

There is no doubt that the age structure of those in need of prosthetics in dental practices is moving upwards. Most patients – and quite a few dentists – are looking for ways to avoid pre-implant bone augmentation and longer treatment times. Any options for being able to select suitable and prophylaxis-friendly forms of implant from the range of those available, as well as for minimising time and costs with standardised prosthetic treatment procedures are, therefore, welcome. Many of our patients do detailed research on the Internet about treatment options and will choose to go to those practices that offer this type of complete contemporary, conservative, surgical and implant-prosthetic spectrum of treatments.



Implants and prosthetics for the ageing patient

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The patient presented with complaints in the right mandible, which affected the area of an approximately 30-year-old bridge and indicated initial apical osteitis or a root fracture. Probing revealed a subcoronally destroyed mesial tooth 45 underneath the bridge and a tooth 47 which was tender on pressure on the bite block (Fig. 1). The following considerations were incorporated into the implantological and prosthetic treatment planning: Was it necessary to replace the damaged tooth 47 with a single-tooth implant? What bone width was to be expect-

ed in region 46 and was implantation without buccal volume expansion possibly an option there? Would it be possible to insert an implant in the region 45 in topographical proximity to the mental foramen without complications? Finally, the expectations of the 70-year-old patient who had successfully completed implantological treatments in all three other quadrants had to be taken into account. Last but not least, a reliable budget had to be established.

The clinical procedure was as follows: if possible, particularly narrow implants

with a diameter of about 3 to 3.5 mm should be placed in the atrophied areas. An additional augmentation, using a (screwed-in) cortical block or with particulate bone substitute material, or autologous bone was to be avoided. Due to a missing antagonist tooth, the replacement of tooth 47 with a third implant was not necessary. The patient was to be fitted with fixed dentures after the healing phase. In this context, it was already necessary to take into account the maximum cleanability of the implant crowns which were to be firmly inserted, together with the fact that the patient's manual dexterity could well decline in the future.

The reader who is interested and experienced in this field will know that, over recent decades of dentoalveolar surgery, the initial use of forceps and, in the probable event of breakage, the rapid use of the raspatorium, held ready-to-hand, and a bone cutter have been the tools most commonly used. The atraumatic and extremely bone-sparing removal of teeth destroyed at gingival level is still a great

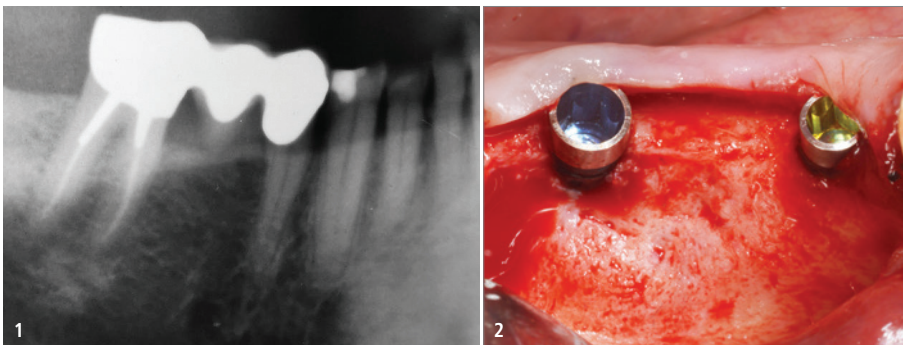


Fig. 1: Situation before treatment with subcoronally destroyed tooth 45 and tooth 47 which was tender on pressure.

Fig. 2: A 2.9 mm and a 3.5 mm BioniQ® Plus implants (LASAK), each 12 mm long after periosteal flap formation, are placed at sites 45 and 46, respectively.

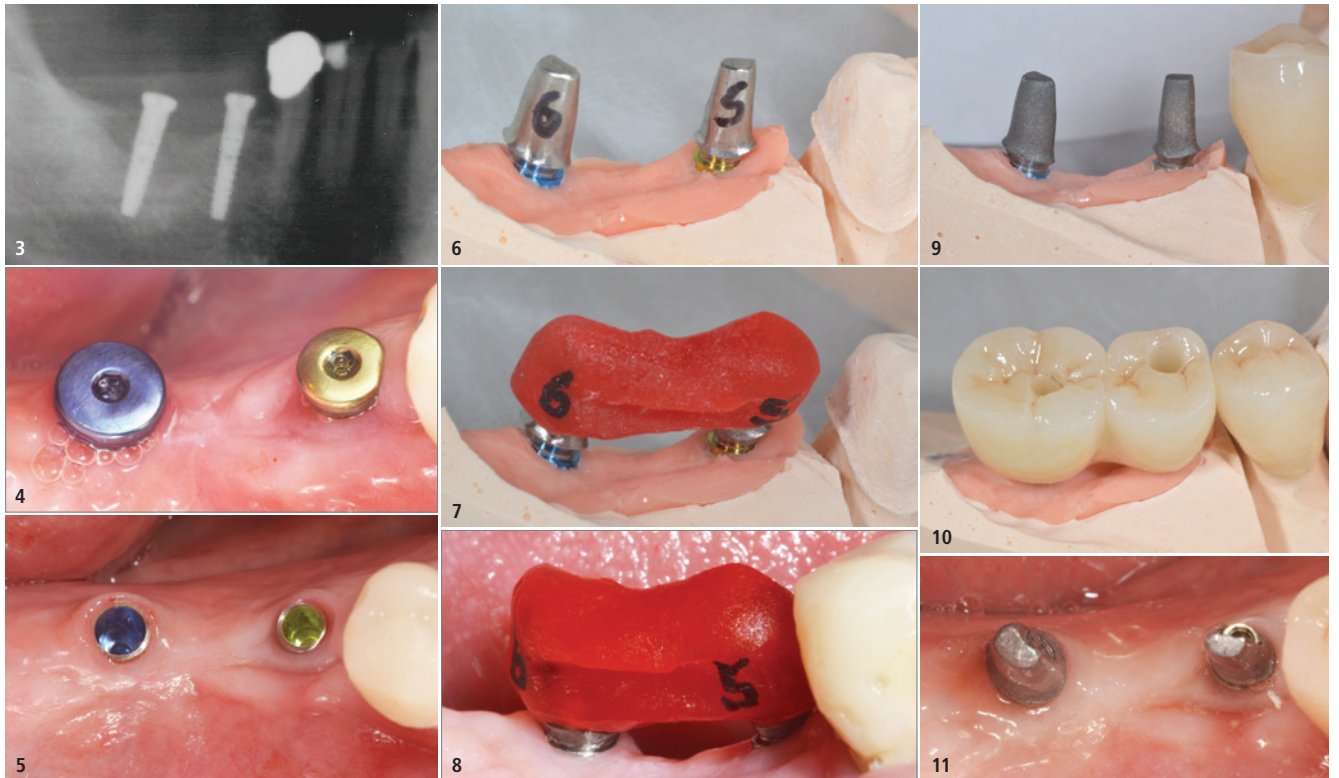


Fig. 3: The radiograph control showed that there was sufficient length. – **Fig. 4:** The healing process was open. – **Fig. 5:** Clean gingival conditions before open tray impression taking. – **Fig. 6:** Individualised standard abutments... – **Fig. 7:** ...with attached implant control splint – **Fig. 8:** The splint could be fitted tightly, but without tension, intraorally (Labor F. Deinl, Waging am See, Germany). – **Fig. 9:** The two rough-blasted abutments before intraoral cementation (G-Cem; Fuji). – **Fig. 10:** Situation, as shown on the master model. – **Fig. 11:** Abutments after tightening and cleaning.

challenge today. The terror of this procedure can be eliminated by the use of slender elevators, patient mobilisation and the use of forceps only at the end of the procedure. In return for the small amount of additional time required, the reward is the almost complete preservation of the alveolar walls. Following the removal of teeth 45 and 47, the site in the fourth quadrant healed completely and without complications within six weeks.

A 12 mm long implant with a diameter of 2.9 mm was then placed at site 45 and an equally long implant with a diameter of 3.5 mm at site 46 (BioniQ® Plus, LASAK, Fig. 3). Particular attention was paid to a pronounced machined collar (with a height of 1.7 mm) on both implants to provide only a theoretically small surface for possible plaque accumulation in the event of gingiva or bone reduction later on. The primary consideration in selecting the implant system was to be able to use a wide range of different implant types with a very clearly arranged surgical tray without having to get lost in

the overly complex colour paths and pre-drill shape folds of a surgical cassette. The entire implant session could be conducted with a calm focus on the clinical bone findings, the axial inclination, and the alignment of the implants and with the patient's participation whilst in a state of low stress. Theoretically, a flapless insertion of the two implants would also have been possible; however, the author prefers a final visual inspection of the buccolingual area and of the healed, regenerated bone as well as the precise selection of the best implant to match this. The LASAK BioniQ® Plus implants were placed with primary stability (reversed torque checked) and with the roughened surface at bone level. The post-treatment phase showed complication-free wound progression (Fig. 4). During the open healing process, meticulous cleaning checks were conducted with instructions to also clean the healing abutments by using special brushes to ensure inflammation-free peri-implant soft tissue.

Even though an earlier further treat-

ment would have been possible after eight weeks, two more months were „added“ to the period here in consideration of the patient's age. Since the healing was open, there was no need for surgical exposure. The Ostell Osteo 100 (NSK) was used to document the strength, which was well above 70 ISQ for both implants. The impression was taken, as usual, with an open tray technique (Fig. 5). In the course of the treatment, the defective crown on tooth 44 was also redesigned. The implant fit was verified with an implant control splint to be on the safe side, because of the very slight distortion that can never be ruled out when taking an impression (Fig. 6–8).

The following insights on the choice of material and design of fixed (implant-supported) dentures may be offered here: Milled all-ceramic restorations are now much cheaper to produce than cast (metal) ceramic ones. Nevertheless, all implant prosthetics should be easily screwable, if possible, in order to have quick „service access“ in case of screw loosening due to

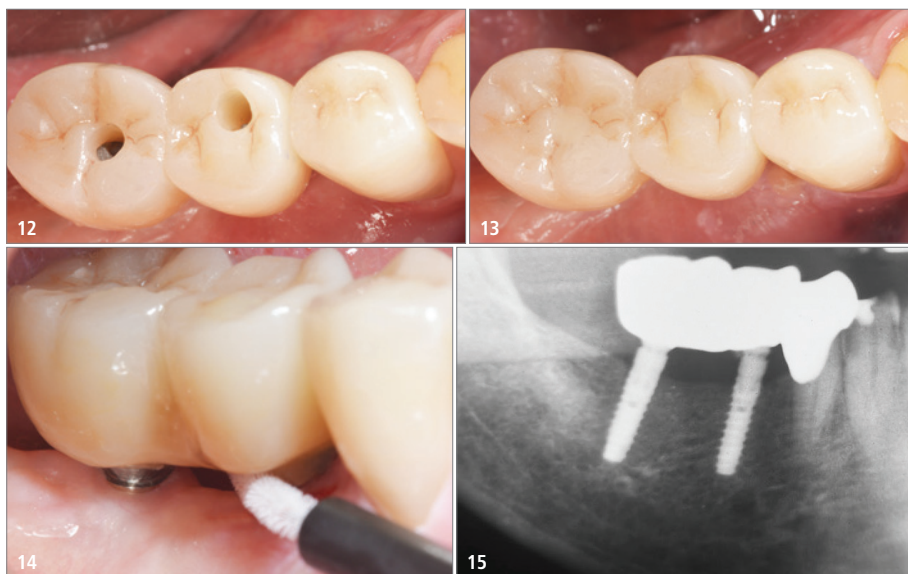


Fig. 12: The prosthesis on teeth 45 and 46, before... – **Fig. 13:** ... and after occlusal closure (Empress Direct, Ivoclar Vivadent)... – **Fig. 14:** ...shows interdigital patency. – **Fig. 15:** Radiograph check-up after 14 months.

bruxism, for example. From long-term clinical experience, we can say that all occlusally closed cemented solutions constructed with the expectation that „nothing will happen“ have occasionally turned out to be real causes of permanent stress. And, nowadays, nothing is more important for the implantologist, who is bombarded with new ideas for treatment from so many different fields, than being able to sleep soundly after the treatment has been conducted! A clearly arranged surgical cassette, a wide choice of implant types, a standardised treatment procedure and close-meshed follow-up checks are just some of the factors that can contribute to this.

The dental laboratory sand-blasted the tried-in abutments (Fig. 9) and fabricated a ZrO₂ superstructure with two occlusal passes (Fig. 10). After the two abutments were tightened to 25 Ncm (Fig. 11), the superstructure was intraorally bonded (Fig. 12), and the openings subsequently closed up with plastic material (Fig. 13). This ensured that, compared to the conventional „cemented-on“ method, any excess cement could be avoided.

In addition, the dental technology ensured that there was a cleaning-friendly passage basally between teeth 45 and 46 (Fig. 14). The patient was given instructions on the proper use of

the interdental brushes and was discharged pending regular follow-up appointments. The radiograph taken 14 months later (Fig. 15) shows a stable peri-implant bone level, which may have increased distally to the 2.9 mm LASAK BioniQ® Plus implant.

Some factors significantly influence the success of implantology and implant-supported prosthetics. These include waiting until you are certain that healing has taken place – without putting too much stress on the osseointegration times, especially in our older patients. Frequent wound controls can eliminate possible intermediate hygiene deficits at an early stage. The choice of proven implants with large surfaces and, at the same time, hygiene-friendly transitions to the superstructure increase the long-term prospects of success. Intraoperatively, one should not be afraid of taking a control image, especially in the vicinity of neural structures. What are the known „critical moments“ in the prosthetic workflow that need to be routinely circumnavigated? In addition to precise bite registration, the obligatory implant control splint try-in contributes to safety and this helps to avoid surprises later on. Here, corrections can be made if necessary, and nothing is more motivating for the team than the realisation that these control samples

were fortunately not necessary. The final stages are a routine cementation procedure with testing of interdental patency for prophylactic agents and the transfer of the patient to routine, regular check-ups.

Summary

Our patients with increasingly higher life expectancy visit our practice with the expectation of receiving a manageable commitment, both in terms of time and cost. If the dentist practising implantology has a wide range of implants at his disposal, which can be inserted in the right height and width, even with extremely low bone volume, he or she has the best prerequisites to meet these expectations. A standardised prosthetic procedure for optimal aesthetic results takes care of everything else. In the present clinical case, the selection of particularly narrow implants made it possible to avoid a time-consuming and cost-intensive additional surgical intervention. A generously dimensioned highly polished neck section of the implants means that the dentist and his prophylaxis staff can work with confidence of success over the long term. The selection of appropriate implants ensured that the patient could be provided with a graceful, fixed tooth restoration at a reasonable cost.

Kontakt



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