

CBCT-Guided Screw-Access for Cement-Retained Implant-Supported Fixed Dental Prosthesis

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Introduction

A 67-year-old male presented with five existing implants restored with cement-retained crowns. The patient was indicated for full-arch rehabilitation of both arches. To preserve the current prostheses for interim use, retrieval of the abutment screws was necessary. However, accessing screws beneath cemented restorations without damaging the crowns posed a clinical challenge, highlighting the need for a minimally invasive and accurate approach to enable screw retrieval and prosthesis preservation.

Treatment planning

An intraoral scan was obtained using 3Shape and merged with existing CBCT. In the implant planning software, virtual implants were aligned to match the positions of the existing implants, simulating new placement. This allowed accurate planning of screw-access paths directly through the cement-retained crowns.

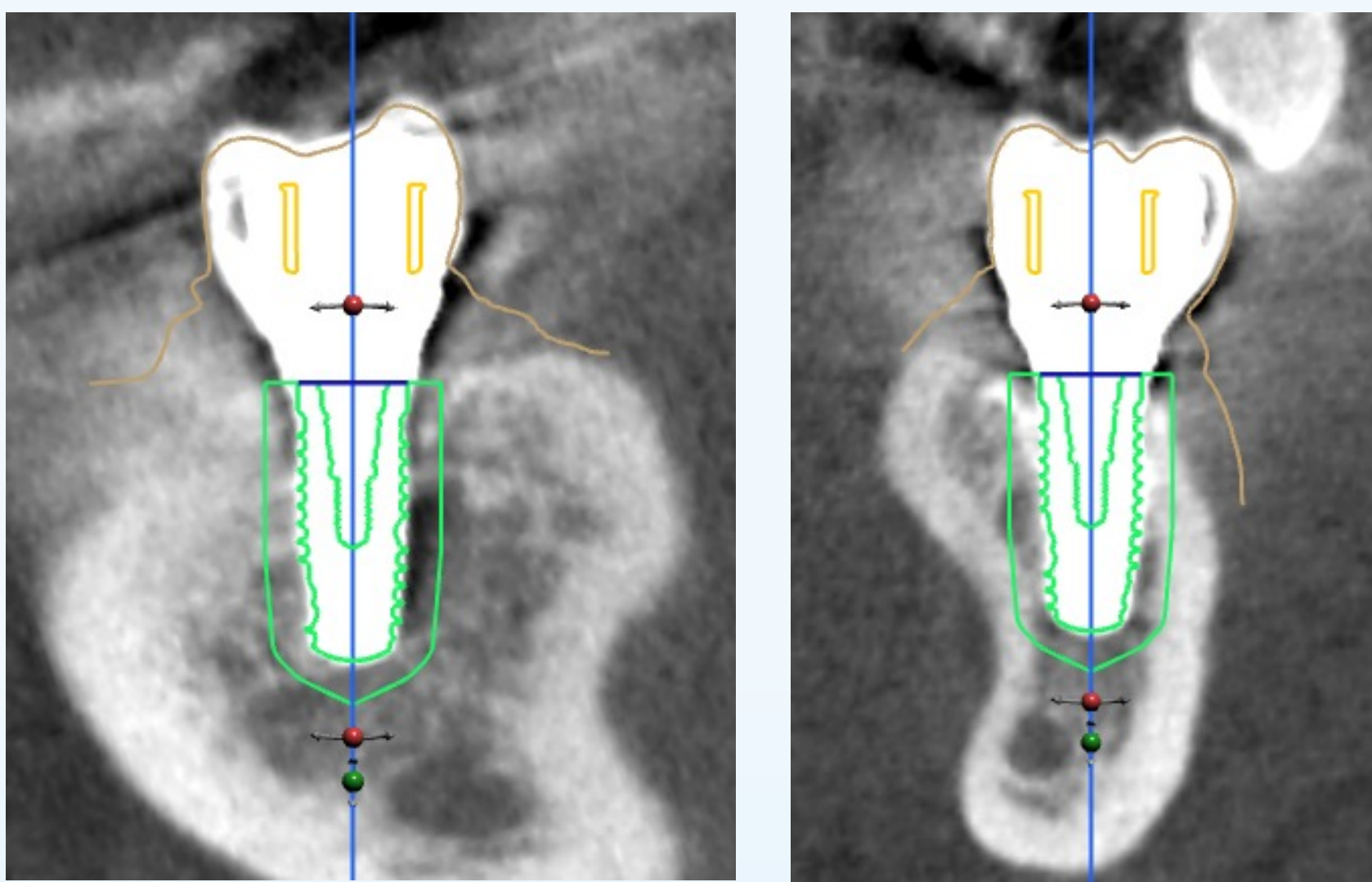


Figure 1: Superimposing the implants

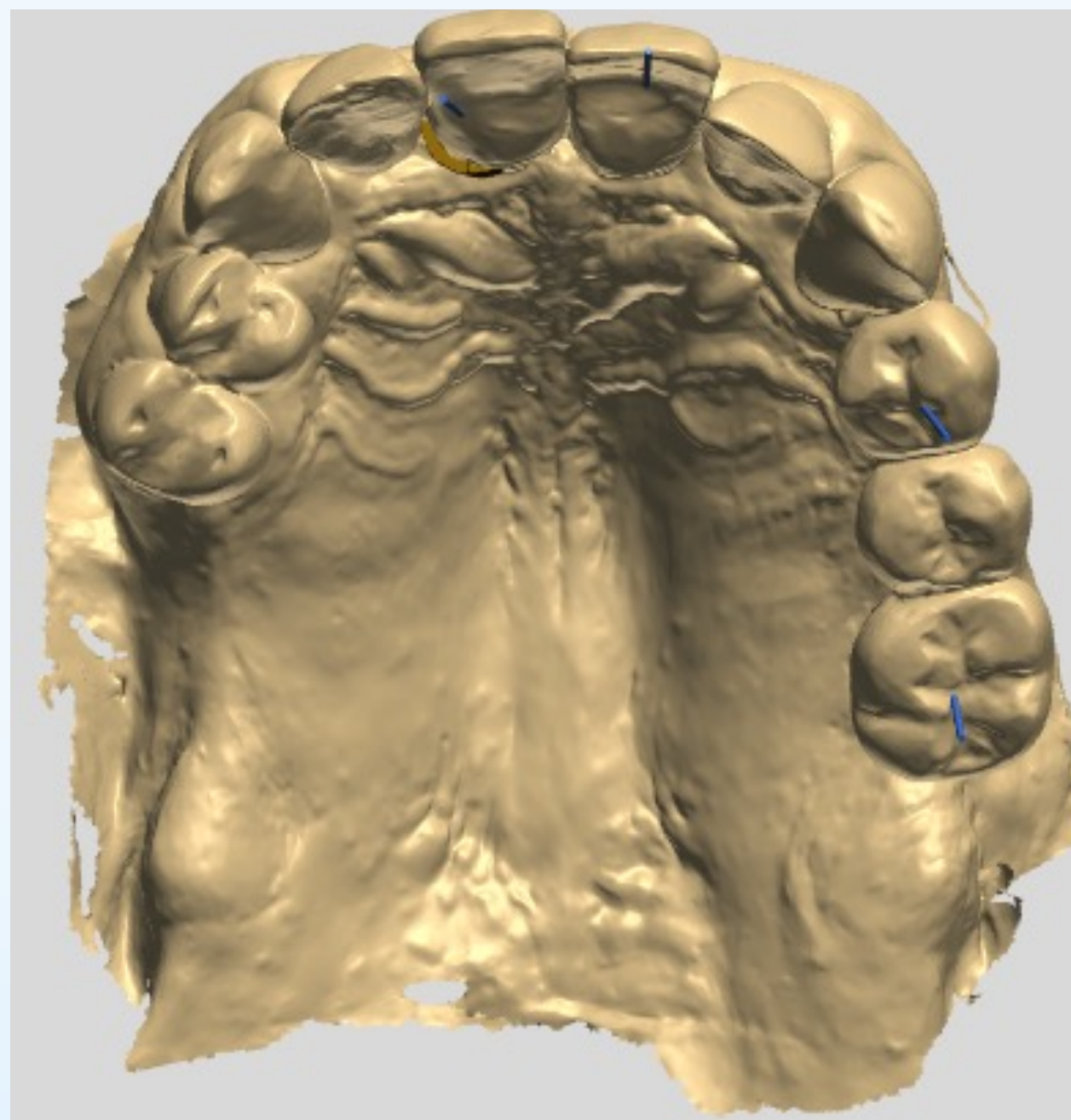


Figure 3: Screw channel access maxilla

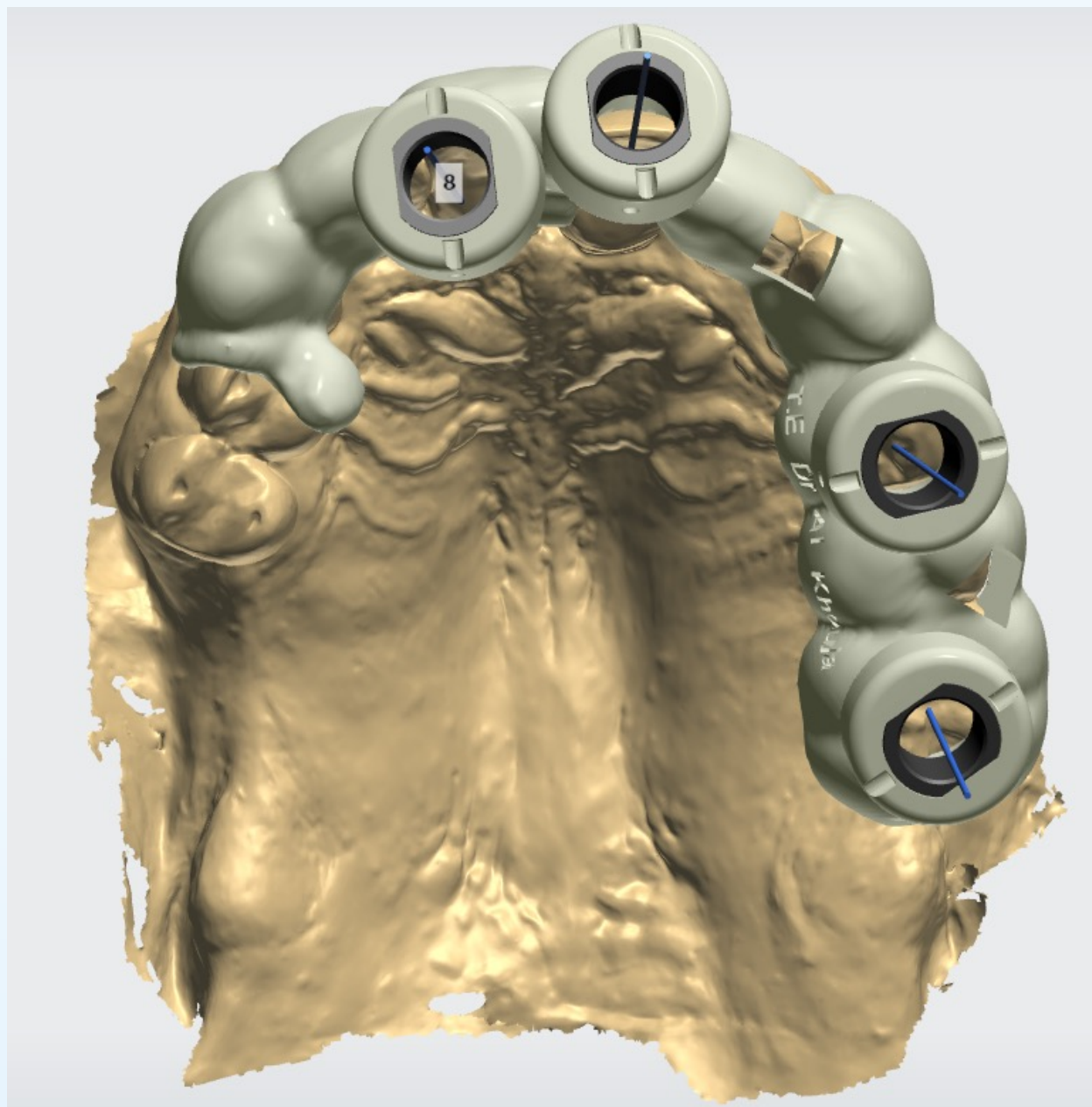


Figure 5: Additive guide design maxilla

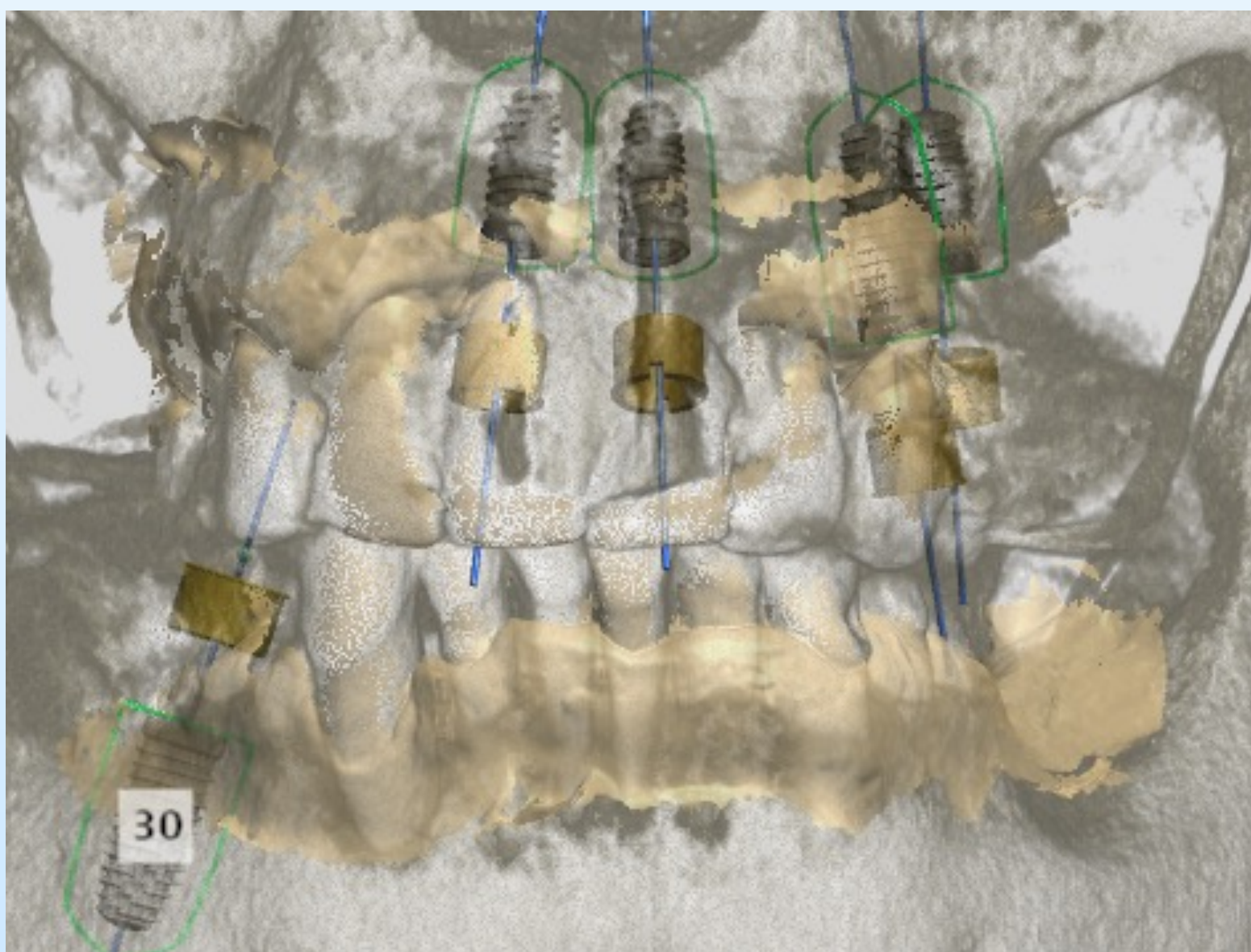


Figure 2: Superimposed implants frontal view

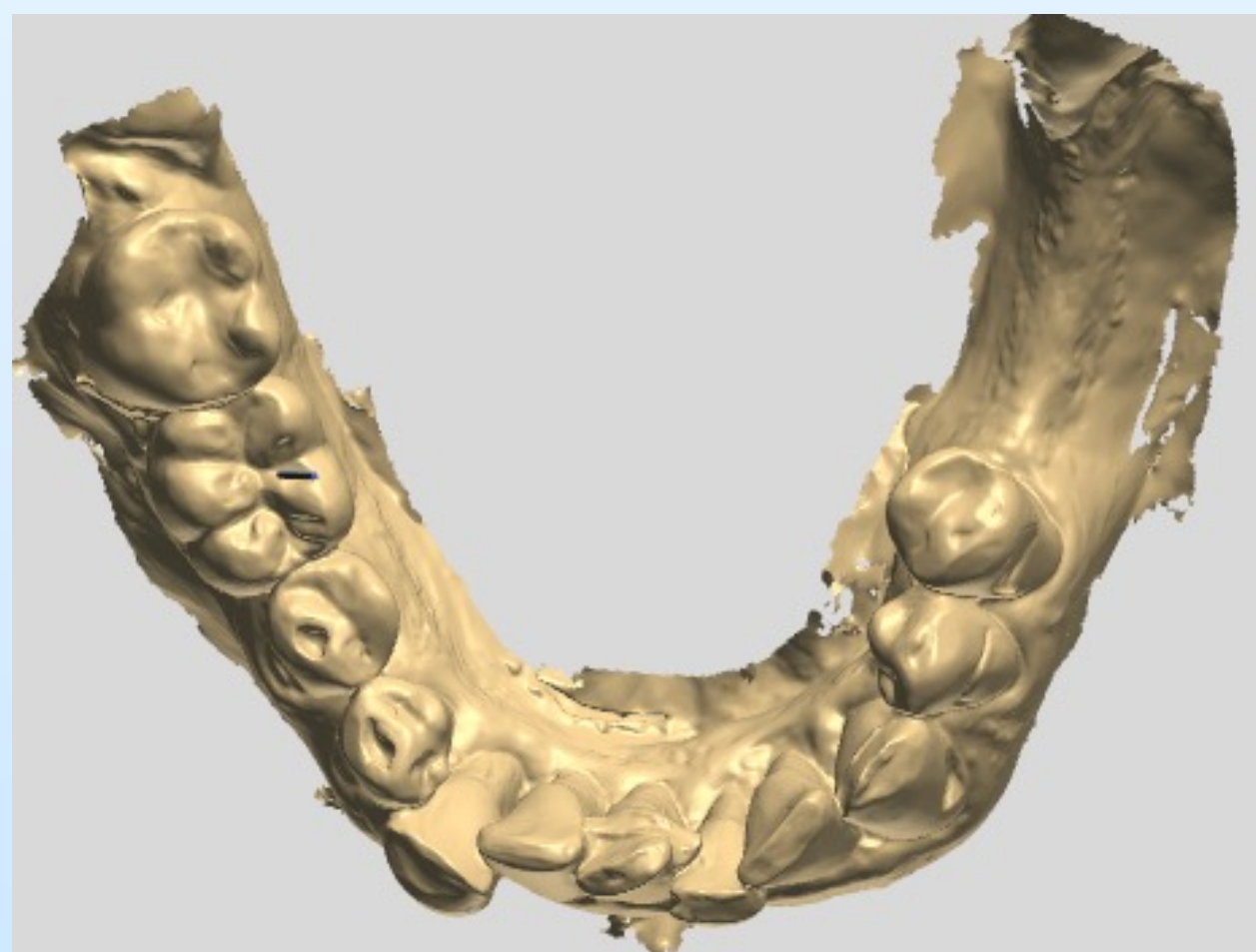


Figure 4: Screw channel access mandible

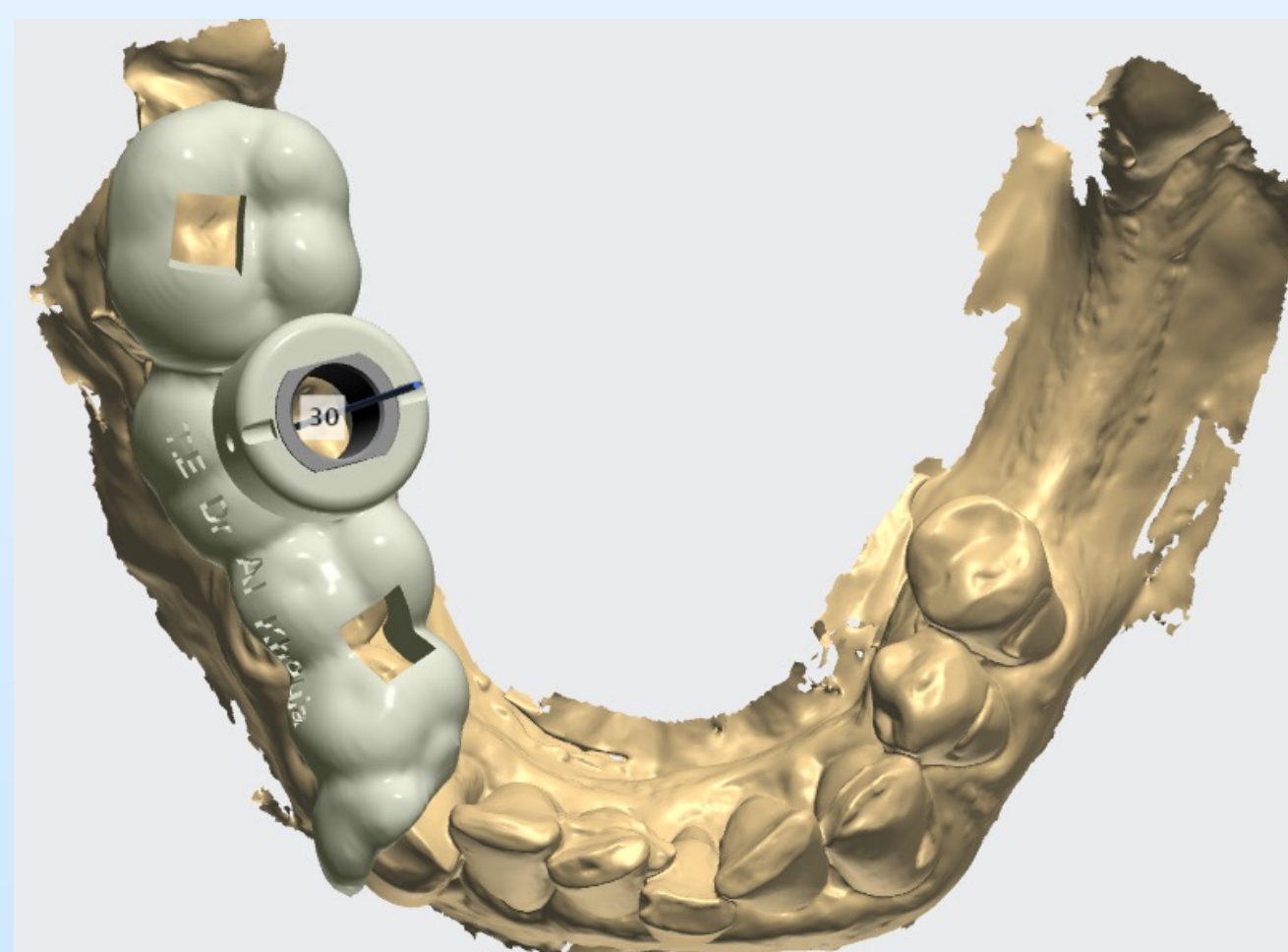


Figure 6: Additive guide design mandible

Clinical procedure



Figure 7: Additive guide seated after access is done maxilla



Figure 9: Abutment screw access maxilla



Figure 11: Soft tissue after retrieval of prosthesis maxilla



Figure 8: Additive guide seated after access is done mandible



Figure 10: Abutment screw access mandible

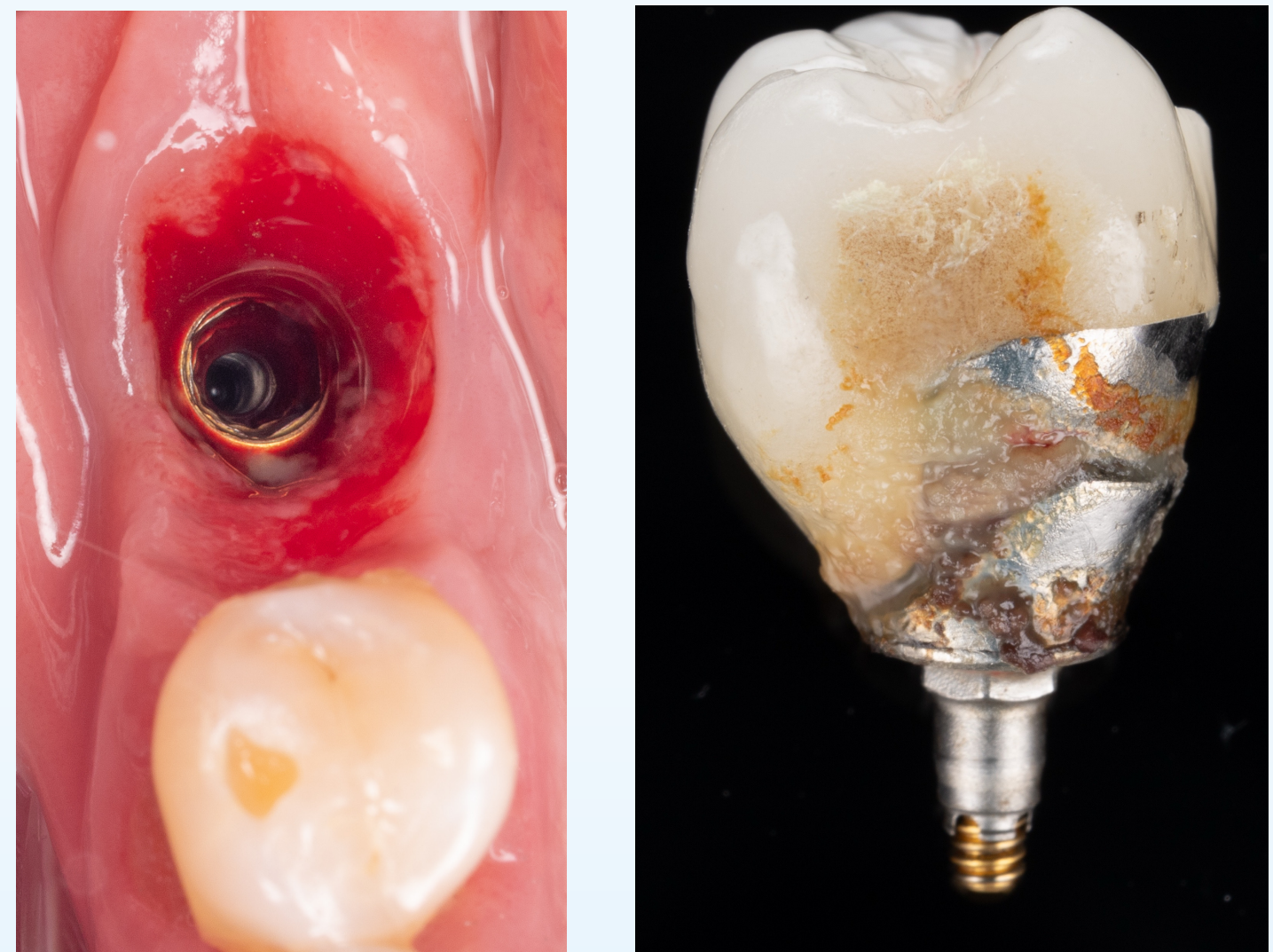


Figure 12: Soft tissue after retrieval of prosthesis mandible



Figure 13: Cement retained crown #30 after retrieval

Clinical Significance

This case demonstrates a minimally invasive, CBCT-guided technique for accessing and retrieving a cement-retained implant prosthesis. The approach enables temporization if needed, enhances long-term maintenance through improved **cleansability**, and is particularly beneficial in managing complications such as a loose abutment screw; circumstances where retrieval would otherwise require crown removal.



Figure 14: Cement retained FPD #12-14 after retrieval