

Astra Tech implant placement and an IPS e.max CAD single crown – Second upper premolar

Case Description

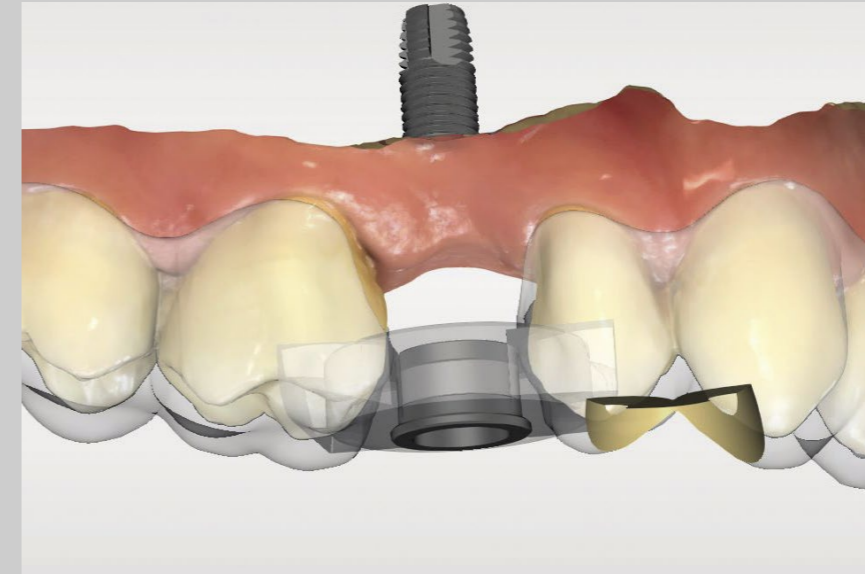
A 36-year-old patient came to our practice four months after the extraction of tooth 15 due to a longitudinal fracture. He wanted to close the resulting tooth gap. The patient was healthy and with good oral hygiene. Treatment with an implant or a bridge was considered. The latter was rejected because the abutment teeth were only slightly filled and the substance removal for bridge preparation would have been too great. To check the bone quantity and quality, a three-dimensional radiograph with a volume of 5 cm x 5.5 cm (Orthophos SL) was taken. Based on the findings, because of the limited space and for the most accurate positioning of the implant, the decision was made in favor of a fully guided preparation of the implant site. This was to ensure the exact positioning of the implant and create the conditions for a highly esthetic restoration. After the first intraoral scan with CEREC Primescan, the model data were exported to the implant planning software SICAT Implant 2.0, where they were overlaid with the X-ray data. Implant and sleeve planning could now be completed for the fully guided preparation with the Astra Tech Implant System EV. Based on this, the CEREC Guide 3 surgical guide was designed in the CEREC Software. It was then milled in the CEREC Primemill from a CEREC Guide Bloc Medi. In the final step, the EV ND metal sleeve for the Astra Tech Implant System EV was bonded into the hole in the surgical guide. Both the preparation of the implant site and the insertion of the Astra Tech EV 8.0/4.2 mm implant were completely guided. Since only an 8 mm implant could be placed due to the reduced bone volume, a temporary prosthetic restoration was not used. Instead, a healing abutment was used for transgingival healing. After a healing period of two months, digital impressions were taken with ScanPost and Scanbody. These scans were then used to design a one-piece directly screw-retained implant crown in the CEREC Software, which was subsequently produced in CEREC Primemill (e.max CAD, Ivoclar Vivadent). For optimum esthetics, the crown was given a crystallization firing first, including color characterization. In addition, there were two more firings, with another color characterization and application of the glaze material. A total of two consultations were required for this restoration.

Discussion

The implant and screw-retained crown made of a high-quality glass-ceramic material provided the patient with a highly esthetic and long-term stable restoration without the need to prepare healthy natural tooth enamel. The guided procedure with CEREC Guide 3 provided a high level of safety during preparation and insertion. After six months, the patient presented with healthy gingiva and bone conditions.



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Before:

Tooth 15 was extracted four months before due to a longitudinal fracture. Patient wanted to close the resulting tooth gap.



After:

A crown made of a high-quality glass-ceramic material provided the patient with a highly esthetic and long-term stable restoration.

Clinical Images



Guided preparation with the Astra Tech Implant System EV.



Guided insertion of the implant with the Astra Tech EV surgery kit.



X-ray image after placing the implant. Transgingival healing after mounting a healing abutment.



After a healing period of 2 months, the ScanPost and Scanbody were mounted to record the position of the implant using the Primescan.



Directly screw-retained implant crown made of e.max CAD.



Healthy gingiva conditions around the crown after a lying period of 6 months.

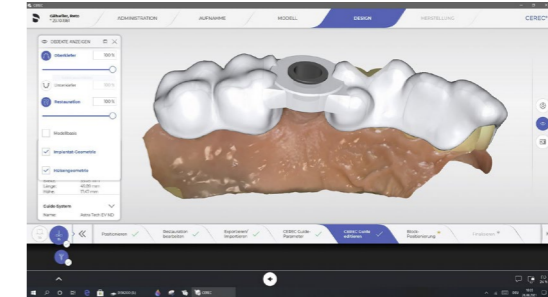


Healthy bone conditions around the implant after a lying period of 6 months.

Workflow Images



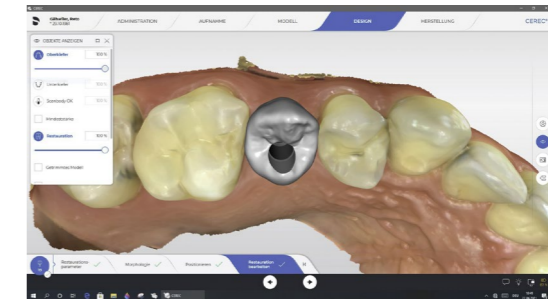
SICAT Implant 2.0: implant and sleeve planning for fully guided preparation with the Astra guided system.



After importing the implant and sleeve planning, the CEREC Guide 3 drill template is designed using CEREC Software.



Semi-transparent representation of the CEREC Guide 3 drill template. The metal sleeve is shown, which is glued into the perforation after milling the surgical template.



Design of a one-piece direct screw-retained implant crown with CEREC Software.