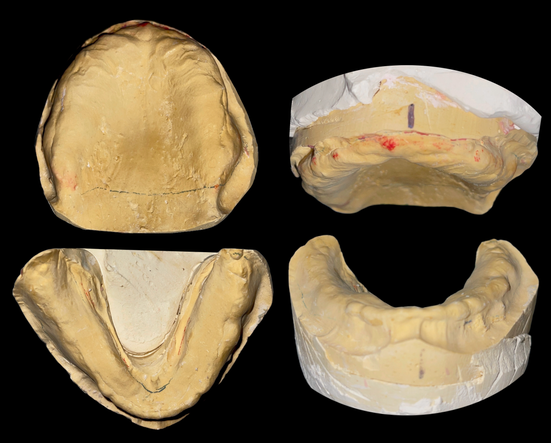
Pre-treatment Radiograph



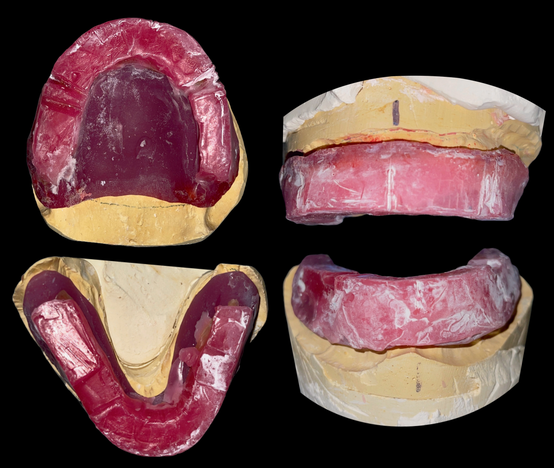
Treatment Plan Summary

The treatment plan consisted of conventional complete maxillary and mandibular dentures. While an implant-retained overdenture would have been ideal, financial and behavioral constraints necessitated conventional dentures with the potential need for denture adhesive.

Details of Therapy



Preliminary casts were made from alginate impressions.



Greenstick compound border molding was attempted, but unsuccessful. Monoplane occlusion was selected. The arbiturarily articulated occlusal rims were scanned for digital try-in denture design.

The patient comprehended the monolithic try-in denture better. VDO was confirmed and lateral interferences were eliminated. Wash impression was made with COE-SOFT™ temporary reline material. Necessary esthetic adjustments were noted. Occlusal registration was attempted, but unsuccessful due to poor patient comprehension of instructions. The relined try-in denture was scanned for definitive denture fabrication.

Post-treatment Photograph

SCAN QR CODE FOR ACCESS TO THE CLINICAL MOMENT...

Clinical Significance of Therapy

This scenario demonstrates that a digital prosthodontic workflow can be useful for fabricating complete dentures in patients with late-stage dementia. By utilizing monolithic try-in dentures and minimizing chairside time, treatment was successfully delivered despite severe cognitive and behavioral limitations. This approach can serve as a model for managing similar complex cases where executing conventional workflows are challenging.

References

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