

# CONOLOG® SCREW-LINE IMPLANT REHABILITATION IN THE ESTHETIC ZONE

a perfect fit™



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The group practice of Dr. Seiler and Colleagues was established in 1998 in Filderstadt-Bernhausen, Germany. Areas of practice: Oral and maxillofacial surgery, implant dentistry and periodontology. Master of Science in Oral Implantology (DGI) since 2007. Forensic expert for implant dentistry and surgery of the German Dental Association, Stuttgart.



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Director of ZIF Innovationsschmiede (Dentaltechnik Dr. Kirsch GmbH) in Filderstadt, Germany. He put his stamp on the development of the CAMLOG® Implant Systems in the area of dental engineering. Gerhard Neuendorff is a recognized expert in the fields of pre-prosthetic planning, implant prosthetics, titanium processing, galvanic technique and all-ceramic restoration techniques.



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Dental intern and salaried dentist from 2008 to 2010 at the practice of Dr. Silke Stuff in Pforzheim, Germany. 2009 German Orthodontic Society Award. Continuing education officer for oral surgery and salaried dentist since 2010 at the practice of Dr. Seiler and Colleagues. 2011 Curriculum Implantology (DGI). Research associate at the polyclinic for dental surgery, University Mainz.



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After studying dentistry and obtaining his license, established own practice in Leinfelden-Echterdingen, Germany in 1996. Long-term cooperation with the group practice of Dr. Seiler and Colleagues in the area of implant dentistry and oral surgery.



**IMPLANTS USED**

Tooth	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
Impl. type									SL							
Impl. length									13							
Impl. Ø									4.3							
Impl. surface									PP							

Impl. type: ROOT-LINE (RL)/SCREW-LINE (SL) Impl. surface: Promote® (P)/Promote® Plus (PP)

**PROSTHETICS**

- standard
- platform switching
- removable
- fixed
- crown
- bridge
- cement-retained
- screw-retained
- partially edentulous
- fully edentulous
- other
  
- Universal abutment
- Esthomic® abutment
- Telescope abutment
- Gold-plastic abutment
- Ceramic abutment
- CAD/CAM abutment on titanium base
- Temporary abutment
- Logfit® abutment
- Locator® abutment
- Bar abutment
- Ball abutment
- Vario SR abutment
- other

## INFORMATION ABOUT PATIENT AND TREATMENT

The 47-year-old patient came to our clinic last year with the clinical conditions depicted in Fig. 1. A putride secretion appeared primarily from the single buccal pocket (6 mm) with apical compression and livid vitreous swelling of the mucosa. The BOP (Bleeding on Probing) was markedly positive. Based on the cumulative clinical findings, a diagnosis of a combined perioendo lesion was made and the patient was advised to have the tooth extracted. The single X-ray image (Fig. 2) at the start also made the advanced periodontal space and loss of bone clear that had led to an unfavorable crown/root ratio. There is a thin gingival morphotype A1. Viewed from outside the mouth, the patient shows a high smile line. The demanding patient wanted a functional and esthetic rehabilitation. A delayed implantation with a CONELOG® SCREW-LINE implant was planned after complete healing of the inflammatory conditions. The interim

restoration was fabricated in advance and inserted after tooth extraction with the appropriate socket preservation and temporary restoration was used to support papillary retention and was designed as an ovate pontic. After a healing period of nearly three months, gingival conditions appeared free of irritation and the surgery took place.

For surgery, a marginal incision line was selected with no vertical load relief up to and including the first premolars followed by corresponding preparation and mobilization of the mucoperiosteal flap. The implant was inserted in accordance with the precautions to be observed for long-term success. Evident was a buccal bone deficit, which was already visible after the mobilization of the flap and was compensated for by particulate material from the region of the right jaw angle.

### Initial situation



Fig. 1: Initial clinical situation en face. Shown are the slight overbite in the area of the middle incisors and the latent swelling in region 21.

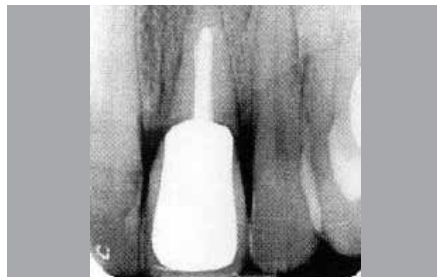


Fig. 2: Single X-ray at the beginning of treatment.

### Treatment planing and preparation



Fig. 3: Situation after gentle extraction of tooth 21 and socket preservation via Bio-Oss®. The bovine material introduced served to support the soft tissue and volume during the three-month healing period and was removed again during implantation.

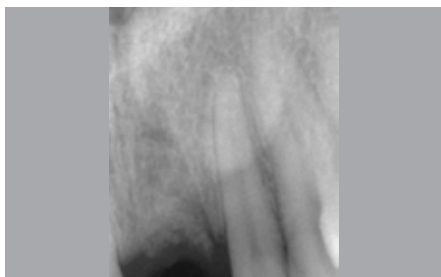


Fig. 4: Single X-ray after extraction and socket preservation.



Fig. 5: The area of implantation of the anterior maxilla with mucoperiosteal soft tissue cover free of irritation.



Fig. 6: View en face with formed soft tissue.

### Surgery



Fig. 7: Introduction of the CONELOG® SCREW-LINE implant, D 4.3 mm and L 13 mm. The marginal incision with no relief cuts prevents scarring in the esthetic zone.



Fig. 8: Inserted CONELOG® SCREW-LINE implant with insertion post still attached.



Fig. 9: Implant with implant insertion post in situ.



Fig. 10: In the top view, the three grooves directly below the conical surface typical for CONELOG® can be seen in the inside of the implant.



Fig. 11: The cover screw of the CONELOG® Implant System already includes the platform switching, where the implant shoulder is not fully covered by the cover screw.

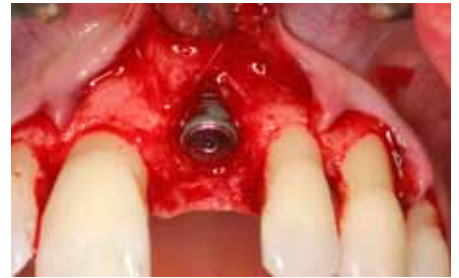


Fig. 12: Visible is the buccal bone deficit that clearly shows the need for augmentation intervention.

## Augmentation



Fig. 13: Bone graft removal from the region of the right jaw angle. Here the situation after removal of the cortical layer and collection of the particulate material with the filter.



Fig. 14: The exposed areas of the Promote® plus surface are augmented with the collected particulate bone chips.



Fig. 15: A resorbable membrane covers the augmentation material and supports tissue regeneration.

For soft-tissue augmentation, a shaped palatal flap harvested from the ipsilateral side was used that was prepared up to region 27 and then folded in under the buccal tissue. A saliva-proof closure ensured the intended primary wound healing. The patient received a healing cap post-operatively.



Fig. 16: A shaped palatal flap harvested from the ipsilateral side is used for soft tissue support.



Fig. 17: The saliva-proof closure for primary wound healing.

## Exposure

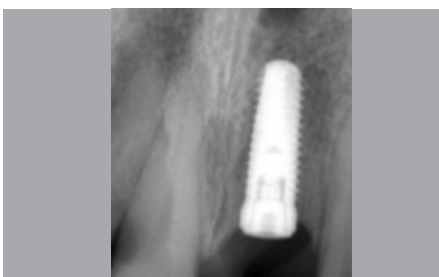


Fig. 18: The single X-ray image shows the inner design of the cover screw and the position of the implant shoulder just below the cementoenamel junction.



Fig. 19: Situation two weeks after surgical intervention with stable transversal conditions.



Fig. 20: Minimally invasive access at the time of exposure.





Fig. 21: Occlusal view after exposure. Situation with introduced healing cap, wide body (GH 4.0 mm). Visible is the initial ischemia of the tissue after insertion.



Fig. 22: Further prosthetic restoration can be started three weeks after implant exposure.



Fig. 23: The emergence profile shows periodontally healthy conditions. One of the three grooves of the inner configuration points vestibularly.

### Impression-taking



Fig. 24: Impression post for open impression-taking with the three cams typical for CONELOG® that engage the grooves of the inner configuration. The conical surface of the implant is not used when taking the impression to eliminate vertical offset. The implant shoulder is used as a height reference.



Fig. 25: The attached impression post in situ. An individual tray prepared in advance is used for the open impression.



Fig. 26: Try-in of the individual tray with corresponding cut-out in region 21.



Fig. 27: Impression with polyether (Impregum™).



Fig. 28: Master cast with attached impression post.



Fig. 29: Try-in of the wax-up. The correct position of the approximal contact allow support and further shaping of the interdental papillae. Visible is the curved course of the marginal and preservation of the attached gingiva without displacement of the mucogingival junction.



Fig. 30: The silicone index obtained over the wax-up provides the space available for the prosthetic and makes dimensional control possible.



Fig. 31: The forming of the individual ceramic abutment is checked.



Fig. 32: Development of the emergence profile on the cast to make a natural design of the crown possible.

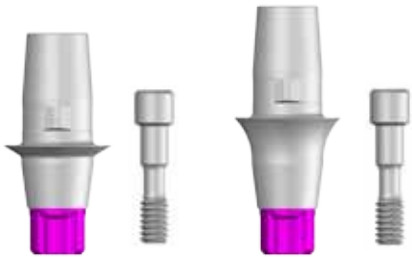


Fig. 33: The CONELOG® Titanium bases CAD/CAM in gingival heights 0.8 mm and 2.0 mm.



Fig. 34: The ceramic abutment consists of a titanium base, a zirconium oxide part and an abutment screw. The titanium base is bonded to it only after successfully preparing the zirconium oxide part individually, which reduces mechanical tension.



Fig. 35: The abutments lies in the orofacial comfort zone, which lies behind the imaginary line between the exit points of the adjacent teeth. Correct positioning ensures that the buccal layer is supported and prevents soft tissue recession.

### Fabrication and insertion of the final crown



Fig. 36: The course of the shoulder must be checked when trying in the zirconium oxide abutment. The buccal continuity of the alveolar process is restored by the augmentation measures.



Fig. 37: The oversized preform made of zirconium oxide (Lava™, 3M Espe) in milled and unsintered condition and the sintered crown framework.



Fig. 38: The custom crown framework before the ceramic coating.



Fig. 39: The ceramic coating is performed individually with an esthetic veneering ceramic for zirconium oxide (VM 9, Vita).



Fig. 40: First bake.



Fig. 41: The zirconium oxide part bonded to the titanium base on the lab analog. Platform switching on the implant/abutment interface is clear. The palatally attached removal tool of the crown to the right.



Fig. 42: The finished crown with individual color design of the ceramic.



Fig. 43: The inserted work in situ from the front. There is significant stabilization of the peri-implant soft tissue only three days after insertion. It is expected that the papillae will further regenerate in follow-up.



Fig. 44: Integration of the implant-supported crown occlusally.

## CONCLUSIONS

For a stable, long-term outcome of an implant-supported prosthetic restoration in the esthetic zone and for a high smile line, good mucogingival conditions are important. Therefore, to prevent later scarring in the esthetic zone, a marginal incision line was selected. A procedure using a coronally advanced flap was excluded in this case because the mucogingival junction and interdental papillae would have been displaced. Thanks to the soft tissue augmentation with a palatal sliding flap, the anatomical structures could be maintained, as well as the thin soft tissue morphology of type A1 converted to a more stable morphotype B more resistant against recession. Another benefit is the blood supply via the vascular pedicle, which minimizes the necrosis rate of the flap.

In this esthetically demanding area, epicrestal insertion of the conical, self-tapping CONELOG® SCREW-LINE implant proves to be of benefit.

Because the Promote® plus surface covers the entire neck area, complete osseointegration of the implant is also possible in this area. A metallic shimmer of the implant shoulder is thus avoided and a natural emergence profile achieved.

Before inserting the final prosthesis, there must be a harmonious gingival line. According to the baseline study at the time of crown insertion, there is again a significant improvement in the red-white esthetics.

Thanks to the platform switching integrated in the CONELOG® Implant System, long-term stable bone levels around the implant / bone interface are also possible, especially in the esthetic zone.

### Initial situation



Fig. 45: Initial clinical situation en face.



Fig. 46: Single X-ray at the beginning of treatment.

### Final restoration



Fig. 47: Final restoration.



Fig. 48: Single X-ray image with prosthetic inserted. Visible is the conical connection with integrated platform switching of the CONELOG® Implant System.

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