Screwed on abutment crown with high translucency (region 21)

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Screwed on, abutment-supported crowns are an optimal choice when seeking a simple revision. However, for restorations with high aesthetic demands, especially in the anterior region, mesostructures made of metal/titanium could be a problem. The required high translucency of the crown allows dark backgrounds to slightly show through. Therefore, the aesthetic result can only be achieved by using an opaquer to mask the titanium abutment. An opaque luting cement is a reasonable alternative that eliminates one additional work step. Thanks to the accompanying Try-in pastes, an exact projection of the results can also be obtained.

The following case involves loss/trauma to the left central incisor at the age of 14, which was followed by 3 years of orthodontic treatment. Two years before the continuing treatment, the braces were removed. The now 22-year-old patient agreed to an aesthetically pleasing, implant-supported restoration. In order to make a revision feasible for this young patient, a screwed-on abutment crown must be selected.

In the current initial situation (Fig. 1), a clear reduction of the jawbone substance and soft tissue can be observed (Fig. 2). Placement of the Epikut implant (S.I.N., Sao Paulo/SP, Brazil) was performed using a dental drilling template (Fig. 3, 4). Subsequently, it was possible to optically restore the aesthetics of the soft tissue (Fig. 5, 6) by using a gingival former with corresponding emergence profile.

The restoration was fabricated from zirconium dioxide with a ceramic veneer, using a CAD/CAM procedure. The choice of restoration material was primarily made based on the characterisation and the high translucency of the still young set of teeth. An especially opaque luting cement was accordingly required, to prevent the titanium bonding base from showing through the translucent crown material.

The abutment crown was fixated with Bifix Hybrid Abutment (VOCO, Cuxhaven, Germany, Fig. 8) which is indicated for extraoral work steps. The decisive factors in making this choice were the white, highly opaque colours available, and the option of testing the colour effect ahead of time using the corresponding Try-in pastes, which satisfy the aesthetic requirements of the case. The conditioning of the titanium bonding base was performed with Ceramic Bond (VOCO, Fig. 7) in accordance with the manufacturer's specifications.

The aesthetic result achieved was to the patient's satisfaction (Fig. 11). If a revision becomes necessary as the patient ages, it will be easy to perform thanks to the abutment crown used.

Conclusion

Screwed on abutment crowns can harmonise with highly opaque cements for high aesthetic demands, and be placed elegantly and efficiently in the anterior region. Cost savings can be obtained as compared to individual crowns on a hybrid abutment base.

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Fig. 1 – Initial situation following trauma-related loss of the left central incisor at the age of 14, and subsequent orthodontic treatment.

Fig. 2 – Discernibly clear reduction in the jawbone substance and soft tissue

Fig. 3 – Use of a dental drilling template for placement of the implant

Fig. 4 – Insertion of the implant, region 21 (Epikut, S.I.N., Sao Paulo/SP, Brazil).

Fig. 5 – Very good initial clinical situation 6 months after placement and healing of the implant.

Fig. 6 – The healed area after successful gingiva management and shaping of the tissue with the protective temporary restoration

Fig. 7 – Application of the universal bonding agent Ceramic Bond (VOCO, Cuxhaven, Germany)

Fig. 8 – Extraoral application of the highly opaque luting cement onto the prepared titanium bonding base. The aesthetics were previously tested using Try-in paste.

Fig. 9 – Ready-made abutment crown made of zirconium dioxide with additional ceramic coating, immediately before placement.

Fig. 10 – Fitting of the pre-assembled abutment crown

Fig. 11 – Final aesthetic result immediately after fitting