

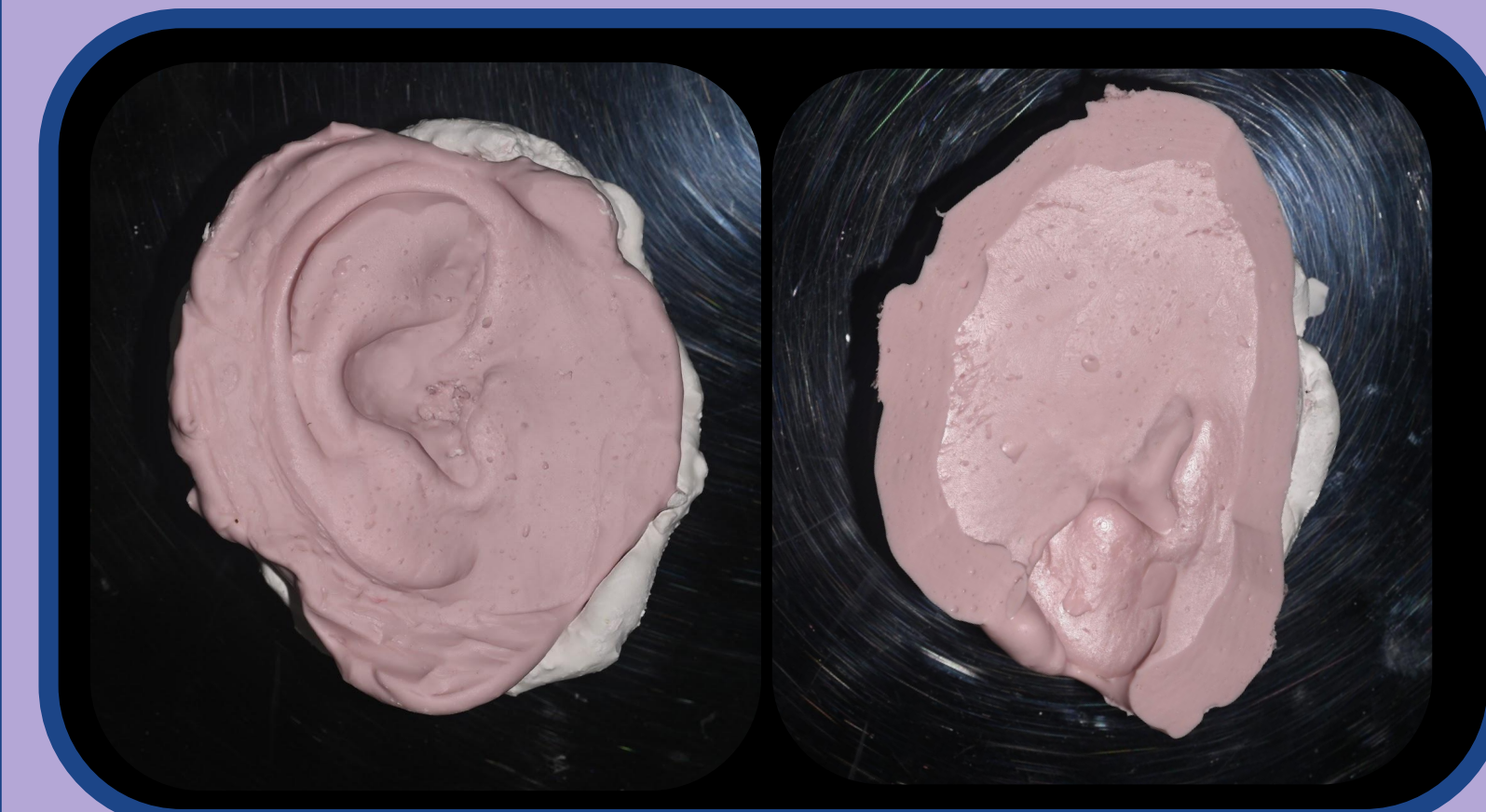
Introduction

Fabricating an auricular prosthesis has long been regarded as a complex, highly skill-dependent process, traditionally relying on labor-intensive analog techniques that have limited accessibility and clinical adoption¹. This case report presents a streamlined digital workflow—using an intraoral scanner, mirror imaging, and additive manufacturing—to simplify and modernize prosthesis fabrication.

Methods

The patient presented with a left-sided auricular defect following oncologic resection. A 3D facial scan of the contralateral ear was captured using the Medit i700 intraoral scanner. The resulting .STL data were mirrored in MeshMixer to generate a digital model of the right ear. This mirrored ear was 3D-printed in photopolymer resin and evaluated as a physical try-in to verify anatomical accuracy, esthetic harmony, and positional symmetry before definitive fabrication. In parallel, a partially analog workflow was performed, including conventional negative cast creation and wax pattern fabrication.

Analog



Irreversible
Hydrocolloid
Impression



Pour stone cast, box cast, duplicate cast, sculpt wax pattern, trim



Wax pattern try in

Impression Phase

Laboratory Phase

Try In Phase

Obtain facial scan



Mirror .STL file, print working and mirrored cast, trim



Resin pattern try in



Digital

Results

This approach eliminated conventional wax pattern fabrication and sculpting steps, reducing the laboratory phase from about 8 hours in the analog workflow to 1 hour in the digital workflow. The digital workflow not only reduces time-consuming steps, but also produces casts with improved accuracy. Multiple publications have shown that intraoral scanner data exhibit greater spatial accuracy than analog irreversible hydrocolloid impressions due to the compressibility of the soft tissue. 3D scanning also increases patient comfort during the impression phase.¹⁻³

Conclusions

This case underscores the clinical feasibility of a digital-first workflow and demonstrates its capacity to improve efficiency, precision, and accessibility in maxillofacial prosthetics. As digital technologies continue to evolve, broader adoption of these methods may standardize high-quality outcomes, expand treatment options for patients, and encourage further research into innovative applications across maxillofacial rehabilitation.