

Two-piece zirconia implants in posterior regions: a prospective cohort study with a follow-up period of 9 years

Rauch N, Brunello G, Becker K, Schwarz F, John G, Becker J

Introduction

- ***Advantages of zirconia dental implants***

- ✓ Metal-free solution
- ✓ Esthetics
- ✓ High biocompatibility

- ***One-piece zirconia implants***

- ✓ **Pro:** high fracture resistance
- ✓ **Cons:** limited restorative flexibility



- ***Two-piece zirconia implants***

- ✓ More flexible prosthetic solutions
- ✓ Later development → limited information on medium- and long-term clinical outcomes

- ***Aim:*** to evaluate the long-term clinical outcomes after 9 years two-piece zirconia implants restored with cemented fiberglass abutments and all-ceramic single crowns in the posterior jaws



Material and Methods

Previous 2-year prospective cohort study (Becker J et al., 2017)

•Surgical procedure and prosthetic rehabilitation

- ✓1 target implant per patient (52 patients)
- ✓Transmucosal healing with delayed implant loading
- ✓Fiberglass abutment cementation (dual-cure resin cement)
- ✓Monolithic all-ceramic single crown fixed with same cement



•Main results after 2-year follow-up

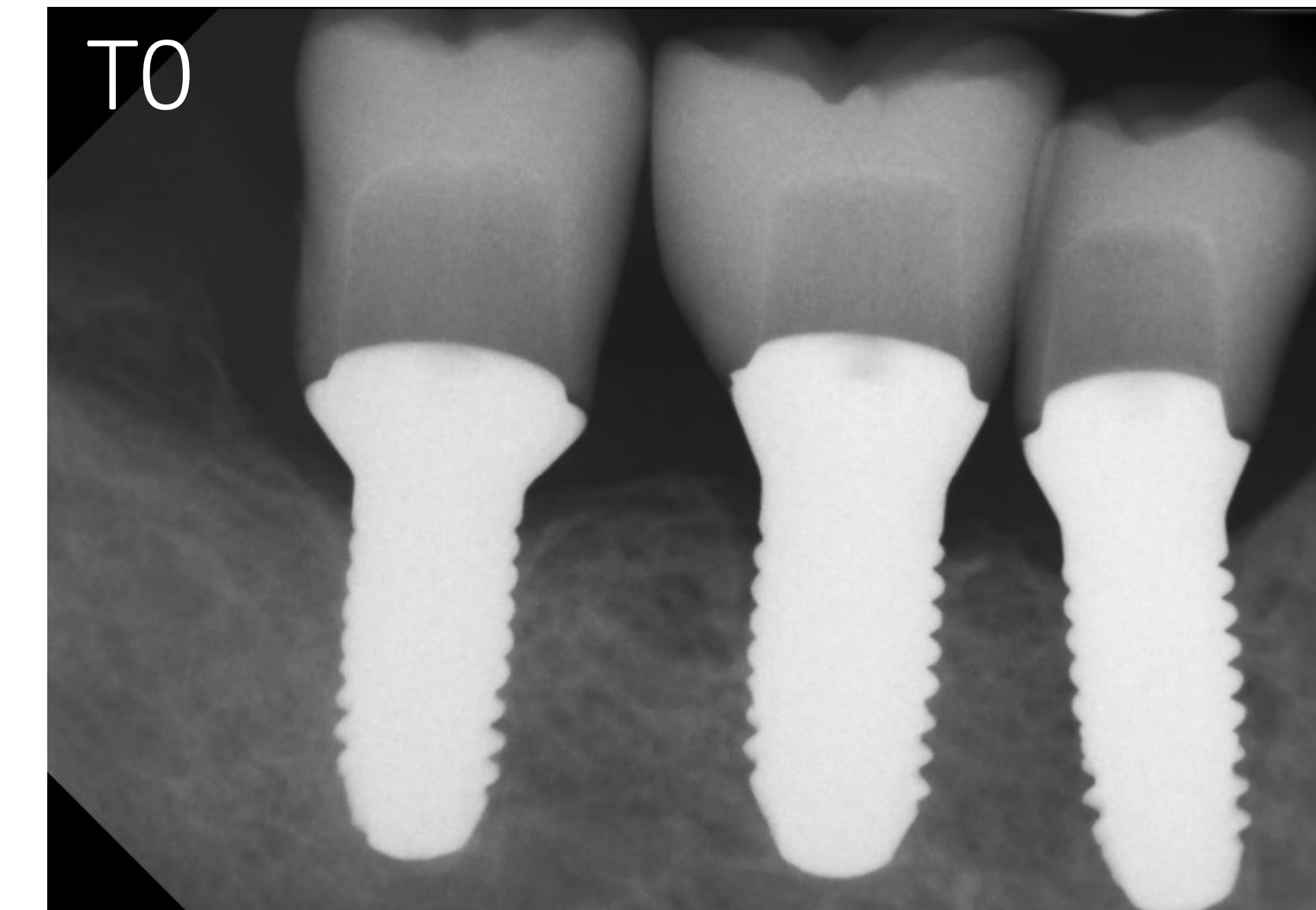
- ✓2 implant failures and 4 dropouts
- ✓Survival rate of 95.8 %
- ✓Good soft tissue conditions
- ✓Rare mechanical and technical complications

➡ 46 patients recalled at 9 year → **30 patients** responded

Results

Clinical parameters (from 2 to 9 years)

1. **Implant survival:** 1 failure after 110 months
2. **PI:** increased over time, but not significantly
3. **PD & BOP:** remained unchanged ($p > 0.05$)
4. **MR:** no significant changes, mean MR < 1 mm
5. Technical and mechanical complications
 - ✓ **3 tech:** in 2 pts (6.9 %) (mean: 43.7 mths)
 - ✓ **6 mech:** in 6 pts (20.7 %) (mean: 53.7 mths)



Conclusions

Studies on two-piece zirconia implants

- ✓ Importance of adequate daily at-home implant care and regular attendance to recall programs
- ✓ Healthy conditions of the peri-implant soft tissues
 - All implants but 1 exhibited a maximum MR of 1 mm
 - Creeping attachment confirming an improvement of soft tissues over time
- ✓ Majority of the complications at abutment level

Future developments

- ✓ Investigate possible correlation between prosthodontists' experience and complications
 - ✓ Influence of abutment morphology and material, type of cement, cementation technique and implant design on the abutment-implant connection
-