Hybrid ceramics in practice
A CAD/CAM material for patients with functional disorders

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The treatment of patients with functional disorders is a challenge for dentists. The extent to which the VITA ENAMIC hybrid ceramic (VITA Zahnfabrik, Germany) with its dentine-like elasticity may be suitable for treating patients with bruxism is described in this article. Although reconstructions with VITA ENAMIC are still experimental for this indication, I have already implemented them for this indication, and excellent results have been achieved with them.

Initial situation

The 48-year-old patient had suffered for ten years from severe temporomandibular joint pain and headaches, resulting in depression, which had led to his inability to work. Numerous visits to the dentist and treatment attempts (including occlusal splinting) had brought no relief. The patient had rejected the corrective jaw surgery recommended for the existing Class III skeletal abnormality owing to the uncertain therapy outcome.

Figures 1 to 3 show the initial situation.

Preliminary treatment

After the patient’s referral to our clinic, we first tried to stabilise the occlusion via a reversible correction of tooth position. The optimal length of the incisal edges, the occlusal plane, and the horizontal and vertical dimensions were determined with a maxillary bite registration in wax (Fig. 4). It was shown that, through an elevation of the vertical dimension by 8 mm, a correction of the Angle Class III relationship was possible.

For the long-term evaluation, a PMMA splint for permanent use was fabricated on the basis of the bite registration (Figs. 5 & 6). Ten hours after its insertion (Fig. 7), the patient reported, with tears of joy, that he was pain-free. This situation has been maintained for the wear time of two years.

Material selection

Only after successful elevation of the vertical dimension were the permanent restorations fabricated. The objective was to preserve the healthy tooth substance through a non-invasive procedure. In order to achieve an exact fit, a restorative material that could be milled very thinly at the edges was required. Furthermore, a material with properties as close as possible to those of the natural teeth was needed. With its high durability and elasticity, as well as the possibility of adhesive bonding, VITA ENAMIC met these prerequisites.

Fabrication of the definitive restorations

For the precise transfer of the optimal tooth position, the digital moulding was performed once with and once without the splint. The superimposed scans formed the basis for the virtual design of the monolithic restorations made of VITA ENAMIC (Figs. 8 & 9).

After fabrication, these were characterised and polished (Figs. 10 & 11).

When tried in, they exhibited a high-precision fit, and the patient was very satisfied with the shade; therefore, the adhesive bonding was performed immediately. In order to create an invisible transition to the tooth substance, pre-warmed composite filling material was used.

Summary

The integration of the VITA ENAMIC restorations (Figs. 12–14), the patient’s self-confidence increased and he took up a new profession. This example shows that the non-invasive treatment concept presented can achieve outstanding results, leading to a significant increase in quality of life, even in patients with extreme functional problems.

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Fig. 9: Virtual design of the individual tooth restorations using superimposed scans.—Fig. 10: Occlusal view of the restorations fabricated from VITA ENAMIC on the model.—Fig. 11: Situation immediately after integration.—Fig. 12: Occlusal view of the maxilla.—Fig. 13: Occlusal view of the restorations on the model.—Fig. 14: End result.