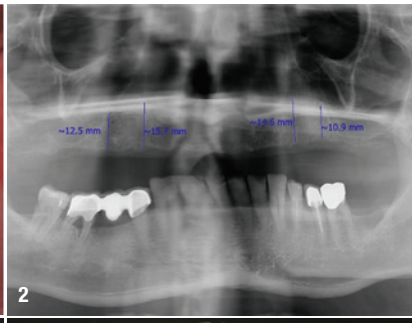
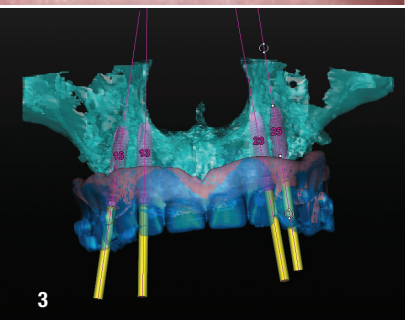
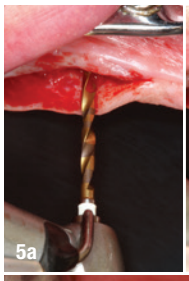
Immediate restoration of an edentulous upper jaw

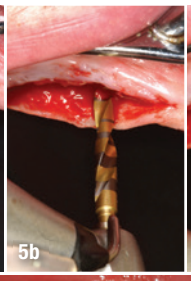
Dr Mischa Krebs & Alexander Müller, Germany

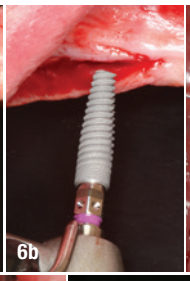


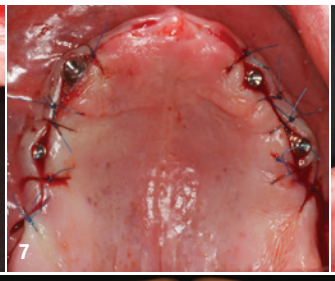


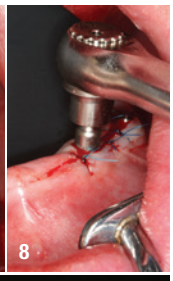
The following case report, presented in images, concerns the treatment of a 55-year-old male patient, who complained about the poor retention of his maxillary complete denture and requested a fixed solution (Figs. 1 & 2). The dual-scan protocol was used to visualise bone, soft-tissue thickness and denture position in Simplant software (Dentsply Sirona; Fig. 3). Four DS PrimeTaper EV 3.6 mm diameter implants (Dentsply Sirona) were planned according to the position of his denture and four Multibase abutments (Dentsply Sirona) were visualised accordingly. Prior to surgery, intra-oral scans of the edentulous upper and the dentate lower jaw were performed. The denture was used first as a surgical guide and then as a provisional prosthesis, after removing the palate (Fig. 4). Immediately after implant placement (Figs. 5–10), abutment position was registered with an intra-oral scan (Figs. 11–13). A definitive prosthesis consisting of an Atlantis BridgeBase (Dentsply Sirona; Fig. 14) and zirconia was placed eight weeks after implant insertion (Figs. 15–18).











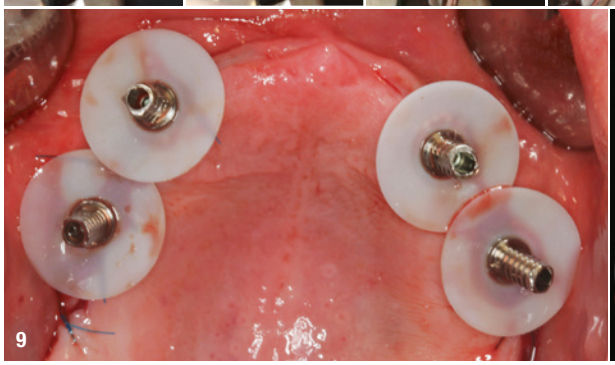


Fig. 1: Pre-op situation showing the edentulous upper jaw. **Fig. 2:** Pre-op radiograph. **Fig. 3:** Implant treatment planning in Simplant using the dual-scan protocol to visualise tooth position as well as abutment position. Four DS PrimeTaper EV implants were planned for immediate restoration. **Fig. 4:** The existing denture was adapted to be used as a surgical guide and provisional prosthesis for immediate loading. **Figs. 5a & b:** Implant bed preparation following the recommended drilling protocol for the planned implant using drill #1 **(a)** and drill #3 **(b)**. **Figs. 6a & b:** Coronal perforation of the cortical layer with drill #4 **(a)** and implant insertion **(b)**. **Fig. 7:** Multibase abutments inserted for immediate loading. **Fig. 8:** The abutments were torqued to 25 Ncm. **Fig. 9:** Temporary cylinders prepared with SynCone silicone sleeves (Dentsply Sirona) for intra-oral gluing. **Fig. 10:** Intra-oral gluing of the temporary cylinders to the existing denture.

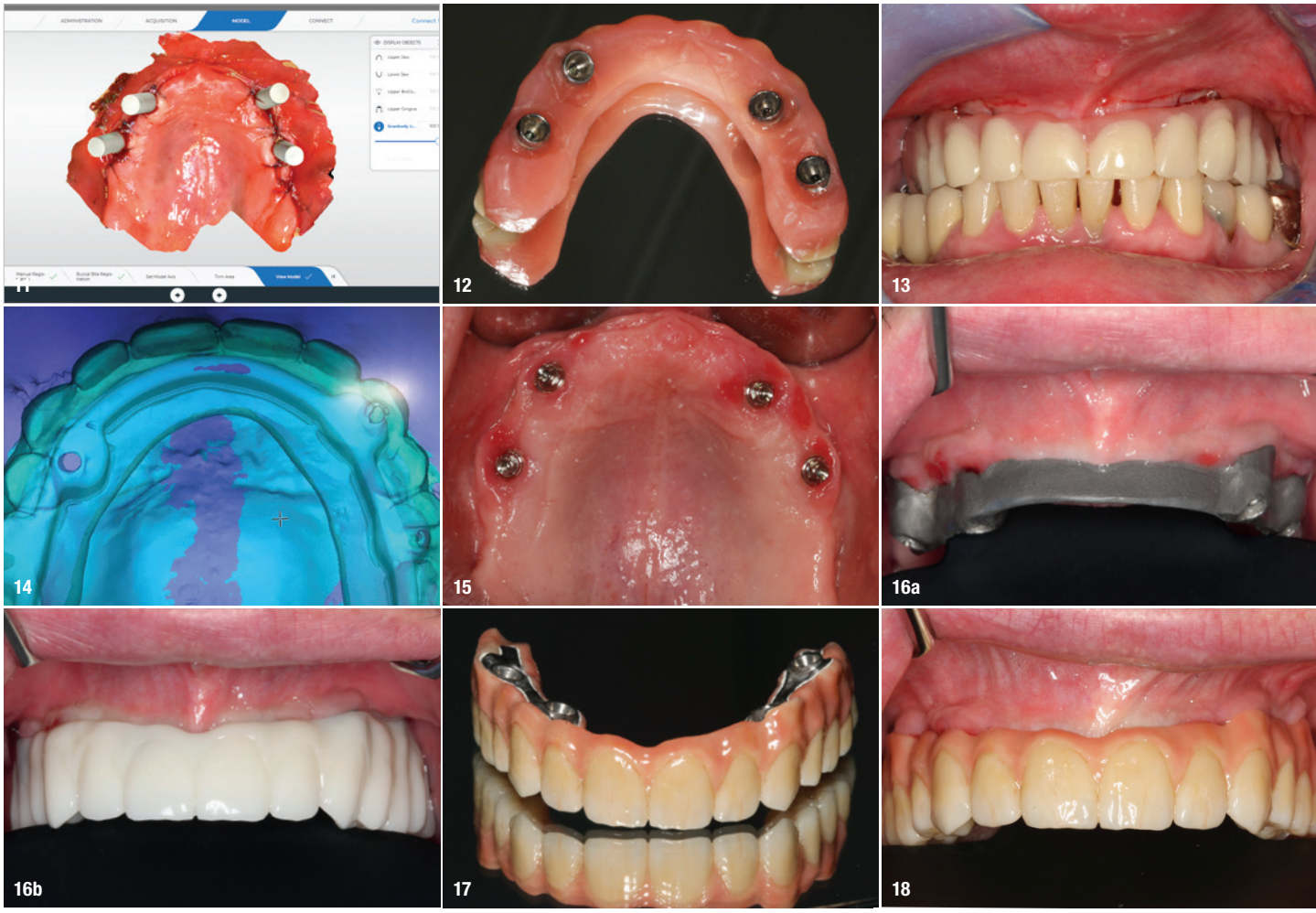


Fig. 11: Intra-oral scan of the abutment position, antagonists, provisional prosthesis and jaw relation for the manufacturing of the definitive prosthesis. **Fig. 12:** Seating surface of the provisional prosthesis. **Fig. 13:** Provisional prosthesis in place. **Fig. 14:** Design of the Atlantis BridgeBase. **Fig. 15:** Healed soft tissue eight weeks after implant placement. **Figs. 16a & b:** Try-in of the Atlantis BridgeBase without **(a)** and with **(b)** a printed wax-up, which was to be copy milled in zirconia. **Fig. 17:** Definitive prosthesis consisting of an Atlantis BridgeBase and zirconia. **Fig. 18:** Definitive prosthesis seated eight weeks after implant placement.

about the authors

Dr Mischa Krebs is a specialist in oral surgery. In 2006, he specialised in implantology and has since then regularly lectured at the Frankfurt university hospital in Germany on the topics of oral surgery and implantology. Since 2007, he has been running the oral surgery group practice Dr. Krebs & Kollegen in Alzey in Germany, which has been accredited as an academic teaching and training institution of Goethe University in Frankfurt am Main. He is a lecturer in the MSc programmes in oral implantology and dental technology of the Goethe University. Dr Krebs is a member of several associations, for example the Berufsverband Deutscher Oralchirurgen (professional association of German oral surgeons), German Association of Oral Implantology and Digital Dentistry Society.

Alexander Müller works as a dental technician. His work includes implant prosthetics as well as the production of dental restorations made of high-performance ceramics such as zirconium dioxide and lithium disilicate. Since 2019, he is a lecturer for aspiring master dental technicians.

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