issn 1616-6345

Vol. 8 • Issue 3/2007

implants

international magazine of oral implantology

3 2007

_case report
Rare case of bilateral mandibular keratocysts

_worldwide events
ADI 20th Anniversary Congress in Birmingham

_social news
DGZI Expands Cooperation with Japanese Implantologists

DGZI Deutsche Gesellschaft für Zahnärztliche Implantologie e.V.

dti] Dental Tribune International

Dr Friedhelm Heinemann
President of DGZI

DGZI – Innovative and International

Dear Colleagues,

Implantology is truly an international discipline. As the oldest professional implantological association in Europe, the German Society for Dental Implantology (Deutsche Gesellschaft für zahnärztliche Implantologie–DGZI e.V.) currently has more than 3,700 members worldwide. It has made such a significant contribution to the field of dentistry that implantology has become an established dental therapy that we can hardly imagine doing without. As the President of the DGZI, I am especially proud of what we have achieved over the past three years. In addition to the rapid increase in membership (1,000 new members in the last election period alone) and our various national activities, I am particularly pleased about the development of our international contact with friends and colleagues.

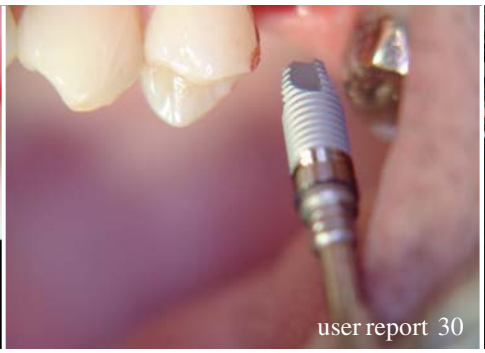
It has always been an important goal of our society to participate in a worldwide exchange of implantological know-how and, in this way, to also make the experience of our members accessible to the general public. The cooperation of the DGZI with professional implantological associations in the US and Europe as well as numerous associations in the Middle East reflects these activities. In the past three years, the "Arab-German Implantology Meeting" in Dubai has developed into a constant feature of continuing implantological education in this region, reaching as far as Pakistan and India. In March of next year we will once again meet colleagues and friends in Dubai, who will come from over 20 countries to exchange scientific knowledge and ideas.

Another success in the direction of internationalization was achieved with the signing of a cooperation contract with the 800-member-strong Japanese implantology association, the AIAI Academy of International Advanced Implantology, headed by President Yasuhiko Takemae, MD. I would hereby like to extend a warm greeting to all the members of this association and welcome them to our community. The aim of this non-profit cooperation is, among other things, to exchange knowledge and promote implantology research and development. Moreover, cooperation in the field of continuing education shall be strengthen with the help of existing concepts. Today, the DGZI can fall back on a worldwide network of 11,000 of its own as well as associated members, which is clear evidence of the continually increasing, partnership-based internationality of our association. This and the strong entrenchment of implantology among private-practice dentists will continue to constitute essential key features of the activities of the oldest European professional implantological association.

The 37th International Annual Congress of the DGZI will take place the weekend of October 5–6, 2007, in Düsseldorf, Germany under the theme "Implantology–Biological Principles and Technical Possibilities." Renowned international speakers from the worlds of science and practice will discuss the exceptionally complex topic with congress participants. Numerous domestic and international guests have already registered. I would be very pleased to welcome you in Düsseldorf or at one of the upcoming international meetings of the DGZI.

Sincerely,

Dr Friedhelm Heinemann



editorial

report

events

news

about publisher

Cover image courtesy by Straumann AG.

Rare case of bilateral mandibular keratocysts

author_ Manfred Nilius, Germany

The diagnosis of cystic changes in the jaw presents a particular challenge for the treating physician. Radiologic images are not always unambiguous. Especially in the case of large cysts, particular care must be taken in planning the treatment

_If findings are suspicious, reconstruction using alloplastic materials or autologous bone should be performed only after intraoperative frozen section diagnosis. This article describes a rare case of bilateral keratocysts in a child; a case that unambiguously turned out to be follicular cysts in preoperative radiographic studies.

_Differential Diagnosis of Odontogenic Cysts

Casuistics

Following an initial orthodontic appointment, a twelve-year-old patient was transferred into our clinic for clarifying a tumefied bone area in his lower right jaw. The intraoral findings showed multiple remittent baby teeth as well as rock-hard bilateral tumors in the area of the premolars. The radiological investigation showed two sharply delimited areas of osteolysis with teeth 33 and 45 being impacted and displaced (Fig. 1). The medical history showed changes that had slowly developed over several years. The family's medical history was unremarkable. In view of the radiological manifestations, the initial assumption was that these were coronal follicular cysts (Fig. 2). Based on the minimal remaining thickness of the compact bone and the patient's youth, a bilateral cystectomy was planned. Clinical findings indicated a pericoronal-type, follicular cyst at tooth 33 (Fig. 2) and a circumferential-type of follicular cyst at tooth 45 (Fig. 3). In consideration of the patient's age, the decision was made not to harvest cortical spongy bone of the iliac crest for a transplant, and osteoplasty was performed using a bloc of human spongy bone substance (Tutoplast®-Spongiosa-Block) (Fig. 4). The histological examination of the cyst sac showed the typical picture of an odontogenic keratocyst with parabasal epithelial components in a palisade-like arrangement. The squamous epithelium showed microfocal parakeratotic areas, while the basal membrane was intact. These areas included isolated lymphoplasmacellular infiltrates (Fig. 5).

_Discussion

There is a clear discrepancy between the x-ray findings and the microscopic image. While development of follicular cysts also produces edentulous cysts during the early embryonic phase, follicular cysts develop together with a complete tooth during the crown formation period (Mittermayer,

Fig. 1_ Orthopantomograph of the patient showing the osteolytic areas near the mandibular bicuspids. Radiologic characteristics of a follicular cyst around displaced and impacted teeth. The cyst has consumed almost the entire bone of the lower jaw. Sharp demarcation from the surrounding tissue.

Fig. 2_ Clinical finding of tooth 33 with the cyst sac attached to the cervicocoronal transition as an example of a pericoronal cyst.

Fig. 3_ Clinical finding of tooth 45 with the cyst sac attached to the cervicocoronal as well as apical end of the tooth as an example of a follicular cyst of the circumferential type.

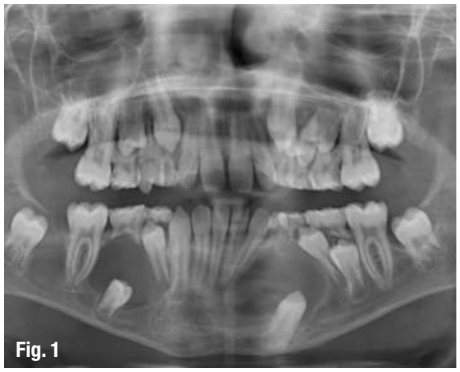


Fig. 1

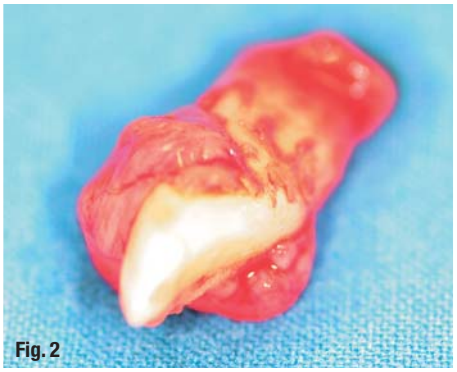


Fig. 2

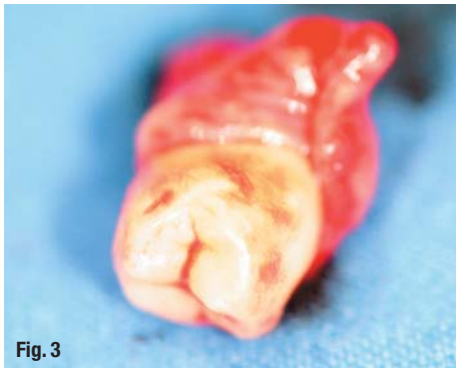


Fig. 3

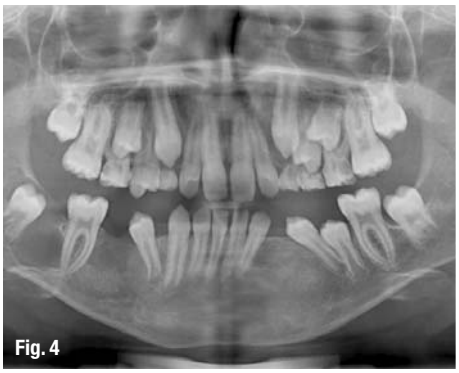


Fig. 4

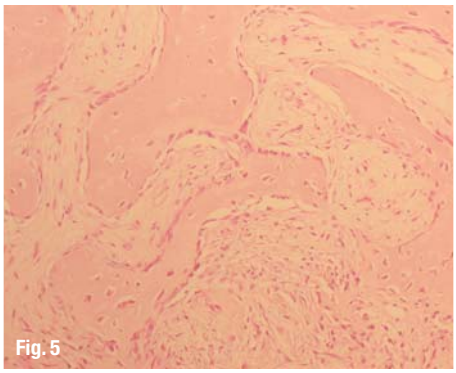


Fig. 5

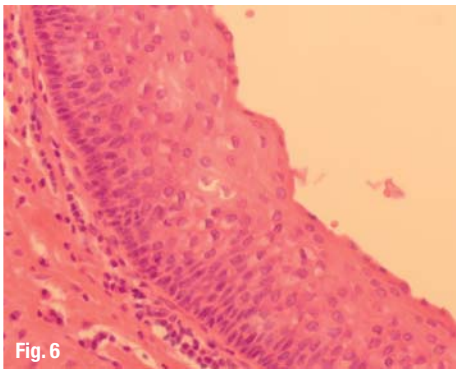


Fig. 6

Fig. 4_ Orthopantomograph of the patient following cystectomy and removal of tooth 33 and tooth 45. In both cases, the defect was closed with a block of human spongy bone substance (Tutoplast®-Spongiosa-Block).

Fig. 5_ Progressive trabecular organisation of the Tutoplast®-Spongiosa-Block after 3 month without avital bony fragments, Stain: after decalcification, original image enlarged 20-fold.

Fig. 6_ The cyst's wall is partially infiltrated with inflammatory cells. Stain: HE, original image enlarge 40x. The histological image (Fig. 5 and 6) was graciously provided to us by Prof. J. Lorenzen, M.D. of the institute of Pathology, Klinikum Dortmund gGmbH.

Ch.,1993). Odontogenic keratocysts probably develop from residual adamantine epithelial cells that remain in the jaw during odontogenesis (Altini and Cohen,1987). Keratocysts are encountered in the lower jaw 60% more often than in the upper jaw primarily in the region that is distal to the wisdom teeth. Keratocysts are growing very slowly and very rarely and can clinically appear like tumefied bones. They look like follicular residual cysts on x-ray images that show up as sharply delineated unilocular or multilocular translucent areas, and can cause problems when performing differential diagnosis. Keratocysts consist of multilayered squamous epithelial cells (Fig. 4) and tend to form secondary cysts in soft tissue as well. The tendency of recurring keratocysts can be explained by the increased growth activity of the epithelium and by downward epithelial growth in the cyst sac (Benn et al., 1996). The extremely thin cyst sac should therefore be completely removed, if possible, together with the secondary cysts, and should be sent in for advanced microscopic diagnostics. An increased incidence of the cysts is observed in the Gorlin-Goltz (basal cell nevus) syndrome (Grundmann, E., 1986). As in the present case, cystic changes are frequently diagnosed by chance. Often, keratocysts are only discovered as a result of inflammatory complications or pathological fractures of the lower jaw (Benn and Altini, 1996). En-bloc resection of keratocysts, which was favored in the past, is now discussed rather reluctantly. Because of the difficulties regarding differential diagnosis, the problem of an immediate osteoplasty with respect to an allogenic or autologous bone replacement following a cystectomy can only be avoided when using an intraoperative frozen section diagnosis (Modica, R., 1977). However, based on a recurrence rate reaching 62%, frequent postoperative check-ups are advisable for five to fifteen years (Ackermann et al., 1988).

_Final Conclusions for Dental Practice

_ The symptoms of cystic findings in the jaw are not specific in a majority of the cases.

_ Since keratocysts can recur, correct histologic diagnosis is important for the subsequent clinical and x-ray observation phase.

_ Because of the tendency to recur, follow-up will be required for many years._

References

[1] Ackermann GL, Altini M, Shear M. The unicystic ameloblastoma: a clinicopathological study of 57 cases. J Oral Pathol. 1988 Nov;17(9–10); S. 541–6.

[2] Altini M, Cohen M. Experimental extra-follicular histogenesis of follicular cysts. J Oral Pathol. 1987 Feb;16(2), S. 49–52.

[3] Benn A, Altini M. Dentigerous cysts of inflammatory origin. A clinico-pathologic study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1996 Feb;81(2), S. 203–9.

[4] Grundmann, E. Spezielle Pathologie, 7. neu bearb. Aufl., Urban & Schwarzenberg, Wien, 1986, S. 174–175.

[5] Mittermayr, Ch. Oralpathologie, 3. erw. Auflage, Schattauer, Stuttgart, 1993, S. 269–286.

[6] Modica, R. Treatment of follicular cysts of the mandible with reduction cystostomy Minerva Stomatol. 1977 Apr–Jun;26(2), S. 63–8.

_author

implants

Dr Dr Manfred Nilius

Niliusklinik
Londoner Bogen 6
44269 Dortmund, Germany
E-mail: info@niliusklinik.de
Web: www.niliusklinik.de

Navigation and Augmentation: Enhanced Possibilities for the Application of Guided Surgery

author_ Oliver Hugo,Germany

_**Beside complete systems** for the direct navigation (eg, Robodent, VoNaviX, LapDoc, etc.), recently there have been systems developed that enable the surgeon to insert implants guided by a surgical template, thus like indirect navigation. The positioning of the implants is thereby done by analysing a three-dimensional reconstruction of the bone on the basis of a DICOM data set on a usual computer.[1] Afterwards, either the virtual planning is transferred to a conventional template via a coordinates-table (CoDiagnoxtiX, Med3D) or a stereolithographical template is fabricated directly out of the virtual data (Simplant, NobelGuide), which is more accurate.[2]

Depending on the technique used, at least the pilot-drill is guided (CoDiagnostiX, Simplant Surgiguide) or—via a system of sleeves in combination with specially designed burs equipped with a long shank—the whole preparation and even the insertion is guided by the surgical template (Simplant Safe System, NobelGuide). Using NobelGuide the system furthermore allows one to place guided sleeves for so-called anchor pins (Fig. 1), which stabilize the template on the bone.

In view of the increased costs and radiation exposure, even if modern equipment is used, the application of such techniques is not indicated in any case.

The advantage of a higher planning reliability regarding sensitive anatomical structures, as well as the increased patient comfort caused by the reduced time of intervention and a less traumatic approach can, nevertheless, for patient and surgeon make the procedure favorable. The option to produce a functional prothetic suprastructure on the basis of the planning and the immediate post-op incorporation of it especially opens new concepts in therapy. Immediate loading of dental implants in the meantime is well documented, at least for implants with modern surfaces.[3, 4]

_Sinus grafting through the template (Summers Approach)

Such planning techniques are particularly applicable with good hard tissue dimensions and in these cases they really provide minimal invasive surgery. The following case exemplarily demonstrates the transgingival insertion of six implants in the upper jaw via a NobelGuide template (Figs. 2–5).

As immediate loading is an option, which produces additional costs, some patients prefer to wait conventionally for a three-month period of osseointegration. In this case, finally a screw-retained Procera Implant Bridge[5, 6] was incorporated. Therefore a lab-designed resin frame is scanned, milled out of a titanium block with an accuracy of only 5 µm and faced with composite (Figs. 6, 7). Unfortunately, ideal bone premises are found rather rarely, especially considering the fact, that today the implant position is more and more driven by the prothetic requirements.[7]

In most cases, invasive bone augmentation is unavoidable and, according to the common opin-


Fig. 1

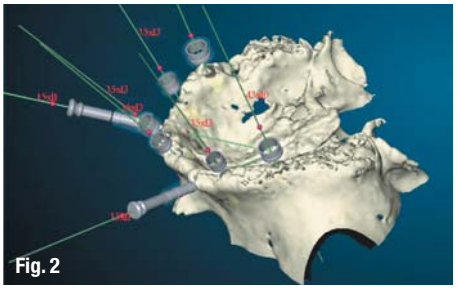


Fig. 2

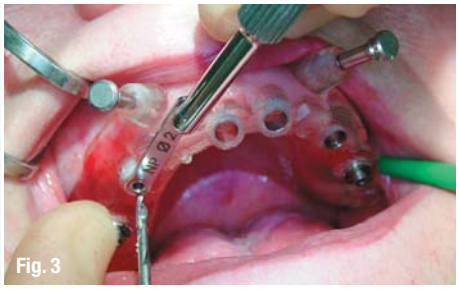


Fig. 3

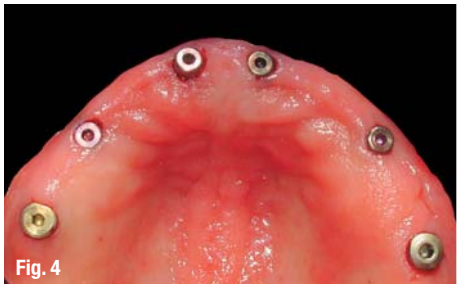


Fig. 4

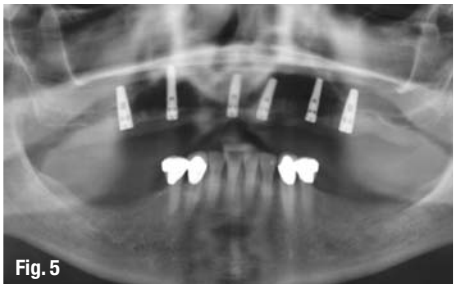


Fig. 5

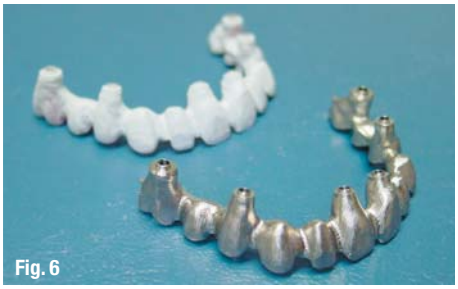


Fig. 6

ion, thereby excludes the application of guided implantology. Doubtlessly, a bone-supported template does not allow an increase of the bone volume below itself. On the other hand, a gingival-supported template needs an intact gingiva and does not allow the building of a flap.

A sinus grafting with a crestal approach[8, 9], can be done flapless with particular precision via a CT-based template as the amount of subantral bone can be exactly measured and the depth of the pilot drill can be adjusted. Even the fracturing of the sinus floor with a suitable dull osteotome can be done through the template (Fig. 8).

Additionally, knowing the exact amount of the grafting volume increases not only the predictability of the procedure but, moreover, facilitates the finding of the indication for the procedure.

_Alveolar ridge augmentation below the template

Usually severe bone atrophy is found after loss of teeth that occurred in the past or non-disposition of teeth (Fig. 9). As long as the remaining bone allows simultaneous implantation, the template does not obstruct alveolar ridge augmentation below itself.

The following case shows an augmentation with a mixture of autogenous bone chips and alloplastic material covered by a collagen membrane (Figs. 10–12). The NobelGuide template was safely supported by the remaining teeth.

As the position of the implant was well-known preoperatively because of the virtual planning, an immediate provisionalization with a resin crown was possible (Fig. 13). Three months later the definite Procera Abutment[10] and Procera Crown[11] were incorporated (Fig. 14).

_Sinus grafting below the template (Tatum Approach/avoiding augmentation)

The NobelGuide System puts into effect a combination of gingival support and bony support via the pluggable Anchor Pins. In many cases, therefore, a surgery with a flap as well as a limited addition to the hard tissue volume under the template can be done.

Initially the template is only gingivally supported and stabilized with a silicon bite. This turns into a bony support as soon as the Anchor Pins with their diameter of 1.5 mm and a penetration depth of 5 mm are applied. Because of the pluggable design of the pins, the template can be taken out and repositioned exactly anytime during surgery. As soon as the anchor pins are set, the gingival support is not necessary anymore and surgical flaps can be done. Moreover, the resulting gap between the "pending template" and the denuded bone gives some space for bone manipulation including, for example, bone spreading.

As the next case shows, a bilateral sinus grafting can be done and the implants can be inserted through the repositioned surgical template into the graft (Figs. 15, 16). Just as well as in the above described crestal approach, the exact three-dimensional measurement of the graft improves the reliability of the procedure (Fig. 17).

Severe atrophic situations in the lateral lower jaw are often very difficult to handle. The riskless angulation of implants—as it is possible using a CT-based template in elected cases—renders the sometimes complex augmentation of these areas unnecessary (Figs. 18, 19).

The angulation of the implant (region 35 – FDI) gives prothetic support for a full-arch bridge even in the molar region. Non-axial forces applied to angulated implants do not seem to compromise the


Fig. 7

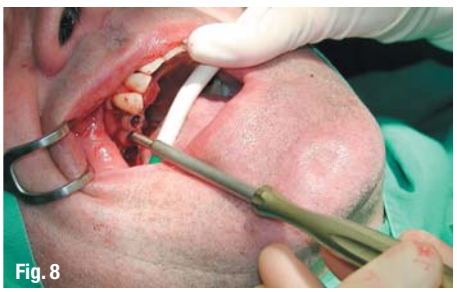


Fig. 8

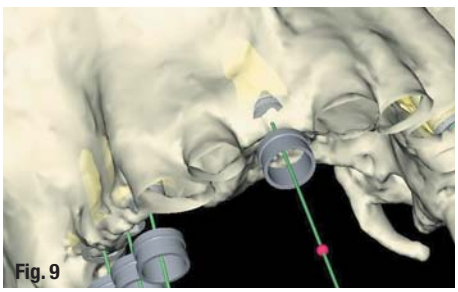


Fig. 9

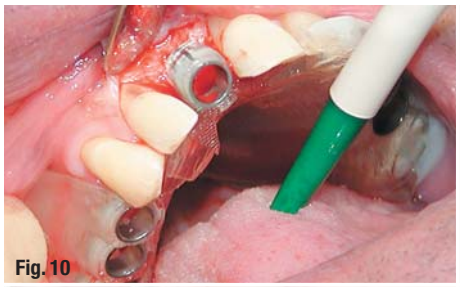


Fig. 10

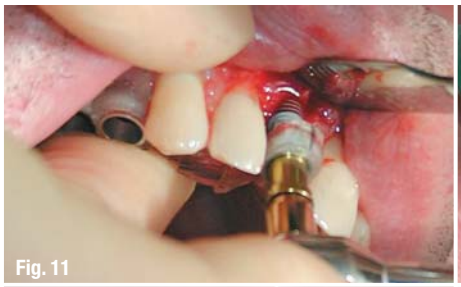


Fig. 11

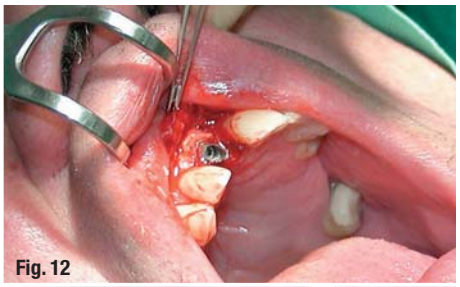


Fig. 12

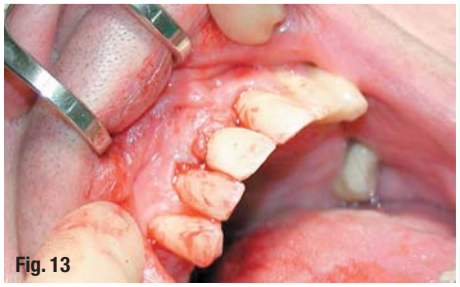


Fig. 13

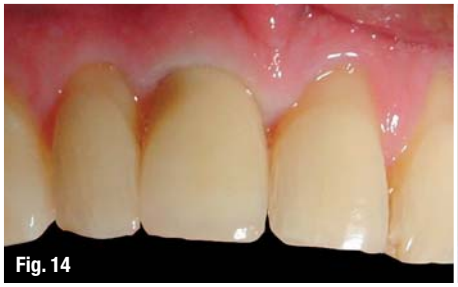


Fig. 14

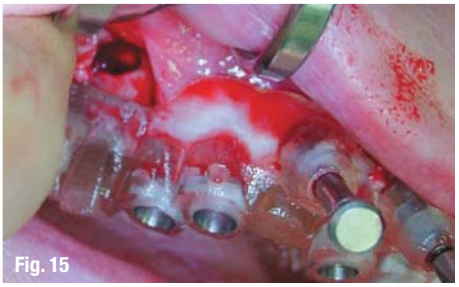


Fig. 15

implant-bone interface or increase peri-implant bone loss.[12] Preliminarily, two resin bridges with metal reinforcements were built by the technician and immediately inserted postoperatively.

Even using the most sophisticated planning technique does not avoid a deviation between planning and surgical reality. The tolerance with NobelGuide is about 0.2 to 0.5 mm and requires the compensation by special abutments (guided abutments, Figs. 20–22) to enable a screw-retained provisionalization. Not included in the immediate loading are the two implants located in the sinus graft.

_Summing-up

In sufficient hard-tissue situations, CT-based drilling templates are not only able to increase the reliability and forensic documentation of the surgery but also the positioning of the implants concerning esthetics and balanced load. Moreover, the surgeon can decide the indication for augmentation in proper cases restrictively.

Last but not least, modern techniques and patient comfort are very potent elements of marketing for the surgeon._

The literature list can be requested from the author.

_author | implants

Dr Oliver Hugo

Am Zeughaus 40
97421 Schweinfurt, Germany
Phone: +49-97 21/2 10 53
Fax: +49-97 21/1 67 83
E-mail: Dr.Oliver.Hugo@Schoenerlachen.de

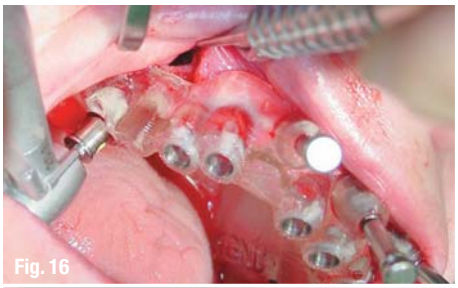


Fig. 16

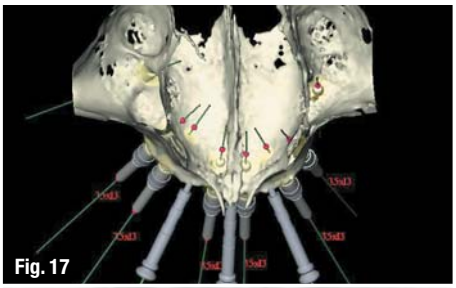


Fig. 17

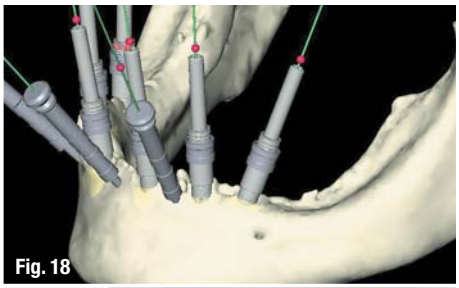


Fig. 18


Fig. 19

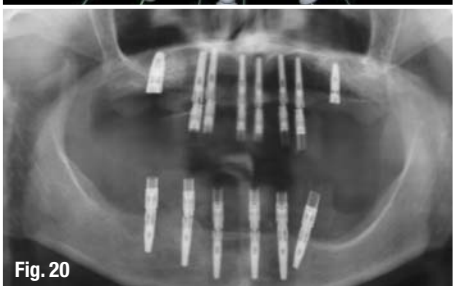


Fig. 20


Fig. 21

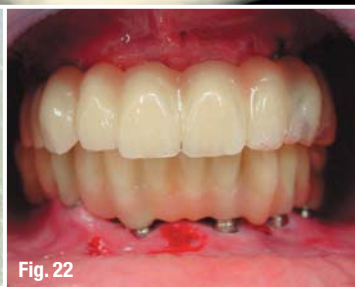


Fig. 22

The Effect of Antimicrobial Photodynamic Therapy in the Treatment of Chronic Periodontitis: First Results of a Long-Term In Vivo Study

author_ Tilman Eberhard, Jörg Neugebauer, Joachim Zöller, Freimut Vizethum, Germany

Fig. 1_CFU of Treponema denticola at different treatment times.
Fig. 2_... of Actinobacillus actinomycetemcomitans ...

_**Periodontitis is characterised** by the presence of inflammatory processes in the oral cavity, which can sometimes attack the whole periodontium. Inflammation itself of the periodontium manifest in increased probing depth or bleeding diathesis on light irritation of the gum. If left untreated, periodontitis can lead to bone resorption, which can be documented by x-ray, or even to the loss of the tooth. The primary cause of periodontitis is bacterial tooth deposits (microbial plaque).[1,2] Marker bacteria, eg, Actinobacillus actinomycetemcomitans (A.a.), Porphyromonas gingivalis (P.g.) and Prevotella intermedia (P.i.) are among the highly pathogenic bacterial spectrum of these deposits.

Chronic periodontitis is an infectious disease, which involves the inflammation of the periodontium and leads to progressive attachment and bone loss. It is also characterised by the formation of periodontal pockets and/or gingival recessions, and is the most commonly occurring form of periodontitis.[3] Different methods of treating chronic periodontitis are used in practice and are being discussed in scientific publications. The aim of the particular method of treatment is to reduce bacteria and regenerate any lost periodontal tissue.

A conventional procedure is the mechanical removal of supra- and subgingival plaque using the corresponding hand instruments. In this procedure the plaque and concrement attached to the exposed tooth necks and root surfaces are first removed with a curette (scaling), and then the tooth surfaces are smoothed (root planing). Alternatively, the mechanical removal of plaque can also be carried out using ultrasound devices.

In the case of probing depths over 5 mm or bone pockets, and in the case of furcation involvement,

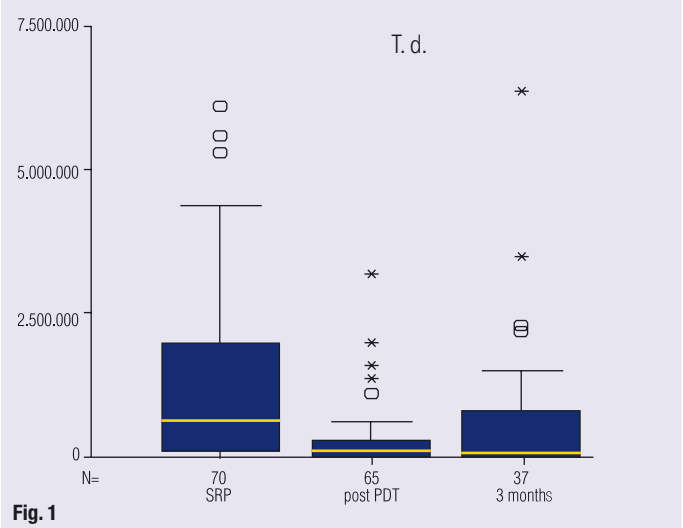


Fig. 1

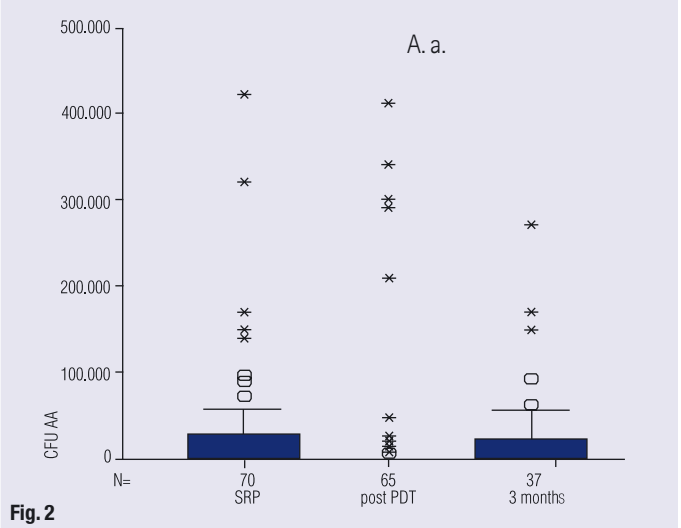


Fig. 2

tooth scaling and/or root planing using SRP is only possibly under certain circumstances due to the complicated anatomical situation.[4–6] The additional use of an antibiotic as part of mechanical therapy for chronic periodontitis should be questioned.

Indeed, several authors, eg, Slots[8], currently doubt the rationale of using systemic antibiotic therapy. Ramberg et al.[35] also examine the long-term effect of systemic antibiotics after 3.5 years. No difference from the initial situation could be determined. Feres et al.[37] also reached this conclusion. Further disadvantages of antibiotic therapy include bacterial resistance and the occurrence of side effects after systemic use.[8]

A modern type of treatment for periodontitis is therapy using a high-energy laser device. This "hard laser" will use its thermal effect to reduce the periodontal pathogenic bacteria in the periodontal pockets, or even to eliminate them completely, to remove pocket epithelium and to support tissue regeneration. The use of lasers in periodontitis therapy has been researched in a number of clinical studies, using various study formats and different lasers.[9–15]

Different results were achieved from the studies in which a group of patients were treated solely with conventional methods and were compared with a group treated with a laser. Whilst some studies showed that conventional treatment achieved better[9,10,16] or equally good[11] results, Schwarz et al.[12] determined significantly better results in the clinical parameters when using a hard laser. Other studies show that evidence of a significant reduction in periodontal pathogenic bacteria can always be provided, irrespective of the wavelength of the laser.[17,18]

Clinical studies, which use a laser device in combination with a conventional procedure, show that the additional use of the laser produces promising results in the treatment of periodontal diseases.[17, 19–23] In their investigation, El Yazami et al.[20] reached the result of a significant improvement in all important clinical parameters, such as the plaque index, pocket depth and clinical attachment level, through the combined use of the SRP procedure and laser treatment in comparison to conventional treatment alone. In another in vivo study, evidence of a 25–30% bacteria reduction was produced with a Nd:YAG-Laser through the use of combined treatment with hand instruments and lasers.[17]

Some, eg, Liu[9], saw problems in the fact that these results could not be systematically reproduced in practice. Antimicrobial photodynamic therapy (aPDT) is an innovative treatment concept in the area of periodontitis therapy, in which a low-energy laser is used in combination with a light-sensitive dye solution. Biofilm and bacteria are selectively dyed by the photosensitiser. When illuminated with light of a suitable wavelength, energy density and energy distribution, the stimulation of the photosensitizer in the triplet state will result in singlet oxygen formation on the bacteria membrane. The reaction of the high-energy oxygen molecule with the membrane lipid chain will lead to direct bacteria destruction. So far, various studies have confirmed the positive effect of aPDT on the successful treatment of periodontal and also peri-implant diseases.[26–29]

In a clinical study carried out by Dörtbudak-Kneissl et al.[26], a significant reduction in the number of pathogenic bacteria such as Actinobacillus actinomycetemcomitans, Porphyromonas gingivalis and Prevotella intermedia could be determined in the treatment of periodontal inflammations with the aPDT procedure. The aim of the current prospective long-term study is to examine the effect of antimicrobial photodynamic therapy (aPDT) in the area of conventional treatment of patients with chronic periodontitis.

Fig. 3_… of Tannerella forsythensis …
Fig. 4_… of Porphyromonas gingivalis …

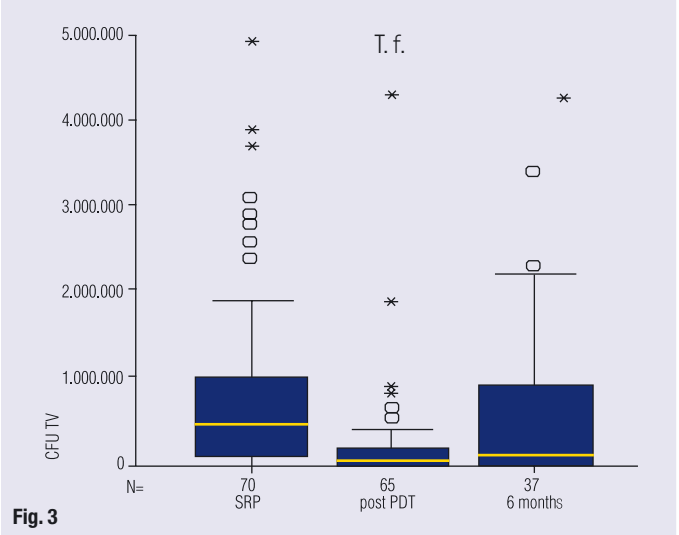


Fig. 3

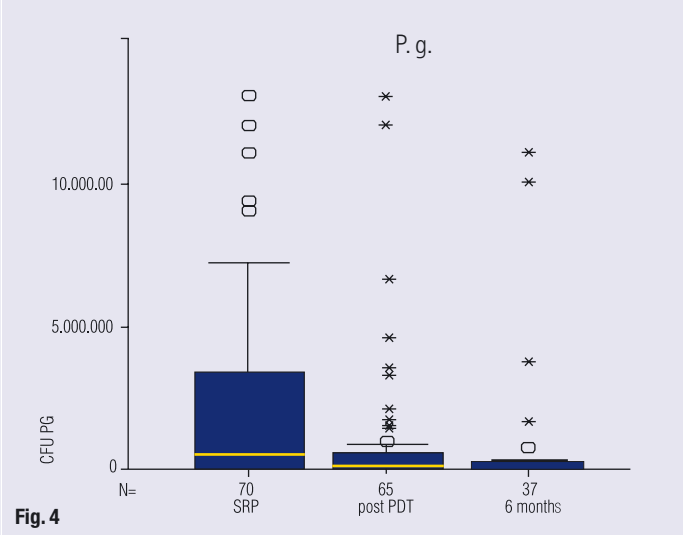


Fig. 4

_Material & methods

Fifty-five patients who had been diagnosed with chronic periodontitis were included in the research group. The average age of the patients was 54. Thirty-nine of the patients were female, and 16 were male. In total, 1,320 units (teeth and implants) with periodontal infections were treated. Within the course of the initial treatment, the probing depth (PD) was measured and a modified sulcus bleeding index (SBI, scores 0–3) determined, both of which are reliable parameters for the diagnosis of chronic periodontitis, but are also suitable for assessing the progress of the disease regarding future attachment loss. In addition, a molecular biological procedure "real-time PCR" (PCR = polymerase chain reaction; Meridol® Perio Diagnostics, GABA International AG) was selected for the quantitative recording and evaluation of the microbiological load of the teeth.

Using this procedure it was possible to quantify the amounts of important periodontal pathogenic bacteria—such as Actinobacillus actinomycetemcomitans (A.a.), Porphyromonas gingivalis (P.g.), Tannerella forsythensis (T.f.), Fusobacterium nucleatum (F.n.), Treponema denticola (T.d.) and Prevotella intermedia (P.i.). In order to do this, subgingival plaque samples were taken from the infected teeth of each patient using paper points and then all samples were analysed together (pooling). The analysis took place in a fully automatic, validated process. The measuring unit for the quantitative recording and presentation of the bacterial load is the colony-forming unit (CFU).

The treatment of the patient population took place in two stages. In the first stage, each patient received the conventional periodontitis therapy (SRP or professional scaling procedures) over the course of 2–20 years (average 14 years) in check-up appointments roughly every six months, ie, all hard and soft tooth deposits were removed using normal hand instruments. The tooth root was then smoothed to impede renewed plaque formation and support the apposition of the clinical attachments. In the case of SRP, since 1998 there has also been systematic use of Nd:YAG laser decontamination of the periodontal pockets, meaning that resective surgical intervention was reduced to a minimum. In isolated cases, the SRP was repeated or antibiotic treatment was carried out during the observation period.

After the abovementioned treatment period, in which the patients generally all reached a stable condition, periodontitis therapy was extended, as follows, for the same patient population. First, the conventional therapy described above of professional scaling and smoothing of the tooth root was carried out again. After a period of 1–3 days—determined individually based on bleeding diathesis—all teeth were additionally treated using antimicrobial photodynamic therapy.

The first step of this process is applying a photosensitiser (HELBO® Blue Photosensitiser, HELBO Photodynamic Systems GmbH & Co KG, Grieskirchen, Austria) to the periodontal pockets. This is a bacteria-sensitive, light-active dye solution that dyes the microorganisms blue. After a photosensitiser reaction time of three minutes, the dyed area of the tooth is illuminated using a diode laser with a wavelength of 660 nm and a power density of 40 mW/cm² (HELBO TheraLite Laser) for a minute each.

One week after and 6-months after the antimicrobial photodynamic therapy, follow-up examinations were carried out on the patients. The parameters of probing depth and modified sulcus bleeding index were determined, and once again the most important periodontal pathogenic bacteria were quantified using the molecular biological procedure previously described. In the case of most of the patients, once the data had been collected in the 6-month check-up, another treatment was carried out that included treat-

Fig. 5_… Fusabacterium nucleatum …
Fig. 6_… Prevotella intermedia …

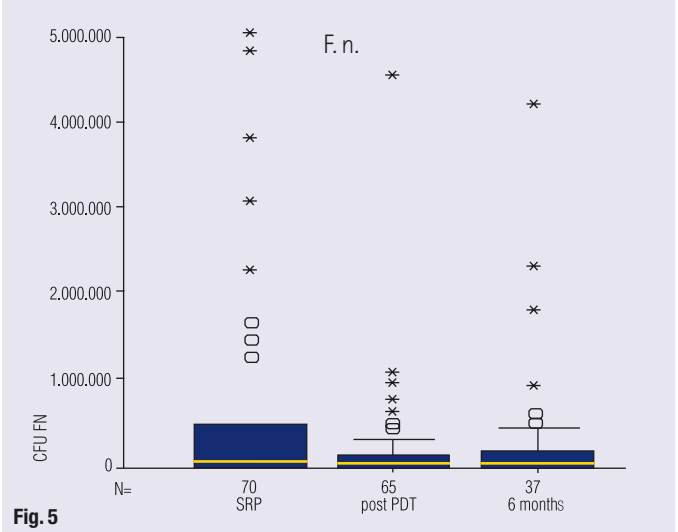


Fig. 5

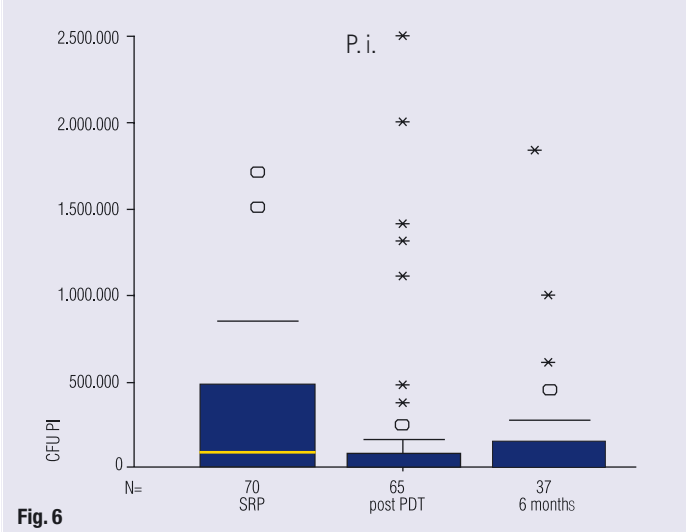


Fig. 6

ment with a photosensitiser and the HELBO TheraLite Laser in addition to the obligatory professional scaling.

In order to facilitate a direct comparison of the distribution of the values of the different marker bacteria over time, the results of the microbiological examinations were displayed using a boxplot. The significance of the differences in the results of the clinical parameters during the different treatment stages was determined using the Tukey HSD post hoc test. Significant statistical differences were accepted with a confidence interval of 95%.

	Tukey HSD			
	SRP	post SRP / PDT	6-months recall	
Pocket 4–6 mm	**0,000**	**0,000**	**0,000**	SRP
	0,000	0,250	0,250	post SRP / PDT
Significance				6-months recall
	SRP	post SRP / PDT	6-months recall	
Pocket > 6 mm	**0,000**	**0,001**	**0,001**	SRP
	0,000	0,951	0,951	post SRP / PDT
Significance				6-months recall
	SRP	post SRP / PDT	6-months recall	
Probing depth	**0,000**	**0,000**	**0,000**	SRP
	0,000	0,046	0,046	post SRP / PDT
Significance				6-months recall
	SRP	post SRP / PDT	6-months recall	
Sulcus blood index	**0,000**	**0,000**	**0,000**	SRP
	0,000	0,971	0,971	post SRP / PDT
Significance				6-months recall

Table 1

_Results

The results of the microbiological examinations are shown in Figures 1–6. The condition at the end of the first stage, which showed a typical individual steady condition in terms of periodontal health, was compared with further developments of the described parameter after the introduction of aPDT.

During a comparison of the results of aPDT with the condition at the end of phase I (conventional therapy alone), it could be seen that immediately after treatment with aPDT there was a significant reduction in all periodontal pathogenic bacteria. When the 6-months check-up was carried out in the second treatment stage, there was a tendency for the levels of the marker bacteria A.a., T.f. and T.d. to increase again, but in the majority of cases this was not to the same level as at the end of the first treatment stage after the use of conventional therapy alone.

The results for the marker bacterium A.a. must be interpreted cautiously as it is also possible to achieve false negative results. To ensure samples were reliable they had to be taken from approximately 25 teeth, which is often too laborious in daily clinical practice.[36] The median of the bacterial contamination reduced systematically over the course of treatment in stage two.

The results of the clinical parameters (see Figs. 7–11 & Table 1) support the tendency of positive results for the microbiological analyses. In comparison to conventional treatment of chronic periodontitis alone, the average probing depth could be significantly reduced at the end of the observation period (6-months check-up) of the second treatment stage using conventional therapy and aPDT (Fig. 9). The modified sulcus bleeding index had also significantly improved by the 6-months check-up of the second treatment stage (Fig. 10).

The occurrence of periodontal pockets with a probing depth of 4–6 mm had significantly reduced by the end of the observation period of the second treatment stage (Fig. 7). Periodontal pockets with a depth over 6 mm could also be significantly reduced after the 6-months check-up using the combined procedure of SRP and aPDT (Fig. 8). The significance is shown in Table 1. Both the SBI and the occurrence of probing depths 4–6 mm and > 6 mm were statistically significant in the considered periods after SRP/aPDT, and after 6 months (fields highlighted in grey).

_Discussion

This clinical study examines the effect that the adjunctive use of photodynamic therapy can be expected to achieve as part of conventional treatment of patients with chronic periodontitis. The results of the current investigation show that the treatment of teeth with periodontal infections with a photosensitiser and subsequent illumination with a suitable laser led to a significant improvement in the clinical parameters of the occurrence of probing depths of 4–6 mm and > 6 mm, and the SBI. Microbiological examinations have also shown a reduction in the bacterial load. Median values sank systematically.

The available results confirm the results of other studies, whereupon a significant reduction in periodontal pathogenic microorganisms could be achieved through the combined use of a photosensitiser and a laser.[28, 29] A clinical study carried out by Dörtbudak-Kneissl et al.[26] proved that there was a significant reduction in the marker bacteria A.a., P.i. and P.g. when a photosensitiser was used with a soft laser. According to Dörtbudak-Kneissl et al.[26], total sterility is not an absolute prerequisite for the cure of an inflammation.

The clinical parameters used to assess the actual periodontal condition are the pocket depth measurement, bleeding on probing, the degree of loosening,

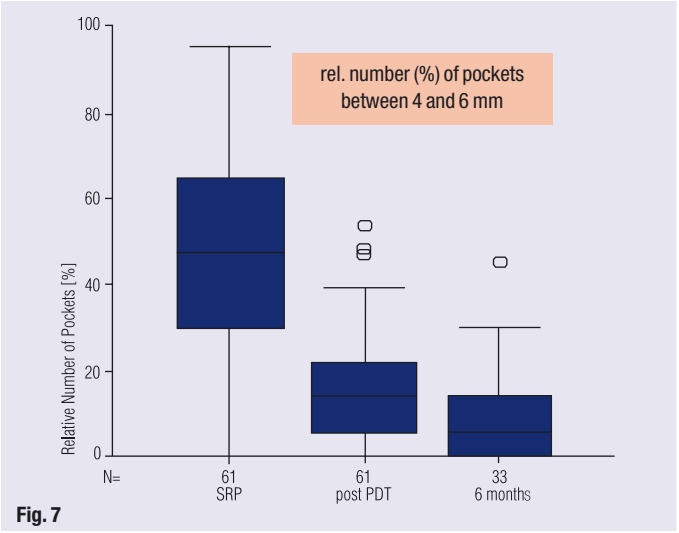


Fig. 7

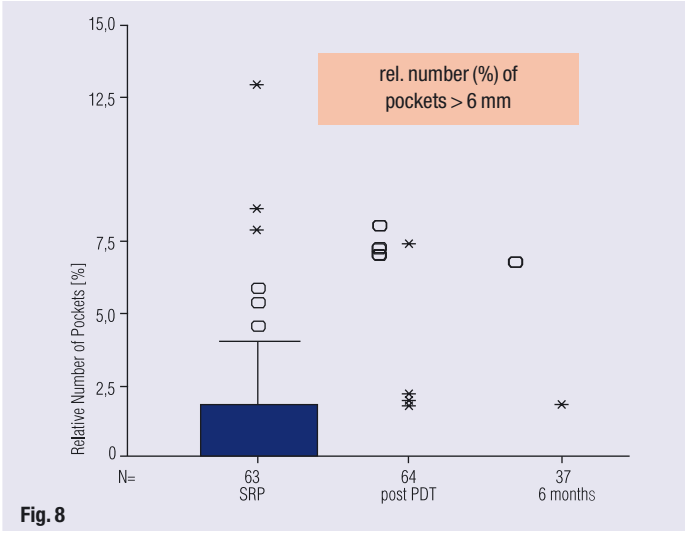


Fig. 8

and pus discharge from the pocket. When there are probing depths of more than 5 mm, there is a clear correlation to the amount of periodontal pathogenic bacteria.[30] After scaling and root smoothing, there is more frequent re-infection of deep pockets.[31] However, what is ultimately decisive for the progress of the course of an illness is bleeding on probing. This parameter is the decisive sign for the reaction of the tissue to the integrative stimulus effects (pocket depth, bacteria composition, number of bacteria).

Therefore, bleeding on probing is the most important parameter for a risk prognosis regarding future attachment loss.[32–34] As a result, during this study both the frequency distribution of the probing depths (risk of re-infection) and a modified bleeding index were taken as the decisive criteria for coming to a definite conclusion on the further progress of the loss of periodontal supporting connective tissue. During the observation period a statistically significant reduction of individual risk could be achieved and proved for these decisive parameters when using aPDT.

_Conclusion

As part of the current, prospective long-term study on patients it could be shown that in comparison to first using conventional treatments of chronic periodontitis alone—with mechanical removal of supra- and subgingival plaque and then smoothing the tooth roots—a subsequent combination of conventional professional scaling or SRP treatment and antimicrobial photodynamic therapy resulted in significant, sustained improvement of the levels of important clinical success parameters for the treatment of periodontitis. The microbiological examination also showed an immediate reduction in the number of important periodontal pathogenic bacteria when a combination of conventional therapy and aPDT was used.

The use of the antimicrobial photodynamic procedure could be integrated into the treatment process very simply and without any complications. It did not result in any side effects in the patients tested apart from a short-term discolouration of the gum lasting a few hours due to dyeing the plaque with the photo-

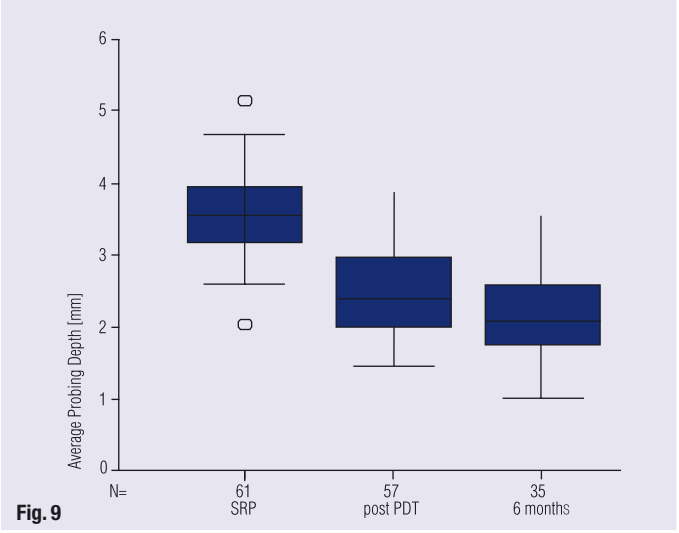


Fig. 9

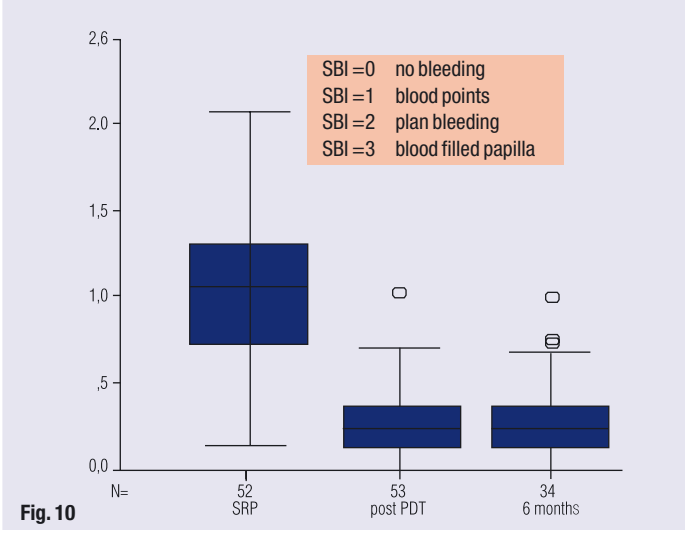


Fig. 10

sensitiser. Further clinical long-term studies are needed to be able to provide reliable, verified proof of a differentiated conclusion on the frequency of use of aPDT for patients with a high periodontal pathogenic bacterial load, combined with a marked defence weakness.

This research is a precursor, with temporal and contextual parts, of a major comprehensive study. The publication presents the data held by the author in spring 2006. As a result of the keen interest among colleagues, these first results are hereby published in advance. The extended version, containing the complete first annual results and treatment of aggressive periodontitis and peri-implantitis with a tested treatment plan will be published soon. The duration of the entire study is therefore intended to be 5 years.

_Summary

The aim of the study was to find out how antimicrobial photodynamic therapy (aPDT) would affect microbiology, pocket depth and the bleeding index when used as an addition to conventional therapy for chronic periodontitis. Fifty-five patients who had been suffering from periodontitis for an average of 14 years (2–19 years) were given a full examination as part of a regular check-up (microbiology, pocket depth, modified SBI). Then, most continued to be treated with professional scaling, and a few with SRP (scaling and root planing), but now in combination with aPDT. The results 1-week and 6-months after the combined therapy showed a considerable remission of the pathogenic marker bacteria, and a lasting, substantial decrease in pocket depth and bleeding index among patients previously treated with conventional therapies. This therefore proved the very positive therapeutic effect of HELBO Photodynamics._

The literature list can be requested from the editorial office.

_author | implants

Dr Tilman Eberhard, MSc.

Untere Zeiselbergstraße 18
73525 Schwäbisch Gmünd, Germany
Phone: +49-71 71/24 35
Fax: +49-71 71/49 54 83
E-mail: dr.tilmaneberhard@web.de

Clinical Observations on the New Epi-Guide® Barrier Matrix in Periodontological and Implantological Indications

Clinical procedure and scientific background of the regenerative therapy of intra-osseous defects

author_Frederic Hermann, Germany

_Today's regenerative periodontal therapy covers a broad field and offers many different (micro-) surgical techniques for the consolidation of intraosseous defects. It uses a large number of different procedures and materials such as root surface pretreatment, transplantation and implantation of different bone regeneration materials, the use of enamel matrix proteins, and coverage of defects with a soft-tissue inhibiting barrier membrane (guided tissue regeneration, GTR). By contrast with conventional modes of periodontal therapy, where tissue repair is effected by long junctional epithelium, the objective of regenerative therapeutic approaches is to achieve the near-complete restoration of all architectural and functional aspects of the periodontal system (root cement, periodontal ligament, alveolar bone). However, it is impossible to differentiate clinically (ie, by probing) between therapeutic success due to tissue repair and therapeutic success due to tissue regeneration. Radiological examinations may provide a first indication (bone gain). Concrete evidence could only be provided by histological examination, which for obvious reasons is not performed. The parameter available under clinical conditions to objectify therapeutic success is attachment gain.

_Previous Publications

A review of the recent literature shows that there are usually no statistically significant differences in treatment outcomes between membrane-supported GTR therapy and the use of enamel matrix proteins.[1] Depending on the baseline situation, a clinical attachment gain of between 2 and 4 mm is usually attained. This contrasts with conventional mechanical infection control with its resulting 1 to 1.5 mm of attachment gain. There are currently no predictable procedures for the therapy of lower molars with Class III furcation involvement and of maxillary furcation involvement.[2] It has also been shown

Fig. 1_3-D architecture of the Epi-Guide® membrane.
Fig. 2_Preoperative radiograph.
Fig. 3_Postoperative radiograph.

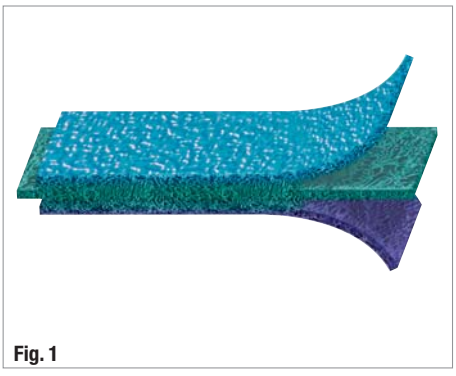


Fig. 1

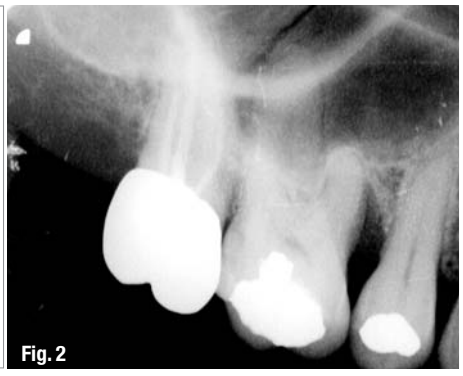


Fig. 2

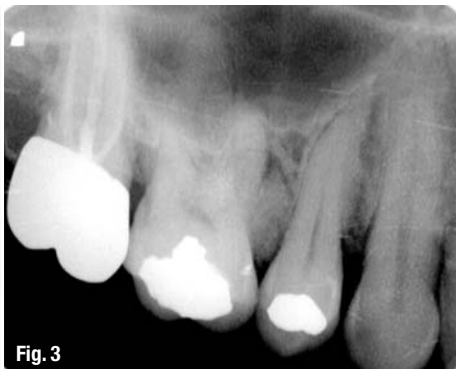
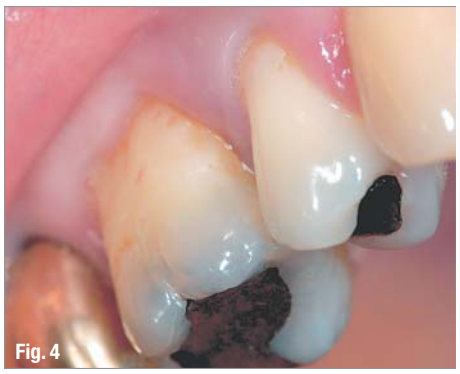
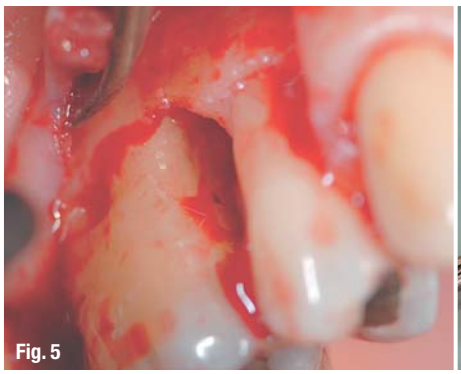


Fig. 3





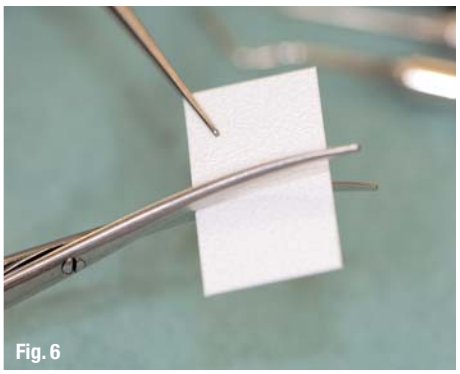


Fig. 4_Preoperative buccal view.
Fig. 5_The extent of the defect.
Fig. 6_Trimming the membrane.

that root conditioning (eg, using citric acid) does not improve the clinical regeneration outcome.[2,3,4]

The prerequisites for a predictable regenerative therapy are reflected by the following parameters:

1. Primary closed healing (submerged)
2. Immobilization of mobile teeth (stability)
3. A root surface pre-treated by curettage and by removing the smear layer (surface)
4. Maintenance of a cavity/barrier (space)

In addition to factors associated with the defect (such as width, depth, number of walls), treatment success will depend on factors related to the patient (smoking, compliance, plaque control, general health) and to the treatment (surgery, membrane exposure, antibiotic therapy).

_Materials and Methods– The Epi-Guide® Membrane

Three-Layer Technology

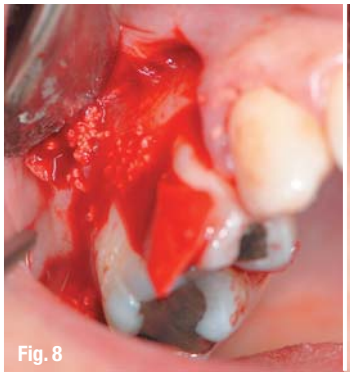
Epi-Guide® is a uniquely structured three-dimensional bioresorbable membrane with many applications within guided tissue regeneration (GTR) and guided bone regeneration (GBR). This internal structure creates a gradient of density designed to allow fibroblasts and epithelial cells to enter the hollow spaces and to attach themselves to the walls, stabilizing these cells in the process. The innovative structure is easily recognizable in cross-section: The inner layer, featuring large and closed pores, transforms into a chamber-like structure in the intermediate layer and then into the highly porous outer layer, also featuring large pores (Figure 1). The membrane aligns the growth of fibroblasts and epithelial cells so epithelial migration is prevented during subsequent healing stages. The structure and integrity are maintained for more than six weeks after implantation. The resorption of the barrier matrix is completed within six to twelve months.

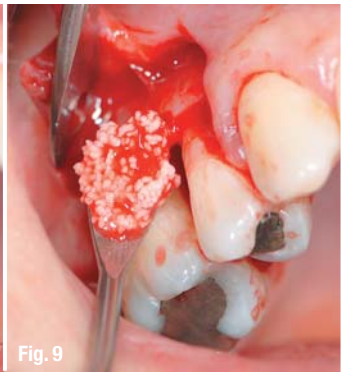
Structure and Characteristics

The Epi-Guide® barrier matrix comes in 18 x 30 mm (0.7 x 1.2 in.) rectangles. For easier differentiation, the surface facing the soft tissue has an embossed relief structure. Epi-Guide® is highly hydrophilic and will accommodate a large amount of blood in the intermediate chamber layer; the ingrowth of epithelial cells is prevented. In this manner, the barrier matrix serves as a placeholder for the development of bone and periodontal tissue.

Resorption Behavior

It was shown in histological examinations performed six weeks postoperatively that inflammation-free collagen fibers had formed in the barrier matrix. The architecture and the structure of the barrier had remained stable. After three weeks, as the formation of collagen fibers continues, bioresorption sets in; the matrix, however, continues to serve its function. After approximately 12 months, Epi-Guide® will have been completely resorbed. No second-stage surgery is required. The membrane surface with its open and interconnected pores counteracts suture dehiscence and gingival recession. It should be emphasized that any dehiscence or recession–should they occur after all–are very well tolerated by the membrane.





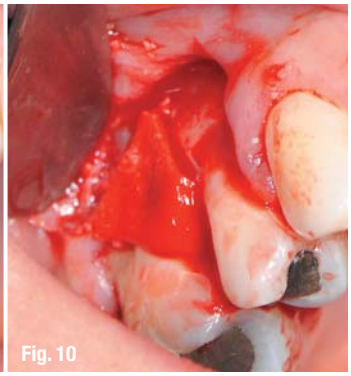


Fig. 7_Optimally tailored to the intraosseous defect.
Fig. 8_Membrane adaptation.
Fig. 9_Filling the defect with activated β-TCP (Cerasorb® M/curasan AG).
Fig. 10_Complete defect coverage with β-TCP and the Epi-Guide® barrier matrix.

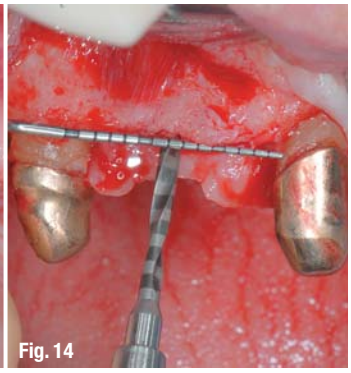


Fig. 11_The suture is impervious to saliva.
Fig. 12_Clinical intraoral situation after three months.
Fig. 13_The incision on top of the alveolar ridge.
Fig. 14_Positioning and pilot drilling.

Epi-Guide® in Clinical Studies on Humans

In a multicenter study including 40 patients with bilateral Class II furcations defects, Vernino et al.[5] examined the influence of three-dimensional polylactide barriers (Epi-Guide® and Guidor) on the regeneration of hard tissues. The amount and quality of new bone formed was evaluated one year postoperatively by surgical reentry. The results for three centers showed significantly better results for Epi-Guide® with regard to the reduction of the vertical component. The same study also showed that exposition within the first eight weeks occurred markedly less frequently with Epi-Guide® than with the reference product.

_Case Reports

Case # 1: Periodontological Indication

The patient was 39 years old at baseline. Her general health was good. Extraoral examination did not reveal any pathological findings. The intraoral situation was characterized by soft and hard supragingival concrements. All teeth exhibited positive sensitivity. The gingival margin in all quadrants exhibited only moderate localized inflammatory changes. A swollen and reddened interdental papilla was found between teeth 15 and 16. Probing depths were between 2 and 4 mm, locally reaching 8 mm at 15 and 16. No pathological tooth mobility was present.

The radiological examination showed pronounced radical bone defect reaching the apical third (Figures 2 and 3, pre- and postoperative radiographs).

The microbiological examination of the subgingival plaque demonstrated the presence of Actinobacillus actinomycetemcomitans and, in connection with the clinical findings, motivated a diagnosis of localized aggressive periodontitis.

Treatment

The surgical therapy was preceded by anti-infectious therapy, consisting of closed subgingival curettage accompanied by antibiotics (amoxicillin + metronidazole; Van Winkelhoff, 1989) and 0.12% chlorhexidine digluconate rinses. When the result of the treatment was assessed 10 weeks later, probing depths of 7 mm persisted at teeth 15 and 16. Subsequent surgical therapy provided for the regeneration of the intraosseous defect using the new resorbable Epi-Guide® barrier matrix (curasan AG, Kleinostheim, Germany) for guided tissue regeneration. Based on the morphology of the defect as uncovered intraoperatively (two-walled defect), additional support was consciously provided by applying a bone regeneration material (β-TCP/Cerasorb® M, 500–1,000 µm, curasan AG) to preserve the cavity. The surgical procedure is illustrated in Figures 4 to 11. The membrane and flap were additionally stabilized by an offset suture with resorbable suture material above the defect area. Vertical interrupted sutures were used to reposition the papilla.

Outcome

The wound healing process was free of complications. An attachment gain of 2.5 mm was subsequently measured. A slight papillary recession of 1 to 3 mm in the regeneration area is frequently seen and could not be predictably avoided even in this

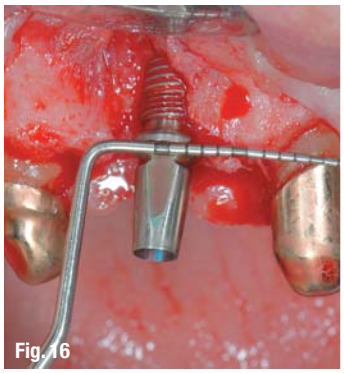


Fig. 15_Parallelization check.
Fig. 16_Inserted REVOIS® implant (curasan AG) with vestibular bony dehiscence.
Fig. 17_Lateral augmentation with β-TCP (Cerasorb® M/curasan AG).
Fig. 18_Fully adapted membrane above the defect.

case despite the use of microsurgical methods and papilla preservation techniques. The patient should always be fully informed of this risk ahead of the operation, especially in the case of procedures in the esthetic zone.

Probing depth decreased to 3 mm, which is a level that the patient can easily maintain, yielding a favorable long-term prognosis of freedom from inflammation if regular recalls are made.

Case #2: Implantological Indication

The patient was 67 years old at baseline. His general health was good. Extraoral examination did not reveal any pathological findings. The alveolar range between teeth 13 and 23 showed moderate vertical and pronounced horizontal atrophy. Following periodontological pretreatment, the existing maxillary telescopic restoration increasingly lost its retention, and it was decided to add abutments by implantological means. In addition, the patient requested a fixed restoration without a palatal bar.

Treatment

Following a minimally invasive incision along the top of the alveolar ridge (13–21) and mobilization of a mucoperiosteal flap, placement of a Revois® implant was accompanied by concurrent widening of the alveolar ridge using the bone-splitting technique. Following placement of the implant, the crestal aspect of the vestibular bony lamella fractured and developed a dehiscence, which was augmented with β-TCP (Cerasorb® M, 500–1,000 µm, curasan AG) and covered with a resorbable membrane (Epi-Guide®, curasan AG; see Figures 12 to18).

Outcome

After tension-free primary wound closure, wound healing proceeded without complications, with no membrane exposure or inflammatory reactions. The vestibular contours of the alveolar ridge could be restored in their entirety.

_Discussion

The two cases from regenerative periodontology and augmentative implantology exemplify the advantages of the fully synthetic Epi-Guide® resorbable polylactide membrane (curasan AG). The clinical photographs demonstrate ease of handling, ease of contouring and rapid absorbency of blood from the defect region, important prerequisites for rapid and safe intraoperative membrane placement. Other favorable aspects are close tissue adaptation and good tissue integration, along with the barrier function of the material, substantially reducing the risk of membrane exposure. No postoperative complications have occurred in connection with this membrane in any of the cases treated so far.

Generally speaking, the use of resorbable membranes makes an additional surgical intervention unnecessary, which is well in line with the concept of minimally invasive dental care. An advantage is the fully synthetic nature of the membrane, which makes forensic aspects figure less prominently and reduces the time needed for patient education. Advantages in clinical procedures are particularly evident in combination with a synthetic resorbable bone regeneration material such as β-TCP (Cerasorb® M, curasan AG)[6].

On the other hand, care must be taken to ensure primary wound closure when working with resorbable membranes in order to prevent postoperative infection of the regenerative area. Since tension-free wound closure cannot be guaranteed and membrane exposure cannot be predictably excluded in every case, the exclusive use of resorbable membranes for every conceivable situation cannot be recommended. It is also necessary to pay attention to the additional stress on the tissues caused by the process of membrane resorption. When regenerative techniques are used in the esthetic zone, the patient must be informed about the possibility of gingival recession ahead of time.

_Conclusion

We can conclude that the improvements that were made to the proven Epi-Guide® resorbable barrier matrix have considerable clinical advantages. Compared to the predecessor material, the matrix is easier to handle intraoperatively, while at the same time exhibiting improved resorption and adaptation characteristics, ensuring safe placement above the bone regeneration area. Postoperative wound healing was free of complications in all cases. Both the bone regeneration material used and the membrane proved to be very well tolerated clinically. This article presents exemplary anecdotal case reports. Results from controlled clinical studies including histological evaluations would be desirable in order to document the current good results in a more stringently formalized manner based on a greater number of patients._

The literature list can be requested from the author.

_author implants

Dr Frederic Hermann

AZZ
Ambulantes Zahnmedizinisches Zentrum
Poststr. 15
6300 Zug
Switzerland
Phone: + 41-41/710 91 70
E-mail: frederic.hermann@gmx.de

The IntraLift™: A new minimal invasive ultrasonic technique for sinus grafting procedures

author_ Marcel A. Wainwright, Germany, Angelo Troedhan, Austria, Andreas Kurrek, Germany

This case report reveals a new technology in sinus grafting with an ultrasonic device and special tips designed for the atraumatic lifting and augmentation of the sinus floor.

_The need of secure implantology in the maxillary molar region has urged dentists and surgeons to find evidence-based methods for operation protocols of the sinus. The lateral window technique Tatum described is one of the most secure and predictable ways to guarantee a new bone formation in maxillary edentulous areas with increased pneumatised sinus related to atrophic reaction caused by a loss of bone function. This technique requires a full flap for a good visibility of the operation field, mostly created with a crestal or paracrestal incision, and the cut of a window of the lateral sinus wall.

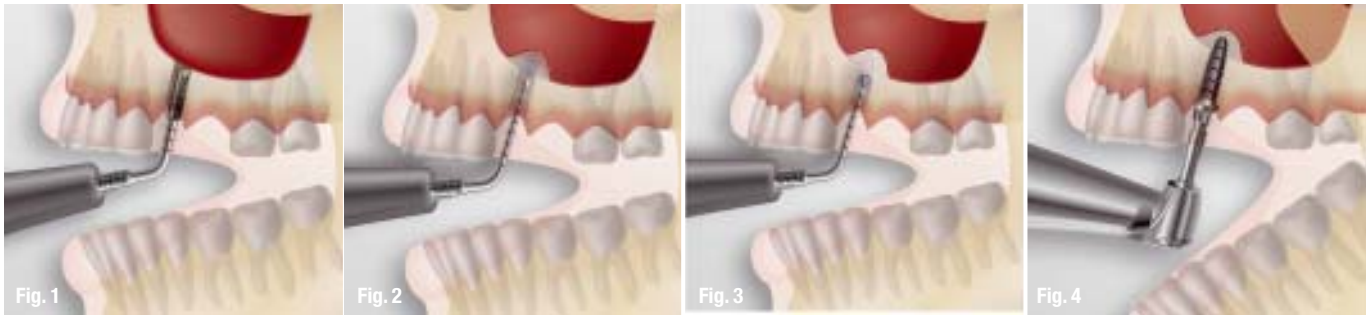
Done with rotative burs or diamonds, the threat of an iatrogenous rupture of the Schneiderian Membrane is one of the challenges the surgeon is facing. Once the window has been cut, the next challenge is to reflect the sinus mucosa from the bone floor and walls without the injury of the sinus mucosa. Even though for the experienced surgeon the lateral sinus lift technique is not that pretentious and the potentially ruptured membrane can easily be covered with a resorbable membrane, the search for a less traumatic way was negotiated by the Summers Technique and its modifications.

This technique is less invasive due to the crestal approach that makes an extended flap unnecessary. Nevertheless, disadvantageous is the threat of an uncontrolled rupture caused by the osteotomes and, in addition to that, the area of submucosal augmentation is restricted. Done with surgical hammers, the operation itself is for most of the patients described as more uncomfortable compared to the lateral technique, but the postoperative complaints are significantly reduced compared to the lateral technique with visible hematoma and edema.

The intention of the inventors of this technique was to combine the benefits of the lateral window technique—regarding to safe augmentation of bigger areas—and the reduced invasive postoperative patient complaints with the Summers Technique. Since ultrasonic surgery has become a secure method in bone surgery, the idea was to develop a technique that reduces the risk of traumatization of the Schneiderian membrane tremendously, and to graft the sinus to any extent desired with a hydrodynamic cavitation effect.

In preliminary studies on lamb skulls, the scientific group of Troedhan, Kurrek, Wainwright (TKW) and the Acteon Group in France developed a technique with the ultrasonic Piezotome® named as the IntraLift™.

Fig. 1_TKW3 in use, preparing the osteotomy site with water irrigation (NaCl) and a high level setting.
Fig. 2_TKW4 (trumpet) with the piezoelectric and microcavitation effect lifting the Schneiderian membrane from its floor.
Fig. 3_TKW4 (trumpet) in use as a plugger with alternating use of water irrigation in low level (4).
Fig. 4_Implant placement if primary stabiltity is achieved (+20 Ncm)



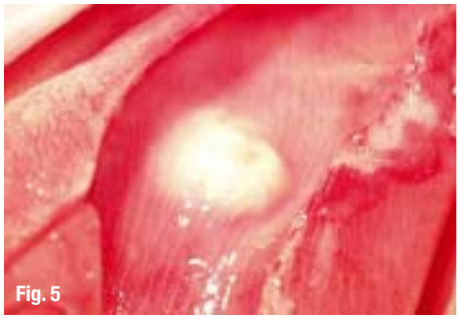


Fig. 5

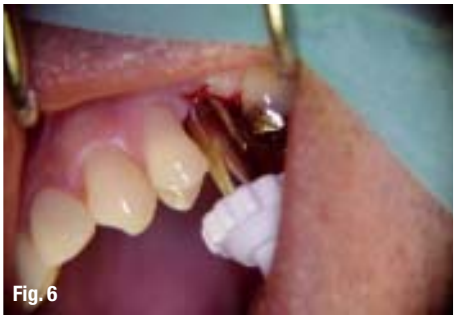


Fig. 6

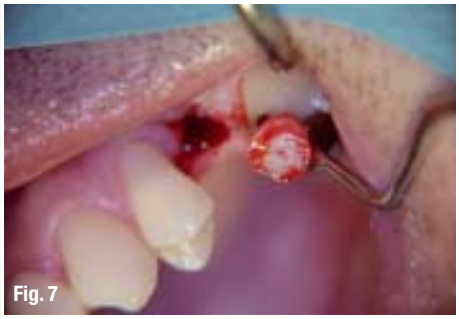


Fig. 7

Fig. 5_In preliminary studies with sheep skulls, the technique was tested successfully. This picture shows the lifted membrane and the grafting material (Cerasorb M) shining through.
Fig. 6_Biopsy punch in use after infiltration anesthesia.
Fig. 7_Dissected gingiva before bedded in sterile NaCl.

_The IntraLift™ Protocol

The technique of the IntraLift is shown in Figures 1–4. If no lateral augmentation is required and the bone width is sufficient, the use of a biopsy punch is recommended. The punched gingiva is bedded in sterile sodium chloride and finally resutured after surgery. The protocol recommends an initial pilot drill osteotomy with a 2 mm twist drill when the crest is higher than 3 mm, and to stop 2 mm before the sinus floor. If less than 3 mm, like in this case, it's sufficient enough and more secure to start directly with the diamond coated and laser marked TKW 1. The piezotome technique allows the surgeon to prepare a safe and efficient implant site without the threat of a perforation of the Schneiderian Membrane, as compared to drilling devices. Nevertheless, the ultrasonic tip doesn't cut any soft tissue it might encounter so that too much pressure would result in an iatrogenic perforation; and an intraoperative x-ray might be helpful to determine the residual bone height. The water irrigation should be 80 ml/min in mode 1 (highest mode, depending on bone quality).

After TKW1 has reached the Schneiderian membrane, TKW2 and TKW3 (Fig. 1) follow with increasing diameter to widen the osteotomy for TKW4, named trumpet (Fig. 2). This is the most important step and instrument. With the combination of the piezoelectric and the hydrodynamic microcavitation effect resulting in a symmetrical distribution of the sterile sodium chloride, the Schneiderian membrane is lifted efficiently and quickly from the sinus floor.

The trumpet is used at level 2 or 3, and increasing irrigation starting with 40 ml/min going up to 60 ml/min—direct contact with the Schneiderian membrane should be avoided. A perforation can be almost excluded, and even if it might not be bigger than 2.8 mm in diameter, it can be covered as the protocol recommends with a collagenous sponge or a resorbable membrane; even if there is no perforation just as a buffer prior to filling procedure with alloplastic or autogenous augmentation material.

The trumpet is used as a plugger to fill, through the osteotomy, the new subantral cavity with the grafting material (Fig. 3). For a homogenous distribution of the augmentation material the trumpet (TKW4) is used in low level mode (level 4) and irrigation 40–50 ml/min, alternating, for 3 seconds. If primary stability is achieved (above 20 Ncm), the placement of an implant is feasible. The punched gingiva is sutured back with atraumatic suture material 5/0 or 6/0. The first steps for the surgical protocol and technique were evaluated in preliminary studies on sheep skulls (Fig 5).

_Case Report

A 37-year-old male patient, heavy smoker (30 cigarettes/day) with missing teeth in the molar region and an insufficient restored oral cavity came with the desire for a full mouth treatment and a restitutio ad integrum. Tooth 13 was missing and the patient agreed with an implant treatment plan. The residual height of the alveolar crest was 2.5 millimeters at it's lowest point.

It was planned to graft the sinus via the IntraLift technique and, if primarily stability above 25 Ncm was achieved, the placement of a *3i* Prevail™ Implant. The implant design with a wider platform than the screw's diameter results in a high primary stability. After infiltration anesthesia with Ultracain forte™, the osteotomy site was revealed with a conventional biopsy


Fig.8

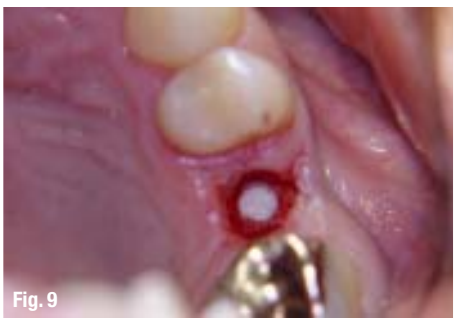


Fig. 9


Fig. 10

Fig. 8_TKW3 in use.
Fig. 9_ A collagenous sponge is plugged into the osteotomy prior to the filling of the subantral room. This avoids an iatrogenous perforation and has the function of a buffer.
Fig. 10_Cerasorb M mixed with blood from the osteotomy. This facilitate the grafting process and enhances the grafting material with a high osteoinductive autologeous material.

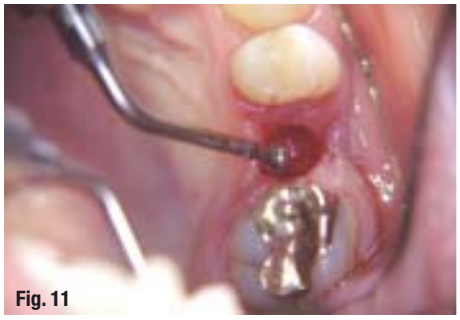


Fig. 11

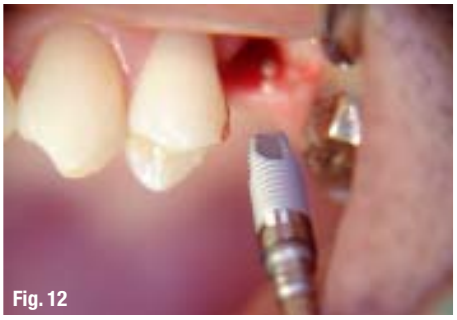


Fig. 12

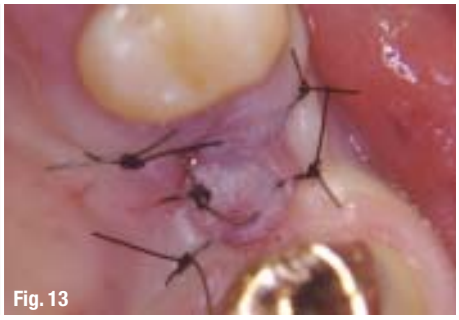


Fig. 13

Fig. 11_The trumpet (TKW4) used as a plugger for the grafting material.
Fig. 12_ Placement of a *3i* Prevail Implant of 4 x 11.5 cm.
Fig. 13_ The gingival punch is sutured back with 6/0 atraumatic suture.

punch (Figs. 6, 7), and the tissue was bedded in sterile sodium chloride until it was sutured back after implant placement.

Figure 8 shows diamond coated and laser marked TKW 4 in action. The complete abscence of drilling sounds and sensibility is connected with a high patient acceptance, especially compared to the use of a surgical hammer.

After final preparation with TKW4 (trumpet) and elevation of the Schneiderian membrane, a collagenous sponge is plugged into the cavity as a buffer to avoid any traumatisation of the membrane (Fig. 9). The grafting material was, in this case, Cerasorb® M (2 x 0.5 cc 500–1,000 µm) mixed with blood from the osteotomy site containing a high amount of mesenchymal blast cells and progenitor cells with a high osteoinductive potency (Fig. 10).

The trumpet (TKW4) is used as a plugger as described in the protocol with alternate water irrigation use (Fig. 11). After reaching the desired grafting height—that can be easily controlled by a periodontal or an implant socket probe—a *3i* Certain Prevail Implant of 4 x 11.5 mm was placed, and a primary stability of 25 Ncm was achieved (Fig. 12). The mucosa punch was sutured back with 6/0 atraumatic Supramid™ and the postoperative X-ray shows a clear peri-implant augmentation area with no rupture of the membrane and augmentation material in the sinus. The patient came back the following day with no swelling, bleeding and zero consumption of painkillers.

_Summary

The IntraLift is an alternative to conventional sinus grafting techniques with dramatically reduced trauma and a high patient acceptance. The aim to minimize operation techniques was the drive for the authors to invent this protocol based on the piezoelectric and the microcavitation effect. Regarding the protocol, a traumatization of the Schneiderian membrane is extremely reduced, and even if there is a perforation, the protocol describes the plugging of a collagenous sponge to close the perforation and to continue with the operation protocol. Small areas like single tooth implants or huge edentulous areas (Fig. 15 with regards to Dr Troedhan, Vienna) can be grafted with an osteotomy from the crestal aspect and, if no lateral augmentation is necessary, only with the atraumatic punch technique.

Patients today desire more and more a minimalization of operation techniques combined with a high predictability. This technique is an opportunity to increase the number of patients with compromised maxillary bone situation. New trabecular bone formation was partially visible only after 6 weeks, and in 98%, the treated patients didn't use any analgetics. Hence, an enlarged database and additional studies are necessary to underline the effectiveness of this technique._

The literature list is available from Dr Wainwright.

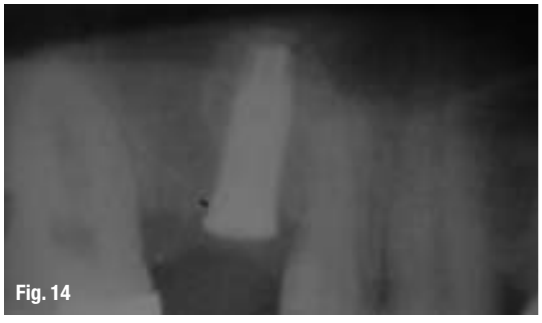


Fig. 14

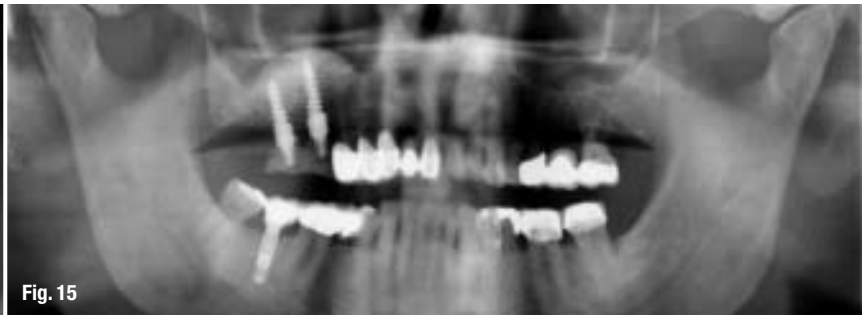


Fig. 15

Fig. 14_ The postop X-ray reveals a clear visible augmentated sinus floor with no perforation.
Fig. 15_ Even huge areas can be augmented with this minimal invasive technique, as shown in the case from Dr Troedhan (Austria). From each implant site, the augmentation of the sinus was achieved with the punch technique resulting in no pain and swelling for the patient.

_contact implants

Dr Marcel A. Wainwright
Kaiserswerther Markt 25–27
40489 Düsseldorf, Germany
www.dentalspecialists.de

ADI 20th Anniversary Congress
3rd – 5th May 2007 in Birmingham

_The Association of Dental Implantology UK, founded in 1987, held its annual convention from May 3–5, 2007. Approx. 1,000 participants attended events offered to dental implantologists as well as events offered for dental assistants and dental technicians. The topics covered all facets of dental implantology. On the afternoon of the second day, the convention featured a live feed from Portugal, presenting the opportunity to watch a surgery during which the prosthesis was implanted immediately, and which was executed according to the concept "Teeth in one hour". Surgeon Paulo Malo capably demonstrated the concept and illustrated its advantages and disadvantages in a very amusing manner. The surgery was followed up by a controversial discussion of the presented concept. Edwin Scher led this session as a professional moderator. Friday was concluded by the so-called "Ascot Ball", which was also attended by representatives of closely associated organizations such as the DGZI

and the AO (Academy of Osseointegration). DGZI was represented by its first vice president and treasurer Dr. Rolf Vollmer, the AO by its former president Ed Sevetz. The main event of the gala dinner was the participation in a horse race, which was extremely exciting and fun for all its participants. Saturday's program was dominated by topics in connection with osseointegration, immediate loading, CAD/CAM techniques and block grafts. Zvi Schwartz of the Hebrew University in Jerusalem provided interesting information about pharmacotherapy during and after dental implantations and particularly pointed out that the use of non-steroidal analgesics or antirheumatics and steroids respectively could negatively impact osseointegration. ADI president Phil Bennett was the speaker for the closing event. He thanked all participants and guests and invited them to attend the next ADI convention in 2009, which is to be held once more in Birmingham. Last but not least, Phil Bennet announced that ADI will launch a structured education program and that he hoped that the new president elect Anthony Bendkowski, who will be at the helm of ADI as of November, would continue his projects, particularly with regard to international relationships and the continuing education initiatives._

DGZI Expands Cooperation with Japanese Implantologists

**The German Association** of Dental Implantology (DGZI) has been able to further expand its international involvement in recent years. Through a direct cooperation with implantological associations in the USA, Asia, the Arabic region, and Europe, the DGZI has become part of a worldwide network of over 10,000 implantologists. As a direct result of the efforts of the DGZI managing committee, the DGZI has signed a cooperation agreement with the Japanese implantology association, the Academy of International Advanced Implantology (AIAI), which is headed by its president Dr. Yashuiko Takamae. The initiatives for a cooperation with the 800 members of the Japanese implantology association have been ongoing for roughly one year and were initially launched due to the attendance of a large Japanese delegation (with over 50 participants) at the 36th annual DGZI international symposium held last year in Munich. The objective of this non-commercial cooperation is the exchange of knowledge to promote implantological research and development. The use of existing concepts should strengthen collaboration efforts regarding continuing education and training; especially the international symposia organized by DGZI and AIAI will play a key role in this area. Aside from the goal of cooperation between members of the two associations, another important goal of the agreement is collaboration with regard to scientific projects and mutual recognition of acquired qualifications. Due to the agreement, Japanese members will also have access to advanced training classes and the German DGZI standards-based Master of Science.

Selected Events 2007/2008

OCTOBER 2007

October 5–6	*37th International Congress of DGZI*	Düsseldorf, Germany	Phone: +49-3 41/4 84 74-3 08 Fax: +49-3 41/4 84 74-3 90 Web: www.oemus.com
October 24–27	*FDI Annual World Dental Congress*	Dubai, U.A.E.	Web: www.fdiworlddental.org

NOVEMBER 2007

November 7–11	*AAID 56th Annual Meeting*	Las Vegas, U.S.A.	Web: www.aaid.com
November 23–28	*The 2007 Greater New York Dental Meeting*	New York, U.S.A.	E-mail: info@gnydm.com

FEBRUARY 2008

February 28–March 1	*Academy of Osseointegration 23rd Annual Meeting*	Boston, U.S.A.	E-mail: academy@osseo.org

MARCH 2008

March 4–6	*UAE International Dental Conference & Arab Dental Exhibition – AEEDC® Dubai*	Dubai, U.A.E.	Web: www.aeedc.com
March 7–8	*4th Arab-German Implantology Meeting*	Dubai, U.A.E.	E-Mail: office@dgzi-info.de

MAY 2008

May 23–24	*15th Starters Congress in Implantology / 9th Spring Meeting of DGZI*	Ulm, Germany	Phone: +49-3 41/4 84 74-3 08 Fax: +49-3 41/4 84 74-3 90 Web: www.oemus.com



Manufacturer News

J.Morita

Veraviewepocs 3D: From panoramic to 3D images in just one click

With the new Veraviewepocs 3D X-ray unit, J. Morita Europe promises dentists several benefits at once. Where they previously had to transfer their patients to radiologists to take 3-D X-rays, according to the manufacturer's instructions they can now provide this service in their own practice. This improves their diagnostic options and saves the patient time and unnecessary travel. With Veraviewepocs 3-D both very high resolution 3-D images and real panoramic and cephalometric exposures can be created without having to change the sensor in-between. As a functional unit, the device delivers precise results with the lowest doses of radiation with very few steps. The user creates an OPG exposure which is available immediately on the screen. He can instantly assess whether an additional 3-D exposure is indicated and selects the region to be examined by clicking on it with the mouse. The 3-D exposure is generated without having to reposition the patient and change the settings. You can select 3-D exposures in 40 x 40 mm or 80 x 80 mm formats. In both sizes the details have an equally high resolution and are presented with high image dynamics and without image distortion. Using the accompanying i-Dixel software, the user can, after a short scanning time, study the image data in axial, coronal and sagittal views simultaneously. Taking the exposure is just as user-friendly as with 3D Accuitomo, for example. If you also install the i-Dixel software on other computers in the practice, the three-dimensional exposures can be displayed and edited on each of these computers. If you do not want to use the i-Dixel software, the images can also be viewed with the free software One Data Viewer. Due to the integrated DICOM standard, the exposures can also be exchanged between different information systems. According to J. Morita Europe, Veraviewepocs 3-D with its three-dimensional exposures enables structures to be displayed which cannot be recognised using conventional X-ray procedures. Dentists can thus diagnose and treat patients with more confidence and at the same time combine their diagnostics, treatment planning and implementation in one work step.

J. Morita Europe GmbH
Justus-von-Liebig-Straße 27a
63128 Dietzenbach, Germany
E-mail: Info@JMoritaEurope.com
Web: www.JMoritaEurope.com

DOT

BONITmatrix®- Innovation for successful bone regeneration

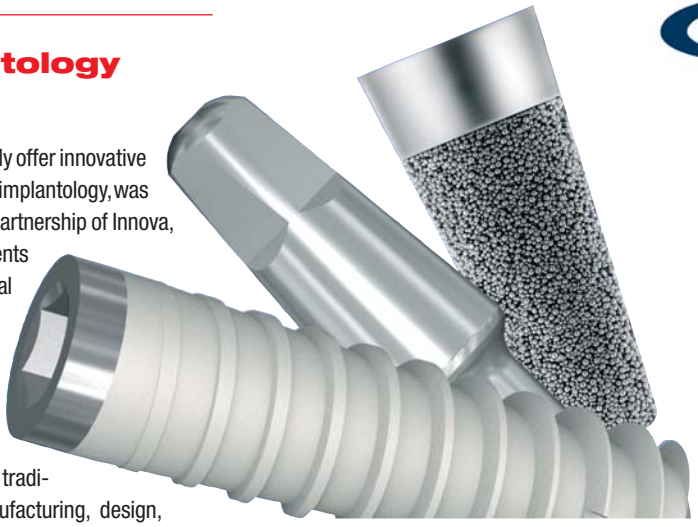
BONITmatrix® is a synthetic bone graft substitute for the reconstruction of bone defects. It consists of a mixture of the two calcium phosphates Hydroxylapatit (HA) and ß-tricalciumphosphate (ß-TCP) in the clinically proven ratio of 60:40. In contrast to conventional HA and ß-TCP based ceramics and bio-glasses BONITmatrix® is manufactured in a sol-gel-process without sintering. In this process nanocrystalline calcium phosphate particles are embedded in a biological active Silicon dioxide-matrix. Utilising this special low temperature process leads to a highly interconnected porosity inside the single granule of approximately 60% and an implanted porosity in vivo of nearly 80%. The pore sizes are in the nano- and micrometer range ensuring the product has a very large internal surface area of approx. 90 m^2/g. The interconnecting pore system creates a high capillarity allowing for the deep diffusion of biological fluids and the adsorptive capacity enables the binding of important growth factors present in blood etc. and supports osteogenesis. The material is osteoconductive and acts as a scaffold during the osteogenesis. During the evaluation in a comparative clinical trial with a leading ß-TCP-based product, BONITmatrix® showed a better wound healing as well as a better bone formation in the defect area. After mixing with autologous blood or bone marrow the granules are very form-stable. Because of the simple and safe surgical applicability and the firm implantation site retention, BONITmatrix® is recommended for use in larger and difficult accessible dental defects (>1cm^3).

The material is supplied in single vials, sterilised by gamma irradiation. BONITmatrix® is available in two granules sizes and in four package sizes. To obtain more information on BONITmatrix® please contact:

DOT GmbH
Charles-Darwin-Ring 1a
18059 Rostock, Germany
E-mail: info@dot-coating.de
Web: www.dot-coating.de

Oraltronics

New Implantology platform



Our mission to continuously offer innovative solutions in the field of oral implantology, was recently enforced by the partnership of Innova, Oraltronics and Attachments as part of the Sybron Dental Specialties (SDS) family. These complementary strengths uniquely position us to offer innovative products and solutions which reflect our mutual tradition of expertise in manufacturing, design, development and education.

Innova
The Innova Corporation with headquarters in Toronto/Canada is actively engaged in research, development, manufacture and distribution of new implant technologies and produces technologically superior implants, such as the Endopore system.

Oraltronics
With more than a quarter century of experience in the development of implant systems and instruments, the Oraltronics Dental Implantology GmbH with headquarters in Bremen is a recognized pioneer in the dental implantology field. The Pitt-Easy as well as the Bicortical implant system are well proven and feature continuous innovations. Bone augmentation material (Bio Resorb) and the non-resorbable membrane Cytoplast Non Resorb complete the product line.

Attachments International
For more than 30 years, Attachments International in California has been designing and producing state-of-the-art dental and medical devices and incorporates superior customer service and precise manufacturing techniques, complemented by educational programs for the dental profession.

New Logo to visualize intensified cooperation
The implantologists will benefit from the new platform of Innova-Oraltronics-Attachments in multiple ways:

- close cooperation of all company sites worldwide
- promotion of new application techniques for special implant solutions
- commitment to intensive research and development

Innova · Oraltronics
SYBRON DENTAL SPECIALTIES

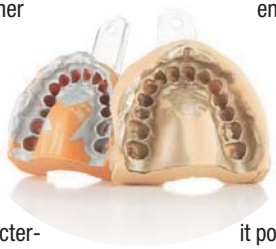
This partnership ultimately delivers to our customers a world of implant solutions.

ORALTRONICS
Dental Implant
Technology GmbH
Julius-Bamberger-Str. 8a,
28279 Bremen,
Germany
E-mail: info@oraltronics.com,
Web: www.oraltronics.com

Coltène/Whaledent

AFFINIS® PRECIOUS– accurate impressions in silver and gold

The innovative AFFINIS impression range was introduced to the dental market in 2001, another demonstration of Coltène/Whaledent's decades of experience in impressions. AFFINIS provides outstanding surface affinity and sharp, accurate impressions. Now AFFINIS PRECIOUS–the new generation of correction materials–is on the starting line with three improved characteristics. The surface affinity is optimised to wet the tooth surfaces immediately, even in critical situations in a moist environment–the basic requirement for bubble-free and accurate impressions. The detail readability has also been significantly modified to enable assessment of the further success of the impression in the laboratory. The wash "correction" materials are matt gold and silver, which make it very easy to assess the situation. AFFINIS PRECIOUS and AFFINIS tray materials are both designed for a short oral setting time. The impression hardens after only two minutes.



Outstanding flow properties

AFFINIS PRECIOUS shows spontaneous flow behaviour after application, particularly in a wet environment. In addition, in spite of the good flow properties the material still retains its shape and does not drip when in place. This immediate and sustained surface activation (hydrophilia) makes it possible to achieve accurate impression results even in critical situations that are completely free from bubbles and flashing caused by pressing.

Outstanding detail

The special silver and matt gold precious-metal shades of AFFINIS PRECIOUS significantly reduce light scattering and improve the visual perception of details. The makes it quick and easy to assess the impression result.

Relaxed application–faster impression

The bonding characteristics of conventional impression materials always involve a compromise. A short oral setting time means a short, "rushed" application time or you can have more time with longer setting properties. AFFINIS PRECIOUS has a clinical processing time of up to 60 seconds–plenty of time even for larger projects–but the oral setting time is only 110 seconds. Because the AFFINIS tray materials have a comfortable clinical oral setting time of two minutes, fast and accurate impressions are guaranteed. Two consistencies are available: a thin, silvery type and a medium, golden wash or correction material, both of which can be combined with the complete AFFINIS range.

Coltène/Whaledent AG
Feldwiesenstrasse 20
CH-9450 Altstätten, Switzerland
E-mail: office@coltenewhaledent.ch
Web: www.coltenewhaledent.com

BEGO Implant Systems

BEGO Implant Systems with new partner in Switzerland

From now BEGO Implant Systems will sell its dental implants and prosthetics through the well-known Swiss company heicodent (www.heicodent.ch) exclusively. In the past BEGO Implant Systems delivered directly to Switzerland. "The interest in our products was increasing rapidly in the last time and we are very happy about this cooperation. With heicodent we found a strong partner for the market in Switzerland. At heicodent they are familiar with the Swiss market for dental implantology and have the necessary contacts to opinion leaders", says Walter Esinger, Managing Director of BEGO Implant Systems. With Mr Urs Heinimann and the sales team at heicodent the customers are provided with professional support something which is significant for BEGO Implant Systems. In order to guarantee quick access to the BEGO Implant S and RI programme for the customers a warehouse has been established in the premises of heicodent. With support from BEGO Implant Systems in Bremen this enables heicodent to deliver all common Implants and prosthetic parts within 48 hours.

BEGO Implant Systems GmbH & Co. KG
Technologiepark Universität
Wilhelm-Herbst-Straße 1
28359 Bremen, Germany
E-mail: info@bego-implantology.com
Web: www.bego-implantology.com

Hader SA

Hader provides you with the solution!

Hader SA, employer of 100 people, is a fast growing Swiss company specialised in design, conception and production of high quality parts in the medical-, dental- and micro technical field. We provide our OEM customers worldwide. In order to increase its capacities in the microtechnology field, Hader SA recently acquired H-Liengme SA, a Swiss company active in high precision components, mainly CNC turning components. Both companies are located in the Swiss Jura Mountains, a highly specialised region and well known for watch making industries and micro technology. We have turning and milling machines in order to produce extremely precise parts. Moreover we have the capacity to use bars of various materials up to Ø 51 mm. Hader SA has injection moulding machines and we produce the moulds in house. Other competences are laser welding, laser marking. For cleaning components after machining process we use a state of the art cleaning system. For examining components and packaging we have a Cleanroom Class US 10,000, type ISO 7 at our disposal. For testing, to carry out metallurgical cross-sections etc. we have a Dental Laboratory. The company is certified ISO 9001:2000, ISO 13485:2003 and ISO 14001:2004. In addition to custom made components by CNC machining and injection moulding, we develop and manufacture dental torque wrenches. The devices with gradually adjustable values are available with torque values up to 70 Ncm: 10–35 Ncm (see enclosed picture), 15–70 Ncm and our ratchet wrench. All wrenches are surgical instruments and have CE certification. The 70 Ncm wrench is composed of only 6 parts that can easily be dismantled for cleaning and sterilisation process. According to customer's requirements we make specific laser marking on the handle of the wrench: company logo and specific torque values. For the 35 Ncm torque wrench a new black laser marking is available to improve readability during operation. Our wrench is equipped with a custom specific ratchet wheel, however it can be applied to any implant system available on the market. Our medical division developed Torque Tool Limiters which are used for Orthopaedic use from 1–15 Nm.

Hader SA
Rue Jardinière 153
CH–2300 La Chaux de Fonds,
Switzerland
E-mail: sales@hader-swiss.com
Web: www.hader-swiss.com

Geistlich Biomaterials

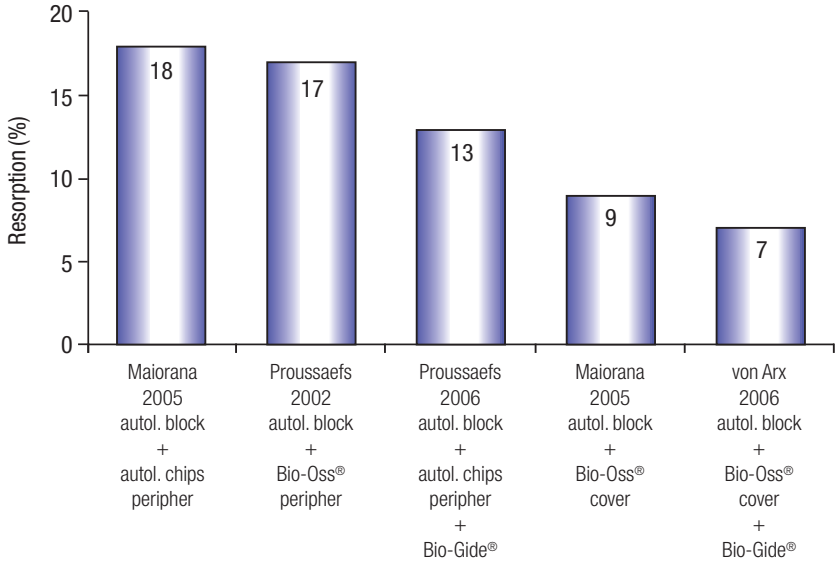
Long-term Preservation of Augmentation Volumes

A new clinical study concludes that the use of Bio-Oss® and Bio-Gide® effectively prevents from resorption of autologous bone blocks. A common challenge seen with purely autologous grafts is the resorption and loss of bone volume up to 50%. A clinical study by von Arx and Buser suggests that this loss can be minimized when the autograft is contoured outright and on the surface with Bio-Oss® and covered with a resorbable Bio-Gide® membrane. The clinicians carried out 58 horizontal crest augmentations using autologous blocks, Bio-Oss®, and Bio-Gide®. After 6 months the blocks and the Bio-Oss® particles showed good osseointegration and vitality. The mean resorption was reduced to 7.2% and the mean crest width had changed from 3.06 mm to 7.66 mm. From their review of the present literature they concluded that three major factors seem to influence the long-term success in block augmentation techniques:

- peripheral contouring of residual defects with Bio-Oss®
- shielding of the surface with Bio-Oss®
- covering of the grafted area with a natural collagen membrane (Bio-Gide®)

The good osteoconductivity and the natural remodelling of Bio-Oss® enhance volume stabilization. In combination with the well established healing properties of the natural collagen membrane Bio-Gide® this accounts for the high efficacy and high predictability.

Geistlich Biomaterials Vertriebsgesellschaft mbH
Schneidweg 5
76534 Baden-Baden, Germany
E-mail: info@geistlich.de
Web: www.geistlich.de



Resorption rates (%) of the autologous blocks in dependence of the augmentation technique

Sources: von Arx et Buser. Clin Oral Implants Res. 2006;17(4):359–66
Proussaefs. Int J Periodontics Restorative Dent. 2006;26(1):43–51
Maiorana et al. Int J Periodontics Restorative Dent. 2005;25(1):19–25
Proussaefs et al. Int J Oral Maxillofac Implants. 2002;17(2):238–48

CAMLOG

International CAMLOG Congress 2008

The professionals in implant dentistry are meeting on the 9th and 10th of May in Basel, Switzerland, for the International CAMLOG Congress 2008.

The camlog foundation has taken over the aegis of the International CAMLOG Congress 2008 – corresponding to its general responsibilities of creating and imparting new scientific knowledge, supporting projects in the fields of basic and applied research, as well as in continued education and training.

Committed to the guiding principle of the congress, "Science meets practice – practice meets science", the scientific committee of the camlog foundation has prepared a high-class program to present the current state of implant dentistry in its entire scientific and practical complexity.

Official congress languages: German and English (simultaneous translation into the other language).

The congress will provide outstanding opportunities to obtain the latest scientific knowledge first hand, to foster the collegial exchange of experiences and to create new and strengthen existing contacts.

This, combined with discovering the unmistakable Basel flair and unique landmarks of the city in the Swiss/German/French border triangle, make visiting the International CAMLOG Congress 2008 a benchmark for the "implantological" year 2008.

Find the latest information at **www.camlogfoundation.org** and **www.camlog.com**.

Friday, 9th May 2008	Saturday, 10th May 2008
• Principles and risk factors of implant therapy	• Biological aspects and material criteria
• Esthetics in implant therapy	• Immediate loading – immediate restoration
• Research projects promoted by the camlog foundation	• The team concept – key to success
CAMLOG Party	

CAMLOG Biotechnologies AG
Margarethenstraße 38
CH-4053 Basel, Switzerland
E-mail: info@camlog.com
Web: www.camlog.com

Friadent

Join the TissueCare Concept!

"tissue stability" is the magic word in modern implantology. DENTSPLY Friadent presents the TissueCare Concept, the solution for lasting tissue stability, at the roadshow, starting in Cologne on September 7, 2007, with insights into the factors that must work together so every practitioner can achieve lasting tissue stability. So far platform switching has been celebrated as the great breakthrough and as the "philosopher's stone" for maintaining long-term crestal bone stability. But is a wide implant shoulder with a narrow abutment really the complete solution for this complex series of problems? A team of well-known international experts uses clinical data to demonstrate what other factors are involved and what must be considered in their interaction with various elements to maintain lasting bone stability and healthy soft tissue around the implant and to prevent the appearance of visible crown margins in implant-based restorations. There will also be a spectacular evening program to round off the event: high-quality continuing education by day and outstanding entertainment by night. DENTSPLY Friadent can look back on 20 years of success in maintaining tissue stability. This is why many implantologists trust the experience and expertise of the specialist implant manufacturer. Now they can discover the secret of lasting bone stability and healthy soft tissue with the TissueCare Concept. Implantologists attending the Roadshow will find out what factors result in healthy, stable bone and harmonious soft tissue. They will profit from the knowledge of internationally known experts. After the scientific program implantologists can look forward to an exciting and relaxing evening program. For more information on the roadshow and how to register visit www.tissuecareconcept.de. Join the TissueCare Concept!

Dates:

September 21, 2007	The Hague
October 12, 2007	Hamburg
October 19, 2007	Munich
November 23, 2007	London
January 24, 2008	Nice
February 8, 2008	Madrid

Friadent GmbH
Steinzeugstraße 50
68229 Mannheim, Germany
E-Mail: info@friadent.de
Web: www.friadent.de

Nobel Biocare

Nobel Biocare Maxillofacial Concept: Smiles to those who need them most

Building on the research and groundbreaking work in Osseointegration of Professor Per-Ingvar Brånemark and his institute in Bauru (Brazil), Nobel Biocare is pleased to announce its Maxillofacial Concept for planning implant retained maxillofacial reconstructions. Maxillofacial surgery can correct a number of deformations in the hard and soft tissues of the oral and maxillofacial regions, caused by disease, trauma and genetic defects. Surgery support comes from the complete Nobel Biocare Brånemark System® implants and prosthetic assortments for anchoring prostheses, and new state-of-the-art 3-D software for diagnosing and planning implant retained maxillofacial reconstructions. When needed, specifications can be submitted for production of customized solutions. With the Maxillofacial Concept, Nobel Biocare will offer the market's most complete range of "fixed" solutions for reconstructing a person's face, both inside and outside the mouth.

Nobel Biocare AB
Bohusgatan 15
S-40226 Gothenburg, Sweden
E-mail: info.sweden@nobelbiocare.com
Web: www.nobelbiocare.com

curasan

Human tissue grafts—tailor-made for dental surgery

Dental surgeons not infrequently face special indications where filling the defect with allografts continues to be the only available or the most successful therapeutic adjunct.

Suitable allografts–high-quality pharmaceutical products made and registered in Germany–are now readily available to dentists in private practice from curasan AG in Kleinostheim, Germany. curasan AG cooperates with the German Institute for Cell and Tissue Replacement *(Deutsches Institut für Zell- und Gewebeersatz, DIZG)* in Berlin, a non-profit organization founded by physicians and scientists at universities in Berlin (Charité) and Erlangen.

„Bone in a syringe"–serving user needs.
A variety of grafts of human origin is available for use depending on indication:
cortical and cancellous bone granules, J-shaped corticospongious bone chips, cube-shaped cancellous bone grafts and fascia lata (superficial broad fascia of the thigh) as a dental membrane. In addition, demineralized human bone matrix (DBM) is available both in granule form and in paste form (in a pre-loaded syringe), which has the advantage that the DBM paste is ready to use without needing preparation.
All other products are rehydrated with a suitable sterile physiological medium (eg, isotonic infusion solution) before use. The material is easy to shape and mould and can readily be used together with autologous PRP.

curasan AG
Lindigstraße 4
63801 Kleinostheim, Germany
E-mail: info@curasan.de
Web: www.curasan.de

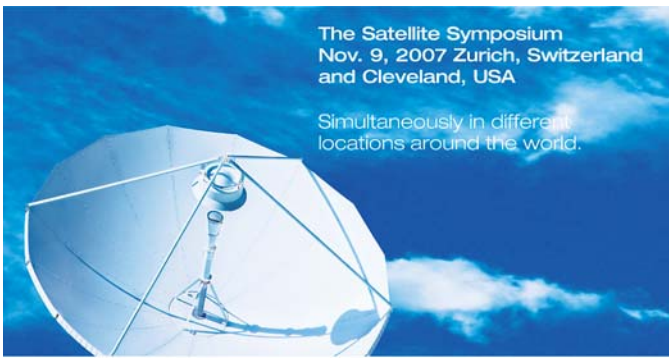
Thommen Medical

1st Thommen Medical Satellite Symposium

November 9, 2007, Live, Switzerland, USA, Italy

Presenting an important topic from various points of view; offering easy access to that topic in multiple international locations; assembling internationally renowned clinicians to provide live surgeries and interactive discussion. This is the rationale behind the idea of a different version of a symposium–Thommen Medical's first Satellite Symposium. The symposium will consist of simultaneous programs in Zurich, Cleveland and Rimini, with live surgical and prosthetic demonstrations broadcast from the US and Italy as well, all on the topic: "The Challenge of Replacing Two to Three Adjacent Teeth with Implants in the Esthetic Zone" and is followed by in-depth discussions of different methods and techniques. The protagonists of the symposium will be Prof Urs Belser, Dr Ueli Grunder, Prof Markus Hürzeler, Dr Mark Hutten, Dr Mauro Merli, Dr Konrad Meyenberg, Dr Anthony Sclar and Prof Maurizio Tonetti. The use of satellite transmission as a global link is an innovative feature. But the agenda of the symposium is just as innovative. It will commence in the afternoon in Europe and in the morning in America. The conclusion of the event will be marked by a dinner in Zurich, followed by a special live act. This event will provide continued education to the entire staff of your practice. It is becoming more and more obvious that discussions of this type provide useful new insights not only to the dentist, but are of interest to the entire team. Experience and enjoy an exciting Friday afternoon and evening jointly with your team away from the "conventional" part of conventions. We look forward to your attendance.

Thommen Medical AG
Hauptstrasse 26d
CH-4437 Waldenburg, Switzerland
E-Mail: info@thommenmedical.com
Web: www.thommenmedical.com/satellite



implants

international magazine of oral implantology

an DGZI publication published by Dental Tribune International