

**The use of new technologies and digital implant solutions in a one-stage surgical procedure.**

**The patient:** The patient was referred to the clinic with a fractured root of tooth 11.

**The challenge:** Immediate implant placement with a temporary esthetic implant restoration.

**The treatment:** Immediate implant placement was planned with a short-term, non-functional loading and no occlusal contact. With the use of the CEREC Omnicam scanner, scans were taken on both the upper and the lower full arch along with a buccal scan. The scans together with the DICOM files were uploaded to the Simplant software. The optimal position was planned for an Ankylos C/X B 14 implant in line with the 3A-2B rule<sup>1</sup>. Using the Simplant software, a Simplant Guide along with a patient-specific Atlantis CustomBase Solution (with a titanium nitride abutment surface) and digital files were ordered using Atlantis Core File. The digital files were used to design and manufacture a screw-retained Atlantis Crown for tooth 11 in the Sirona CEREC CAD/CAM system. All the components, the Simplant Guide, the Atlantis Abutment and the temporary crown using CEREC, were manufactured and delivered prior to the surgical procedure.



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- 2009: Dental Implantology Certificate awarded by Goethe University in Frankfurt am Main
- 2015-2016: Participant in the Implant Prosthodontics Program (IPP) at the Mediterranean Prosthodontic Institute in Castellon, Spain
- 2016: Implantology Certificate awarded by the University of North Carolina at Chapel Hill, USA
- 2018: Master of Science in Lasers in Dentistry at RWTH in Aachen
- Member of PASE (Polish Academy of Esthetic Dentistry) and PTSL (Polish Society of Laser Dentistry)



1. Rojas-Vizcaya F. Biological aspects as a rule for single implant placement. The 3A-2B rule: a clinical report. J Prosthodont 2013;22(7):575-80



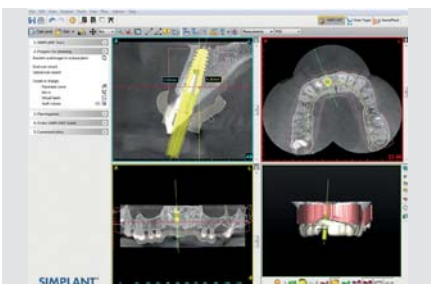
**1.** Situation before the treatment which led to the decision to extract tooth 11.



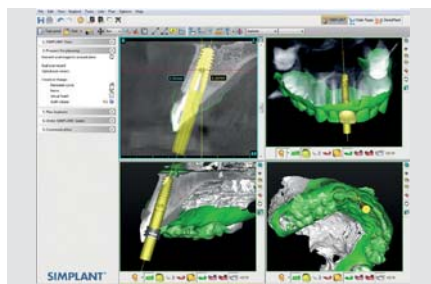
**2.** CBCT scan: The root of the tooth is visibly fractured and there is clear external resorption of the root from the vestibular side.



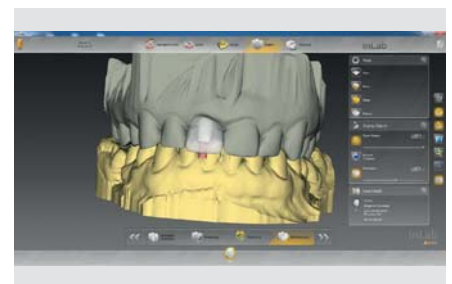
**3.** Buccal scan: Information on the positioning of the maxilla relative to the mandible. This is absolutely necessary to design a crown moving forward.



**4.** Designing the guide within the Simplant software based on the planned implant position.



**5.** Overlaying the CBCT and CEREC intraoral scans as well as the planned implant position in Simplant software.



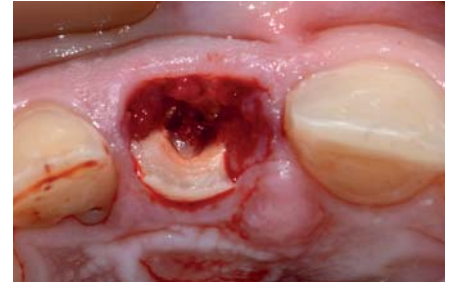
**6.** Planning the shape and size of the future CAD/CAM IPS e.max (Ivoclar Vivadent) crown within the Dentsply Sirona inLab software based on the Atlantis Core File received.



**7.** An e.max crown milled in the CAD/CAM Dentsply Sirona CEREC system before sintering. As can be seen in the image, the Atlantis Abutment and the crown will fit perfectly together.



**8.** The completed screw-retained e.max crown ready to be cemented extraorally with the Atlantis Abutment (titanium nitride abutment surface).



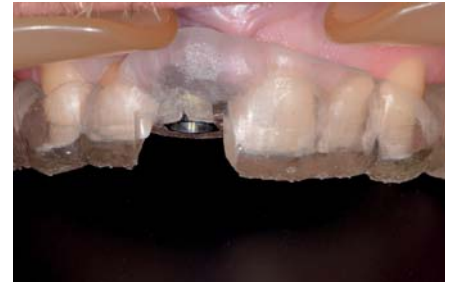
**9.** Visible granulation tissue at the resorption and fracture area of tooth 11.



**10.** Removal of the granulation tissue with a Er-Yag Fotona laser (Handpiece H14).



**11.** Clean socket after atraumatic extraction of tooth 11.



**12.** Tooth-supported Simplant Guide.



**13.** The guide fits flawlessly on the patient's teeth.



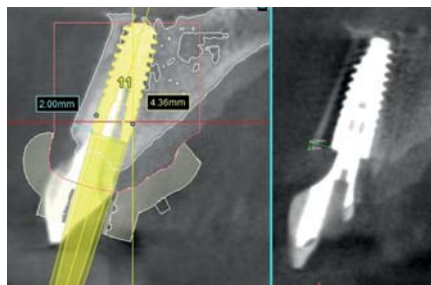
**14.** A sequence of implant drills with specific guide sleeves are used.



**15.** Placement of the Ankylos C/X B 14 implant using a Simplant Guide.



**16.** Subcrestal placement of the Ankylos implant. Attachment of the screw-retained e.max crown onto the Atlantis Abutment (non-functional restoration).



**17.** A follow-up CBCT scan demonstrates the perfectly executed positioning of the implant as it had been planned. The Ankylos implant was placed in the exact position that had been planned within the Simplant software.



**18.** After 3 years, a perfect adaptation of soft tissue around the implant restoration, tooth position 11. In addition, a ceramic crown on tooth 12 (after root canal treatment) and ceramic veneers on teeth 21 and 22.