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Introduction:

- Challenges frequently encountered in the management of implant-supported complete dentures stem from various factors, including a high lip line, the necessity for lip support, vertical maxillary excess, a hypermobile upper lip, or excessive gingival display.
- These challenging might require removable prosthetic options or in case of fixed Implant complete denture, implant placement should be sufficiently deep to hide the transition between the prosthesis and the soft tissue.

Purpose:

A proof-of-concept for digitally designing a removable flange to conceal the transition in a fixed implant-supported prosthesis, without the need to switch to a removable prosthesis

Problem:

The patient has presented with pre-existing shallowly placed dental implants and a pronounced high lip line. The patient has expressed dissatisfaction with the visible transition between the prosthesis and the surrounding soft tissue. Additionally, the patient has refused the option of receiving an overdenture.

Methodology:

- An intra-oral scanner was used to capture the maxillary implant-supported fixed denture while seated in the patient's mouth. (Fig 1)
- CAD/CAM software was used to design the removable flange. The flange was extending into the interdental papilla region.
- The flange was designed to encompass the entire prosthesis, minimizing distortion during manufacturing (either printing or milling), and then separated to create two clasps at the distal terminus of the prosthesis (Fig 2).
- For the Prototype, 3D printed denture base material was used, and the final prosthesis to be milled in acetal resin.
- Pink composite, cured with light, was added to enhance the esthetics of the flange. (Fig 3)
- Finishing and polishing procedures were performed to ensure a smooth and comfortable fit for the patient. (Fig 4)



Figure 1: Intra oral scan

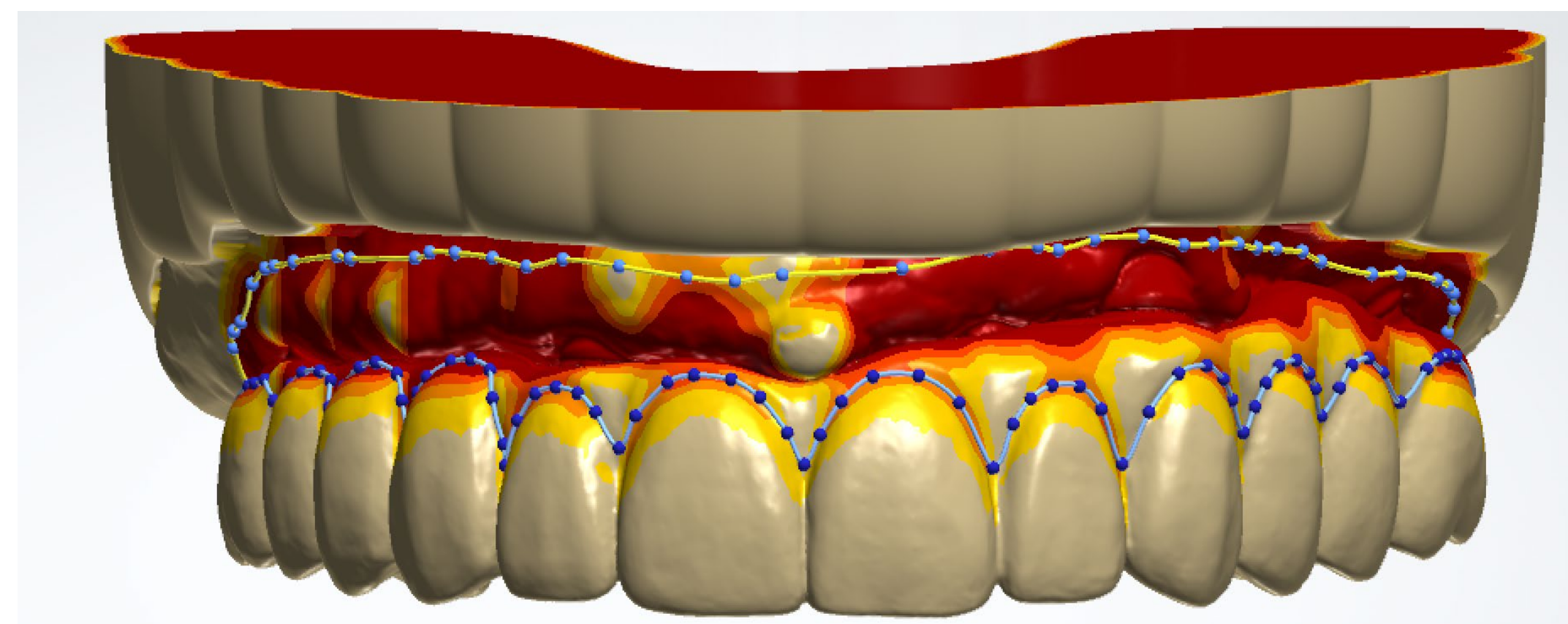


Figure 2: Design of the flange

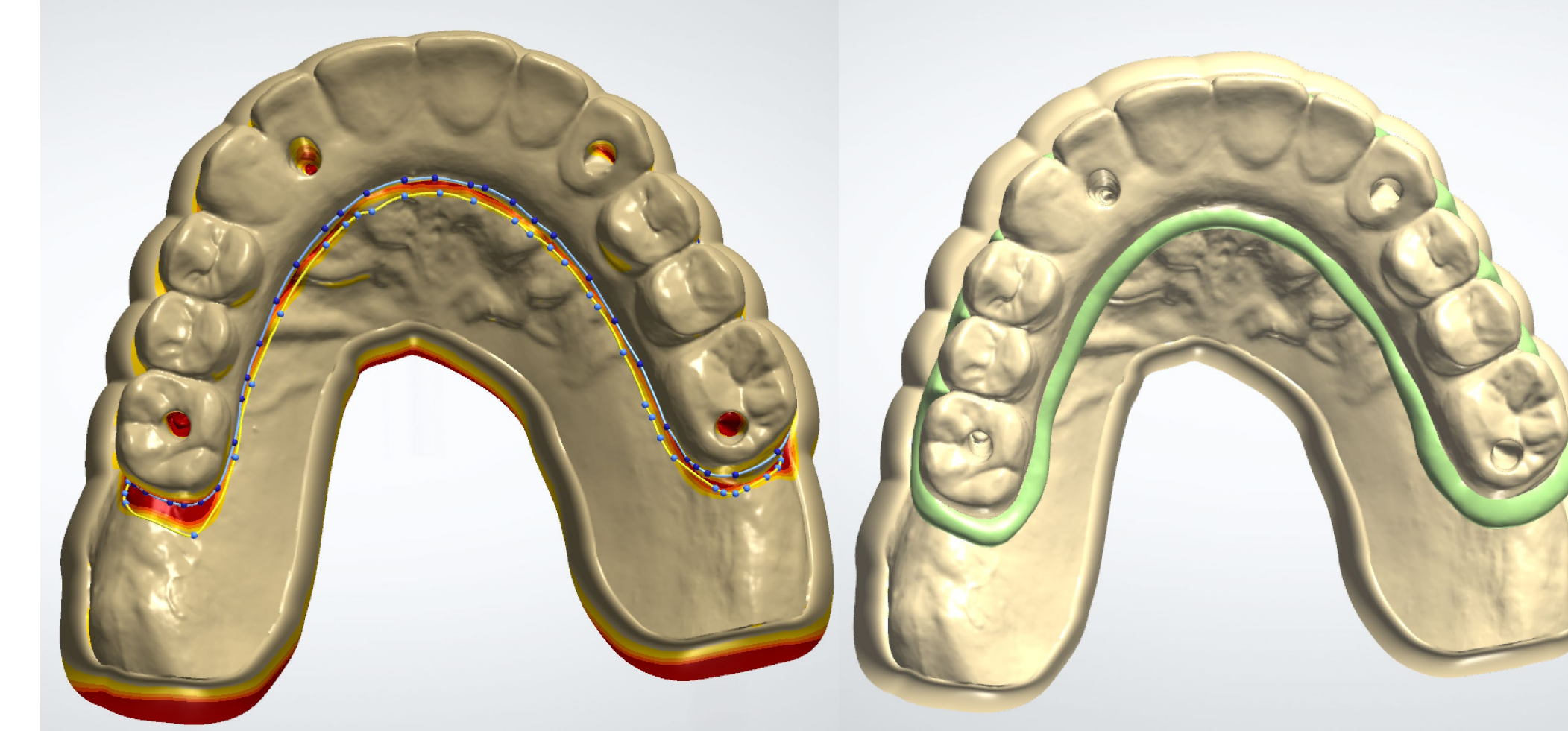
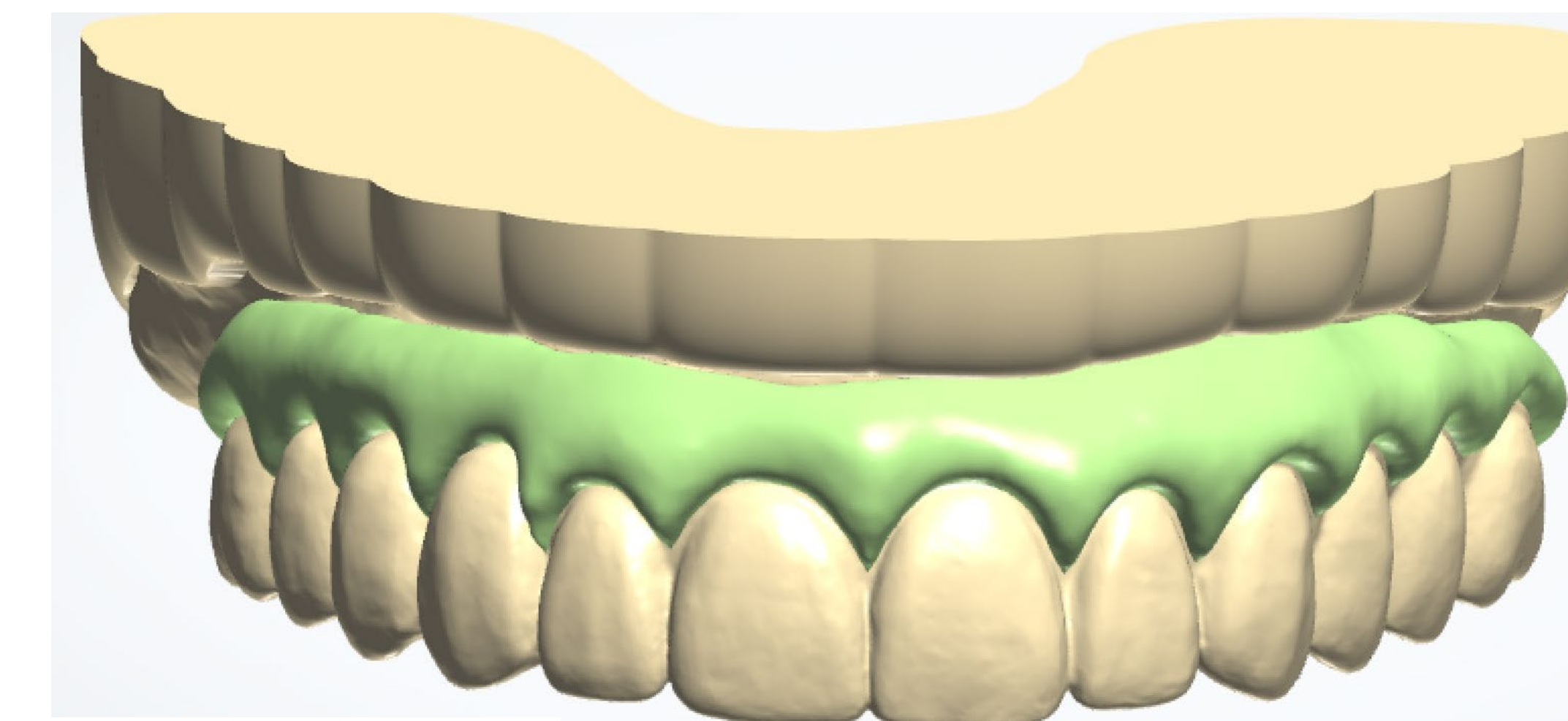


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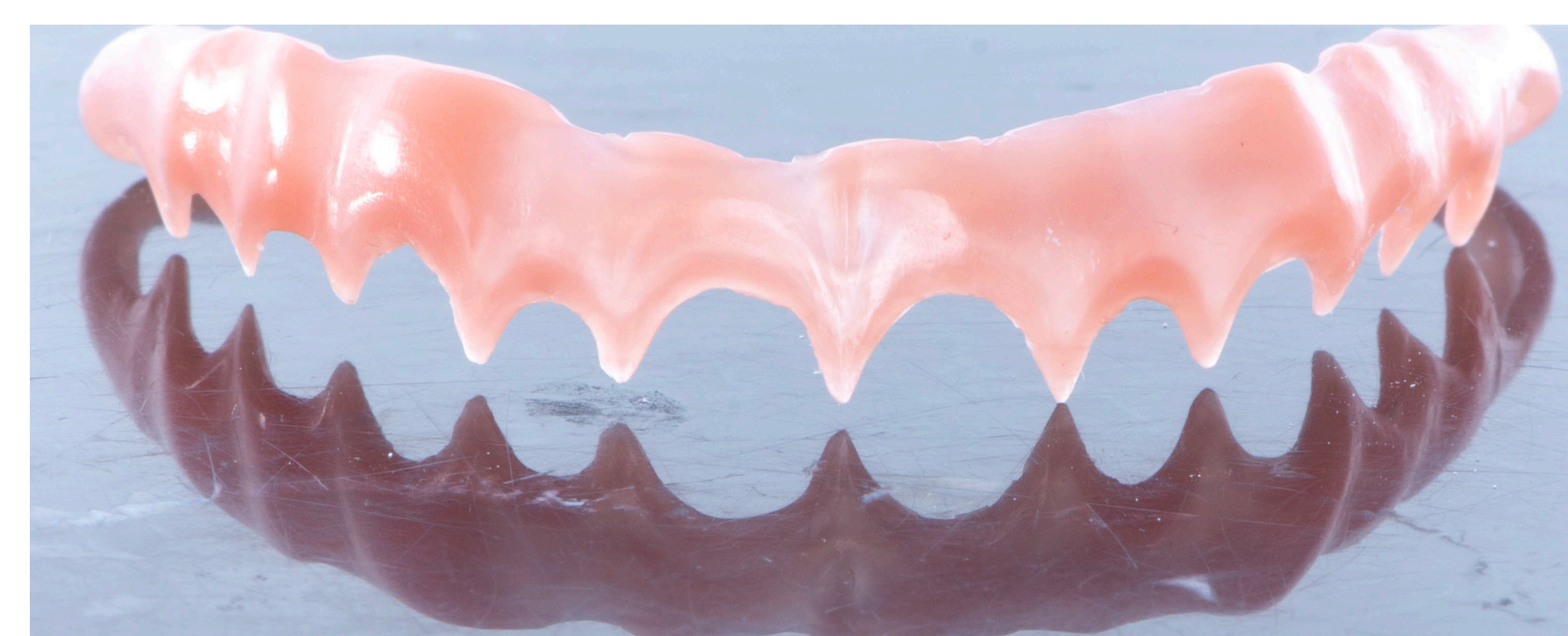


Figure 3: Pink composite



Figure 4: Before and after inserting the flange

Discussion:

- This technique effectively addressed the patient's aesthetic concerns without necessitating a redesign of the prosthesis into an overdenture.
- An alternative approach for achieving a fixed solution would involve extending the buccal flange. This overextension poses challenges for patients in maintaining optimal oral hygiene beneath the prosthesis.
- This design ensures ease of attachment and removal, facilitating optimal oral hygiene maintenance while delivering the desired functional and aesthetic outcomes.
- Additionally, this innovative approach serves providing support to the lip, particularly valuable for patient exhibiting concavities in the upper lip or reduced tonus in lip musculature.
- Furthermore, it offers a viable alternative for patients with old FP1 prostheses that exhibit recession and black triangles, eliminating the need for prosthesis replacement.
- In future cases where implants are shallowly placed, prosthesis design can incorporate a slight cutback to accommodate a removable flange with an interlocking mechanism.

Conclusions:

- By presenting this novel technique, it offers a practical solution to a longstanding challenge, expanding the possibilities for implant-fixed complete dentures in patients who previously faced limited options.
- The gingival mask's innovative design not only addresses the technical constraints of fixed dentures but also prioritizes patient comfort, oral health, and cosmetic considerations.
- Material of choice would be milled pink acetal resin, due to its high strength and flexibility.

References

