

## **DOUBLE-CROWN PROSTHESIS RETENTION USING PEEK SECONDARY CROWNS. A CASE REPORT**

**Introduction:** This clinical report presents the use of a poly-ether-ether-ketone (PEEK) material as an alternative material for the fabrication of secondary copings for the retention of a fixed telescopic prosthesis. This material presents high biocompatibility, good mechanical properties and low modulus of elasticity (4 GPa) providing a cushioning effect that may reduce stresses transferred to the abutment teeth, while previous studies found no loss in retentive force of peek secondary crowns.

**Case description:** A 55-year-old woman presented for prosthetic rehabilitation of the upper jaw. Most of the remaining teeth (#17, 13, 12, 11, 23, 24 and 27) had questionable prognosis, thus a fixed double-crown prosthesis was fabricated offering stability and retrievability. After definitive impression and interocclusal centric relation record, tooth-supported chrome cobalt primary crowns with 0° taper and 0.3 mm thickness, were digitally designed and fabricated with laser sintering. Their fit was verified intraorally and a pick-up impression was obtained. The new cast with the primary crowns was scanned and secondary crowns were CAD/CAM-fabricated by milling peek blanks (Tecno Med, Zirkonzahn) with a thickness of 0.3mm. A chrome cobalt framework for a fixed telescopic bridge was designed over the secondary crowns and fabricated with laser-sintering. The fit of the framework with the integrated peek secondary crowns was checked and then the secondary crowns were cemented in the inner surface of the final metal-ceramic prosthesis using a dual-cured resin cement. The final prosthesis was clinically evaluated and the patient was fully satisfied with the retention provided.

**Discussion:** PEEK can be a viable treatment solution for secondary telescopic crowns. However, more clinical studies are needed to evaluate the behavior of this material.