

Successful with Navigation



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Introduction

The patient presented herself at the dentist's office with a fractured tooth 21. As it was a non-conservable tooth, an immediate implantation after tooth extraction was planned.



Method

After the conversion of a DVT, exact planning of the implant position could be made with the ExpertEase software. The implant was 3-D placed and aligned, in accordance with the still existing

osseous matter. Thus, the design of the abutment could be planned in a realistic way.

The tooth-borne drilling jig was made stereolithographically at Materialise's in Belgium.

After the extraction of tooth 21, the implant could be placed in its accurate position, exactly according to the drill record. The ExpertEase Guide led the drill precisely to the predetermined position. The drilling jig made it possible to position the lab implant in the plaster model. Thus, it was possible to make a first temporary prosthesis and the respective individual impression pillar in the lab during the healing time. A Maryland bridge served for a space closure during the healing time.

After opening and an extended period of using the first temporary prosthesis, the definite impression with the individual impression pillar was made, and the final emergence profile was given shape by a second temporary prosthesis.

The design of the custom abutment could now be CAD/CAM fabricated at

Compartis'. A zircon cap, also made by milling, completed the restoration, and the individual ceramic veneer made the space nearly "invisible".

Results

As early as in the planning stage with ExpertEase, it could be recognized that with an ideally aligned implant an individual abutment would become necessary.

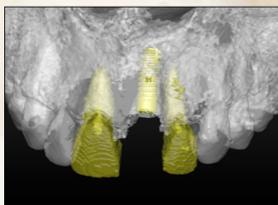
Due to the chronologically different use of the temporary prostheses, a well-shaped emergence profile could be achieved. Moreover, the graying of the gingiva could be avoided by the zircon abutment, thus fulfilling the esthetic demands of the patient.

Conclusion

Optimum preparation and exact procedure paired with surgical and prosthetic technical know-how provide for a predictable esthetic overall image.



ill.1 initial situation of fractured tooth 21



ill.2 conversion & ...



ill.3 ...planning with ExpertEase



ill.4 tooth- borne drilling jig (Materialise's)



ill.5 extraction of tooth 21



ill.6 controlled drilling (drilling protocol)



ill.7 inseration of the implant



ill.8 inseration of the bone replacement material



ill.9 maryland bridge



ill.10 position the lab implant in the plaster model



ill.11 first temporary prosthesis



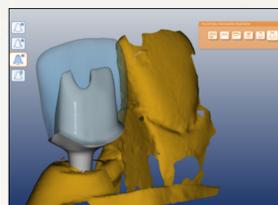
ill.12 first temporary prosthesis after an extended period of using



ill.13 definite impression with the individual impression pillar



ill.14 final emergence profile was given shape by a second temporary prosthesis



ill.15 design of the custom abutment (CAD/ CAM)



ill.16 CAD/CAM fabricated zirconabutment



ill.17 CAD/CAM fabricated zircon cap



ill.18 ceramic veneer cap



ill.19 zirconabutment/ crown



ill.20 final emergence profile



ill.21 inserted zirconabutment



ill.22 final crown



ill.23 result



ill.24 satisfied patient

material list:

- planningsoftware: ExpertEase/ Friadent
- drilling jig: Materialise
- implant: Ankylos/ Friadent
- abutment: Custom Abutment/ Compartis
- veneering ceramic: Zr- FS Initial/ GC