Two-piece implants restored in the maxilla and mandible

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Introduction

These days, ceramic implants are enjoying increasing popularity. This is not least due to a steadily growing patient awareness of metal-free solutions and their manifold advantages over titanium implants. These advantages cannot be ignored. For one thing, zirconia implants offer outstanding biocompatibility. The tissue around an implant made of zirconium dioxide, a bio-inert material, attaches to it quickly and heals without being susceptible to inflammation. Thus, the risk of developing peri-implant conditions later on is significantly reduced. In addition, many patients like zirconia because of its superior, tooth-like aesthetics, being white and translucent, compared with the rather dark shimmer of titanium. The two-piece implant used in the following case combines all these advantages in one implant system.

Initial clinical situation

A 70-year-old female patient presented to the outpatient consultation with the wish for a complete, new metal-free treatment of the maxilla and the mandible. The clinical and functional findings revealed inadequate old restorations in both the upper and lower jaws, as well as functional disorders of the craniomandibular system. After

Fig. 1: Pre-op radiograph of the initial clinical situation. **Fig. 2:** Frontal view of the old restorations. **Fig. 3:** Occlusal view of the old restorations. **Figs. 4–9:** View of the implants and abutments after an osseointegration period of four months.


Fig. 10


Fig. 11


Fig. 12


Fig. 13

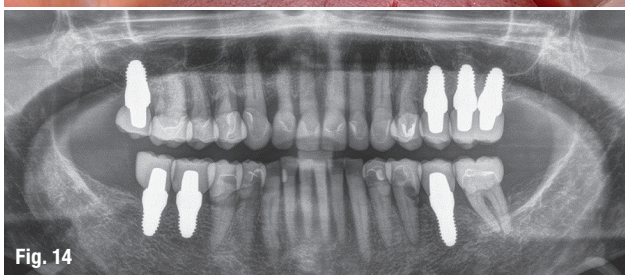
Fig. 14


Fig. 15

Figs. 10–13: Clinical situation after placement of the definitive restorations. **Fig. 14:** Radiograph taken at the follow-up after four years. The implants had healed completely without any signs of bone resorption. **Fig. 15:** The final smile four years after definitive restoration.

the patient had been informed in detail about the various restorative possibilities, she opted for a metal-free complete restoration with two-piece ceramic implants in the areas of the missing teeth and the teeth that could not be saved and needed to be extracted.

Surgical procedure

After a detailed clinical functional analysis and radiographic evaluation, a treatment plan was developed (Figs. 1–3). In a first step, the old insufficient restorations were removed and conservative, periodontal and surgical measures were performed. In a subsequent step, long-term temporary dentures for the upper and lower jaws were fabricated based on the function analysis data. Thereafter, the unsalvageable teeth (teeth #25 and 26) were extracted. The implantation was then performed with two-piece ceramic implants (AWI, WITAR Consulting) according to the WITAR drilling protocol in areas #17, 25, 26, 27, 36, 46 and 47. During the healing of the ceramic implants, the patient wore a long-term temporary denture, which was ground with the support of manual therapy until a clinically symptom-free situation of the craniomandibular system was achieved.

After a complication-free osseointegration phase of four months (Figs. 4–9), the implants in the maxilla and mandible were prepared for prosthetic restoration according to the WITAR protocol. An impression was taken, and bite registration and bite transfer procedures were performed. The generated data for the restorations was then transferred to the dental laboratory, where the workpieces for the definitive restoration were prepared. Once the patient had tried them on in her mouth, the complete definitive work was corrected, fired and completed by the dental technician. The definitive restorations were then placed in the patient without any complications (Figs. 10–13).

Summary

The tissue around the two-piece AWI implants healed transgingivally. The placement of the abutments, which were made of zirconia that had not undergone hot isostatic pressing and had no holes for screws, was both physically and psychologically minimally invasive for the patient. The subsequent preparation was performed, and the impression was taken directly inside the patient's mouth. While the high-strength implant made of hot isostatic pressed zirconia resists compressive forces, the specially developed AWI full abutment counteracts tensile forces. The AWI implant, in combination with the abutment, ensures a completely sealed connection. The metal-free restoration described here was performed four years ago. To this day, there are no pathological peri-implant findings in the regions of the inserted implants (Fig. 14). The restorations remain functional, stable and aesthetic (Fig. 15).

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