Special Edition

logo

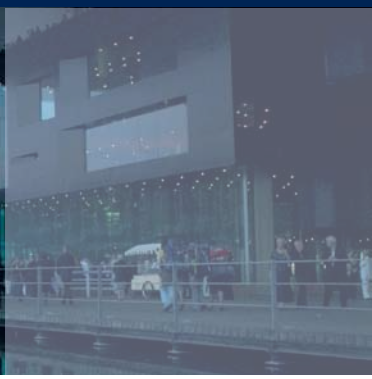
ISSUE 1 | 2012
CAMLOG Partner-Magazine

4TH INTERNATIONAL CAMLOG CONGRESS

MAY 3RD–5TH, 2012

LUZERN SWITZERLAND



4TH INTERNATIONAL CAMLOG CONGRESS MAY 3RD - 5TH, 2012, LUCERNE, SWITZERLAND

We are rapidly approaching the end of 2011 and the highlight of the coming year for CAMLOG is already making its presence felt: the 4th International CAMLOG Congress in May in picturesque Lucerne, Switzerland on Lake Lucerne. Thomas Moser, Director of International Marketing at CAMLOG Biotechnologies AG in Basel, was happy to answer some questions for logo about the Congress.

logo: To give our interview structure, our questions will follow the structure of one of your publications about the Congress point for point. You've promised to show potential congress participants the 'state of the art' of implant dentistry in Lucerne, Switzerland. Can you tell us more?

Thomas Moser: Please don't look at it as only elevating the status quo in implant dentistry in Lucerne, but much more of a promise of quality. The CAMLOG name, as well as the internationally renowned members of the scientific committee and recognized speakers guarantee it. In terms of content, 'state of the art' is demonstrated in the following topics:

- Innovations in implant-abutment connections
- Current clinical experience with platform switching and promising long-term results
- The demographic shift and increasingly aging patients
- Current trends in digital dentistry
- And to conclude the congress, the popular 'Meet the experts' with lively panel discussion

logo: Based on your statements, the congress theme of 'Feel the pulse of science in the heart of Switzerland' also suggests that the congress characterized by its scientific content will be held in 'traditional Swiss' surroundings. What is that about?

Thomas Moser: I would also recommend that all potential congress attendees register for one of our workshops to be held on the Thursday before the actual congress at a unique location. The events will be held at the Pilatus, 2,100 meters above sea level with unobstructed views of several Alpine peaks. Up there in almost heavenly spheres reached by cogwheel train, participants will be instructed and gain practical experience in the various aspects of soft tissue management in English or German. I guarantee that anyone who registers for one of these courses will not soon forget the content of the course and especially the unique Alpine learning environment!

logo: That sounds very promising already. What do you think makes Lucerne and the region so attractive as the location of the event?

Thomas Moser: I find what the City of Lucerne says about itself to be very true. "Lucerne is Switzerland in a nutshell because it encompasses all the benefits of Switzerland: the city – the lake – the mountains. Whatever you expect from a unique city, Lucerne will not disappoint you." – "Lucerne will surprise you – again and again. The avant-garde in the form of the futuristic Culture & Convention Center Lucerne (KKL) designed by Jean Nouvel is just as at home here as historic sights, which have survived for centuries. The museums, theatres and festivals provide the perfect mix of tradition and trend, archaic customs and high-tech, making Lucerne a city of culture with a difference. "

For me personally, Lucerne in its region is actually one of the most charming places in Switzerland, if not in Europe.

logo: We know some people still raving about the fabulous 'Night of the Stars' party CAMLOG hosted on the occasion of the 3rd International CAMLOG Congress in Stuttgart, Germany in 2010. Do you also have anything memorable up your sleeve for the Lucerne event?

[1] http://www.luzern.com/de

Thomas Moser: Of course and nearly 'on top of Europe'! To quote from our congress brochure: "Get ready for an amazing evening on Saturday! Experience Switzerland in all its fascinating aspects. Cross Lake Lucerne by boat, then ascend by cogwheel train to more than 1,600 m to Rigi, the 'Queen of the Lucerne Mountains'. Once there, a sensational view awaits you and pure Swiss tradition: alphorns, banner swingers, cheese, chocolate ... and of course, lots of entertainment, music and fun. Revel into the night until returning on Europe's first mountain railway into the valley and then from there by bus back to Lucerne." By the way, the 'festival' zone at the Rigi is still earthquake-proof ... at least until the certainly legendary CAMLOG Party of 2012. Like I said, 'until' ...

logo: Experience has shown that many who accompany congress participants to the event take the opportunity to make a getaway out of it. What do you have to offer as an accompanying program for partners?

Thomas Moser: You can also find some attractions in Lucerne and the surrounding area that you couldn't find anywhere else. For example, you could visit a glassworks. Travel by boat on Lake Lucerne to 'Glasi Hergiswil', the only glassworks in Switzerland still shaping glass by mouth and hand into contemporary and unique designs.
Or in Lucerne, take in the façades that tell fascinating stories of customs, festivals and people. Let your expert guide tell you about the origin of the paintings, as well as the history of the artists and homeowners.
What would Switzerland be without chocolate? Take an exciting tour of Lucerne followed by an introduction into the secrets of chocolate making and follow the individual steps of production from molding to packaging and tastings. The 'Pilatus – Golden Roundtrip' takes you around the delightful surroundings of Lucerne. You will experience Lake Lucerne by boat from Lucerne to Alpnachstad, the steepest cogwheel train in the world to Pilatus Kulm and at the top, the special mountain flora and fauna.
Explore culture at its finest on a 'city walk of the Rosengart Collection' in Lucerne. The Rosengart Collection owes its importance to both the unique creative works of Paul Klee and Pablo Picasso.
In addition, there are important pictures and drawings by Cézanne, Monet, Matisse and Chagall on display. So you see, you'll get to feel the pulse of science and much more in Lucerne.

logo: Last but not least, CAMLOG promises an exceptional value for the money for the Lucerne event. Can you substantiate this claim with actual numbers?

Thomas Moser: The congress fees per person are broken down as follows:
- Registration: € 530.–
- Students, university assistants, dental assistants: € 240.–
- Each of the workshops on Thursday costs € 190.– incl. travel to and from the Pilatus.
- You can attend the CAMLOG Party on Saturday for € 110.–.

For the partner program on Friday and Saturday, we charge you by the person:
- Glasi Hergiswil: € 40.–
- 'Façades tell stories' guided city walk: € 20.–
- The sweet temptation: € 20.–
- Pilatus – Golden Roundtrip: € 80.–
- City walk/Rosengart: € 20.–.

Of course, the 4th International CAMLOG Congress program is CE-accredited. For your participation, 16 points will be credited to you; an additional six points for attending a workshop.

About our partnership pricing, I can only say in conclusion: We cannot compare this with our competition – but you can!

logo: Thank you for the interview, Mr. Moser, and good luck at your Lucerne Congress.

For more information and to register for the 4th International CAMLOG Congress, May 3 - 5, 2012, in Lucerne, Switzerland at: www.camlogcongress.com or use your smartphone to scan the QR code at the bottom right.

LENGTH, DIAMETER, TIME – WHICH FACTORS AFFECT TREATMENT SUCCESS WITH CAMLOG® IMPLANTS?

The use of CAMLOG® implants has been thoroughly documented in studies in different indications for single and multiple tooth replacement. A high rate of treatment success was shown over a period of up to seven years with various implant diameters and lengths, as well at different implantation and loading times. The following article provides an overview of the current studies.

Immediate implantation? Immediately loading? What diameter and length? Questions about treatment procedures are not always so easy to answer.
Esthetics and function play an important role on the one hand and on the other, the factor of time. Treatment success when using CAMLOG® implants was documented for various treatment approaches, various indications and over a period of up to seven years.

Treatment success with all diameters ...

Krenmmair et al. (2010) studied the treatment success of CAMLOG® implants based on diameter [1]. The cumulative success rate after five years was 96.2% for 3.8 mm implants, 98.6% for 4.3 mm implants and 99.0% for 5.0 and 6.0 mm implants. Prosthetic follow-up was required in just a few cases. The patients were satisfied with the treatment and in a scale from 1 to 5 (5 being the highest degree of satisfaction), indicated an average degree of satisfaction of 4.8. The study included a total of 541 implants (immediate implantation: N=6; 6–8 weeks after extraction: N=116; >8 weeks after extraction: N=409).

... and lengths

Strietzel & Reichart (2007) studied treatment success with CAMLOG® implants in different lengths [2]. They did not observe any significant difference between short and long implants. The average survival rate of 325 implants examined (long and short) was 98.5% over a maximum period of 55 months.

The right time

An ever-debated topic in implant dentistry is the right time for implantation after tooth extraction and when to put a load on the implant [3, 4].

In various studies with observation times of up to seven years, this topic was also studied when using CAMLOG® implants. In a retrospective study by Zafiropoulos et al. (2010), no difference was observed over a period of five years in the implant survival rate depending on the time of implantation, implant type or when a load was placed on the implant [5]. The study included the results from 241 implants in 241 patients. These results are confirmed by Lange et al. (2010) [6]. They studied the treatment success of 774 implants, some with immediate loading, others with delayed loading and each with implantation in fresh or already healed extraction sites. The authors of the study came to the conclusion that individual risk factors (e.g. smoking, inflammation, endodontic treatments) are much more critical to success rate than the times of implantation and loading.

Siebers et al. (2010) also studied this topic in 76 patients with a total of 222 implants over a period of up to seven years. They achieved a treatment success of 100% for implants placed after the extraction sites had healed. For immediate implantation and immediate loading, treatment success was 91.3% and for immediately implantation with delayed loading 98.5% [7].

Reduced healing time

Two studies examined treatment success with CAMLOG® implants with reduced healing times (6 weeks in the LJ, 12 weeks in the UJ). After 3.75 years on average, Nelson et al. (2008) observed a treatment success rate of 99.4% [8]; after six years, Semper et al. (2007) even achieved a success rate of 99.8% [9]. In both studies, implants with sand-blasted and etched surfaces were examined.
The success rate was confirmed based on criteria defined by Buser et al. (2002) [10]: Immobility, no apical translucency, no pain or other signs of persistent or irreversible symptoms, no peri-implant inflammation.

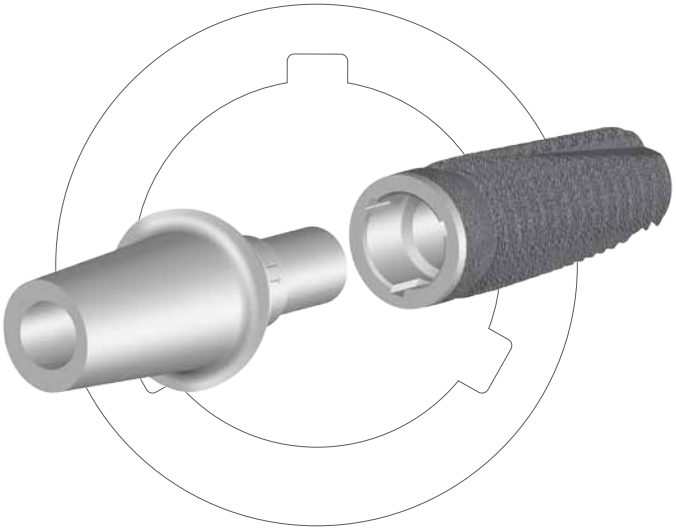
High success rates and positive results

Ozcan et al. (2007, 2011) was also able to show an excellent implant survival rate over a period of three and five years [11, 12]. The authors studied CAMLOG® implants together with various other implant systems. The implant survival rate after three or five years for CAMLOG® implants was 100% – in both studies, only one implant of a different brand was lost. The authors observed no significant difference between implant systems and concluded that their use leads to a positive treatment success.

Results confirmed in everyday practice

The reproducibility of these results in everyday practice was confirmed by Franchini et al. (2011) [13]. With CAMLOG® implants, they achieved a success rate of 99.5% over an observation period of at least one year after loading up to 78 months. Treatment success was independent of the time of implantation or loading, as well as the length of the implant. In total, data from 96 patients with 201 implants in different indications was analyzed; 158 were placed in partially edentulous patients, 49 in single tooth gaps.

* Treatment success with CAMLOG® implants over a period of up to seven years is documented in the scientific literature



Conclusion

The use of CAMLOG® implants in various indications has been scientifically documented. Excellent implant survival rates and treatment success with very good predictability has been observed in studies. In this article, the use of CAMLOG® implants in partially edentulous patients in the maxilla and mandible at various lengths and diameters, as well as different implantation and loading times has been systematically represented. A study overview of the use of CAMLOG® implants in edentulous patients was included in logo Edition 24.

Literature

[1] Krennmair G, Seemann R, Schmidinger S, Ewers R, Piehslinger E. Clinical outcome of root-shaped dental implants of various diameters: 5-year results. Int J Oral Maxillofac Implants 2010; 25: 357–366

[2] Strietzel FP, Reichart PA. Oral rehabilitation using CAMLOG screw-cylinder implants with a particle-blasted and acid-etched microstructured surface. Results from a prospective study with special consideration of short implants. Clin Oral Implants Res 2007; 18:591–600.

[3] Esposito M, Grusovin MG, Chew YS, Coulthard P, Worthington HV. One-stage versus two-stage implant placement. A Cochrane systematic review of randomised controlled clinical trials. Eur J Oral Implantol 2009; 2: 91–99.

[4] Esposito M, Grusovin MG, Polyzos IP, Felice P, Worthington HV. Timing of implant placement after tooth extraction: immediate, immediate-delayed or delayed implants? A Cochrane systematic review. Eur J Oral Implantol 2010; 3: 189–205.

[5] Zafiropoulos GGK, Deli G, Bartee BK , Hoffmann O. Single tooth implant placement and loading in fresh and regenerated extraction sockets. 5 year results. A case series using two different implant designs. J Periodontol 2010; 81: 604–615

[6] De Lange GL, Randelzhofer P, Sipos P, de Bruin M, Both CJ. Survival and risks of immediate placed anterior implants Poster 19th Annual Scientific Meeting EAO Glasgow, October 6–9, 2010

[7] Siebers D, Gehrke P, Schliephake H. Immediate versus delayed function of dental implants: A 1- to 7-year follow-up study of 222 implants. Int J Oral Maxillofac Implants 2010; 25: 1195–1202

[8] Nelson K, Semper W, Hildebrand D, Özyuvaci H. A retrospective analysis of sandblasted, acid-etched implants with reduced healing times with an observation period of up to 5 years. Int J Oral Maxillofac Implants 2008; 23: 726–732

[9] Semper W, Heberer S, Nelson K. Early loading of root form and conical implants with a sandblasted large-grit acid-etched surface: A 6-year clinical followup. Implants 2008; 2:14–19

[10] Buser D, Ingmarsson S, Dula K, Lussi A, Hirt HP, Belser UC. Long-term stability of osseointegrated implants in augmented bone: A 5-year prospective study in partially edentulous patients. Int J Periodontics Restorative Dent 2002; 22: 108–117

[11] Özkan Y, Akoğlu B, Kulak-Özkan Y. Five-year treatment outcomes with four types of implants in the posterior maxilla and mandible in partially edentulous patients: a retrospective study. Int J Oral Maxillofac Implants 2011; 26: 639–647

[12] Ozkan Y, Ozcan M, Akoglu B, Ucankale M, Kulak-Ozkan Y. Three-year treatment outcomes with three brands of implants placed in the posterior maxilla and mandible of partially edentulous patients. J Prosthet Dent 2007; 97: 78–84

[13] Franchini I, Capelli M, Fumagalli L, Parenti A, Testori T. Multicenter retrospective analysis of 201 consecutively places Camlog dental implants. Int J Periodontics Restorative Dent 2011; 31: 255–263

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.

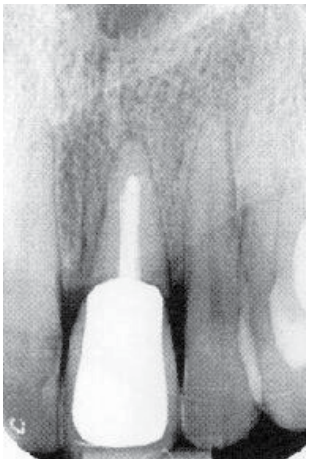


Fig. 2: Single X-ray at the beginning of treatment.

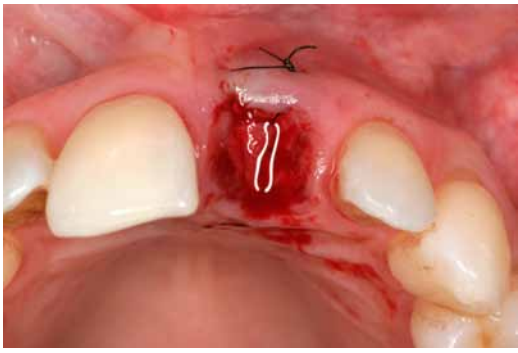


Fig. 3: Situation after gentle extraction of tooth 21 and socket preservation via Bio-Oss®. The bovine material introduced served to support the soft tissue and volume during the three-month healing period and was removed again during implantation.

REHABILITATION IN THE ESTHETIC ZONE WITH A CONELOG® SCREW-LINE IMPLANT

Dr. Marcus Seiler, Dr. Martin Baisch, ZTM Gerhard Neuendorff, ZTM Christine Hammerl-Riempp, Dr. Amely Hartmann, Filderstadt

The subjective satisfaction of the patient with the esthetic results is part of the success of an implantation. Implantation procedures in the esthetic zone or the extremely atrophied area is the most difficult to treat according to the SAC classification [1].
In the case of an implantological single-tooth prosthesis, the anterior area of the maxilla also represents a surgical challenge [2] in which esthetics is arguably the focus of the treatment. This again makes the necessary interaction between an exact three-dimensional implant position, perfectly formed soft tissue and esthetic superstructure clear. The basis for this is interdisciplinary collaboration and communication between the surgeon, prosthodontist and technician from the start. This patient case shall describe the therapeutic approach for the loss of a single tooth caused by a pero-endo lesion in the esthetic zone using a CONELOG® SCREW-LINE implant.

Initial situation

The 47-year-old patient at the beginning of treatment 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 pero-endo 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 lead 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.

Treatment planning and pre-treatment

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.All pre-treatments were performed in the preoperative phase by the attending family dentist.

The interim restoration was also fabricated in advance and inserted after tooth extraction with appropriate socket preservation **(Fig. 3)**. The temporary restoration was used to support papillary retention and was designed as an ovate pontic. **Fig. 4** shows the radiographic situation after tooth extraction. After a healing period of nearly three months, gingival conditions appeared free of irritation **(Fig. 5 and 6)**.

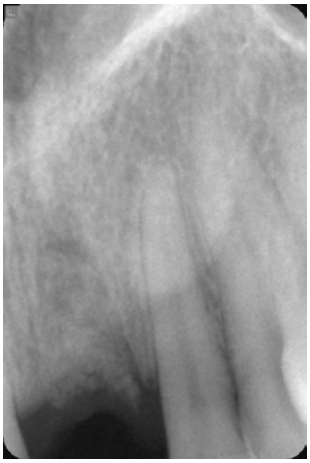


Fig. 4: Single X-ray after extraction and socket preservation.

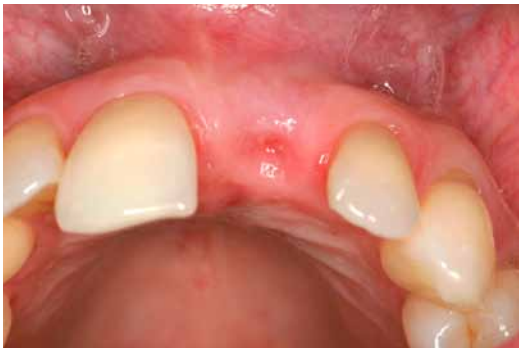


Fig. 5: The area of implantation of the anterior maxilla with mucoperiosteal soft tissue cover free of irritation.

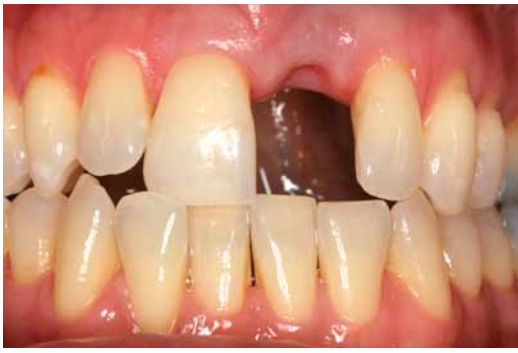


Fig. 6: View en face with formed soft tissue.

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.

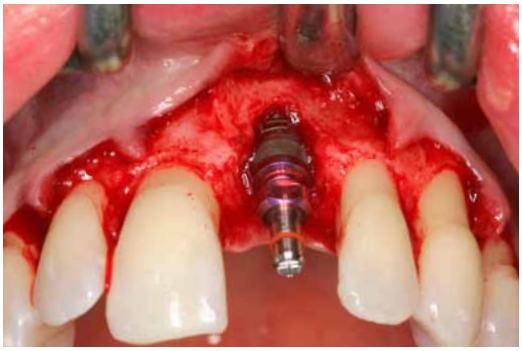


Fig. 8: Inserted CONELOG® SCREW-LINE implant with insertion post still attached.

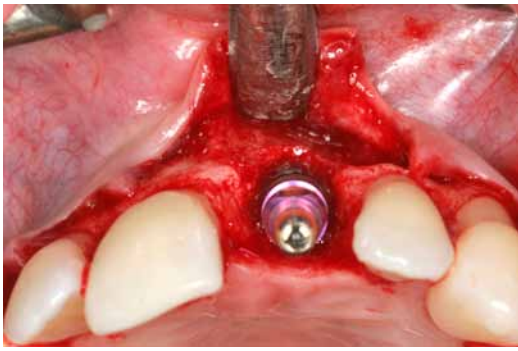


Fig. 9: Implant with implant insertion post in situ.

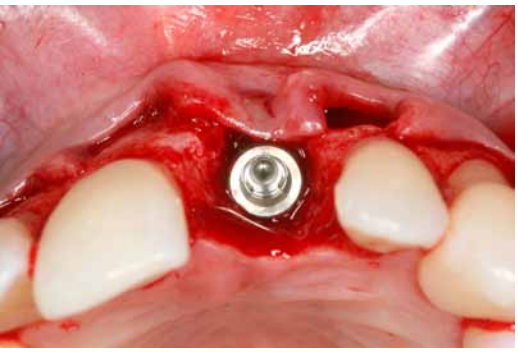


Fig. 10: In the top view, the three grooves directly below the conical surface typical for CONELOG® can be seen in the inside of the implant.

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.

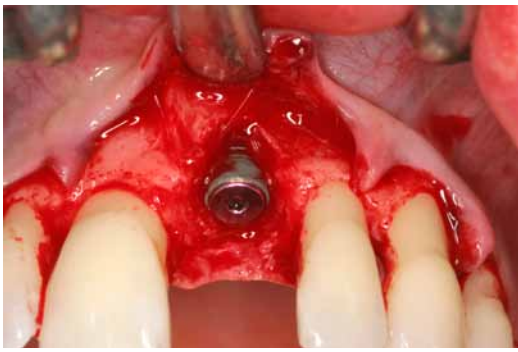


Fig. 12: Visible is the buccal bone deficit that clearly shows the need for augmentation intervention.

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.
Implant bed preparation to the desired size of the bore entry corresponded to the procedure for CAMLOG® SCREW-LINE implants. Thanks to the uniform SCREW-LINE outer geometry, CAMLOG® and CONELOG® implants can be inserted with the same surgery set.
The implant was inserted in accordance with the precautions to be observed for long-term success **(Fig. 7)**. **Fig. 8** shows an approx. 3 mm gap from the implant shoulder vertically to the cementoenamel junction and 2 mm between the implant in the horizontal and the respective adjacent tooth.
Similar to the CAMLOG® Implant System, one of the three grooves of the inner configuration should be vestibularly oriented for the CONELOG® Implant System to simplify the subsequent prosthetic. For this purpose, the driver is marked corresponding to the three grooves. The insertion post is removed as usual **(Fig. 9)**.
Viewed from the top, the three grooves for positioning directly below the conical surface typical for CONELOG® can be seen in the inside of the implant **(Fig. 10)**. The inner configuration of the cone is 7.5 degrees. However, the desired cone function is only effective with the abutments. 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. 11)**. The buccal bone deficit **(Fig. 12)** already visible after mobilization of the flap was compensated for by particulate material from the region

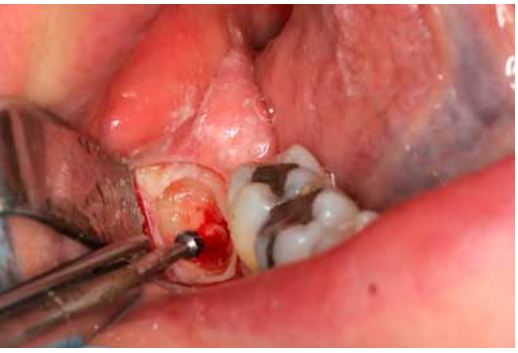


Fig. 13: Bone graft removal from the region of the right jaw angle. Here the situation after removal of the cortical layer and collection of the particulate material with the filter.

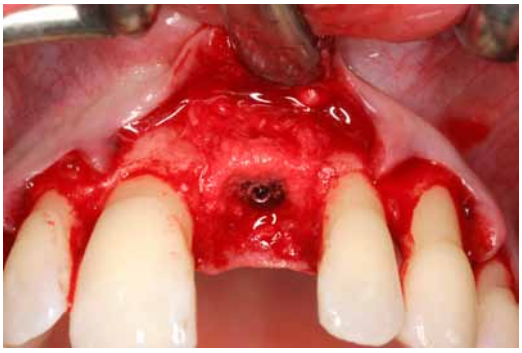


Fig. 14: The exposed areas of the Promote® plus surface are augmented with the collected particulate bone chips.

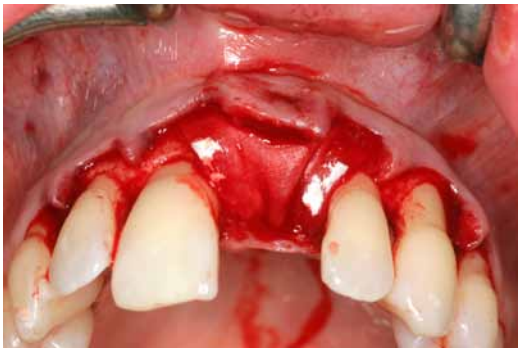


Fig. 15: A resorbable membrane covers the augmentation material and supports tissue regeneration.

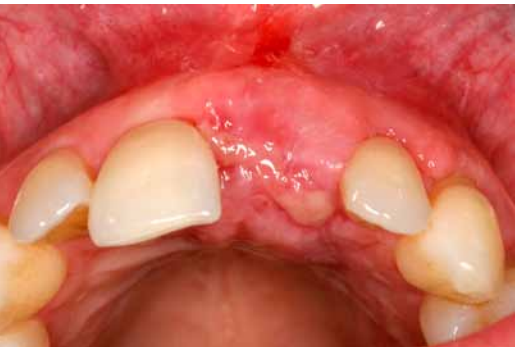


Fig. 19: Situation two weeks after surgical intervention with stable transversal conditions.

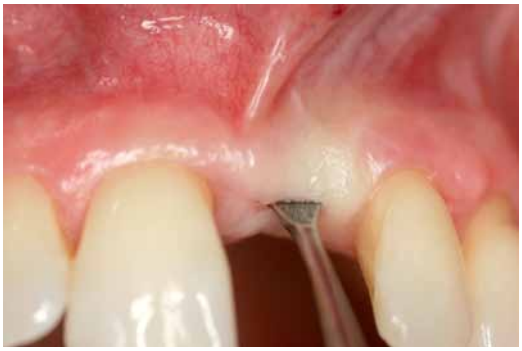


Fig. 20: Minimally invasive access at the time of exposure.

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

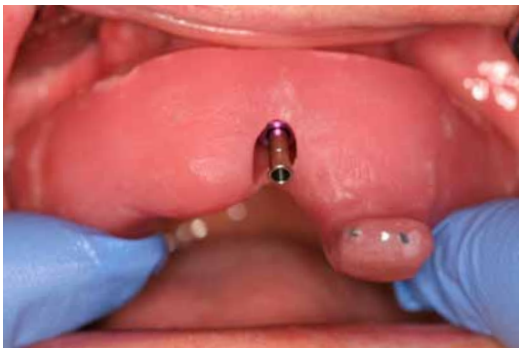


Fig. 26: Try-in of the individual tray with corresponding cutout in region 21.

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

of the right jaw angle **(Fig. 13)**.
In terms of an onlay graft, the material was applied to the exposed areas of the Promote® plus implant surface **(Fig. 14)** and covered by tissue regeneration guided by a resorbable membrane **(Fig. 15)**. For soft-tissue augmentation, a shaped palatal flap harvested from the ipsilateral side was used **(Fig.16)** that was prepared up to region 27 and then folded in under the buccal tissue.A saliva-proof closure **(Fig. 17)** ensured the intended primary wound healing. The patient received a healing cap postoperatively. The radiograph after implantation **(Fig. 18)** showed the correct positioning of the CONELOG® implant. The clinical situation at suture removal appeared free of irritation and when viewed occlusally, stable transversal conditions are apparent **(Fig. 19)**.

Exposure

The two-part system healed while covered. In the meantime, the patient wore a basal ground interim restoration. After a healing phase of about five months, the implant was exposed with minimally invasive access **(Fig. 20)**. The CONELOG® Healing cap, wide body (GH 4.0 mm) was inserted for three weeks for soft-tissue conditioning and the prosthetic restoration could then continue **(Fig. 21 and 22)**.

There were periodontally healthy conditions after removal of the healing cap and an adequately shaped emergence profile to later receive the crown **(Fig. 23)**.

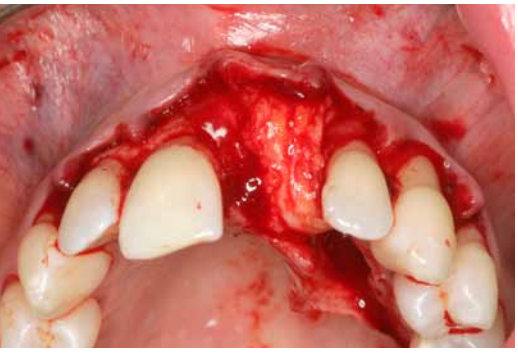


Fig. 16: A shaped palatal flap harvested from the ipsilateral side is used for soft tissues support.

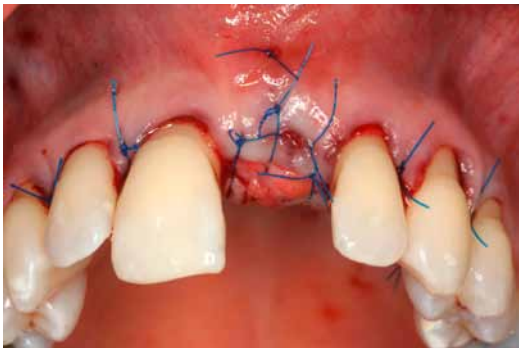


Fig. 17: The saliva-proof closure for primary wound healing.

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.

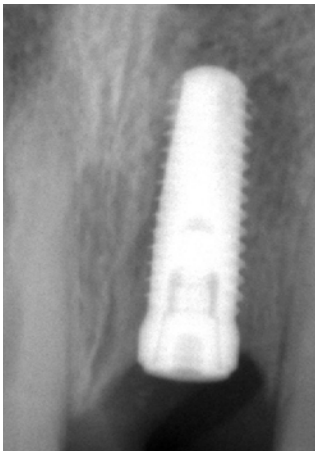


Fig. 22: Further prosthetic restoration can be started three weeks after implant exposure.

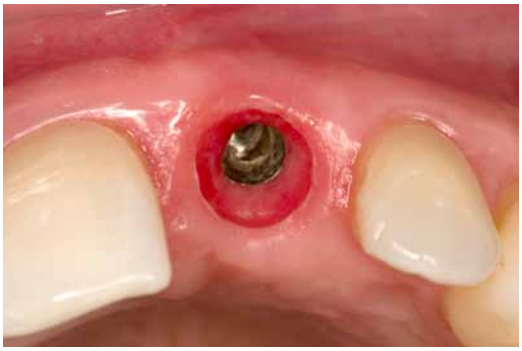


Fig. 23: The emergence profile shows periodontally healthy conditions. One of the three grooves of the inner configuration points vestibularly.

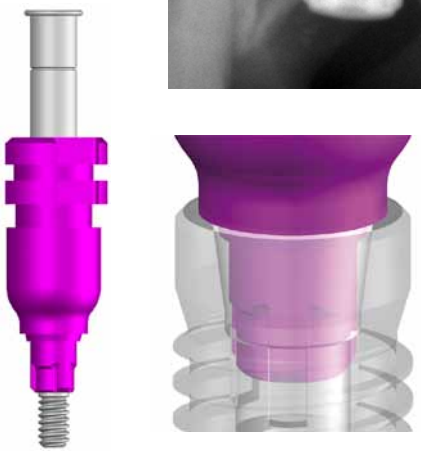


Fig. 24: Impression post for open impression-taking with the three cams typical for CONELOG® that engage the grooves of the inner configuration. The conical surface of the implant is not used when taking the impression to eliminate vertical offset. The implant shoulder is used as a height reference.

Fig. 28: Master cast with attached impression post.

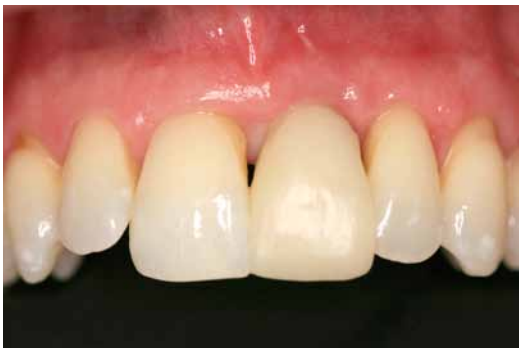


Fig. 29: Try-in of the wax-up. The correct position of the approximal contact make subsequent support and further shaping of the interdental papillae possible. Visible is the curved course of the marginal gingiva and preservation of the attached gingiva without displacement of the mucogingival junction.

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

Impression-taking

For open impression-taking, the corresponding rotationally symmetrical impression post **(Fig. 24)** was inserted in the implant until the cams snapped into the provided grooves and screwed together. The fixing screw was tightened using hex screwdriver **(Fig. 25)**. To take the impression, a custom tray fabricated in the laboratory was used with corresponding perforation on region 21 **(Fig. 26)**. After taking the impression as shown here with a polyether (Impregum™, 3M Espe), the fixing screw must be detachable through the perforation and may not be covered by impression material **(Fig. 27)**. After hardening, the fixing screw was loosened and withdrawn from the impression and the impression tray removed.

Cast fabrication and functional wax-up

The master cast was fabricated in the dental laboratory **(Fig. 28)**. The cast was mounted with the aid of a centric registration. By fabricating a wax-up, it is possible to accurately plan the later final restoration three-dimensionally. It was inserted in the clinic to check and adjust the fit of the cast in situ **(Fig. 29)**. Preparation of a silicone index could then be continued in the laboratory on the master case that provided information about the available space conditions for abutment and crown **(Fig. 30 and 31)**.

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

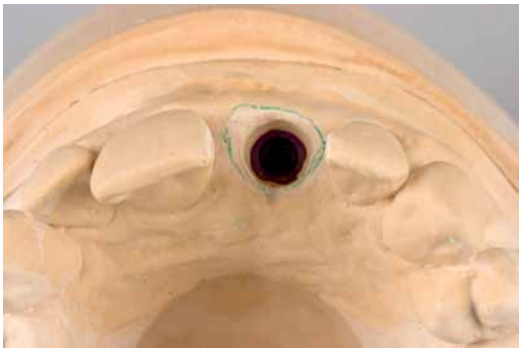


Fig. 32: Development of the emergence profile on the cast to make a natural design of the crown possible.

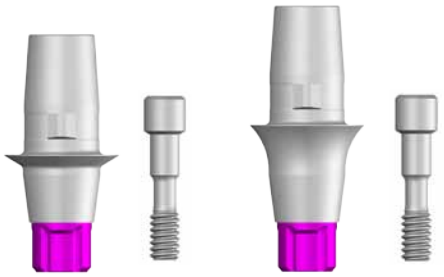


Fig. 33: The CONELOG® Titanium bases CAD/CAM in gingival heights 0.8 mm and 2.0 mm

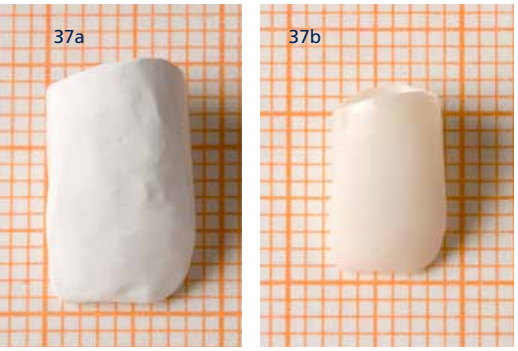


Fig. 37: The oversized preform made of zirconium oxide (Lava™, 3M Espe) in milled and unsintered condition (37a) and the sintered crown framework (37b).

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).

Abutment fabrication and try-in

Fig. 32 shows the subsequent process on the master cast. The zirconium oxide part of the ceramic abutment was cast in wax based on the individual conditions, digitalized, milled, sintered in the double scanning method (Lava™, 3M Espe) and bonded to the CONELOG® Titanium base CAD/CAM **(Fig. 33)** with Panavia F2.0 (Kuraray) **(Fig. 34)**.

Mechanical tension on the zirconium oxide part is prevented by the seat of the abutment screw in the metal abutment of the titanium base. The self-locking tapered connection of the CONELOG® Implant System only takes effect when tightening the abutment screw to the predefined torque. Viewed from the front, the course of the prepared shoulder appeared slightly subgingival vestibularly when trying in the abutment (1 to 1.5 mm) and oral paragingival **(Fig. 35)**. This ensures that cement residues can be properly removed after cementing the final crown and natural red-white esthetics are achieved. A vestibular mark on the abutment facilitates insertion. With the clinical situation, positioning of the implant within the orofacial comfort zone is clear. This lies behind the imaginary line between the exit points of the adjacent teeth. By following these surgical precautions, the buccal layer is supported and soft-tissue recession can be prevented in the long term **(Fig. 36)**.

Fabrication and insertion of the final drown

To fabricate the zirconium oxide crown, a crown framework was modelled, digitized and milled in the double scanning method in the laboratory (Lava™, 3M Espe). **Fig. 37** shows the preform and the sintered crown framework in the size comparison. The subsequent fabrication steps are performed according to the all-ceramic restoration and coating technique in this case with VM9 (Vita) **(Fig. 38 and 39)**. **Fig. 40** shows the front view of the first bake on the cast. For the long-term success of the prosthetic, it is already important during try-in of the first bake to attach importance to a natural-looking crown shape as well as the ease of taking care of the restoration in terms of hygiene. To make shaping natural-looking interdental papillae possible, the distance from approximal contact point to the bone may not be more than 5 mm. **Fig. 41 and 42** show the finished prosthetic work.

When inserting the prosthetic, mucogingival conditions were free of irritation. The crown was cemented with Durelon®. **Fig. 43** shows 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. In the occlusal view, **(Fig. 44)** shows the restoration in the dental arch. Radiographically, stable bone conditions and good osseointegration of the implant are clear **(Fig. 45)**. As part of the recall, the patient **(Fig. 46)** will regularly appear for follow-up of the implant-supported prosthetic restoration.

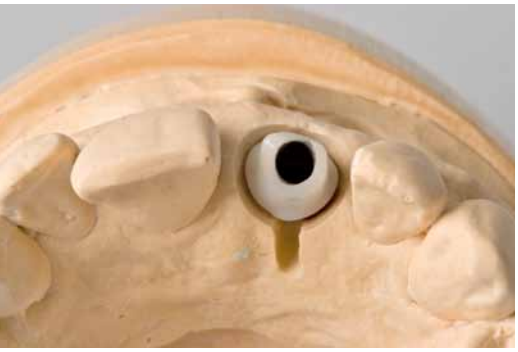


Fig. 34: The ceramic abutment consists of a titanium base, a zirconium oxide part and an abutment screw. The titanium base is bonded to it only after successfully preparing the zirconium oxide part individually, which reduces mechanical tension.

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.

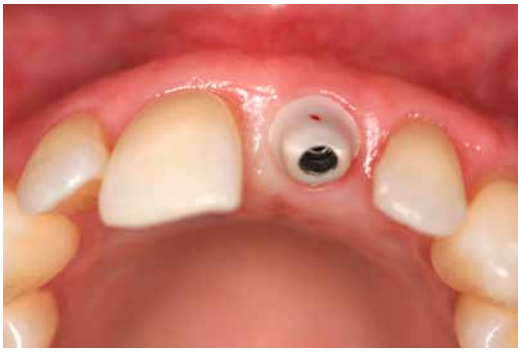


Fig. 36: The course of the shoulder must be checked when trying in the zirconium oxide abutment. The buccal continuity of the alveolar process is restored by the augmentation measures.

Fig. 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.

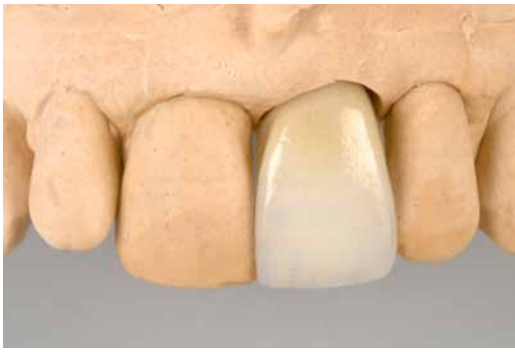


Fig. 42: The finished crown with individual color design of the ceramic.

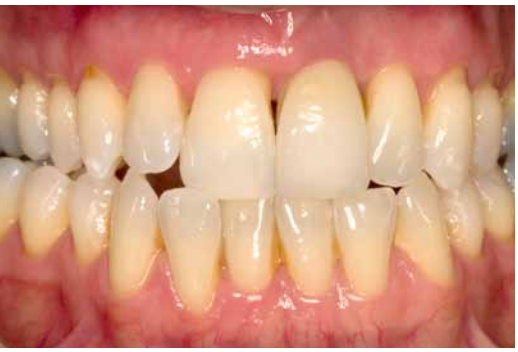


Fig. 43: The inserted work in situ from the front. There is significant stabilization of the peri-implant soft tissue only three days after insertion. It is expected that the papillae will further regenerate in follow-up.

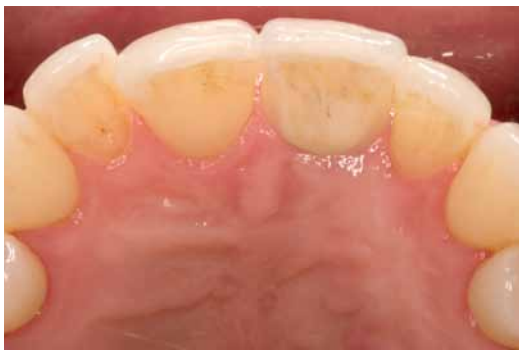


Fig. 44: Integration of the implant-supported crown occlusally.

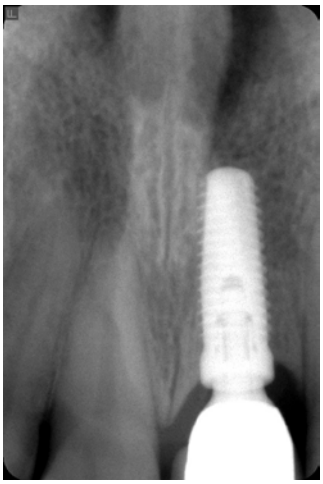


Fig. 45: Single X-ray image with prosthetic inserted. Visible is the conical connection with integrated platform switching of the CONELOG® Implant System.

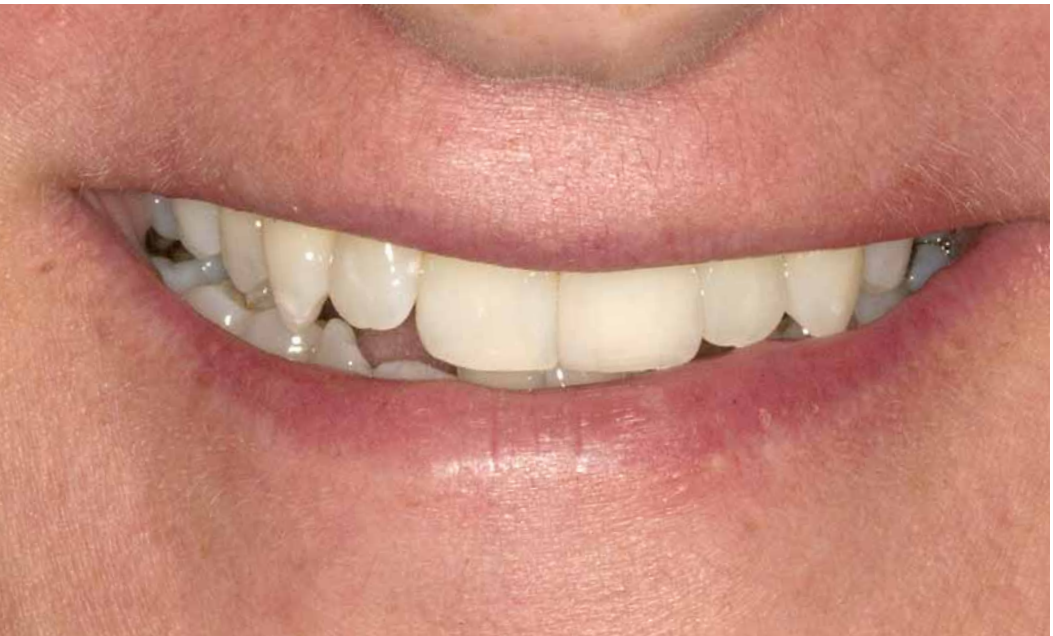


Fig. 46: Patient smiling.

Discussion

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 [3]. 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 [4], 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 [5,6]. 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 signification improvement in the red-white esthetics [7].
Thanks to the platform switching integrated in the CONELOG® Implant System, long-term stable bone levels around the implant/bone interface are also possible [8] and especially in the esthetic zone [9].

Dr. Marcus Seiler, M.Sc.
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

Dr. Martin Baisch
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.

ZTM Gerhard Neuendorff
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, galvonic technique and all-ceramic restoration techniques.

ZTM Christine Hammerl-Riempp
Has been employed as a Master Dental Technician at ZIF Innovationsschmiede (Dentaltechnik Dr. Kirsch GmbH) since 2001. The focus of her work is: 3D implant planning, implant dentistry, CAD/CAM technology, all-ceramic restorations.

Dr. Amely Hartmann
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).

Contact information

Practice of Dr. Seiler and Colleagues
Echterdinger Str. 7
70794 Filderstadt, Germany

Tel.: 0711 7009470
E-mail: seiler@implantologie-stuttgart.de

Further reading

[1] Sailer HF P.G. (ed.) Atlas der oralen Chirurgie, 360 (1996).

[2] Gomez-Roman G. Influence of flap design on periimplant interproximal crestal bone loss around single-tooth implants. Int J Oral Maxillofac Implants 16, 61-7 (2001).

[3] Ronay V, Sahrmann P, Bindl A, Attin T, Schmidlin P R. Current status and perspectives of muco-gingival soft-tissue measurement methods. J Esthet Restor Dent 23, 146-56 (2011).

[4] Khoury F, H. A. The palatal subepithelial connective tissue flap method for soft-tissue management to cover maxillary defects: a clinical report. Int J Oral Maxillofac Implants 15:415-418(2000).

[5] Grunder U. Stabilität der Mukosatopographie um Einzelzahnimplantate und benachbarte Zähne: Ein-Jahres-Ergebnisse. Int J Parodontol Rest 1:10-17(2000).

[6] Müller HP, E.T. Gingival phenotypes in young male adults J Clin Periodontol 24:65-71(1997).

[7] Lai H. C. et al. Evaluation of soft-tissue alteration around implant-supported single-tooth restorations in the anterior maxilla: the pink esthetic score. Clin Oral Implants Res 19, 560-4 (2008).

[8] Buser D. et al. Stability of contour augmentation and esthetic outcomes of implant-supported single crowns in the esthetic zone: 3-year results of a prospective study with early implant placement post extraction. J Periodontol 82, 342-9 (2011).

[9] Li Q. et al. [Clinical study of application of platform switching to dental implant treatment in the esthetic zone]. Zhonghua Kou Qiang Yi Xue Za Zhi 43, 537-41 (2008).

CONELOG® HYBRID PROSTHETICS

After a successful launch of the CONELOG® SCREW-LINE implants that clearly surpassed even our expectations and the matching CONELOG® abutments for fixed restorations, CAMLOG plans to introduce the CONELOG® bar and ball abutments to the European market at the end of 2011. This will open up additional opportunities for our customers to treat their patients now with full dentures on implants with conical inner configuration.

To keep the assortment manageable, the new CONELOG® ball and CONELOG® bar abutments have been designed by our developers in such a way that they can be combined with existing and proven CAMLOG® components for bar and ball abutments. The bottom line is that the assortment has added just 33 items, which of course helps in terms of manageability.
Although preparation of the CONELOG® ball and CONELOG® bar abutments does not differ from those of the respective CAMLOG® abutments, some peculiarities in compatibility with existing components are to be considered: Different analogs are to be used depending on the diameter for the CONELOG® ball abutments according to the design and construction. Ball analogs with a diameter of 3.3 mm are required for diameters 3.3, 3.8 and 4.3 mm.
For the CONELOG® ball abutments with diameter 5.0 mm, ball analogs are used with diameter 3.8 mm.
For CONELOG® bar abutments, in contrast, there is just one prosthetic platform. That means that all diameters of CONELOG® bar abutments of 3.3 to 5.0 mm have the same connection geometry for the superstructures. CONELOG® users no longer have to differentiate between the two platform sizes of the diameters 3.3/3.8/4.3 mm and 5.0/6.0 mm that are characteristic of the CAMLOG® bar abutments.

Because we emphasize simplicity and service at CAMLOG, the new accessories for CONELOG® abutments – apart from the familiar CAMLOG items in the blue packaging and with J article numbers – are offered in the gray packaging typical for CONELOG® items and are designated by a C article number. In this way, we hope to simplify ordering and assignment of articles, as well as communication with our customers for possible questions.

CONELOG® TITANIUM BASE CAD/CAM, CONELOG® SCANBODY, CAMLOG® AND CONELOG® BONDING AIDS

The CONELOG® Implant System is now complemented by the CONELOG® titanium base CAD/CAM and the CONELOG® scanbody. Both products allow fabrication of individual hybrid abutments consisting of a titanium base and a ceramic mesostructure on CONELOG® implants. The new CAMLOG® and CONELOG® bonding aids are practical tools for bonding mesostructures with titanium bases and can also be used with all abutments of the CAMLOG® and CONELOG® Implant Systems.

The advantages of the CONELOG® titanium base CAD/CAM at a glance:

- Conical implant abutment connection with self-locking cone geometry for precision transfer of force and torque
- Available in two gingival heights for optimal adjustment to the vertical implant position and emergence profile
- Practical bonding aid available together with the abutment screw in the packaging unit
- Familiar CAMLOG indexing for user-friendly handling and high precision
- Adoption of the proven bonding geometry of the CAMLOG® titanium base CAD/CAM allows the use of prefabricated blanks and available CNC programs
- Easy release of the abutment using the CONELOG® disconnector

CONELOG® TITANIUM BASE CAD/CAM

The CONELOG® Titanium base CAD/CAM is available for optimal adjustment to the vertical implant position and to the emergence profile for all CONELOG® implant diameters in both 0.8 and 2.0 mm gingival heights. It has the same bonding geometry as the CAMLOG® Titanium base CAD/CAM, which allows the continued use of prefabricated blanks and available CNC programs for the bonding geometry. The geometries of the CONELOG® Titanium base CAD/CAM are available in suitable CAD programs (overview on our website www.camlog.de) or can be imported to design individual mesostructures with the correct position for the implant. The new CONELOG® bonding aid that greatly simplifies bonding the titanium base to the mesostructure is included with each CONELOG® Titanium base CAD/CAM.

CONELOG® SCANBODY

The CONELOG® Scanbody made of the highly durable plastic PEEK is delivered sterile and with an abutment screw. In addition to the repeated installation on the cast, the CONELOG® Scanbody can also be used intraorally once with no preparation.
The CAMLOG® Scanbody is expected to be available for intraoral use from Q2 2012 sterile and in the set with an abutment screw. We will provide more information later.
The CONELOG® Scanbody is screwed onto the implant or lab analog shoulder. The undesirable vertical offset with a conical implant abutment connection is eliminated and a digital measurement of the implant in the right position achieved.
The scan geometry is identical to the proven form of the CAMLOG® Scanbody to be captured precisely.

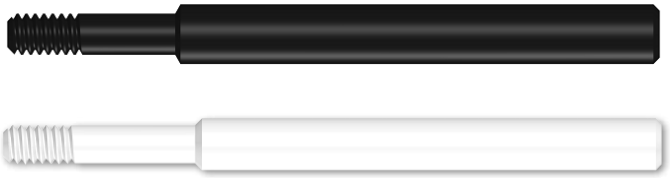
The advantages of the CONELOG® scanbody at a glance:

- ☑ Unique detectable geometry with strict fabrication tolerances and screw installation result in precision digital measurement of the position of the implant
- ☑ By resting on the implant or lab analog shoulder, the undesirable vertical offset with a conical implant abutment connection is eliminated
- ☑ Familiar CAMLOG indexing for user-friendly handling and high precision
- ☑ For immediate, absolute hygienic use intraorally thanks to its sterility
- ☑ Reusable on the cast thanks to the use of a high-strength plastic

Our website www.camlog.com currently has information about the compatibility of the CAMLOG® and CONELOG® Scanbodies for suitable intraoral scanners (types currently in evaluation) and dental CAD programs.

CAMLOG® AND CONELOG® BONDING AID

System-specific bonding aids are currently available for the CAMLOG® and CONELOG® Implant System.
CAMLOG® or CONELOG® titanium bases and abutments to which a mesostructure is bonded can be attached to CAMLOG® or CONELOG® lab analogs by using the bonding aid. The bonding aid makes attachment possible without the use of instruments. In addition, it prevents damage to the screw channel when sandblasting and when bonding, flow of adhesive composite in the screw channel of the abutment. Undesirable adherence of the composite to the bonding aid is eliminated by the choice of POM as a very poor coating material. The CONELOG® bonding aids are stained black and the CAMLOG® bondings aids white for unique identification. All bonding aids are available in a 2-piece set or separately in the two thread sizes (M 1.6 or M 2). The CONELOG® Titanium base CAD/CAM has contained a bonding aid in the packaging unit since market launch. For the CAMLOG® Titanium base CAD/CAM, the bonding aid will be available in Q2 2012.



The advantages of the CAMLOG® and CONELOG® bonding aid at a glance:

- **3**-in-**1** function:
  1. Abutments can be attached to lab analogs without the use of instruments
  2. Prevents damage to the screw channel from sandblasting
  3. Prevents the flow of bonding material into the screw channel
- No adherence of the adhesive composite by POM as the material

INDIVIDUAL ABUTMENTS FOR THE CAMLOG® IMPLANT SYSTEM FROM THIRD PARTIES

Individual CAD/CAM-fabricated one-piece abutments for the CAMLOG® Implant system are currently available on the market from e.g. Astra Tech under the brand name "Atlantis" and Heraeus under the brand name "cara".

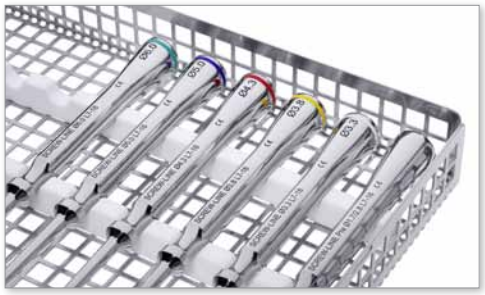
These abutments for the CAMLOG® Implant System have been developed independently of CAMLOG. The manufacture and distribution of the products is the sole responsibility of the third parties.
There is no cooperation between these suppliers and CAMLOG and such cooperation is also not sought on the part of CAMLOG.

We would like to point out that abutments from third parties are not identical in terms of design to CAMLOG® original abutments. Implant connections not coordinated with the manufacturing tolerances of the implant internal geometry may result in oversizing that must be manually reworked or undersizing that may result in increased rotational play.

As with other non-original components in direct or permanent contact with the implant, use of abutments from third parties on CAMLOG® implants voids the CAMLOG warranty on implants and abutment screws.

An excerpt from our implant instruction manual: "The use of non-original components and instruments can affect the function and safety of the CAMLOG® and CONELOG® Implant System. ALTATEC GmbH/CAMLOG does not warrant nor provide replacement services when non-system components are used. Therefore, you should use surgical, prosthetic and dental laboratory components and instruments from CAMLOG exclusively. All components of the CAMLOG® and CONELOG® Implant System are carefully matched to one another and each forms part of a complete system." Individual CAD/CAM abutments currently allow fabrication in a proven two-part method. These so-called hybrid abutments consist of an individual ceramic or metallic mesostructure in the adhesive bond with prefabricated CAMLOG® superstructures.
In particular, the titanium base CAD/CAM also immediately available for the CONELOG® Implant System is ideally suited for the fabrication of hybrid abutments. The individual mesostructures can be designed on a number of common dental CAD systems and in the laboratory or fabricated to offer a perfect fit at many milling centers.

NEW OSTEOTOMES CAMLOG® / CONELOG® SCREW-LINE, CONCAVE



SCREW-LINE Osteotomes, straight concave and angled concave are now available in addition to the SCREW-LINE Osteotomes, straight convex and angled convex.

The osteotomes are used to preserve the bone substance by condensing and displacing the local bone in the soft bone of the maxilla and mandible for bone quality 3 and 4 (Lekholm & Zarb, 1985) to achieve adequate primary stability of the CAMLOG® or CONELOG® SCREW-LINE implants. They preserve bone that is removed and rinsed using drills to prepare the implant bed. The ergonomic handles make a delicate approach possible. The convex or concave work element converts the pressure into the desired result. The prominent scaling and labeling on the work element, similar to the implant lengths (7/9/11/13/16 mm), ensure safe depth control during the preparation.

All osteotomes are available individually and as osteotomy sets in the four afore mentioned versions.