

Surveyed Zirconia Crown as an Abutment for Removable Partial Denture - a Clinical Case Report



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Introduction

Surveyed zirconia crowns offer esthetic and durable abutment options for removable partial dentures (RPDs). Yet, the clinical performance of zirconia as an RPD abutment remains insufficiently documented.

Aim

This study reviews the current evidence on zirconia abutments for RPDs and illustrates their clinical application through a digitally planned rehabilitation with promising results at a one-year follow-up.

Literature review

Citation / Year	Material (n)	Survey Features	Follow-up	Key Findings / Outcomes
Aziz et al. (2025)	Monolithic zirconia (n=297)	Guide planes, rests, reciprocal arm seat, and a 0.25-mm undercut	Mean 7.2 y	Survival 95.6%, success 91.2%; {(secondary caries (n=12), minor chipping (n=9), and debonding (n=5)}, no zirconia fractures.
Pihlaja et al. (2015)	Veneered zirconia (n=37 crowns)	Rest seats, guide planes, clasp assembly	Mean 4.2 y	11% veneer chipping, 3% rest seat fracture, no zirconia framework failures. Occlusal porcelain wear: 24% Rest seat : No wear Retention: Good in all RPDs. Stability: Good in 73% of RPDs, moderate in 23%.
Oh et al. (2021)	Implant-supported surveyed crowns (n=80 prostheses incl. 35 monolithic zirconia crowns)	Guide planes, rest seats, clasp assembly	Mean 27.6 m	No rest seat fracture; retention good in all; The material did not significantly influence marginal bone resorption, peri- implant inflammation index, bleeding or plaque index (P>.05); 1 porcelain fracture in base PFM surveyed prosthesis, 1 rest fracture, 1 decementation.

Clinical outcome

At the one-year follow-up, the patient demonstrated healthy periapical tissues and successful prostheses with no biologic or technical complications, supporting the potential viability of zirconia surveyed crowns as RPD abutments.

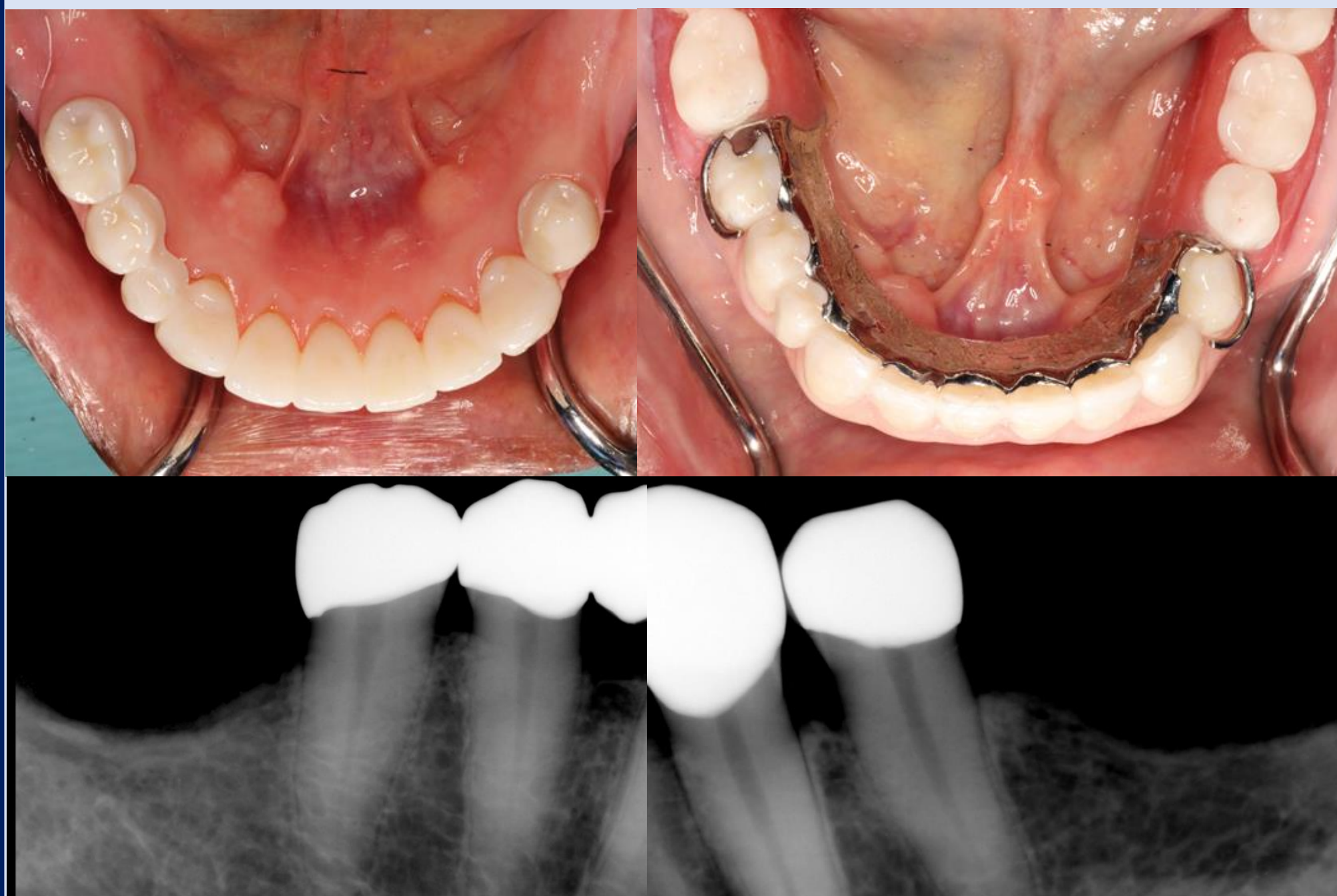


Figure 3. Delivery of the surveyed crowns and the definitive cast RPD.



Figure 4. 1-year follow-up post insertion of the definitive prostheses.

Case presentation

A 64-year-old female patient (ASA II) presented with chief concerns of compromised chewing ability and dissatisfaction with the esthetics of chipped and shortened anterior teeth. Clinical examination revealed non-physiologic occlusion characterized by non-restored partial maxillary and mandibular edentulism, reduced posterior support, generalized moderate-to-severe tooth surface loss due to attrition and erosion, and malocclusion caused by overeruption of maxillary posterior teeth resulting in an altered occlusal plane and limited restorative space.



Figure 1. Pre-op intraoral photos.

Treatment

The definitive treatment plan in the maxilla included extraction of non-restorable teeth and rehabilitation with a complete denture. In the mandible, crown lengthening of the anterior teeth was performed followed by fabrication of full-coverage monolithic zirconia surveyed crowns on teeth 33,34, 43-45 and monolithic zirconia crowns on the mandibular incisors.

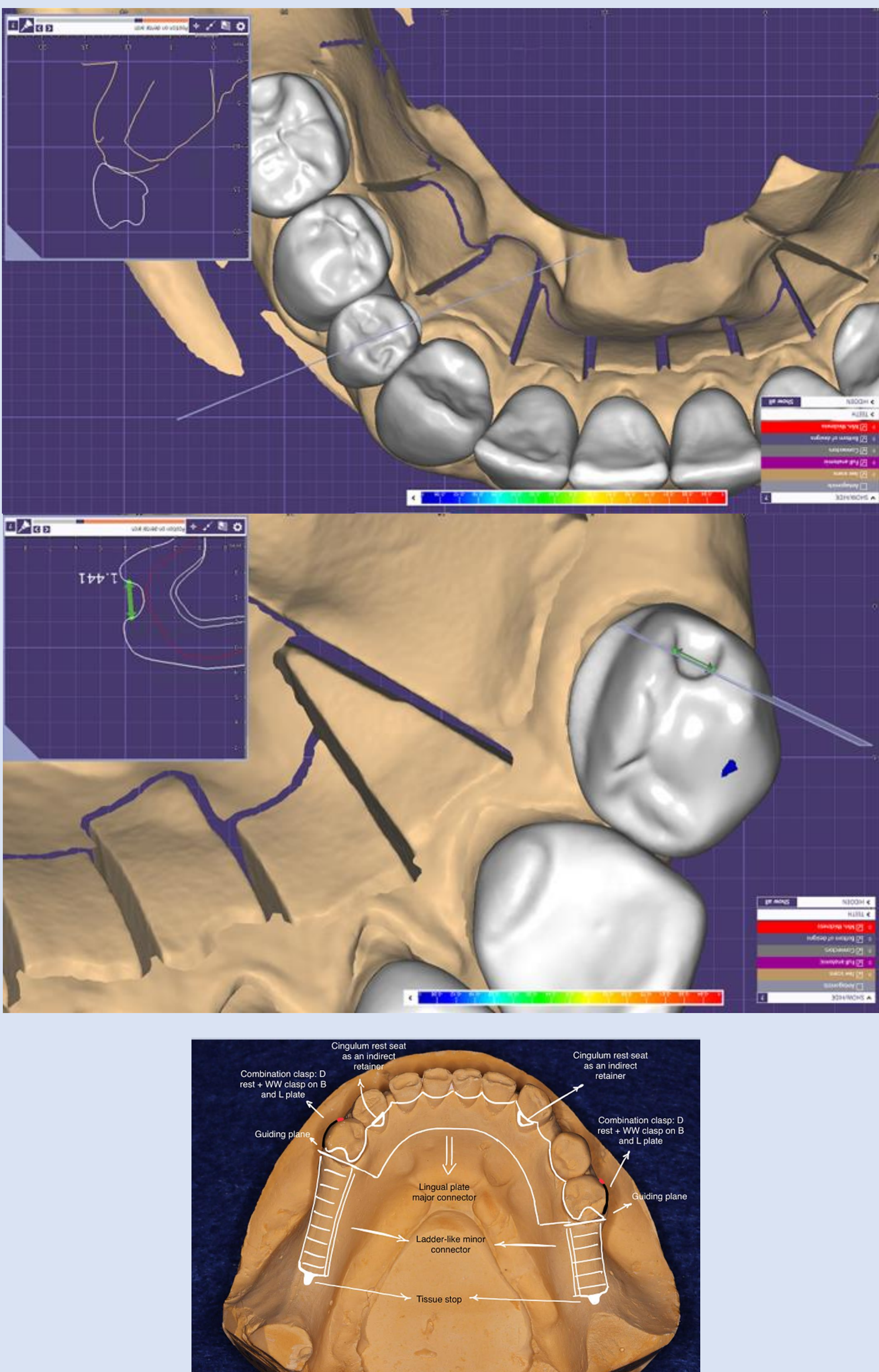


Figure 2. Design of the surveyed crowns in the Exocad software.

Significance

Digitally designed monolithic zirconia surveyed crowns might represent a promising esthetic and long-standing alternative to conventional metal-ceramic RPD abutments, although long-term clinical data are still needed.

References

