



A Wear-Resistant RPD Design to Be Used Against a Zirconia Prosthesis



Linh Tran DMD; Chin-Chuan Fu DDS, MS; Ramtin Sadid-Zadeh DDS, MS

OBJECTIVE

To present a digitally-designed removable partial denture (RPD) with metal occlusal design against a maxillary zirconia implant-supported prosthesis to provide a wear-resistant prosthesis with potential for relining.

INTRODUCTION

Removable prostheses are widely utilized by clinicians to restore oral function and esthetics for partially edentulous patients. Advancements in computer-aided design and computer-aided manufacturing (CAD-CAM) technology have streamlined the process and enhanced the quality of RPD fabrication. This poster depicts a CAD-CAM RPD designed to be wear-resistant and capable of future reline.

CLINICAL REPORT

A 63-year-old Caucasian male presented at UAB Postgraduate Prosthodontics Clinic with a metal-acrylic hybrid prosthesis on the maxillary arch and a Kennedy Class I metal-based acrylic RPD along with all-ceramic crowns on the mandibular. Clinical findings revealed multiple previous visits to repair broken teeth on the hybrid, worn denture teeth on an underextended mandibular RPD, and inability to clean around implants due to inappropriate hybrid design. The patient was provided with various treatment options including repair and improvement of the existing prostheses. The patient opted for a maxillary zirconia implant-supported prosthesis against a conventional RPD for the mandibular arch.

CLINICAL PHOTOS

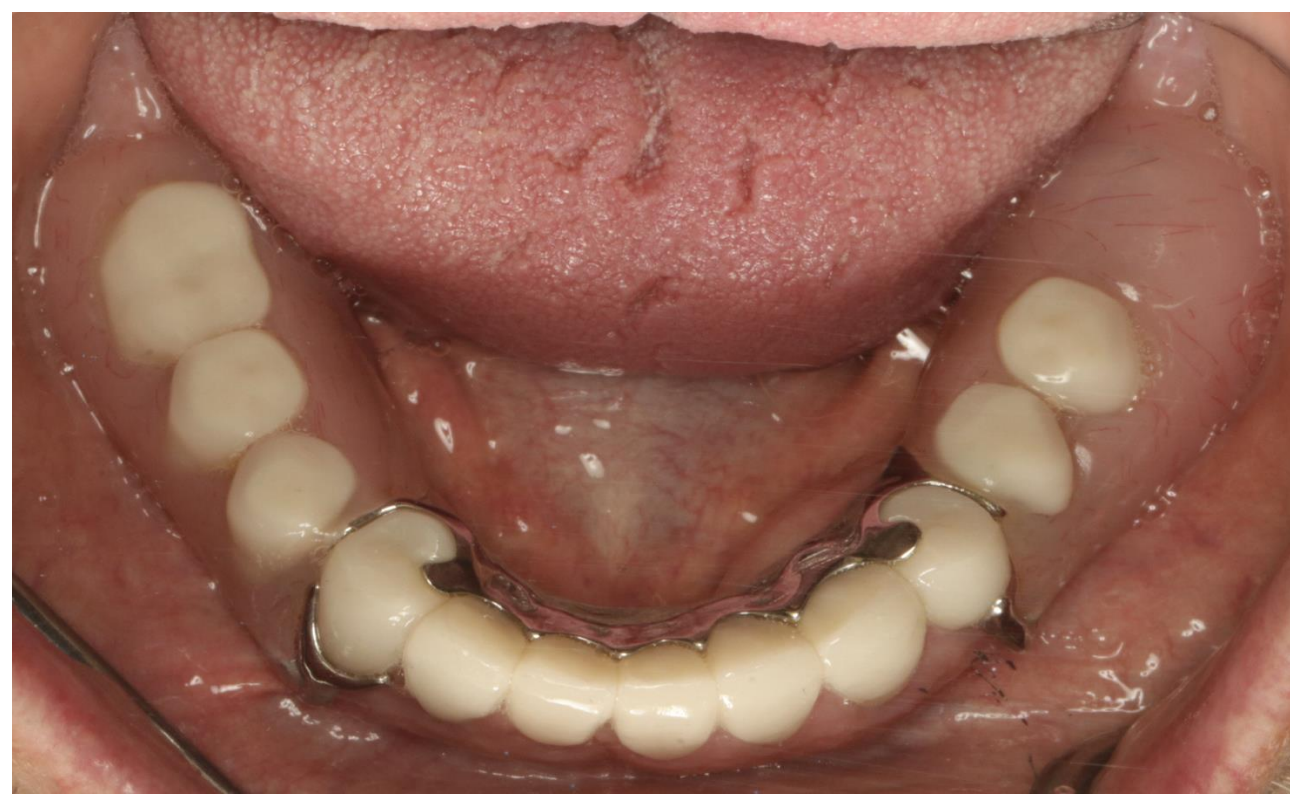


Fig. 1: Pre-existing prostheses in different views, presenting no contact on the patient's posterior right, worn and underextended RPD, unesthetic and non-cleansable hybrid prosthesis.

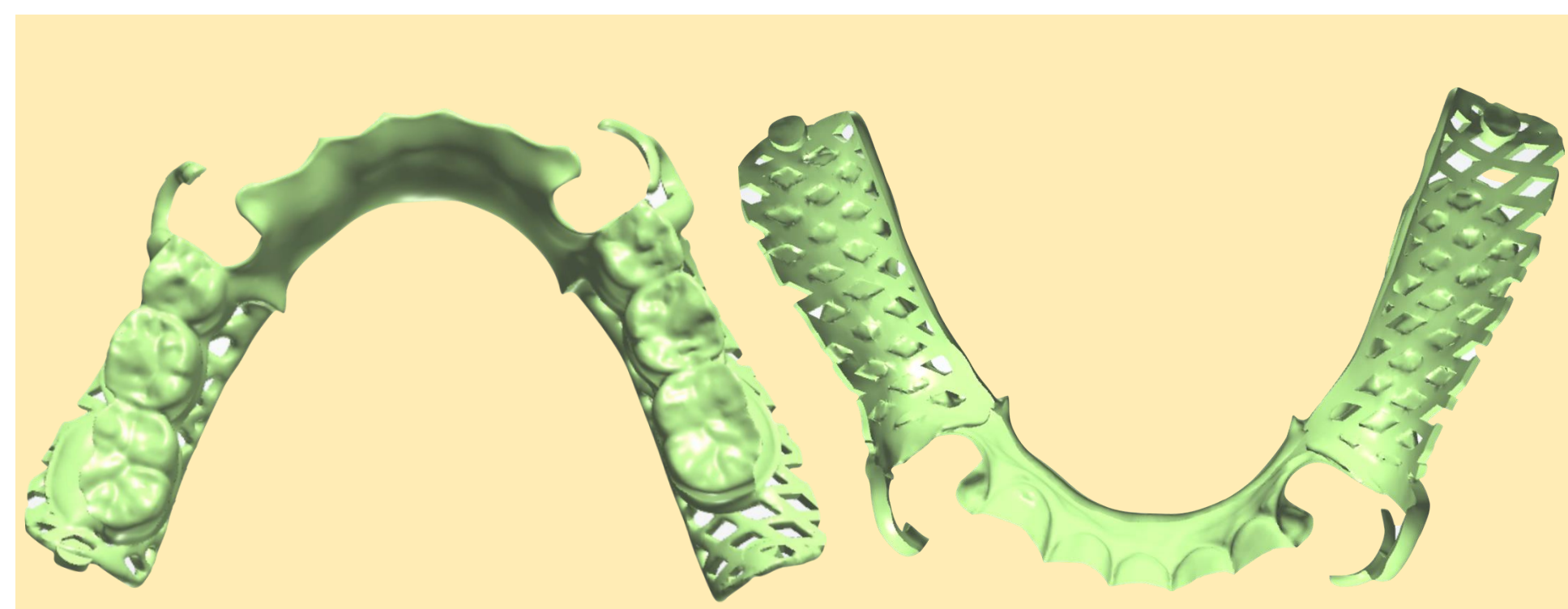


Fig. 2: Mandibular RPD framework designed against the maxillary prototype prosthesis. The designed framework provides: metal occlusal for wear resistance, labial windows for application of esthetic material, and a mesh denture base connector design allowing future need to reline.

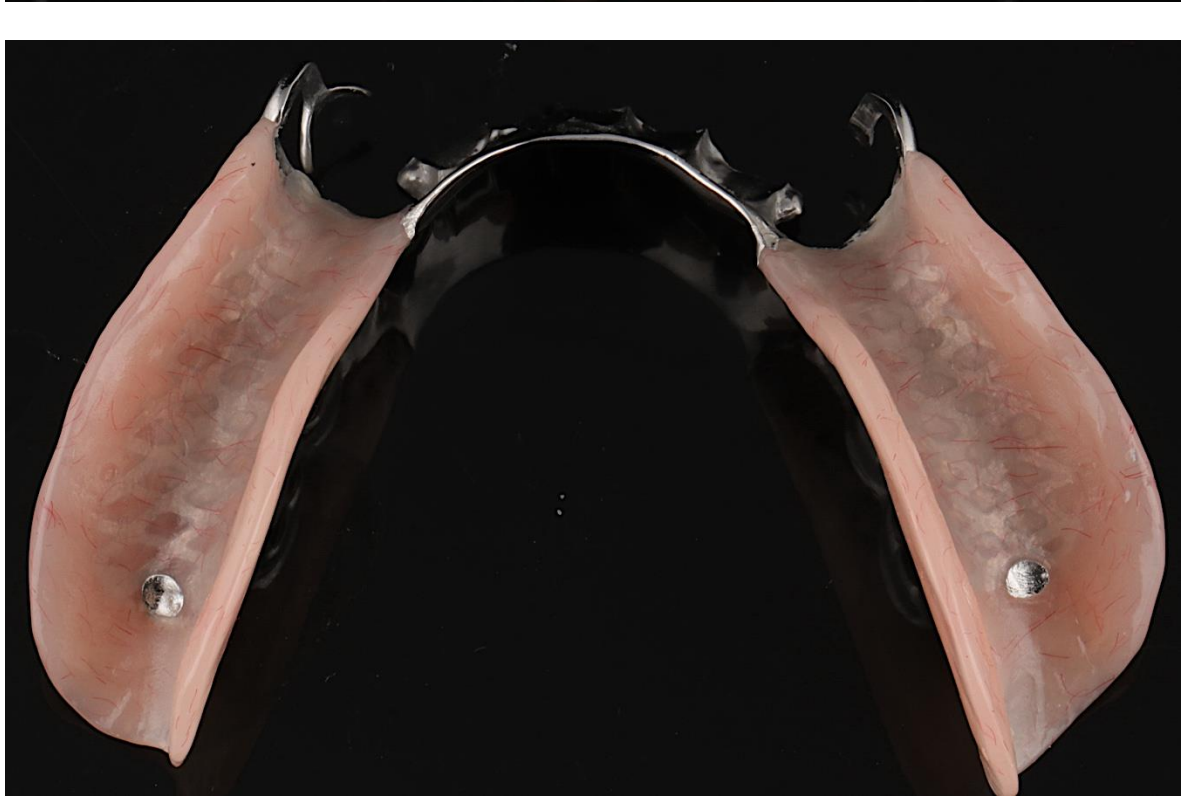


Fig. 3: Processed maxillary zirconia hybrid and RPD with PMMA being in contact with soft tissue, allowing future reline, occlusal metal alloy for wear resistance, and applied esthetic material.

RESULTS

A mandibular RPD with metal occlusal design and facial cutback for application of porcelain was digitally-designed to provide a wear-resistant and esthetic prosthesis. In addition, the CAD-CAM technology provided an opportunity to design a RPD with relining potential on the intaglio surface when alveolar bone resorption leads to instability of the RPD in the future.

Fig. 4: Inserted maxillary and mandibular prostheses



CONCLUSION

This poster provides insight into the versatility of CAD-CAM technology for RPD framework design. The designed RPD provided both a wear-resistant and esthetic prosthesis with space below the denture base connector to allow for future needs of relining for a well-adapted prosthesis.

REFERENCES

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