

# Ceramic implants in anterior dental restoration

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## Initial situation

A 39-year-old female patient of good general health attended our practice for a consultation. She came from a small town approximately 70km from our practice and had found out beforehand via the Internet which dentist in the area offered ceramic implants. The patient was prepared to make the long trip to reach us because she was worried that the apicectomy proposed by her own dentist would once again involve introducing new foreign material (sealing material for the apical closure of

the root canals) into the bone. She had thus decided on having the root-filled teeth and associated metal-ceramic crowns, as well as the periapical granulomas, removed. She clearly and unequivocally communicated her desire for ceramic implants.

In our practice, particular importance is attached to an informative initial consultation with new patients. Expectations of both patient and therapist—the “shared therapeutic vision”—should be addressed in this consultation. The patient in this case was looking for very



Fig. 1

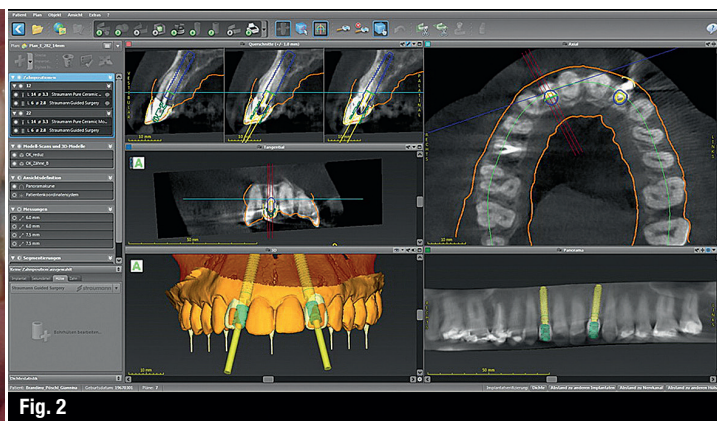


Fig. 2



Fig. 3

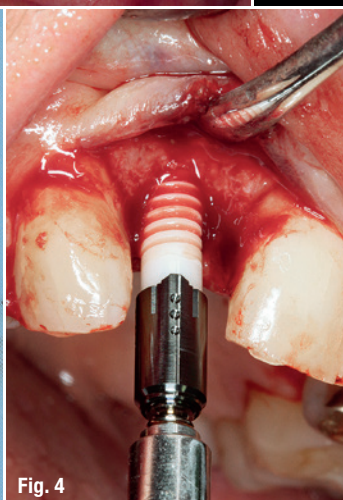


Fig. 4

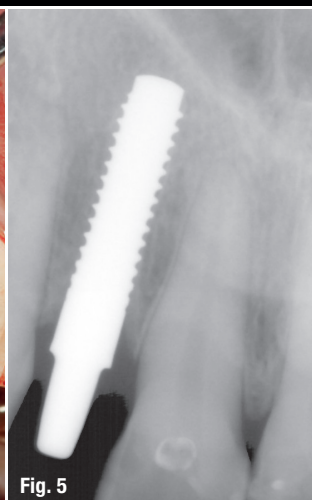


Fig. 5

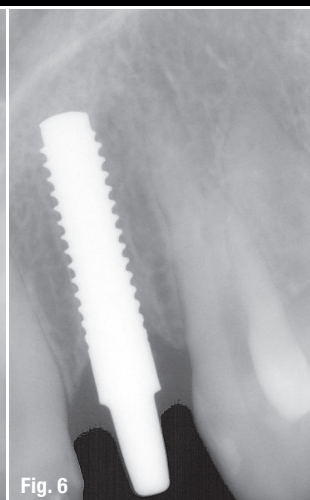


Fig. 6

**Fig. 1:** Initial situation. **Fig. 2:** An evaluation of the CBCT scan shows adequate conditions for inserting ceramic implants. **Fig. 3:** Extracted lateral incisors. **Fig. 4:** Implantation of Straumann PURE Ceramic Implant (diameter: 3.3 mm; length: 12.0 mm). **Figs. 5 & 6:** Radiographs showing the two ceramic implants inserted into the prepared alveoli.

good function, a high level of aesthetics and well-tolerated materials. Our expectations were constructive cooperation covering a comprehensive history, very good diagnostic options, and high-quality surgical and dental technology products. All of these are integrated in a programme of oral hygiene management developed for implant patients. Planning involves detailed explanation of the intended treatment, photographs, models and radiographs (Fig. 1).

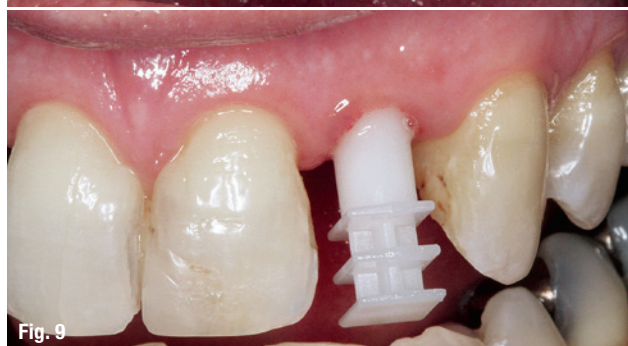
## Therapy schedule

The patient's dental chart revealed full dentition, partly restored with resin composite filling materials. Teeth #12 and 22 had been crowned after endodontic treatment. The patient complained of problems in the maxillary region between teeth #13 and 23. Pain on pressure was reported in response to digital pressure (thumb and index finger) in the apical region of teeth #12 and 22, differing clearly from the adjacent regions. A clinical diagnosis of suspected apical osteitis was made and was confirmed in the radiograph and cone beam computed tomography (CBCT) scans subsequently taken.

After being given an explanation and time for consideration of the various options, the patient decided on extraction of teeth #12 and 22. We selected immediate implantation for the restoration of regions #12 and 22. Good experiences with this method allowed us to suggest the prospect of a shorter treatment period and a high-quality aesthetic outcome to the patient. After evaluation of the CBCT scan, we were able to meet her request for the provision of ceramic implants (Fig. 2).

## Surgical procedure

The two lateral incisors were removed using a Benex extractor (Helmut Zepf Medizintechnik; Fig. 3). This procedure reduced the risk of alveolar damage, particularly damage to the vestibular alveolar wall. The alveoli were freed from the inflamed apical tissue by means of intensive curettage. Two monotype, reduced-diameter Straumann PURE Ceramic Implants of 3.3mm in diameter and 12.0mm in length were implanted using a surgical drill template (Fig. 4). The two ceramic implants could then be inserted into the prepared alveoli at a torque of 35Ncm (Figs. 5 & 6).



**Fig. 7:** Chairside temporisations. **Fig. 8:** Long-term temporary restorations. **Figs. 9 & 10:** The impression for permanent crowns was taken using a single tray with polyether and impression caps compliant with the system. **Fig. 11:** Crowns manufactured on the basis of milled zirconium dioxide copings veneered with feldspathic ceramics.



Fig. 12

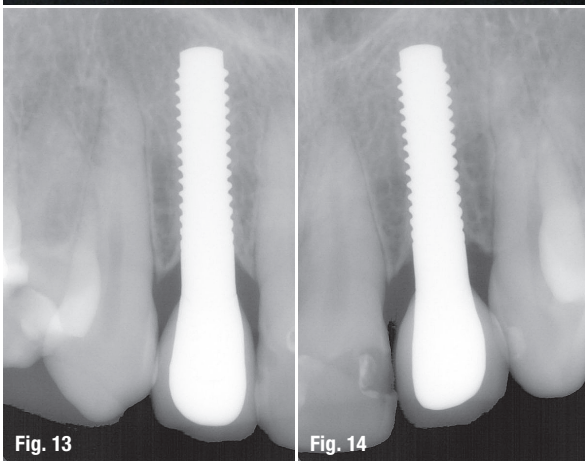


Fig. 13

Fig. 14



Fig. 15

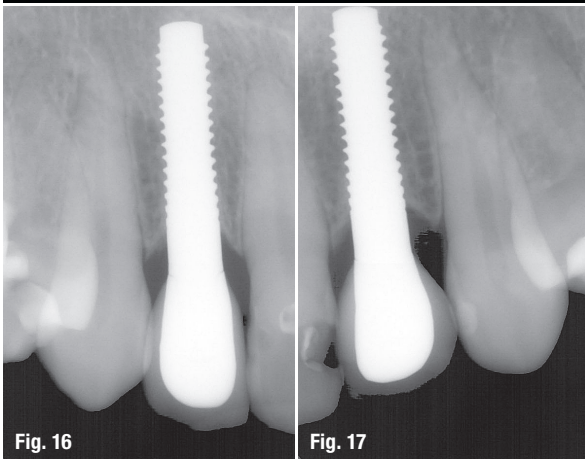


Fig. 16

Fig. 17



Fig. 18

**Figs. 12–14:** Secure outcome after cementation with glass ionomer cement. **Figs. 15–17:** Periodontal situation after two and a half years. **Fig. 18:** Patient satisfied with the outcome; further development will be recorded.

After suturing, impression posts were used to take an impression in order to create long-term temporary restorations. Chairside temporisations were used until these were ready (Fig. 7). With the long-term temporary restorations, the patient was able to go to work and her ability to communicate was not restricted in any way either (Fig. 8). The healing process was problem-free.

### Prosthetic procedure

The impression for the permanent crowns was taken using a single tray with polyether and impression caps compliant with the system (Figs. 9 & 10). The crowns were manufactured on the basis of milled zirconium dioxide copings veneered with feldspathic ceramics (Fig. 11). Cementation with glass ionomer cement produced a secure outcome (Figs. 12–14). Treatment was completed by a functional test.

### Treatment result

The outcome of the treatment met the planned specifications in terms of both aesthetics and function. The minimally invasive extraction meant that both hard- and soft-tissue were preserved to the maximum extent possible. Comparison of the periodontal situation after two and a half years on the basis of photographs and radiographs indicated a very good long-term prognosis (Figs. 15–17).

### Conclusion

The patient asked for a non-metal prosthetic implant. As a result of the limited spatial conditions, ceramic implants with a diameter of 3.3mm were selected. The detailed planning and its implementation meant that it was possible to achieve a more than satisfactory outcome for the patient, the practice and the dental laboratory (Fig. 18). The patient decided to remain in our oral health programme despite the additional travel involved. This meant that we would be able to record further developments.

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