Non-invasive, long-term temporisation with a high-performance polymer

As the dentition had already undergone extensive aesthetic and functional changes and the patient was still undergoing growth processes, appropriate treatment planning was not an easy task. After the clinical findings had been evaluated in the laboratory and practice, and all advantages and disadvantages of alternative restorative treatment options had been considered, the patient with his family and the practice team settled upon the following therapy plan:

1. Study wax-up to establish an aesthetic and functional morphology of the teeth;
2. Evaluation of the aesthetics by means of a mock-up, using the wax-up as a basis (Fig. 5);
3. Functional evaluation of the situation: transfer of the newly established vertical dimension to a modified Michigan splint;
4. Precision impressions of the uncut teeth;
5. Wax-up digitalisation and fabrication of CAD/CAM-manufactured, long-term temporary restorations using Telio CAD;
6. Try-in and final aesthetic incorporation of non-invasive temporaries.

Preliminary treatment

After the wax-up had been adjusted to meet the envisaged aesthetic criteria, the 12-week splint therapy began, which also served as a functional evaluation phase. The vertical dimension established in the wax-up was accurately transferred to the oral cavity of the patient. During this phase, the patient had the opportunity to become accustomed to the new vertical occlusal height.

Long-term temporisation

Following the functional evaluation phase, both maxillary and mandibular, high-precision impressions of the uncut teeth were taken. The impressions were sent to the laboratory together with a face bow. A centric bite record was taken to ensure an accurate transfer of the occlusal dimension — for this purpose, the Michigan splint was sectioned.

The temporary restorations were fabricated using Telio CAD (A2 shade). The study wax-up, which served as the basis for the CAD/CAM manufacture of the restorations, was digitised.
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This procedure resulted in form-
identical, long-term temporaries
(Figs. 4a & b). It was difficult to mask the ex-
tremely discoloured tooth struc-
ture with the thin temporaries.

To check the accuracy of fit and
shade match, the restorations
were trial fitted in the patient’s
mouth using glycerine gel of vari-
ous colours (High Value +2 and
High Value +5 try-in pastes of the
VarioLinK Veneer Professional Set;
Fig. 5).

Seating
Based on the try-in with the
try-in pastes, the dual-curing, low-
viscosity “basic white opaque” shade
(VarioLinK II Professional Set) was
selected for the final placement of
the temporaries. Before they were
incorporated, the inner surfaces of
the restorations were silicoated us-
ing the Rotatec system (Rotatec Soft
30 µm; distance to nozzle: 10 mm;
blast pressure: 1 bar; blast time per
unit: 10 seconds). Subsequently, the
restorations were silanised using
Monobond-S and coated with a layer
of HelioBond bonding agent. The
natural tooth structure was condi-
tioned using the total etch tech-
nique and the Syntac dentine adhe-
sive system. Final polymerisation
was performed with a bluephase
G2 light-curing unit (Figs. 6a & b).

The temporisation phase with
the new vertical bite dimension al-
lows a good prediction of the final
rehabilitation planned for once
the patient has reached full growth
(Figs. 7a & b). The immediate
treatment with long-term tempo-
rary restorations enabled us to
meet the needs of the patient at
this stage already using a non-in-
vasive technique, and the patient
was most satisfied with the result
(Figs. 8a & b).