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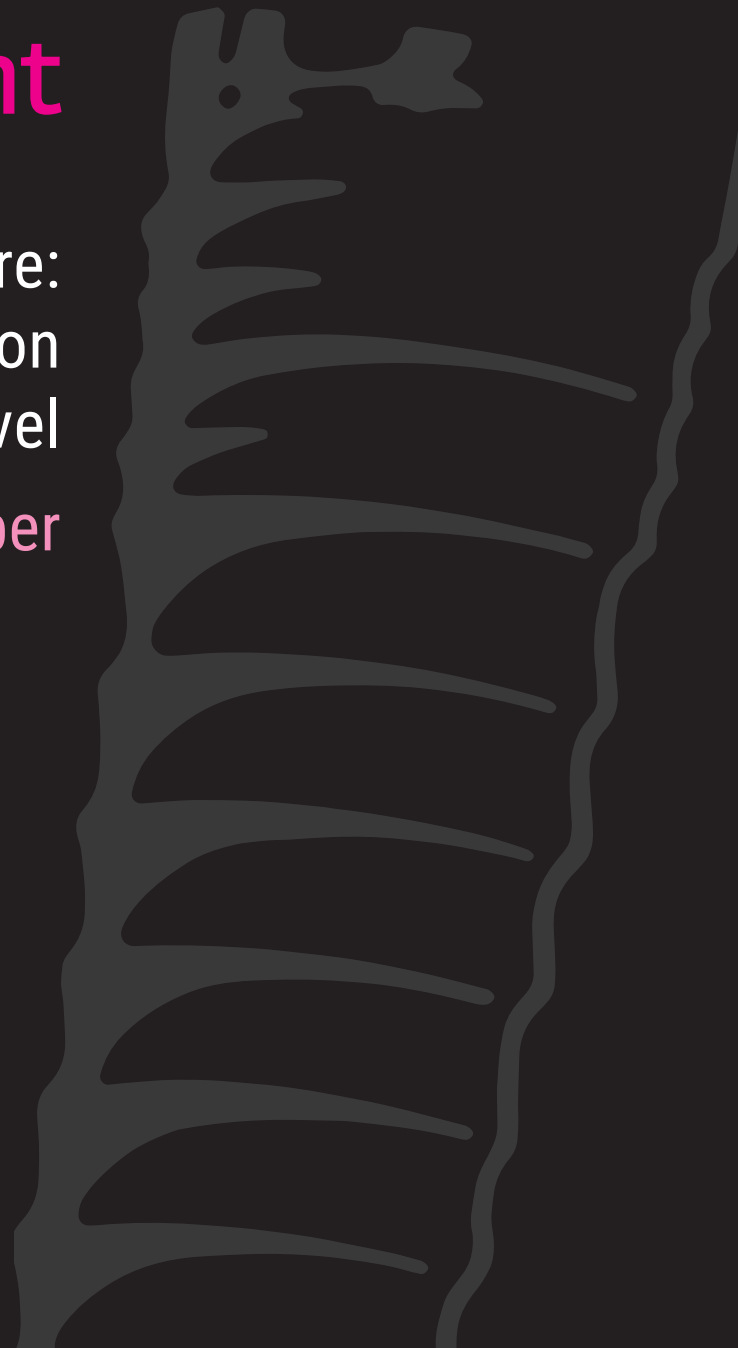
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Special reprint

Flexibility following exposure:
implant abutment connection
according to bone level

Daniel Schulz, Gerd Weber



Flexibility following exposure: implant abutment connection according to bone level

Abutment-Switch with tiologic Twinfit

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- 1996-2001 Dental studies in Hamburg
- 2001-2004 Assistant posts in Hamburg
- 2003 Doctorate
- 2004 Founding of dental practice in Henstedt-Ulzburg, practicing implantology
- Membership in SHGZMK [Society for Dental and Oral Medicine in Schleswig-Holstein] and DGZI [German Society for Dental Implantology]
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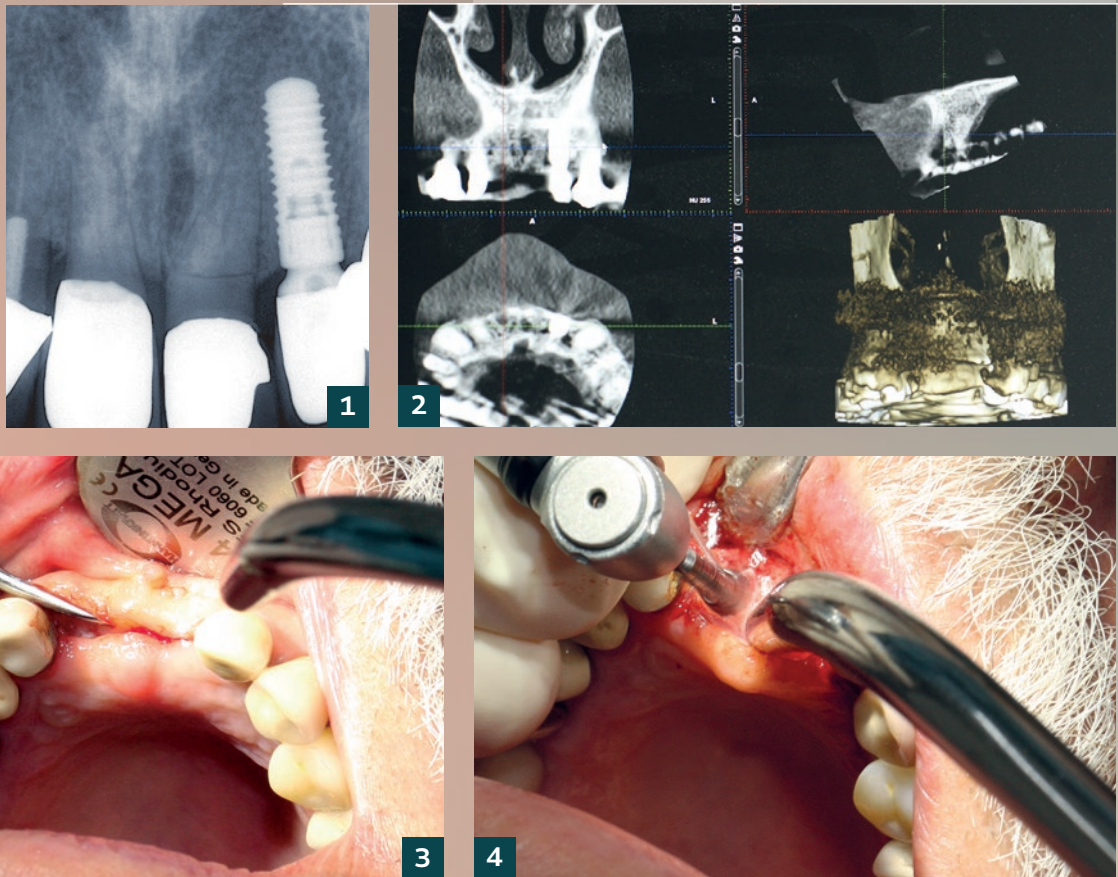
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Gerd Weber MDT

- 1978-1983 Laboratory Heinze, focus on combination and milling technique and model casting
- 1983-1985 Military service, German army hospital, Bundeswehrkrankenhaus, oral and maxillofacial surgery
- 1985-1992 Laboratory Jung, Kaltenkirchen, ceramic, combination and milling technique
- 1992 Dental office Luhnig Zahntechnik, laboratory manager and customer support
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Although desirable, it is not always possible to predict the course of implant prosthetic restorations. Sometimes, for example, the clinical situation upon exposure may differ from original expectations. This calls for flexibility and freedom in the choice of abutment. In the following case study, the author demonstrates the Abutment Switch (tioLogic TWINFIT implant, Dentaureum) from a platform to a conical abutment connection following exposure.

The type of implant abutment connection is especially important when considering an implant restoration. We generally differentiate between two types:

1. Platform connection: the abutment sits flat on the implant shoulder.
2. Conical connection: the abutment has a conical shape, supported by conical surfaces in the implant.

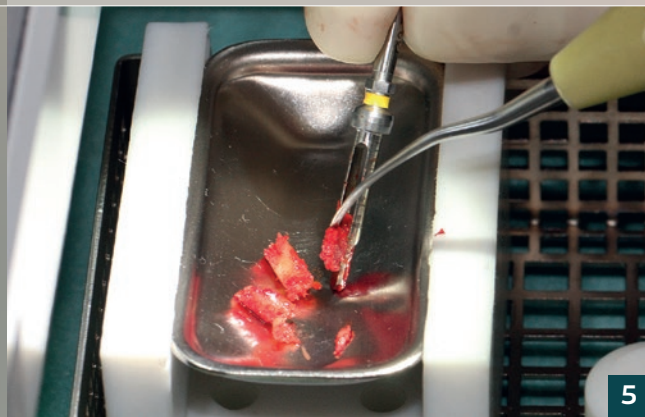
From a clinical point of view, there can be no clear advantage of one design over the other, as both have advantages and disadvantages. A decision is rather more dependent on specific factors. The conical connection is the aesthetic choice for single restorations, whilst the platform connection wins in the case of blocked restorations such as bridges and bars. Both types of connection are used in daily dentistry depending on the indication. Most implant systems are restricted to one specific design: either platform or conical. In order to benefit from both types of abutment connection, two different implant systems need to be available in the dental office. However, when the implant system has an Abutment Switch, it's a different matter altogether.

1 Transverse fracture of the roots 11 and 21.

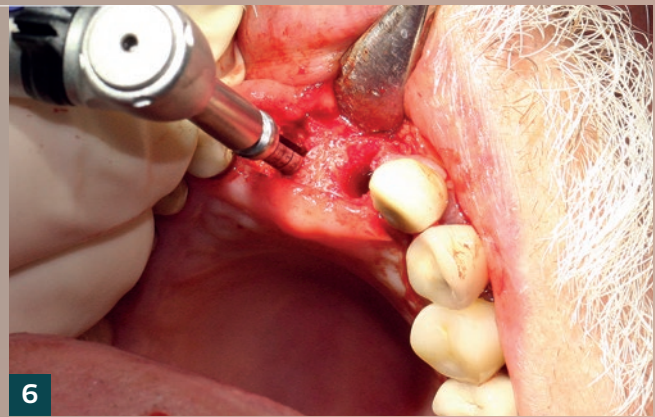
2 DVT image, 6 months after extraction of 11 and 21. Clear buccal defect.

3 Exposure of alveolar ridge prior to implant site preparation.

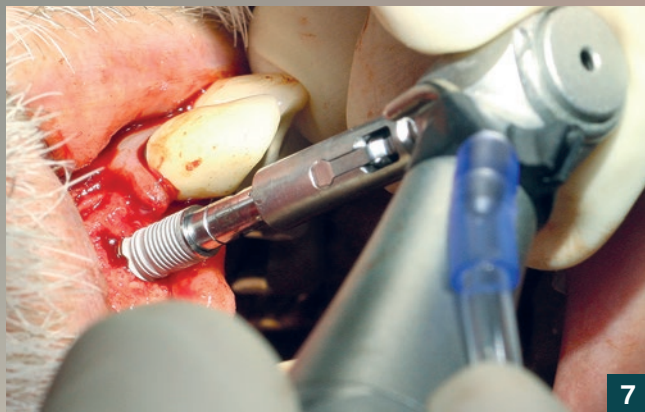
4 Preparation of the implant site with a trephine drill.



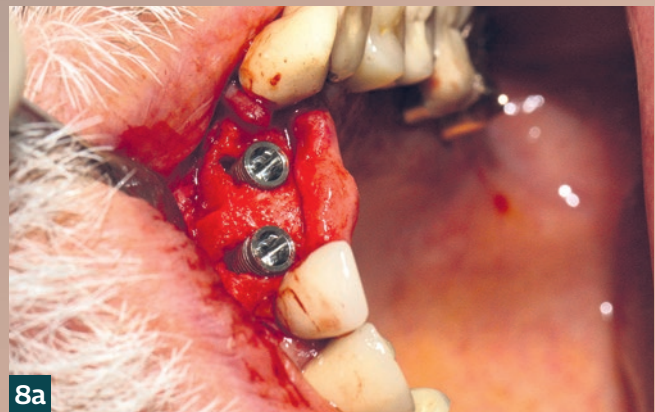
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8a

All-in-one: two connector geometries and one implant

The flexibility of an Abutment Switch (tioLogic TWINFIT) is a huge advantage. Being able to choose between a platform or conical abutment connection after implant insertion or osseointegration offers great flexibility for the prosthetic restoration. It happens every now and then that the situation after implant exposure is different than expected. With an Abutment Switch, the implantologist can adapt the treatment strategy during therapy as the following patient case demonstrates. In this case, on exposure, there was an unexpected high bone volume following the insertion of two implants in combination with bone-forming measures. In the crestal region, there was bone growing partly over the implants.

Patient case

A patient, now 78 years old, consulted a dental office following a cycling accident in September 2021 with problems in the anterior region of the upper jaw. Injuries to the soft tissue were dealt with in the hospital. A dental radiological examina-

tion showed clear transverse fractures to the tooth roots (Fig. 1). As a result, the anterior teeth 11 and 21 were extracted in November 2021 and the gap was filled with a temporary restoration. In March 2022, a preoperative DVT was conducted and the treatment strategy planned (Fig. 2). In the same month, two tioLogic TWINFIT implants, Ø 3.7, were inserted under local anesthetic in regions 11 and 21 (length 13 mm, 15 mm) (Figs. 3-8). Due to the thin buccal bone lamella and a defect situation in the buccal area, bone augmentation was conducted using the Carotta Technique acc. to Prof. Dr. Fouad Khoury (Fig. 9). Only autologous material was used, and the wound was closed free of tension and saliva-proof with no further membrane (Fig. 10). Given the bone situation, it was initially planned to fit a prosthetic restoration on a platform abutment.

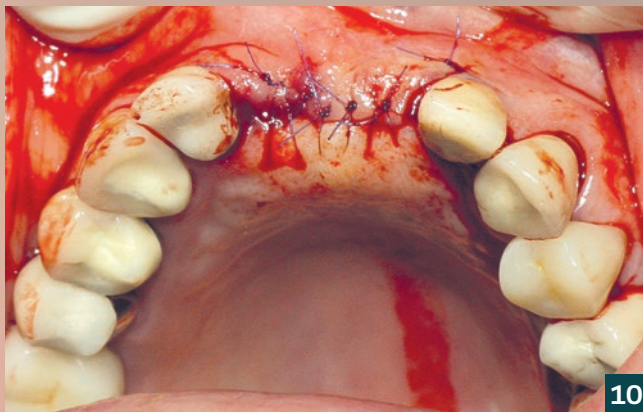
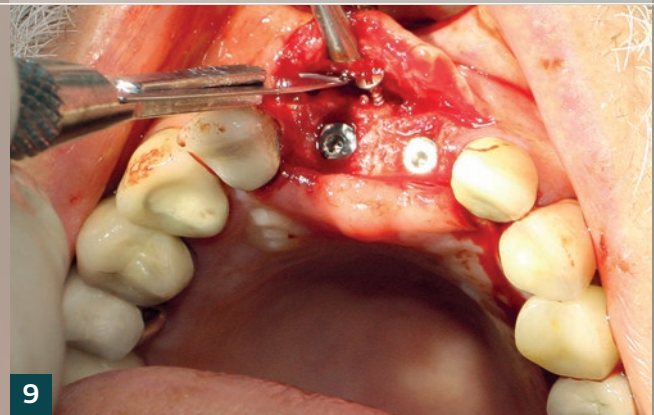
After an unproblematic healing phase, the implants in regions 11 and 21 were exposed in August 2022. Following incision of the gingiva and exposure, the bone looked particularly good (Fig. 11). The augmented bone was well integrated, and the implants were partially overgrown in the crestal region. Initially, the implant shoulders could not be seen. This was unexpected and led to a reassessment of the original strategy to use platform abutments on the implants.

5 Collection of small bone cylinders for augmentation.

6 Preparation of the implant site with a trephine drill.

7 Implant insertion (tioLogic TWINFIT, Ø 3.7).

8a Large buccal defects ...



It was considered to be justified to make use of the advantages of a conical implant abutment (long-term aesthetics) because of the bone volume. The advantage of the tioLogic TWINFIT implants lie in this flexibility. Implants can be fitted with a conical or a platform abutment connection and the decision can be made after osseointegration.

The surplus bone above the closure screw was carefully removed (Fig. 12). The new strategy was to place the restoration on conical abutments in order to maintain a large amount of crestal bone volume. Measures were taken in soft tissue management and a pick-up impression was made after the impression post had been fitted. The individual abutments and all-ceramic crowns were fabricated in the dental laboratory. The dental technician also made an acrylic insertion aid to ease the final fitting.

The abutments and the all-ceramic crowns were fitted at the end of August 2022 (Fig. 13). Great care was taken to remove all surplus adhesive thoroughly and avoid irritation to the peri-implant soft tissue. A radiograph was taken for monitoring purposes. The result was an implant restoration that appeared to have grown out of the gingiva (Figs. 14, 15). This is in part

due to the conical implant abutment connection. If a platform connection had been used, a different abutment and crown design would have been necessary. This would probably have led to a less aesthetic appearance around the soft tissue.

A postoperative X-ray showed that the bone had grown in a vertical direction (Fig. 16). The space between the implant in region 21 and the older implant in region 22 appears to be small; it is, however, due to the typical image geometry of the implant axes to the X-ray axis and presents no clinical complication.

Conclusion

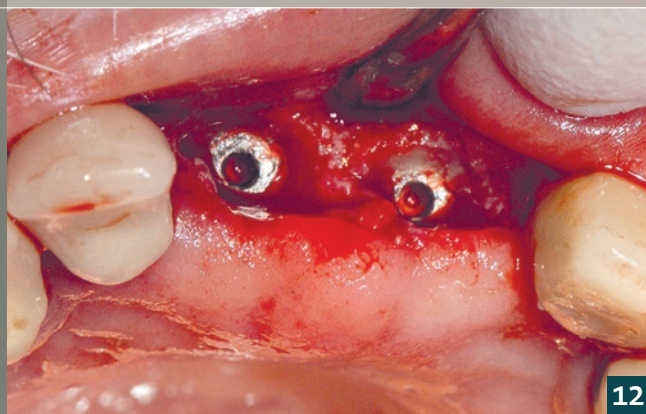
The idea of an Abutment Switch (tioLogic TWINFIT implant) guarantees flexibility in everyday work situations. It is possible to react to changes in therapy thanks to having a choice within one implant system between a platform and a conical connection. It is even possible to make changes at a later date. It is not unusual that implant restorations need extending as time goes by. What began as a single restoration implant with a conical abutment may develop into a complex restoration over the course of the years. tioLogic TWINFIT offers the flexibility to replace a conical abutment with a platform abutment and

8b .. after insertion of the two implants.

9 Augmentation based on the Carotta Technique acc. to Prof.

10 Tension-free wound closure after insertion and augmentation.

11 Exposure of implants covered by bone.



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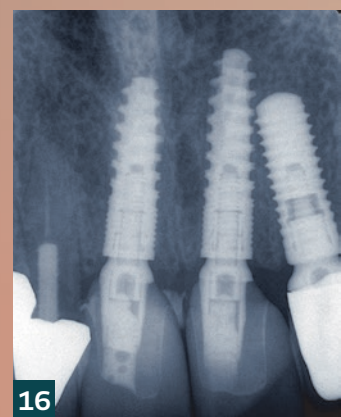
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to integrate further implants into the restoration. In the case presented, it was possible to revise the original decision to use a platform connection to use a conical abutment instead for the prosthetic restoration following the discovery of a favorable

bone situation after exposure. It is an example of many of the situations we encounter in our daily work where the option to use an Abutment Switch can make a big contribution to the best possible result.

12 View of implants after removal of excess bone.

13 Insertion aid to screw in the abutment.

14 All-ceramic crowns following fitting.

15 This view angle clearly shows the bone volume achieved by augmentation.

16 Monitoring: the apparently narrow distance to the implant in region 22 is a result of the image geometry of the 2D

In remembrance of Gerd Weber MDT

It is with great sorrow that we announce the loss of our longtime companion and co-author of this article, Gerd Weber, master dental technician whose life was unexpectedly taken in a tragic accident. He leaves behind a big void, not only as an excellent dental technician, but also in particular as a wonderful person. Gerd was more than "just" a colleague. He was a friend, a mentor and an inspiration. He brought a special passion and dedication to his job, always striving for perfection and with a desire to fulfill his patients'

wishes. We valued greatly his human touch, his tireless work and his profound dental knowledge which he generously passed on to others. He touched our hearts with his warm and friendly personality as well as his great passion for life. Our deepest sympathy goes to his family and friends. We are grateful for the time we spent with Gerd and will honor his memory.

Dr. Daniel Schulz and the Dentaforum team