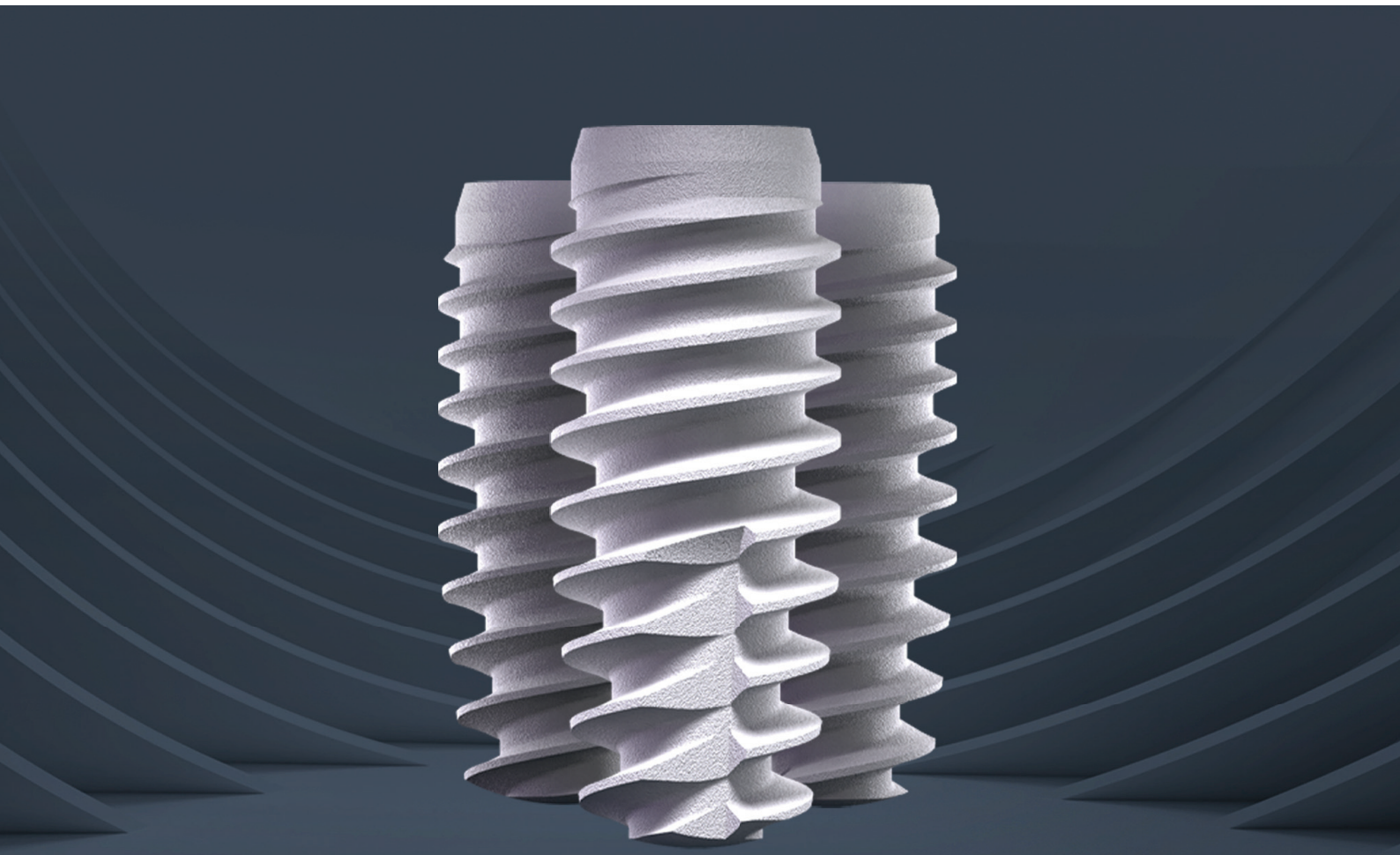
issn 1868-3207 • Vol. 23 • Issue 3/2022

3/22

implants

international magazine of oral implantology



research
Clinical relevance of the use of implant-supported provisional restorations to contour the emergence profile

case report
All-on-four treatment in an atrophic mandible using dynamic guided surgery

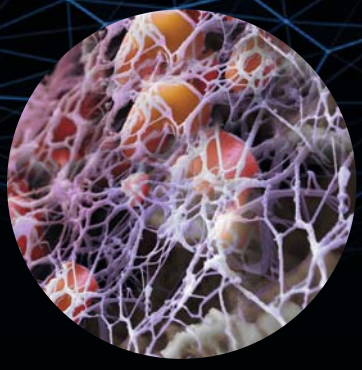
interview
Quality products at accessible prices

oemus

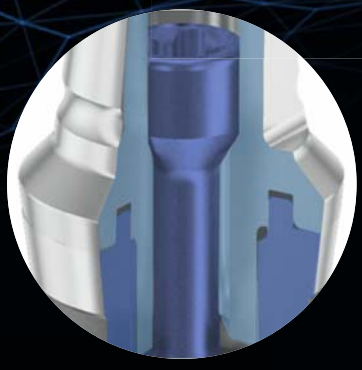
THOMMEN Medical

The Thommen Dental Implant System

MULTIGUARD
Protection Solution



INTEGUARD®
Matrix



EVERGUARD®
Connection

TISSUEGUARD®
Collar

Driven by science, not trends.

Dr Rolf Vollmer

First Vice President and Treasurer of DGZI

Dear colleagues and friends,

After a break due to the COVID-19 pandemic, the annual meeting of the Arbeitsgemeinschaft Dentale Technologie (dental technology working group; ADT) could take place again, and so I and the German Association of Dental Implantology (DGZI) team could participate in this year's event in Nürtingen in Germany. Participants were again able to engage face to face, but online participation was also made possible by the organiser.

The event focused on the ever-increasing importance of digital technology—for dentists and dental technicians alike. One of the most decisive developments in this context is probably digital impression taking. Most of us can say from personal experience that it simplifies processes, and patients would like to avoid analogue impressions. However, despite all the possibilities of digital technology and the efforts by many congress participants to establish these, current developments cannot (yet) completely replace our analogue work. After all, analogue knowledge is of great importance, especially for the further development of technology. It was refreshing to see how, despite these limitations and bureaucratic burdens, dental technicians continue to pursue innovations for the benefit of our patients. We can certainly look forward with anticipation to what digitalisation and further development in the technical field may bring us in the future.

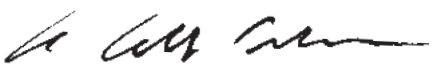
In addition to the digital production of crowns and dentures, the focus was on the materials used for their production. One of the numerous surveys on the experiences of the congress participants made it clear that the majority of the participants — more than 80 per cent — now manufacture crowns and dentures metalfree from zirconia. This topic was also addressed in the discussion of the S3 guideline of the Deutsche Gesellschaft für Prothetische Zahnmedizin und Biomaterialien (German society for prosthetic dentistry and biomaterials) on all-ceramics, their indications and Regulation (EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on medical devices. The latter has created a large burden for laboratories in everyday implementation and has meant that many materials have had to be taken off the market for reasons of recertification.

Something new for most of the participants was probably the job description of the denturist, a trained dental technician who is allowed to carry out prosthetic treatments independently in Switzerland, for example. Whether it will be possible for denturists to produce and fit complete dentures in Germany in the future met with a divided response and great contention. There are no legal requirements for such a development at present.

More information about the ADT conference can be found in the editorial section of this issue.

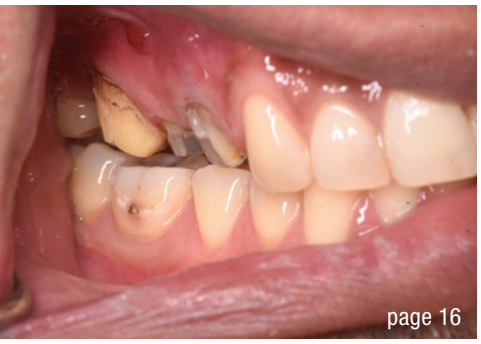
Personally, I hope you have had a wonderful and relaxing summer holiday and are looking forward to the DGZI's annual congress in Berlin on the first weekend in October.

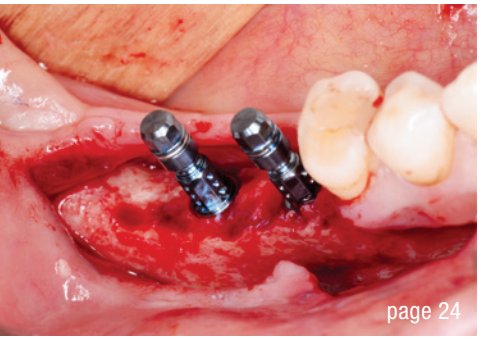
Yours,



Dr Rolf Vollmer

First Vice President and Treasurer of DGZI


page 16


page 24


page 46

Cover image courtesy of
NucleOSS / www.nucleoss.com

TRULY CONICAL PRECISION

CONELOG®
SYSTEM

CONELOG® PROGRESSIVE-LINE conical performance [1,2] at bone level

Precise conical connection

- long conus for reduced micromovements
- superior positional stability in comparison to other conical systems [1,2]
- easy positioning with excellent tactile feedback
- integrated platform switching supporting the preservation of crestal bone

Oral Reconstruction International Symposium

13 – 15 October 2022, Munich

[1] Semper-Hogg, W, Kraft, S, Stiller, S et al. Analytical and experimental position stability of the abutment in different dental implant systems with a conical implant–abutment connection Clin Oral Invest (2013) 17: 1017
[2] Semper Hogg W, Zulauf K, Mehrhof J, Nelson K. The influence of torque tightening on the position stability of the abutment in conical implant-abutment connections. Int J Prosthodont 2015;28:538-41

M-1441-ADV-EN-GLO-BHCL-00-052022

www.biohorizonscamlog.com

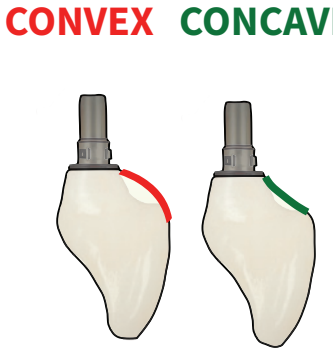
biohorizons camlog

Clinical relevance of the use of implant-supported provisional restorations to contour the emergence profile

Dr Marina Siegenthaler

Literature

Dr Marina Siegenthaler, Switzerland



1

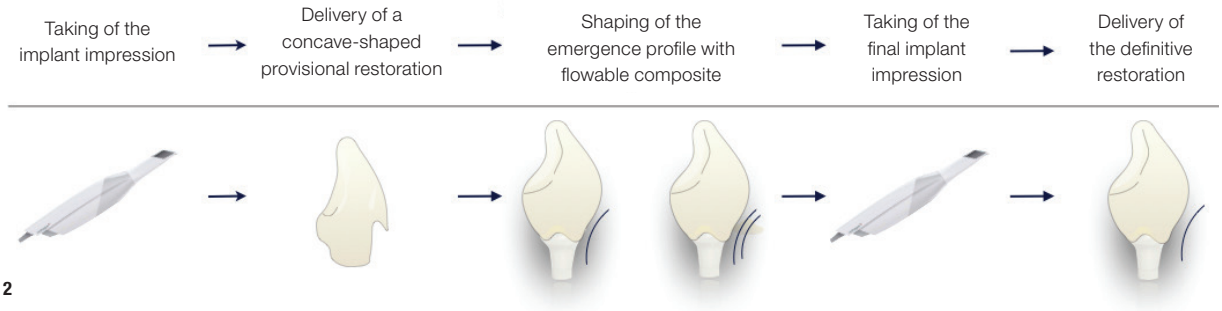
What shape emergence profile of single implant crowns is ideal? Does the use of an implant-supported provisional restoration affect the clinical outcome and does its use justify the increase in cost and time?

Introduction

A successful implant therapy is characterised by the maintenance of healthy and stable peri-implant tissues over time. Unless anterior implants are loaded immediately, the time between implant placement and insertion of the definitive restoration demands a provisional restoration in order to increase patient comfort and aesthetics. During this period, changes in the peri-implant tissues occur[1] which often result in a reduction of papilla height, an apical displacement of the mucosal margin and a decrease in thickness of the buccal tissue.[2] Subsequent remodelling processes, however, will then lead to an improvement and stabilisation of the peri-implant soft-tissue complex after one year. To minimise these changes and to shape the peri-implant tissue, the use of implant-supported provisional restorations has been suggested.[3] Surprisingly and despite the widespread use of implant-supported provisional restorations in clinical practice, their potential additional value in terms of aesthetic and clinical outcomes has only recently been investigated.[4]

Implant-supported provisional restorations

Implant-supported provisional restorations are commonly used when two-piece implants are placed in the aesthetic zone, enabling individualisation of the transmucosal, peri-implant mucosa—the emergence profile—in order to better mimic the natural soft tissues and obtain a stable long-term result. These types of provisional restorations have an obvious benefit in function and aesthetics; nevertheless, they do increase the treatment cost and time. Other provisional restorations, such



2

SWCC

STRAUMANN
WORLD CLASS CUP
2022

CUTTING-EDGE CLINICAL SCIENCE, WORLD-CLASS COMPETITION

The Straumann World Class Cup is a leading innovative hybrid event that brings together top clinicians from around the globe to showcase their expertise on key topics in dentistry: Immediacy, Regenerative, Digital and Esthetics. From September through December 2022, follow along as 20 teams present high-quality clinical cases over 3 virtual rounds. Straumann World Class Cup culminates in a 4th and final round in which the highest scoring teams will compete face-to-face in the **ESTHETIC DAYS** event.

HIGH-QUALITY CLINICAL CONTENT IN A FRESH, FUN FORMAT

Straumann World Class Cup is the premium clinical education event for dental professionals in 2022! Over the course of 4 months 80 experienced clinicians will share their best cases as they compete to win the World Cup.

Twenty teams – each composed of 4 clinicians – will demonstrate their expertise and clinical skill while educating the audience at the same time. Matches will consist of a clinical case presentation by each team that applies evidence-based treatments and showcases valuable real-world clinical applications ready to use in your daily practice. The variety of clinical approaches and topics will open new perspectives and present tools for more efficient and predictable solutions for your patients.

REGISTER NOW ON
www.straumann.com/swcc

EACH ROUND OF MATCHES WILL FOCUS ON A KEY TOPIC IN DENTISTRY:

- Qualifying Round 1 (Virtual) – September 6th – 9th: **Immediacy**
- Qualifying Round 2 (Virtual)– October 4th – 7th: **Regenerative**
- Qualifying Round 3 (Virtual) – November 8th – 11th: **Digital**
- Final Match (In person) – December 3rd: **Esthetics**

A jury of 12 world-renowned experts will evaluate the cases and assign points. The winner of each virtual round – and the chance to participate in the final face-to-face match in Palma de Mallorca – will be determined by both the expert jury and audience voting.

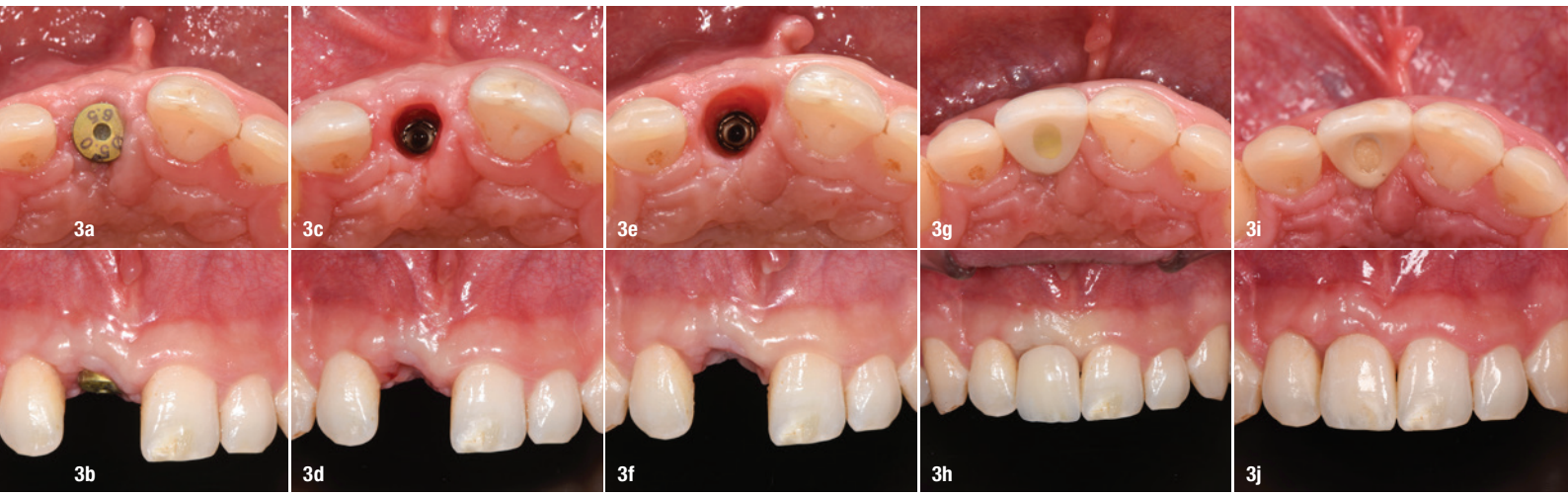
To become the winner of the Straumann World Class Cup, the 4 clinicians composing a team will have to work together and indispensable to their success will be the loyal fans back home who engage, share, and vote for their team.

Attractive prizes will be awarded throughout the entire competition to recognize the efforts and skill of as many teams as possible.

Make sure to follow the Straumann World Class Cup online, where scores and team rankings will be available 24/7.

This is the 2022 event you can't miss! Sharpen your skills while learning from the world's finest clinicians in an innovative format. Whatever your level of expertise, you're sure to discover a tip, tool, or treatment approach that you can apply in your own clinical practice.

straumann

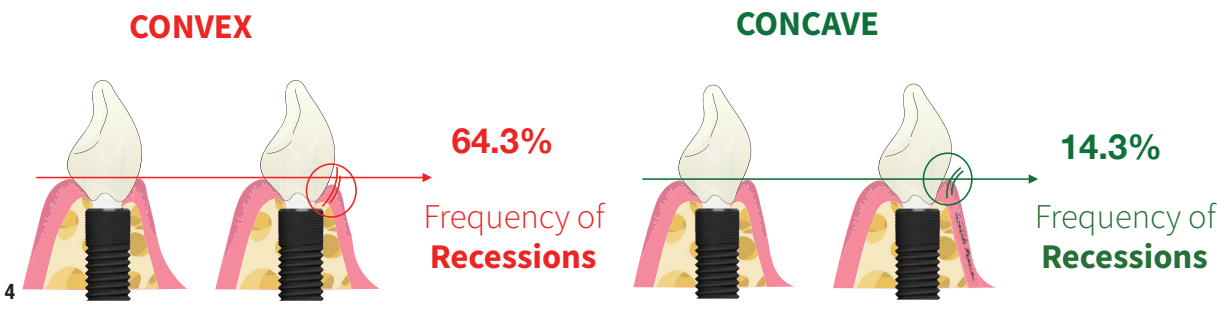


as splints, can be used as cheaper alternatives to using implant-supported provisional restorations, but these do not allow the shaping of the emergence profile. Typically, the shape of the emergence profile of implant-supported provisional restorations is either convex or concave (Fig. 1). However, and despite their wide use in daily practice, the shape that is most beneficial for the stability of the peri-implant mucosa around screw-retained restorations remained unclear. Furthermore, whether the additional investment in time and cost has a clinical impact was uncertain. A recent randomised clinical trial, however, addressed these questions and revealed that provisional restorations had a limited benefit in aesthetic and clinical outcomes.[4]

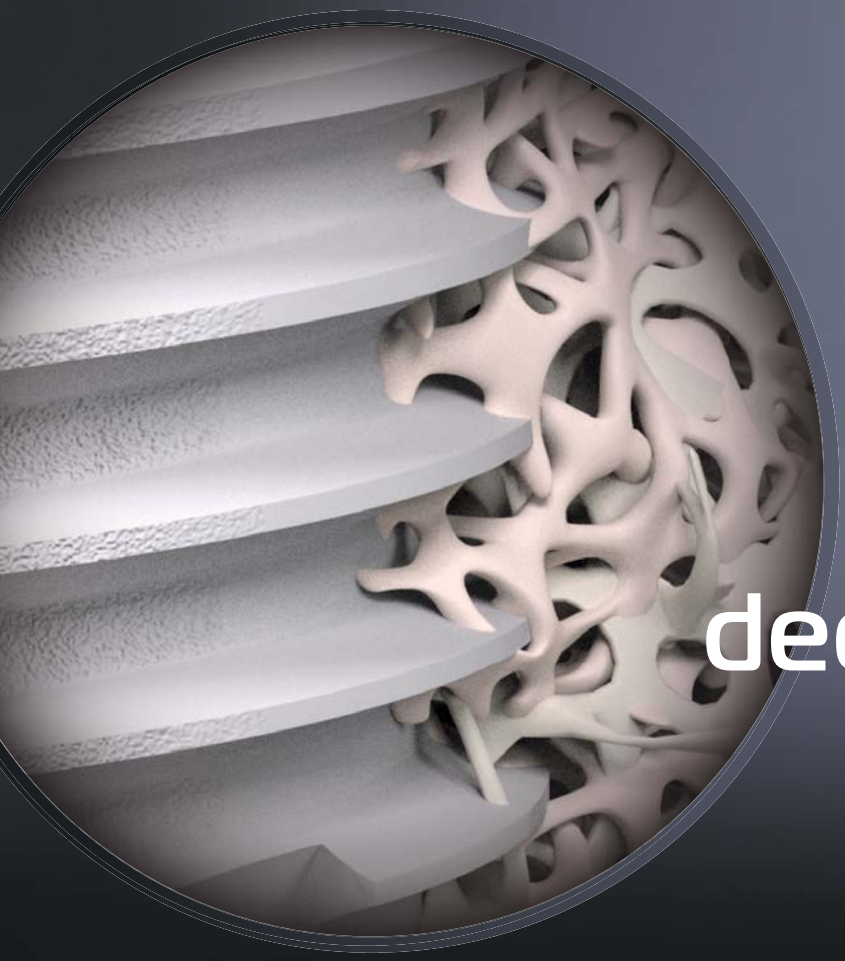
Conditioning of the emergence profile

There are different methods available to condition the emergence profile, differing in terms of the number of steps and the resulting shape. The most commonly described shape is a concave shape, allowing space for the buccal soft tissue. Conversely, a convex contour of the emergence profile has been recommended when an implant is placed in a too oral position.[5, 6] In order to avoid creating a niche for bacteria and to enable proper oral hygiene measures, a concave contour between the (too oral) implant shoulder and the crown margin is not recommended.

The most commonly used method in clinical practice for shaping the emergence profile is described here. After taking an implant impression, an initially under-contoured, implant-supported provisional restoration is fabricated. The buccal, cervical contour of the provisional restoration already representing the level of the prospective crown margin—usually mimicking the antagonist. This buccal initially sharp contour is filled (usually with a flowable composite) to a concave shape, resulting in slight mucosal pressure that produces local ischemia, which should subside within a few minutes. Selective pressure is added on the mesial and distal aspects to allow for papilla formation. Care should be taken not to apply too much pressure, as this can result in retraction of the tissue, causing recession and, in the worst case, tissue necrosis. The soft tissue is left to adapt, and the process is repeated after approximately one week, shaping the emergence profile further until satisfaction. Typically, two to three appointments are needed. A final implant impression (including the shaped emergence profile) is taken and the definitive restoration delivered according to the previously shaped tissues (Figs. 2–3j). Alternatively, for example in the premolar region, a healing abutment can be individualised in the same manner, avoiding the need for an implant-supported provisional restoration and decreasing costs. The before-mentioned, recent three-arm randomised controlled clinical trial compared the two different emer-

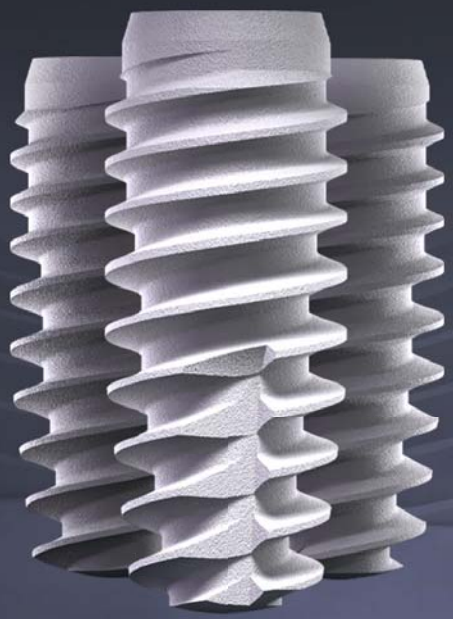


4



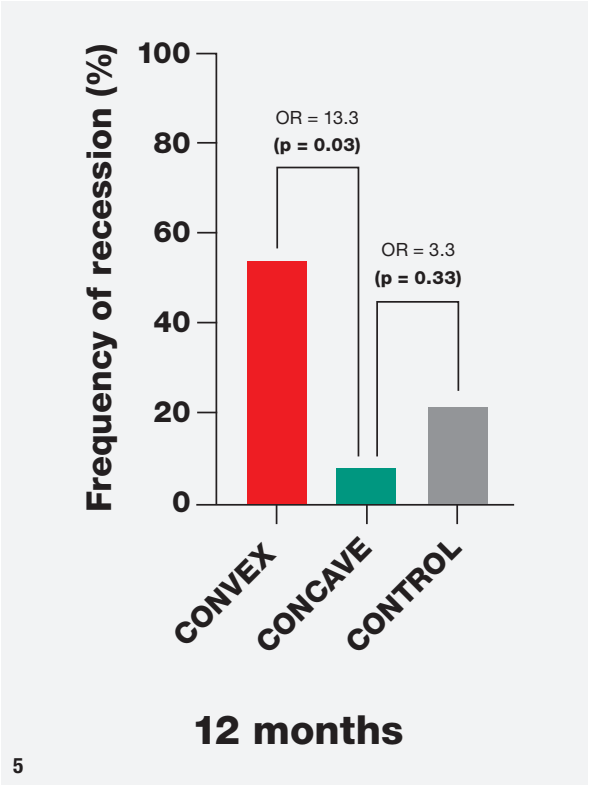
sharp and deep threads profile

ensures a strong mechanical adhesion with bone tissue. Provides the high ISQ values required for immediate and early loading.



NucleOSS™

T6 torQ



5

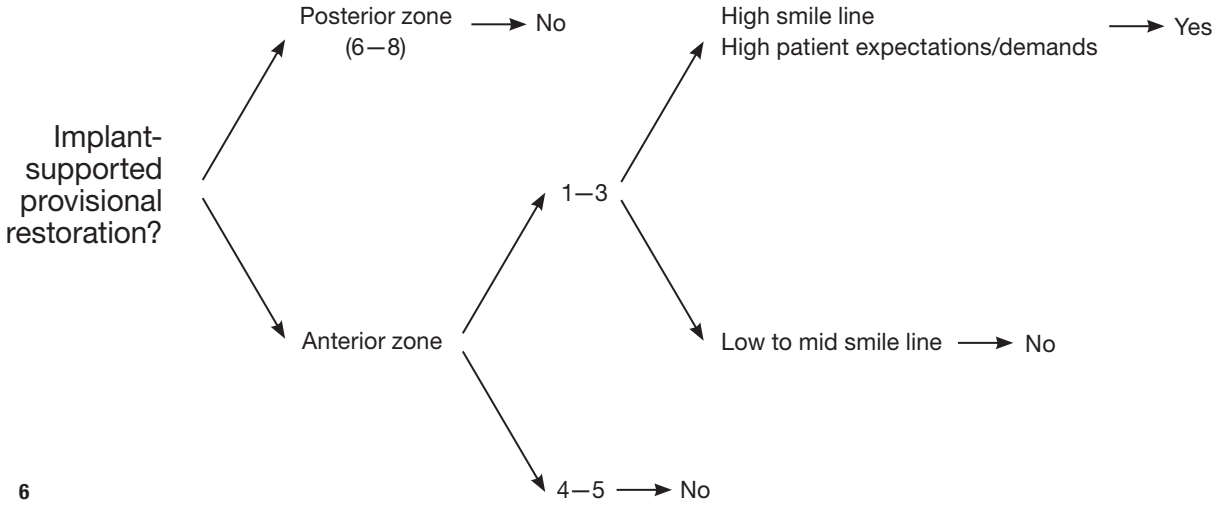
gence profile shapes (convex and concave) to the situation when no provisional restoration was used (control). The study revealed that, at 12 months of follow-up, 64.3% of convex-shaped restorations showed mucosal recession, whereas concave-shaped restorations showed only 14.3% (Fig. 4). In the group of patients who did not receive provisional restorations, mucosal recession occurred in 31.4% at the 12-month follow-up. In addition, the odds of showing a mucosal recession at 12 months was 13.3 times higher for convex-shaped restorations (Fig. 5). Assuming that mucosal recession can have substantial effects on aesthetic outcomes, it appears that the shape of the emergence profile should be taken into consideration when fabricating implant provisional restorations. It should be emphasised that the use of provisional restorations involved additional costs of CHF880 and the patients required 2.5 more appointments compared with those who had not received provisional restorations.

Clinical implications and summary

From a clinical point of view and given the present findings, the use of implant-supported provisional restorations might be questioned. It appears that the additional investment in time and money does not equate to a substantial improvement in aesthetic or clinical outcomes. Nevertheless, when an implant-supported provisional restoration (and crown) is used, a concave emergence profile shows a greater stability of the mucosal margin, whereas a convex emergence profile seems to be associated with a higher risk of developing recessions.

The use of implant-supported crowns, including provisional restorations, with a concave emergence profile might be recommended, as they may reduce the risk of recession. This, however, involves higher costs and treatment time compared to not using a provisional restoration and will not necessarily improve the aesthetic outcomes. The current results are based, however, on 12-month data and require further follow-up to confirm the results.

The following is recommended for clinical practice (Fig. 6):
- Provisional restorations are indicated for patients with high smile line or high aesthetic expectations.
- Provisional restorations are not indicated for premolars.
- Patient-specific considerations in this regard apply for restoration of canines and incisors.



6

about the author

Dr Marina Siegenthaler completed her studies in dentistry in 2016 at the University of Bern in Switzerland and received her DMD in 2018. After working in a private practice for three years, she is now at the end of the three-year specialisation training in reconstructive dentistry and oral implantology at the Clinic of Reconstructive Dentistry at the Centre of Dental Medicine of the University of Zurich in Switzerland, after which she will be granted the title of "specialist in reconstructive dentistry" and the MAS in oral implantology from the University of Zurich. Her clinical focus is the treatment of complex and aesthetic cases using all aspects of reconstructive and implant dentistry. Her scientific interests lie in the fields of prosthodontics, implantology and regenerative procedures.

contact

Dr Marina Siegenthaler
Clinic of Reconstructive Dentistry
Center of Dental Medicine · University of Zurich
Plattenstrasse 11 · 8032 Zürich · Switzerland
+41 44 6340404
marina.siegenthaler@zzm.uzh.ch

Figure captions

Fig. 1: The shapes of different emergence profiles of implant-supported provisional restorations.

Fig. 2: The most used method in clinical practice for shaping the emergence profile.

Figs. 3a–j: The shaping of the emergence profile and subsequent impression taking and delivery of the definitive restoration.

Fig. 4: Occurrence of mucosal recessions around convex- versus concave-shaped restorations after 12 months.[4]

Fig. 5: Odds ratio of mucosal recessions for convex-shaped restorations, concave-shaped restorations and no provisional restorations (control) after 12 months.[4] OR = odds ratio.

Fig. 6: Decision tree for the use of a provisional restoration.

All-on-four treatment in an atrophic mandible using dynamic guided surgery

Dr Jacques Vermeulen, France

The all-on-four technique for dental implant treatment is universally recognised for its efficacy, yet its applicability for atrophic mandibles remains problematic for many implant surgeons. Implant placement in such clinical situations requires high precision to avoid anatomical structures such as the mental foramina and to ensure that the bone volume around the implants is sufficient for osseointegration.

Case description

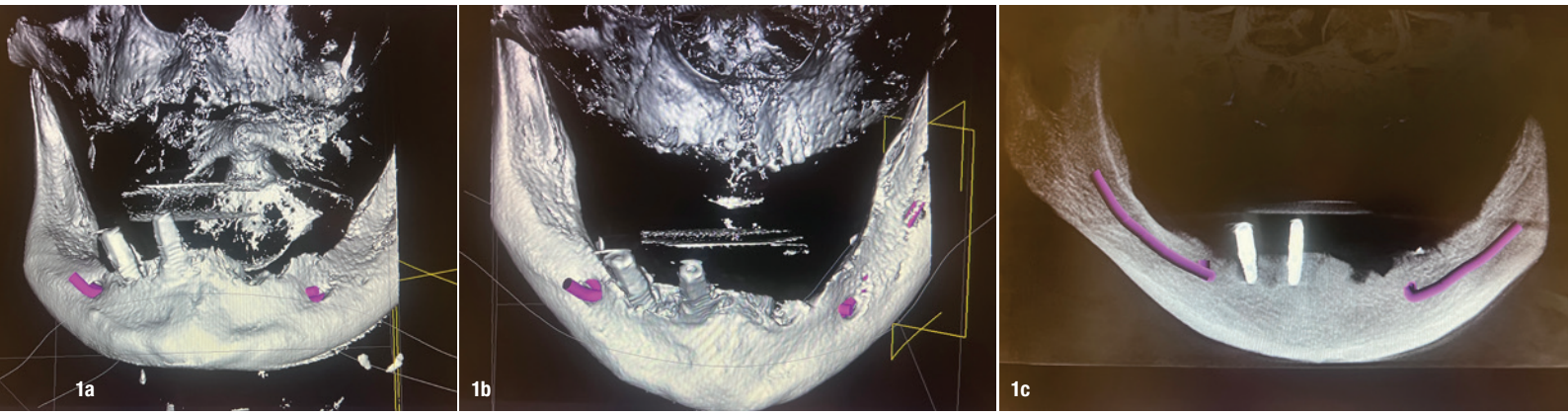
The 70-year-old female patient described in this report had undergone chemotherapy and radiotherapy in 2014 for breast cancer. She also suffered from pulmonary problems related to smoking. At the time of consultation, she was considered to be in remission and was in good general health. After a visit to her primary physician and undergoing blood work, she was cleared for implant surgery. She had previously had a poor experience with a prosthesis stabilised on four implants and reported that she was depressed because of her oral infirmity, which prevented her from eating normally. She desired fixed mandibular and maxillary restorations; thus, more appropriate fixed, screw-retained prostheses were proposed. We suggested starting the treatment in the mandible and fabricating a removable maxillary denture compatible with the new occlusal conditions. An all-on-four maxillary procedure would be performed at a later stage. At the initial examination, two implants had already been lost, just several months after placement of the stabilised prosthesis. A third implant had to be removed during this same session, as it caused the patient pain. Only one of the implants could be saved (Fig. 1).

Surgical preparations

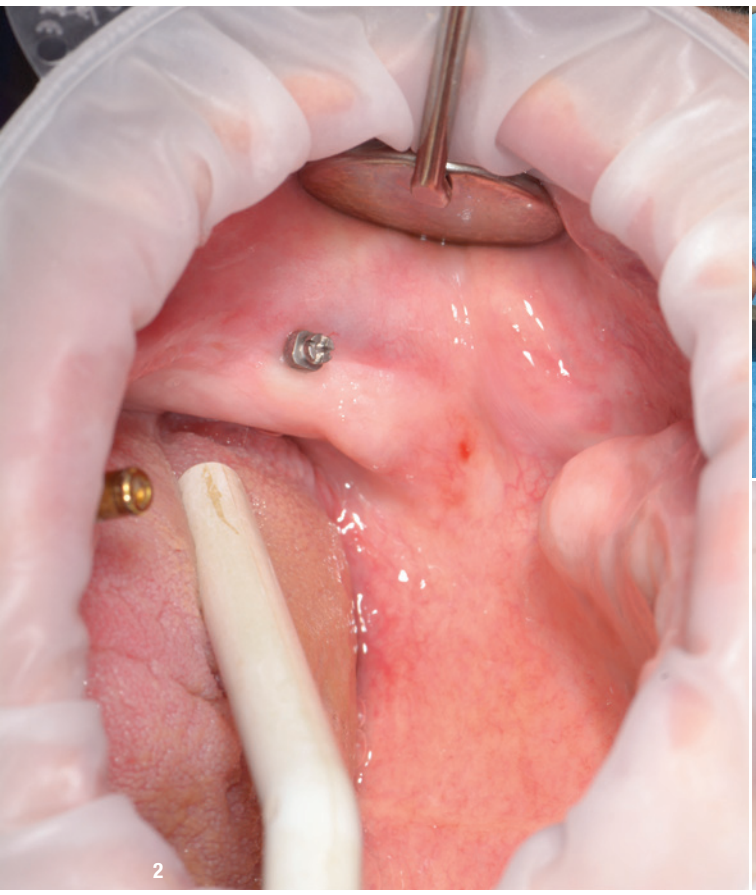
Management of an atrophic mandible and an implant-supported prosthesis is an additional constraint for accurate implant positioning. Dynamic guided surgery is the only means to meet this challenge, as it permits the predictable result required for rapid loading of a transitional metal–resin prosthesis within 48 hours.

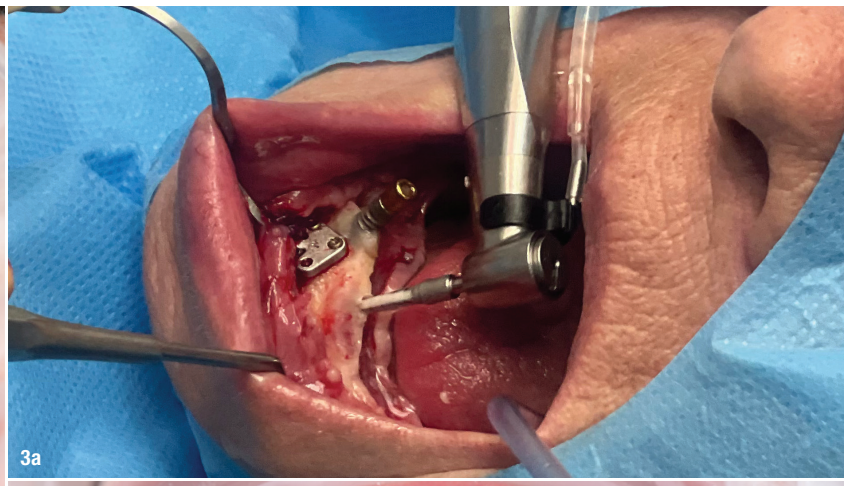
Vitamin D supplements were prescribed prior to implant surgery and the patient was asked to refrain from smoking, starting three weeks before surgery. Preoperative medication consisted of 100 mg hydroxyzine hydrochloride (Atarax) and 50 mg Loprazolam (Havlane) several hours before surgery, and nitrous oxide was administered on-site as required. These preoperative drugs are given so that the patient is as calm and relaxed as possible during the surgery.

The various steps described in this section all take place during the same session.



Figs. 1a–c: Pre-op CBCT scan for diagnostic purposes.





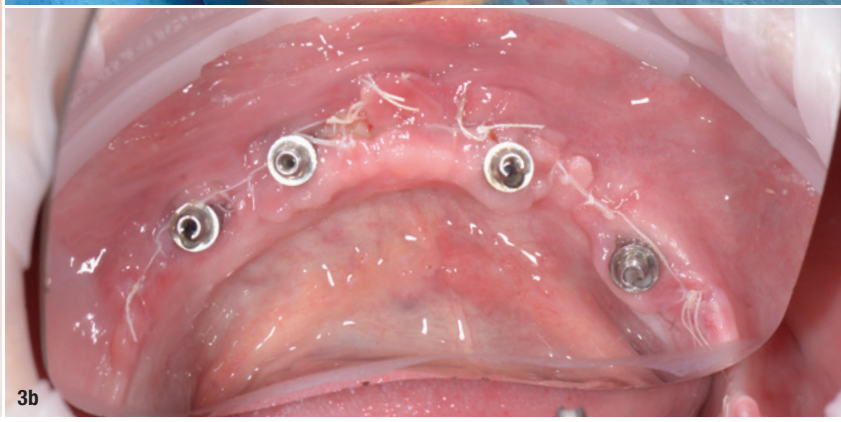


Fig. 2: Bone screw inserted as an intra-oral landmark for registration. **Figs. 3a & b:** Fixation of the Navident Jaw Tracker B in the patient's mouth.

Preparation of intra-oral landmarks for registration

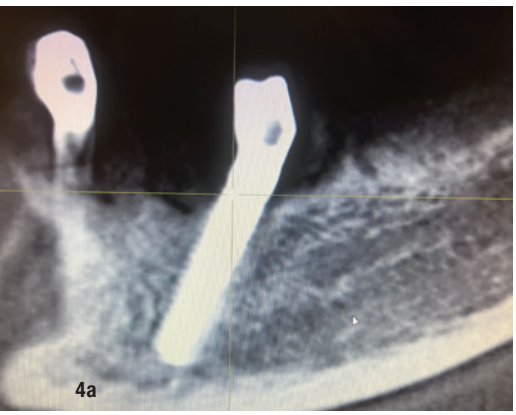
For completely edentulous cases, bone screws provide an easy-to-use solution for registration landmarks—landmarks that are apparent both in the patient's mouth and in the CBCT scan and serve as reference points for the purpose of surgical navigation. In dentate cases, registration is normally performed using the existing teeth in the arch. We use three to six teeth which meet all the required criteria as landmarks. We then use an optically trackable tracer, with a spherical tip, to perform a short trace over the jaw surface, starting at each landmark location. When these teeth are not available, bone screws can be used instead. In this case, one remaining implant was used as a reference for matching purposes, along with two 7.0 × 1.8 mm bone screws. These bone screws were placed occlusally at gingival level (Fig. 2).

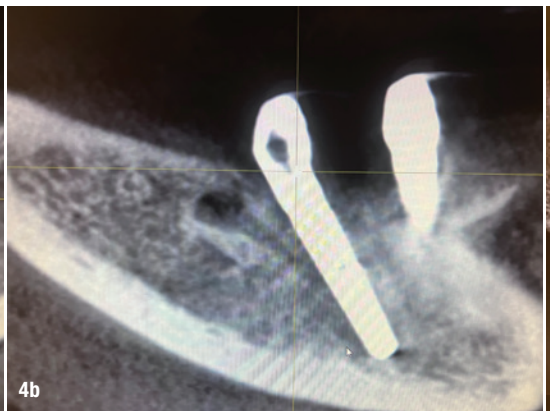
Preparation of a well-fitting definitive denture or intermediate replica

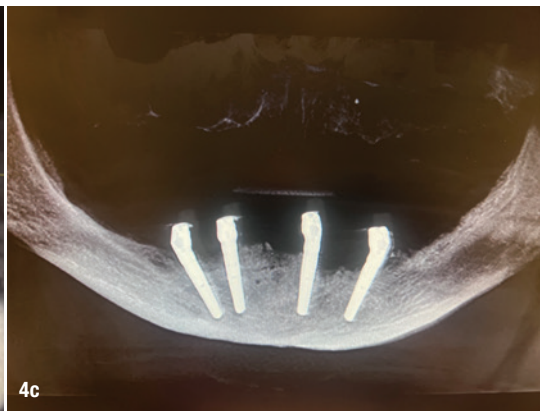
The purpose of this step is to create a digital replica of the denture (STL file), accurately placed on the patient's jaw (DICOM file), to allow for the top-down planning of the supporting implants in Navident (ClaroNav), making use of the prosthesis and the available underlying alveolar bone. This is done by introducing physical, radiopaque landmarks on to the denture which can be clearly seen in both the surface scan and the CBCT scan and hence used to match the two together. We make use of 1 mm Suremark stickers to add radiopaque markers to the denture. These peel-and-stick, artefact-free radiopaque markers are very effective and simple to use. They are affixed to the denture with a special adhesive and are easily removed after scan completion. Alternatively, gutta-percha or glass-ceramic markers, which are highly radiopaque, but do not generate scatter artefacts, could have been used.

CBCT and surface scan

After placement of the bone screws in the patient's jaw, a CBCT scan of the patient wearing the marked denture is taken. It is important to ensure that the denture is accurately seated on the patient's jaw and that the patient is stabilised in the CBCT scanner and seated and that his or her head is stabilised using a chin rest. In this case, a bite stick is less optimal, as it may cause slight dislocation of the denture. The denture should be evaluated to confirm complete seating and ideal positioning. If incomplete seating occurs, a radiolucent airspace will be seen in the CBCT scan.







Figs. 4a–c: CBCT scan post-op.

The surface scan of the denture is performed when it is outside of the patient's mouth. The scan is taken using an intra-oral scanner. The CBCT and surface scans were taken in the same session to ensure that the Suremark stickers remained in the same place. After taking both scans, the stickers were removed.

Planning the supporting implants

The CBCT scan is imported into Navident, followed by importing of the surface scan. The Navident software will allow for the accurate matching of the denture's surface scan with the CBCT scan, based on the reference landmarks in the DICOM file. The supporting implants were planned based on the denture's surface scan and the underlying bone, both demonstrated a good match on the screen.

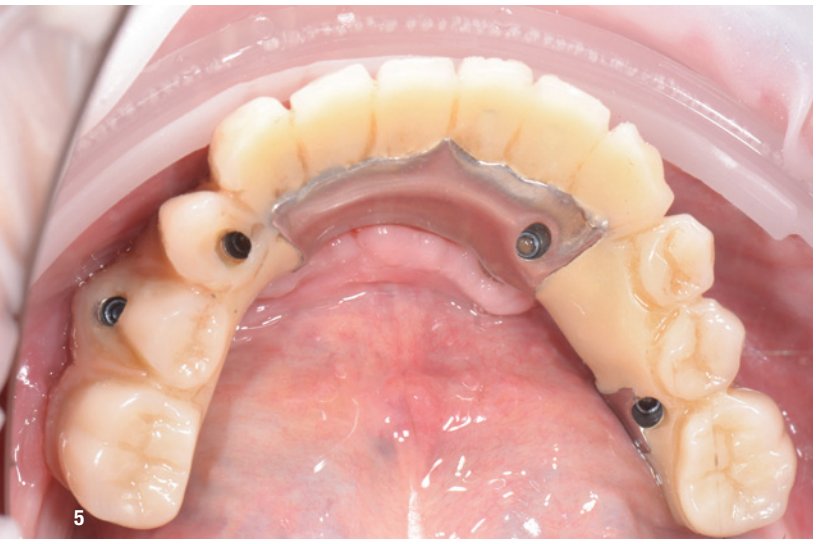
Surgical appointment

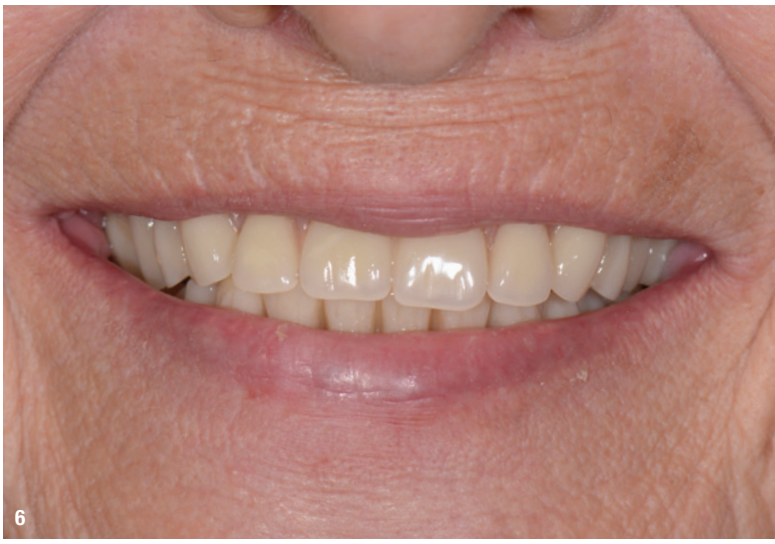
The Navident Jaw Tracker B is secured in position with bone screws. In maxillary cases, the head tracker may be used instead. Registration of the patient's CBCT scan with the patient's jaw is performed by pair-point registration using the bone screws placed in the patient's jaw prior to taking the CBCT scan. With pair-point registration, the software will automatically detect the screws when they are being located by the tracer in the patient's mouth. This ensures accurate guidance (Fig. 3). Prior to surgery, an accuracy check was performed. In this case, it was done by touching the gingiva or preferably bone crest. The bone screws were removed after implant placement (Fig. 4). After the implant placement, several sutures were placed using #4/0 PTFE thread.

The entire procedure, from the moment the patient entered the office to when she left, took only 2.5 hours. She underwent a photo-biomodulation session before she left the office, as this analgesic, anti-inflammatory and cicatrisation technique helps prevent postoperative inflammation and swelling.

Prosthetic considerations

After treatment, transfers are placed on the four multi-unit abutments and are joined together with a resin such





Figs. 5 & 6: Prosthetic and functional result.

as LuxaBite (DMG). Thin metal rods are utilised to reinforce the impression. An alginate is used for an impression of the soft tissue. Although an optical impression is also possible, fabrication of a 3D-printed master model takes much longer than use of plaster, and we prefer this last, more traditional technique. The occlusal bite is taken using the wedge prepared previously. The prosthesis was put in place 48 hours later, the passive fit was checked radiographically and any required occlusal adjustments were made (Figs. 5 & 6).

Follow-up

The patient was seen again after ten days to remove the sutures, after 30 days for a general check-up and after two months for screw tightening and obturation of the screw access holes. The patient is now seen once a year for a check-up that involves removal of the prosthesis, 660 nm laser disinfection of the abutments and use of hydrogen peroxide.

Conclusion

Dynamic guided surgery permits the successful management of clinical situations characterised by severe bone loss. Without this technology, this patient would have required bone grafting and would have been without a denture for eight months to avoid pressure on the grafted sites. After the previous failures she had gone through, this was completely out of the question. Furthermore, as this technique is compatible with flapless or mini-flap surgery, the incidence of postoperative complications is reduced.

about the author

Dr Jacques Vermeulen studied at the dental school of the Université Nice Sophia Antipolis (now the Côte d'Azur University) in Nice in France. After graduating, he opened his own dental office in the village of Flumet near Chamonix in France. Dr Vermeulen's education includes postgraduate studies in prosthodontics, implantology, basal implantology, medical emergencies at the dental office and facial anatomy at various universities around the globe. Dr Vermeulen has taught numerous postgraduate dental surgery and implantology seminars and performed live surgeries all over the world.

contact

Dr Jacques Vermeulen
dentiste.flumet@wanadoo.fr
www.cabinet-dentaire-flumet.fr

Dr Jacques Vermeulen

Cystic lesion management with enucleation and reconstruction followed by delayed implant placement for maxillary premolars

A step-by-step workflow

Dr Ali Tunkiwala & Darshan Parulkar, India

Introduction

It is common practice to use delayed implant placement in patients whose teeth have been lost due to infection in the site. In case of long-term pre-existing infections, there is always a possibility that the implants will be negatively affected. According to Resnik and Misch, this occurs primarily because of the microbial interference in the healing process caused by pre-existing inflammation.[1] Pre-existing inflammatory conditions such as periodontitis will release inflammatory factors, increasing the risk of secondary infection.[2,3] However, animal research, human case reports and case series, and prospective studies have confirmed that there is no difference in the success rates of delayed implant placement in sites associated with chronic periapical pathology and immediate implant placement in similar conditions.[4,5] This case report aims to illustrate the workflow involved in managing a cystic lesion around a maxillary first premolar with a staged grafting approach and delayed implant placement.

A delay in implant placement is often accompanied by residual bone resorption, compromising the bone volume and causing a more significant labial or lingual discrepancy between the implant and the prosthesis.[6,7] Therefore, to preserve the alveolar bone level and to reduce the treatment time, an immediate implant placement approach is becoming a popular choice compared with the delayed approach.[6] In this clinical case, despite the advantages of immediate implant placement, we decided on delayed implant placement to avoid the

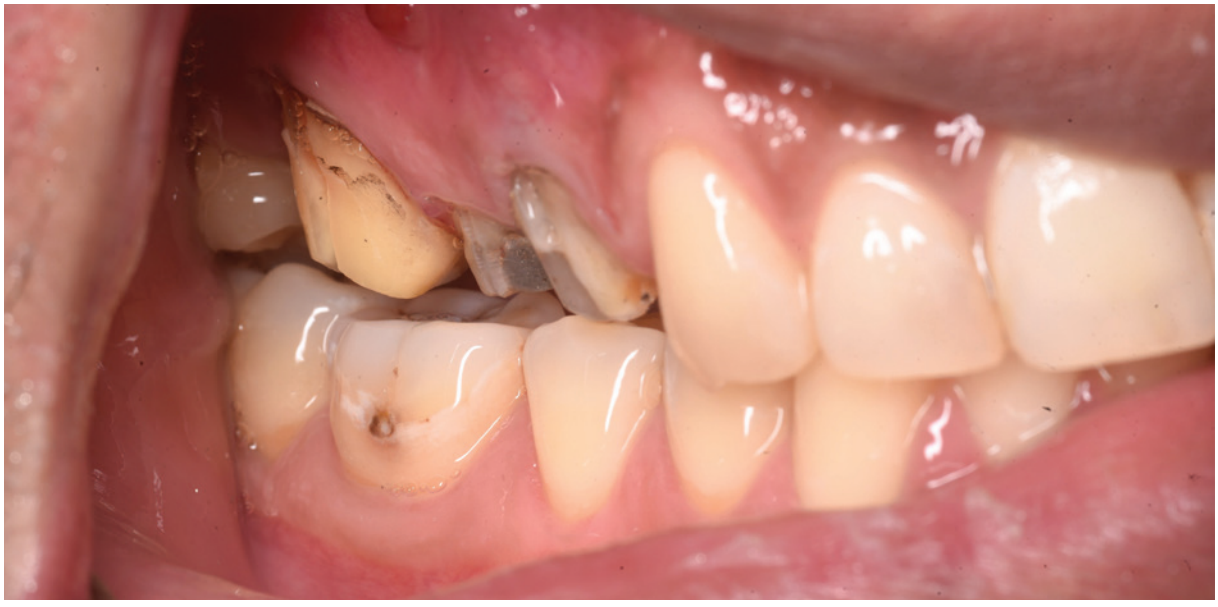


Fig. 1: Pre-op clinical situation, showing a small, localised swelling deep in the vestibule next to the first premolar and a cross bite.

Fotona
choose perfection

The universe at your fingertips.

TwinLight® Peri-implantitis Treatment

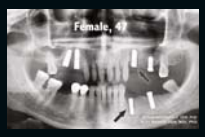
A simple and effective procedure that offers the power to treat peri-implantitis – an increasing threat to oral health.

- Minimally-invasive technique
- Fast regeneration/healing
- Reduced inflammatory response
- Highly effective treatment
- No antibiotics needed

LightWalker®

The ultimate all-in-one hard and soft tissue laser

Peri-implantitis treatment video



www.fotona.com

96014 CE ENG/1

possible risk of microbial interference in the healing process.[1] Additionally, we preferred delayed implant placement because the size of lesion was large and there was insufficient bone for immediate implant stability.[1] Furthermore, the implant diameter, selected on the basis of the planned emergence profile and interdental space, appeared to be too small to enable the implant to have adequate contact with any residual, non-augmented bone.[8,9] This is why we finally decided to leave the bone to heal unloaded without the stress of simultaneous osseointegration, choosing a staged, delayed approach.

Case presentation

A 30-year-old non-smoker with no chronic disease presented to our clinic with a history of conservative periodontal treatment and with the main complaint of dull pain in the maxillary right first premolar region. The patient was systemically healthy and extensively evaluated for clinical signs, suitability for implant treatment and the risk of postoperative complications. Clinical examination revealed healthy gingival tissue in most areas and discoloured crowns of teeth #15 and 16, requiring restoration (Fig. 1). The preoperative CBCT scan showed a circumscribed radiolucency of approximately 9 × 6 mm at the periapical region of tooth #14. It also showed endodontic treatment on both teeth #15 and 16. Prior to the surgery, thorough medical consultation was done and possible risks of and alternatives to the treatment were explained to the patient.

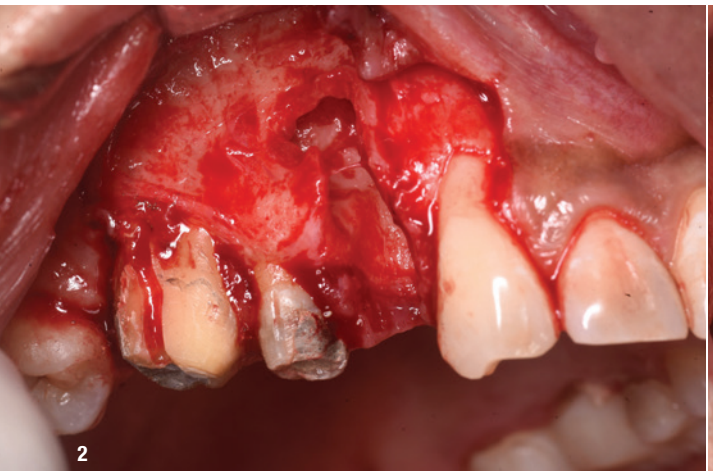
Surgical procedure

One hour before the surgical procedure, the patient received a prophylactic dose of 1 g amoxicillin and performed a 2-minute rinse with 0.2% chlorhexidine. The aim of the surgical protocol was to eliminate the pathology before placing the implant and to maximise the soft and hard tissue available for primary healing and bone augmentation. Under sterile conditions, local anaesthesia (2% lidocaine hydrochloride with 1:80,000 adrenaline) was administered before tissue separation and extraction. Surgical access to the cyst was obtained through an incision mesial to the canine, respecting the papillae, to the distal sulcus of tooth #16. A full-thickness flap was carefully elevated using a periosteal elevator. Tooth #14 was extracted atraumatically using forceps and elevators, and the cystic defect was exposed simultaneously. Enucleation of the lesion was carried out, followed by socket degranulation using curettes and saline solution for irrigation (Fig. 2).

The extraction socket was filled with a highly porous anorganic porcine bone mineral matrix (MinerOss XP, BioHorizons Camlog; Fig. 3).[10] MinerOss XP has high porosity, allowing for optimal osteoconductivity and adequate space for new bone deposition. Scanning electron microscope studies have shown that its porous structure is close to that of natural bone mineral.[10] Additionally, its rough surface facilitates cell adhesion and spread for bone ingrowth.[10]

The graft was then covered with Mem-Lok resorbable collagen membrane (BioHorizons Camlog; Fig. 3), which served as an effective barrier membrane for bone regeneration. This resorbable collagen membrane is engineered from highly purified Type I bovine collagen, which provides a predictable resorption period of 26–38 weeks.[11] The defect was then closed with a #4/0 resorbable suture thread.

The patient was prescribed antibiotics for seven days and a chlorhexidine mouthrinse for two weeks. We demonstrated a roll–stroke brushing technique and encouraged the patient to maintain good oral hygiene.



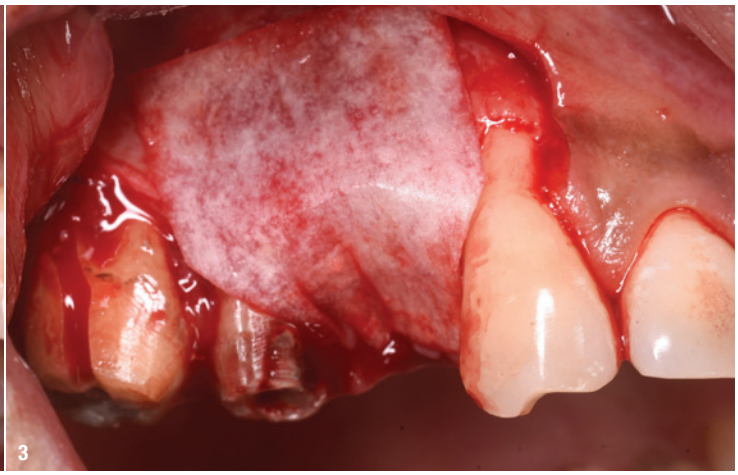
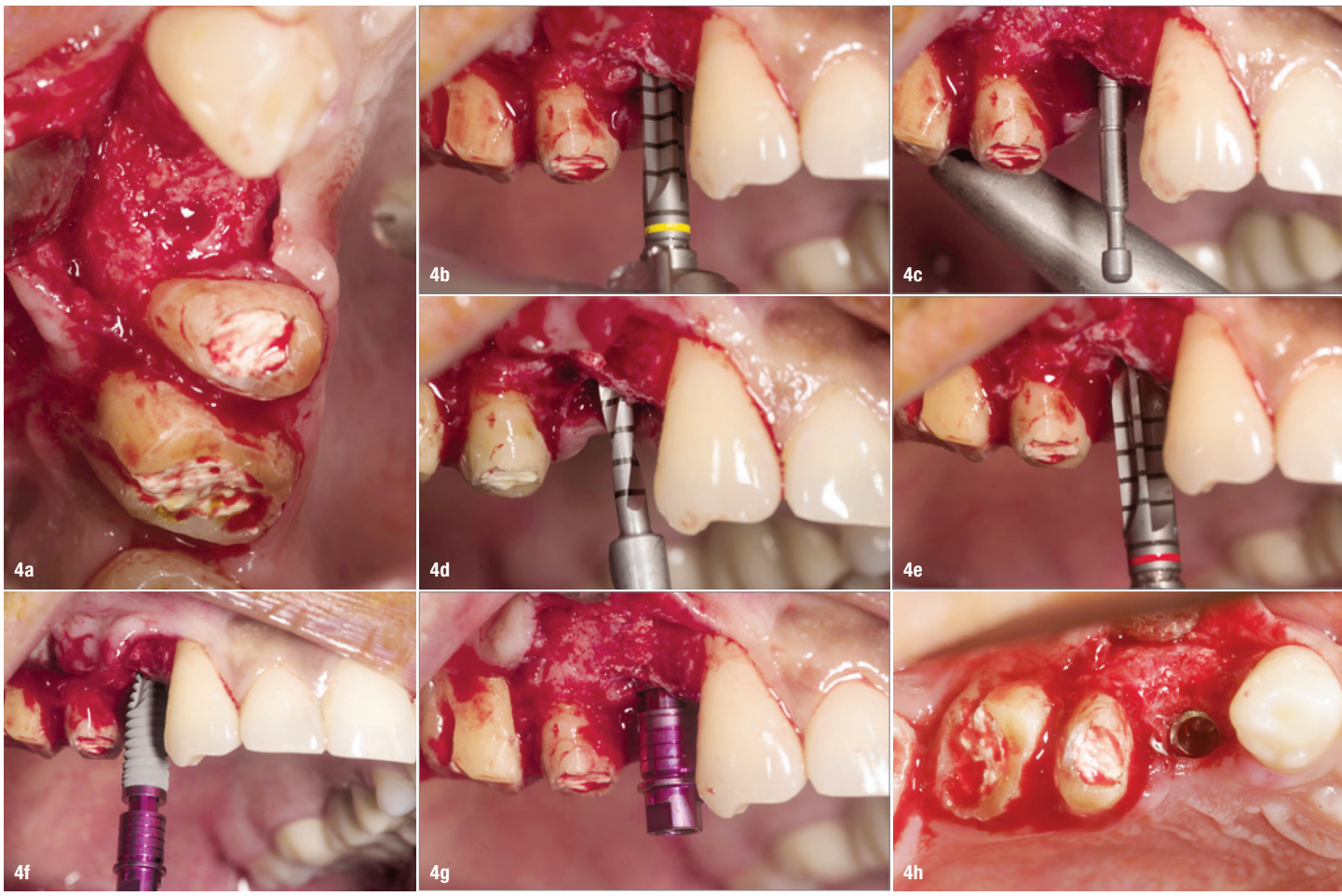


Fig. 2: Incision with extension from the mesial part of tooth #13 to the distal sulcus of tooth #16 and full-thickness flap preparation. Situation after tooth extraction and meticulous debridement of the cystic lesion. **Fig. 3:** The graft was covered with a collagen membrane to serve as an effective barrier for guided bone regeneration.



Figs. 4a–h: Preparation of the osteotomy site and placement of the implant. **Fig. 5:** Intra-oral periapical radiograph confirming the correct position of the implant and cylindrical healing abutment.

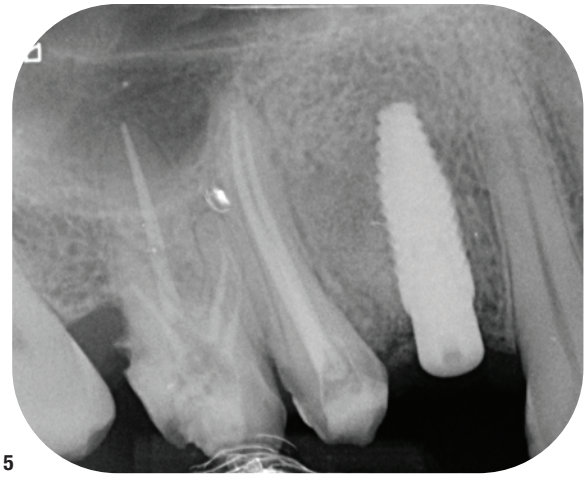
There were no adverse clinical symptoms reported by the patient, and healing was satisfactory. Implant placement was planned in the premolar region after six months. We opted for a single surgical protocol for load-free and non-submerged healing to ensure predictable osseointegration.

Results of guided bone grafting procedure

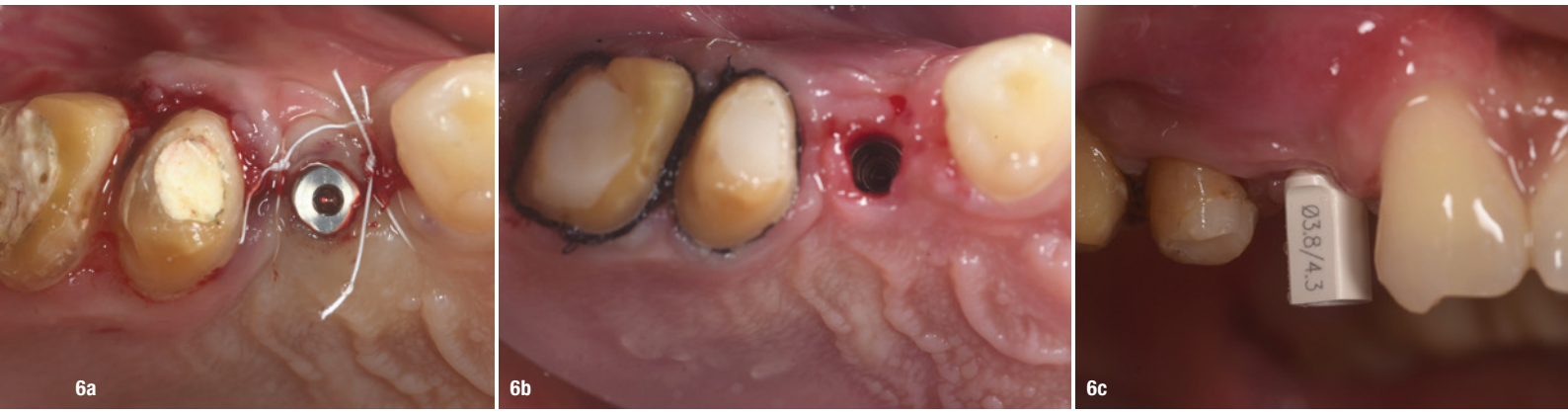
A radiographic examination after six months showed that the previously infected area had filled completely with bone. The control CBCT scan revealed bone of 9.16 mm in width buccolingually and bone of 6.29 mm in width coronally. Clinically, the area had healed well with no further symptoms or complications, and the site was covered with healthy gingiva and sufficient bone into which to place an implant.

Implant site preparation

The placement of the implant was planned to follow the visual orientation on the CBCT scan. Upon reflecting of a full-thickness flap, the osteotomy site was prepared efficiently using a few well-aligned drilling steps. The initial pilot drill was checked for appropriate axial position and distance relative to the adjacent teeth using a guide pin. With the corresponding flex drills, the diameter of the implant bed was expanded under copious irrigation. The final drill was the profile drill used to match the coronal geometry of the implant with the implant bed. After the sequential drilling, a CONELOG PROGRESSIVE-LINE implant of 4.3 × 13.0 mm (BioHorizons Camlog)



5



Figs. 6a–c: Wound closed with single interrupted sutures **(a)**. Tissue demonstrating excellent healing after removal of the healing abutment **(b)**. CONELOG scan body screwed on to the CONELOG PROGRESSIVE-LINE implant to register the 3D position of the implant **(c)**.

was placed in slightly subcrestal position (Fig. 4) employing a screw-mounted post.

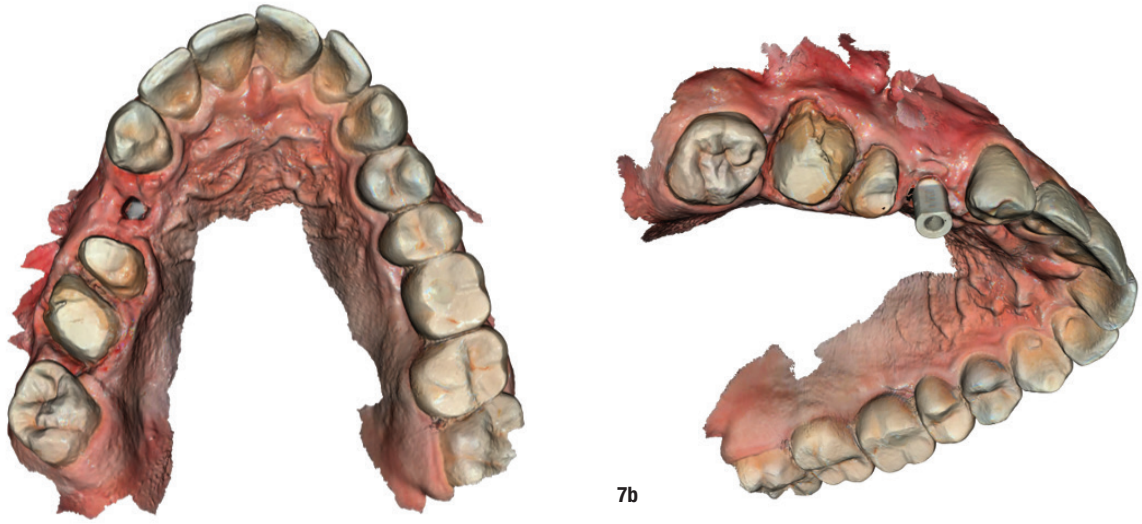
The screw-mounted post is very helpful in situations requiring intra-operative correction of the 3D position of the implant that might be necessary during insertion, for instance, next to the sinus or in very soft bone. Owing to the coronal anchorage thread of the CONELOG PROGRESSIVE-LINE implant, high primary stability could be achieved—even in the very soft bone of the maxilla and in the augmented area. Implant torque during placement was up to 40 Ncm. The correct position of the implant and the cylindrical healing abutment (of 4 mm in gingival height) was confirmed by an intra-oral periapical radiograph (Fig. 5). The flap was readapted and the wound closed with single interrupted sutures using #4/0 Cytoplast PTFE thread (BioHorizons Camlog).

Restoration of the implant

The patient was recalled four months later. Radiographic examination of the implants showed that the implant had fully osseointegrated. After removal of the cylindrical healing abutment, the tissue demonstrated good healing, and the site was ready to be restored (Figs. 6a–c). A CONELOG scan body was screwed in to register the 3D position of the implant. The implant was scanned intra-orally using an optical scanner, and the data was then sent to the laboratory for the prosthetic restoration (Fig. 7). A custom model was printed in the laboratory, and a straight CONELOG Esthomic abutment of 1.5–2.5 mm in gingival height served as a base for the zirconia structure. The definitive zirconia restoration was bonded to this structure, resulting in a screw-retained and retrievable full-contour crown (Figs. 8a–c). The post-restorative intra-oral radiograph done on the same day as the prosthetic crown delivery showed a satisfactory fit of the zirconia crown and the ideal preservation of the coronal bone in the interproximal area (Figs. 9a–10b).

Discussion

Dimensions of the lesion and inadequate morphology and non-effective debridement of the area are some of the factors that need to be considered when placing an



Figs. 7a & b: Intra-oral scans of the implant.

Dentsply Sirona

INTRODUCING DS PRIMETAPER® IMPLANT SYSTEM

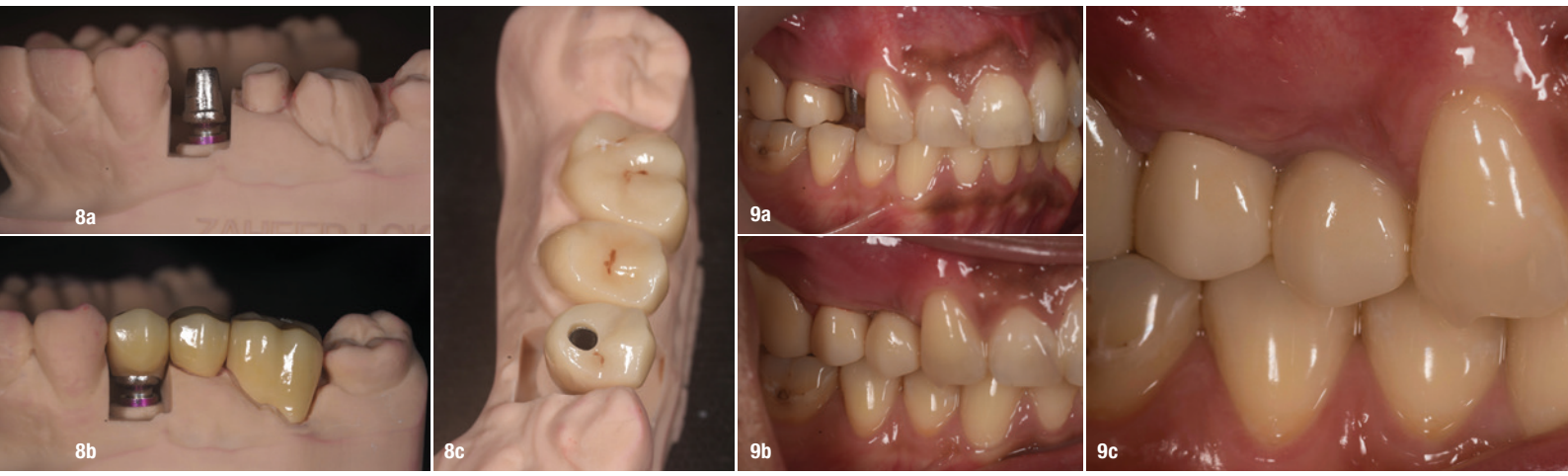
THE PERFECT UNION OF FORM AND FUNCTION

The DS PrimeTaper Implant System is a demonstration of science and art in harmony. With immediate function and intuitive digital workflows, these unique implants will complement and enhance your expertise.

- EFFICIENT HANDLING
- LASTING BONE CARE
- ENVIABLE ESTHETICS
- SEAMLESS WORKFLOW INTEGRATION

Follow Dentsply Sirona for the latest in implant dentistry

dentsplysirona.com/implants



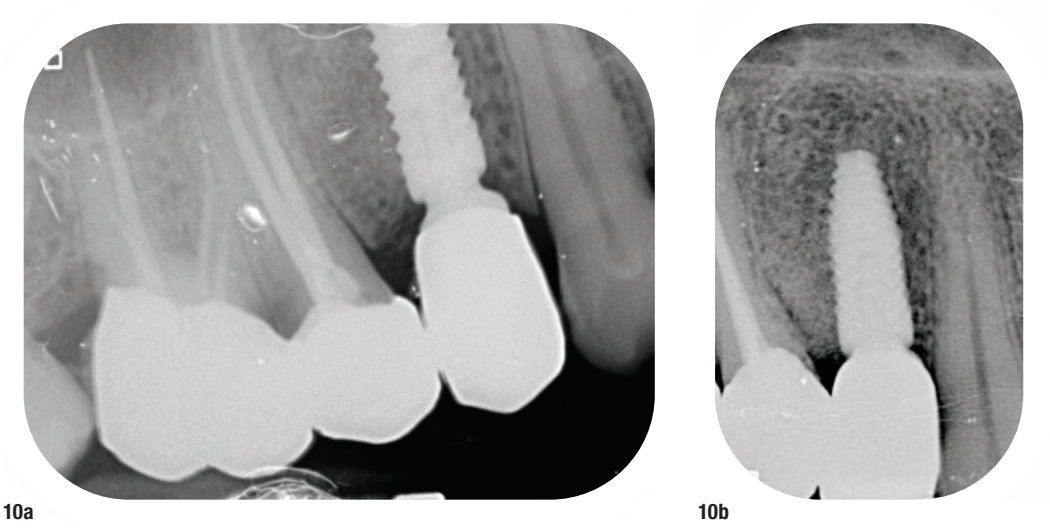
Figs. 8a–c: CONELOG Esthomic abutment **(a)** and definitive zirconia restorations on the model **(b & c)**. **Figs. 9a–c:** Final post-restorative images, lateral view.

implant in the area of pre-existing infected cysts. This case report has demonstrated that the placement of an implant in the area of a pre-existing infected cyst requires antibiotic administration and thorough alveolar debridement at the site of the cyst. We opted for the approach of Chen et al. considering that immediate implantation involves the risk of contamination of the implant by the residual infection, which can affect the process of osseointegration.[12]

However, the discussion is ongoing. Some authors support immediate placement into infected extraction sockets, as they consider the benefits of reduced bone resorption and treatment time superior to the potential negative effect on osseointegration.[13] However, very little clinical data is available for immediate implant placement in infected cysts.

Even if the design of the implants has been improved when it comes to reliable achievement of high primary stability—such as you can expect from the implant system used in this case—many authors still claim that a minimum of 3–5 mm of residual apical bone is necessary to stabilise an immediately placed implant.[14, 15] In the current case, a pre-extraction CBCT scan of the available apical bone showed that the cyst size was greater than the implant diameter selected, based on the limited interdental space and the planned emergence profile of the implant site. Using a wider-diameter implant would have required placing it more apically to stabilise it. This and the fact that osseointegration might be limited in an infected area finally led to the decision of a staged approach.

Therefore, we decided in this case to first increase the available bone by staged guided bone regeneration. The bone grafting material facilitates new bone deposition and the adhesion of bone cells and their ingrowth.[16] The implant loading was delayed for three months to avoid the risk of interference with the new bone formed at the implant–bone interface resulting from surgical trauma.[17]



Figs. 10a & b: Final post-op radiograph on the same day of definitive restoration.

Conclusion

This clinical case study concluded that guided bone regeneration followed by delayed implant placement in the infected cyst site produces predictable outcomes. As long as the infected site is meticulously debrided, the newly formed bone can be loaded with an implant in a short time frame. Implants designed to reliably reach high primary stability help to provide confidence when placed in soft and newly formed bone.

Acknowledgement:
We would like to acknowledge the support of Adaro Dental Laboratory in Mumbai in India for the ceramic work produced with a digital workflow.

about the authors

Dr Ali Tunkiwala is a director of Impart Education, a continuing education academy in Mumbai in India, which nurtures motivated clinicians toward predictable, evidence-based dental practice through extensive training and lectures. Since obtaining his master's degree in prosthetic dentistry in 1998, he has focused on placing and restoring implant cases efficiently using conventional and digital techniques. He has maintained a dental practice for over 25 years in Mumbai, where he spends most of his time conducting implant and aesthetic dentistry procedures, as well as full-mouth rehabilitation. Besides being an accredited member of the American Academy of Cosmetic Dentistry and a fellow and diplomate of the International Congress of Oral Implantologists since 2005, Dr Tunkiwala is a fellow and diplomate of the Indian Society of Oral Implantologists. He also serves on the editorial board of various journals in dentistry.

Darshan Parulkar is an oral and maxillofacial surgeon based in Mumbai in India. After graduating in 1998, he has maintained a surgical referral practice with focus on implant surgeries. His area of interest has been hard and soft tissue augmentation procedures. He is a fellow and diplomate of both the International Congress of Oral Implantogy and the Indian Society of Oral Implantologists.

contact

Dr Ali Tunkiwala
dralitunki@gmail.com

Dr Ali Tunkiwala

Literature

Is autologous bone irreplaceable?

Bilateral vertical bone augmentation using allogeneic and autologous bone plates in the mandible

Dr Jochen Tunkel, Germany

Introduction

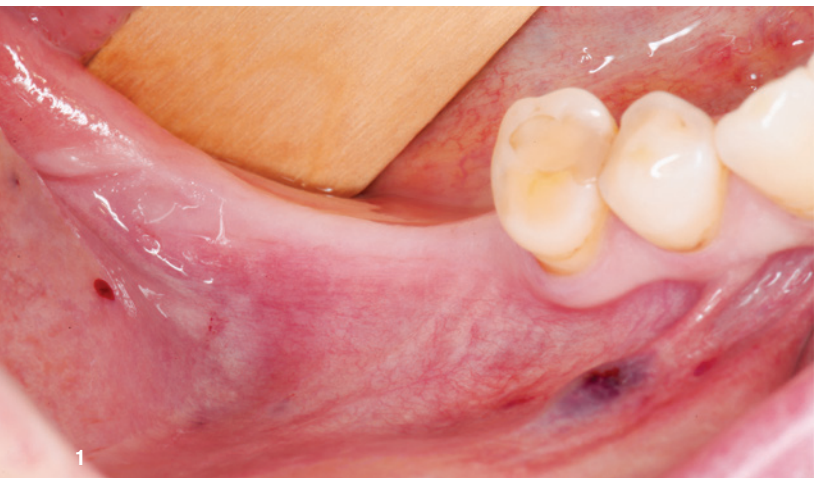
Tooth loss due to endodontic or periodontal problems is generally associated with loss of bony structures. The consequent insertion of an implant demands the restoration of bony structures, which is a procedure of varying complexity.[1] Bone block transplantations and guided bone regeneration (GBR) have demonstrated predictable and successful outcomes as therapeutic methods for alveolar ridge augmentation in dental implantology.[2] Autologous bone transplants are generally accepted to be the gold standard in augmentation surgery.[3,4]

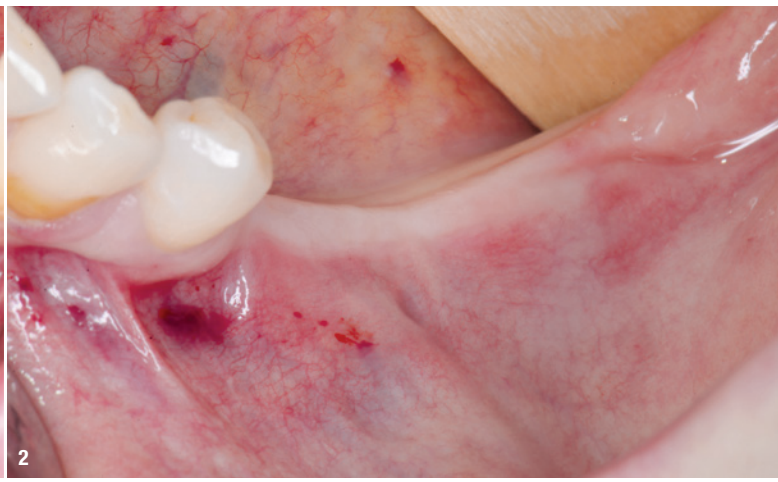
3D reconstruction, or the shell technique, is a specific form of autologous bone grafting. Thin cortical bone blocks are initially used to restore the contours of the alveolar ridge, and the resulting gaps are then filled with autologous bone chips.[1,5] The short- and long-term results after augmentation with the aid of the shell technique have demonstrated low complication rates and a stable bone volume even ten years after surgery.[6–9]

In addition to using the shell technique, there is the possibility of reducing resorption processes by combining block transplantation with GBR.[10,11] With full block transplants, it has been shown to be possible to reduce the resorption between augmentation and implantation to 5.5–7.2%.[10–12] In one study, the result was stable ten years after implantation, only 0.8% further resorption occuring.[12] Disadvantages of this method, however, were found to be a high dehiscence rate of 9.5–27.2% and integration of the xenogeneic bone substitute material into the connective tissue rather than the bone.[10,11] For this reason, De Stavola and Tunkel's method modified the procedure so that the augmentation was carried out using the shell technique, which led to a significant reduction in resorption.[13] Additional GBR with xenogeneic bone substitute material and collagen membrane was then performed during the implantation session. With this method, known as "augmentative relining", an additional bone gain of 17% could be achieved. Clinically and radiographically, the incorporation of the biomaterial into the regenerated bone was demonstrated. There was no further resorption of the regenerated bone up to the point of prosthetic restoration.

There is a great desire to avoid bone harvesting, both on the part of the patient and the practitioner, so most dentists working in implantology try to avoid autologous bone harvesting. Another, more serious, disadvantage of autologous bone transplantation is the limited amount of bone available intra-orally.

Allogeneic bone materials seem to be the closest to autologous bone transplants in clinical applications.[14]





Figs. 1 & 2: Slight elongation of the maxillary posterior teeth.

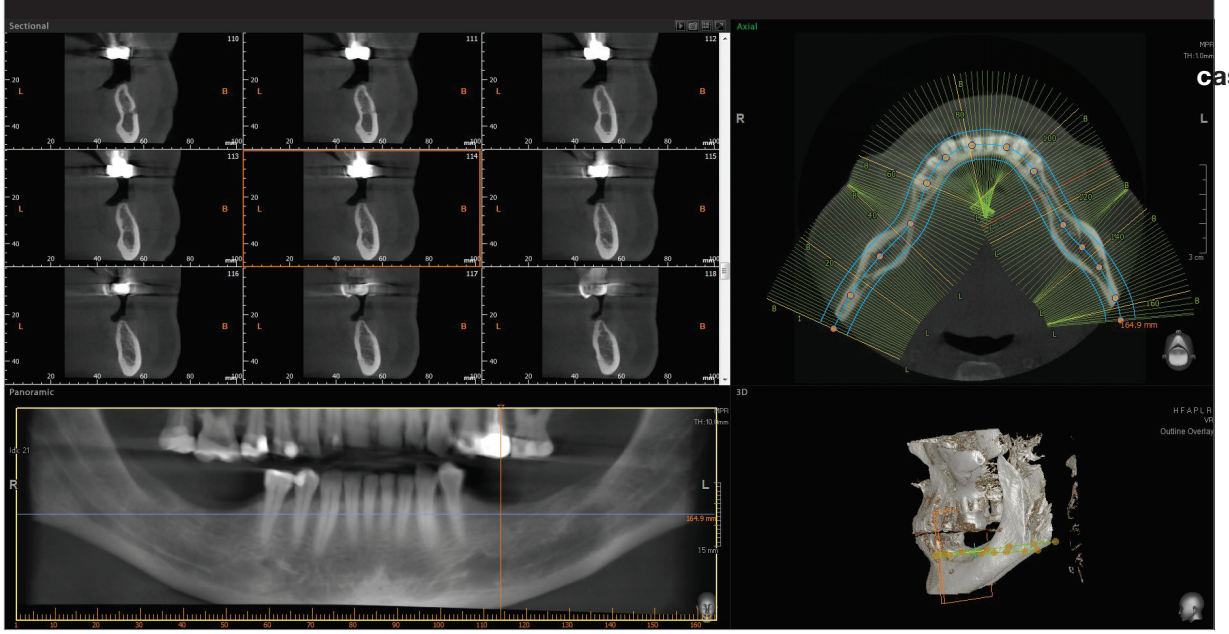


Fig. 3: Pre-op CBCT scan showing vertical bone defects in the third and fourth quadrants.

Allogeneic full block transplants are, however, subject to similar resorption processes to autologous full block transplants.[3, 10, 11, 15, 16] The complication rate is also higher with allogeneic full block transplants than with autologous bone transplants.[17] However, a split-mouth case series showed that the use of cortical allogeneic bone plates produces results that are equivalent to those of autologous bone plates in terms of regeneration, resorption and complication rates and thus could solve the problem of insufficient intra-oral bone availability and reduce morbidity.[18]

In this case report, a patient with a limited amount of bone available intra-orally underwent vertical bone augmentation and two-stage implantation with augmentative relining on both sides of the lower jaw. One half of the jaw was treated with autologous and the other side with allogeneic bone plates. There was equivalent healing on both sides without complications and only a low rate of resorption.

Initial situation

A 60-year-old female patient was referred for implantation with bone augmentation. Her general medical history showed no particular features that would restrict the surgery. There was a bilateral free-end situation in the lower jaw with teeth #47, 46, 35, 36 and 37 missing and a vertical bone defect of approximately 5 mm in loss of height. There was slight elongation of the maxillary posterior teeth, which, after consultation with the referring dentist, was corrected by grinding (Figs. 1 & 2). The preoperative CBCT scan confirmed the vertical bone defects in the third and fourth quadrants (Fig. 3).

Treatment planning

In order to place implants in the correct prosthetic position, vertical augmentation would be absolutely essential. The amount of bone that had to be harvested could not be gained in just one retromolar bone harvesting area. Therefore, the patient was advised to undergo one bone block harvesting and have the other site rebuilt with allogeneic bone plates. The sequence of the treatment would be as follows:

1. bone harvesting from the right retromolar area;
2. 3D vertical bone augmentation in the fourth quadrant utilising the shell technique with autologous bone plates and chips;
3. 3D vertical bone augmentation in the third quadrant utilising the shell technique with allogeneic struts and autologous bone chips;
4. four months of healing;
5. insertion of implants in regions #47, 46, 35, 36 and 37, combined with augmentative relining using collagen membranes and deproteinised bovine bone mineral particles;
6. four months of healing;
7. second-stage surgery with Kazanjian vestibuloplasty, combined with step incision on both sides; and
8. rehabilitation after six weeks.

Surgical procedure

At the start of the procedure, a bone block was harvested from the right retromolar area (Fig. 4) with the aid of a micro-saw and was then split lengthwise using thin diamond disks. These plates were thinned to a thickness of about 0.5 mm with a Safescraper Twist (Geistlich Pharma), and autologous bone chips were collected at the same time. The plates obtained in this way were fixed buccally and lingually in regions #47 and 46 with four micro-screws (Fig. 5). The resulting bony envelope was next filled with the autologous bone chips with the application of slight pressure (Fig. 6). Finally, blunt mobilisation of the floor and a periosteal incision were performed in the buccal region in order to enable the augmented area to be covered.

The augmentation then took place in the third quadrant. To this end, two allogeneic bone plates (maxgraft cortico, Straumann) were first opened and immersed in sterile saline solution for 10 minutes. During this time, the flap was prepared in regions #35–37 (Fig. 7). The

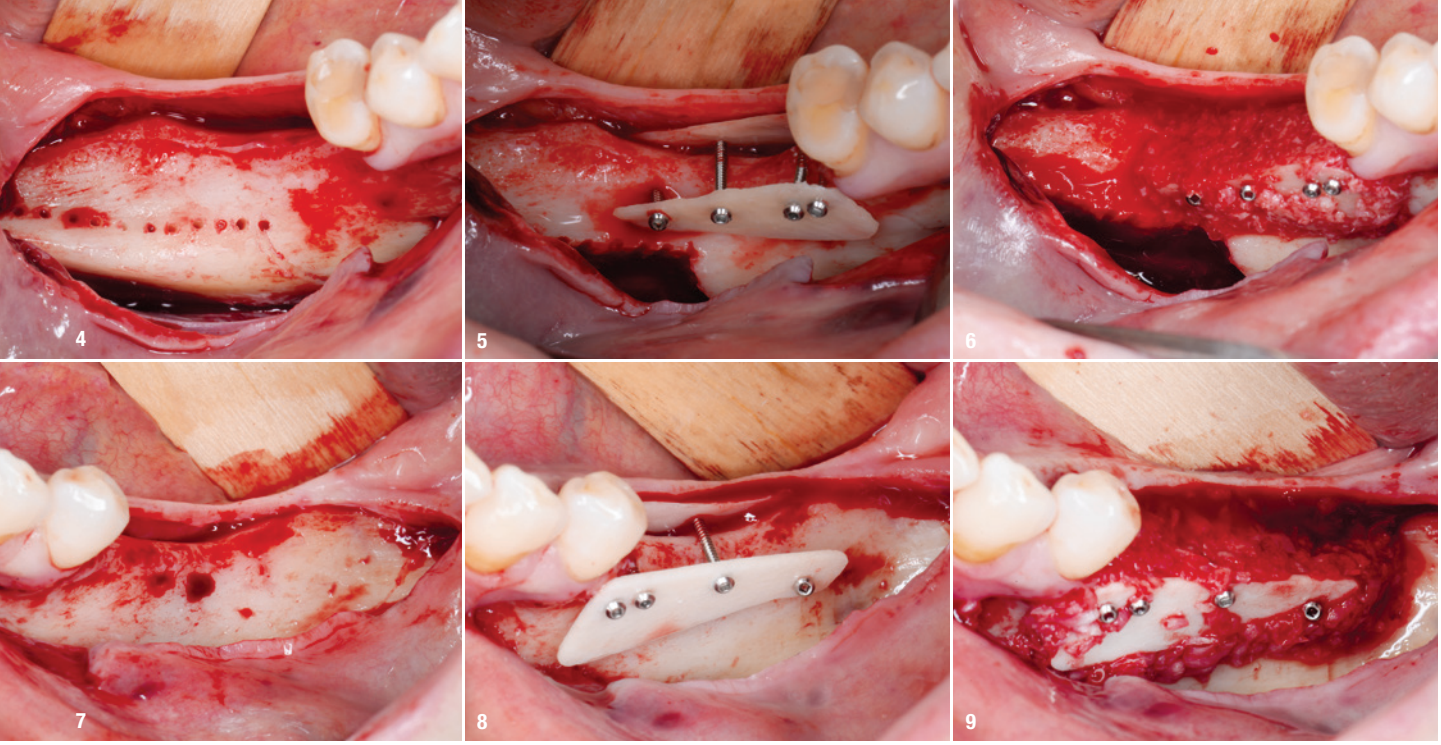
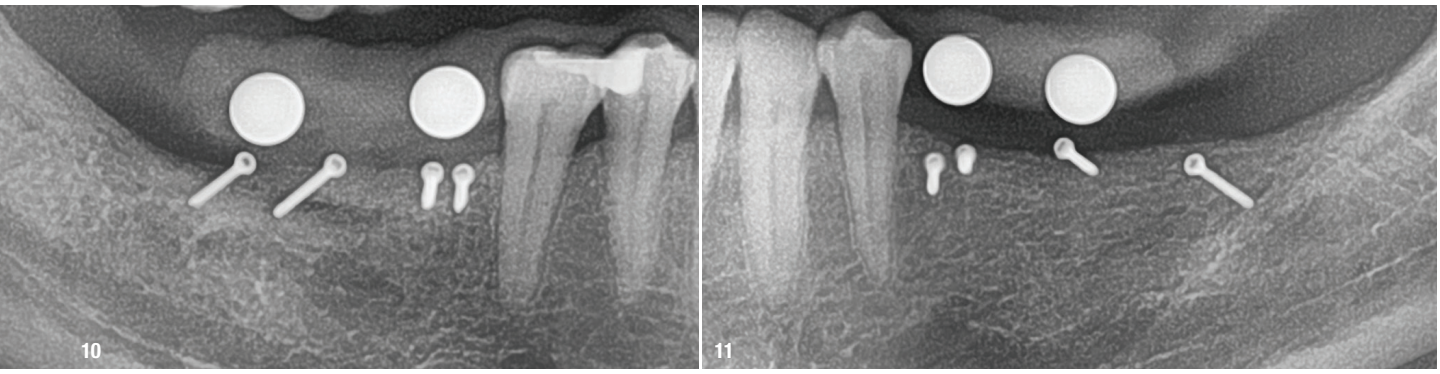
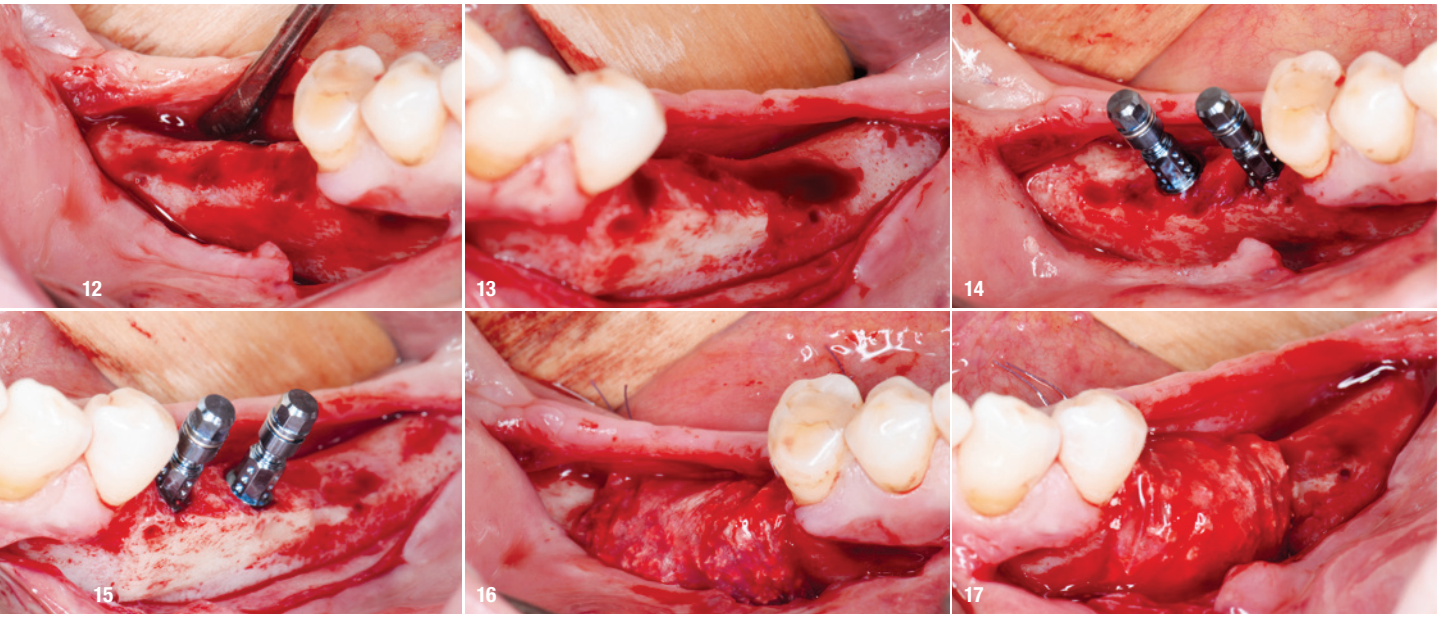


Fig. 4: Retromolar bone harvesting in the fourth quadrant. **Fig. 5:** Buccal and lingual fixation in the fourth quadrant. **Fig. 6:** Filling of the bone bed in the fourth quadrant. **Fig. 7:** Initial situation after opening in the third quadrant. **Fig. 8:** Buccal and lingual fixation in the third quadrant. **Fig. 9:** Filling of the bone bed in the third quadrant.



Figs. 10 & 11: Panoramic radiograph with reference balls after a four-month healing period.



Figs. 12 & 13: After removal of the micro-screws after crestal incision and flap raising. **Figs. 14 & 15:** Sufficient bone availability in the buccal and lingual areas, with a thickness of approximately 1–2 mm. **Figs. 16 & 17:** Membrane secured with resorbable sutures on the lingual side of the flap.

NAVIDENT

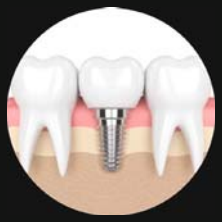
Precise. Efficient. Versatile

Expand your surgical expertise

Less trauma for your patients

Save precious time

Guided implantology



Conduct high-precision implant treatments quickly and confidently. Reliably detect important anatomical structures.

Guided endodontics

Locate root canals and other fine anatomical structures.

Guided bone surgery

High-precision navigation of your piezotome enables accurate assessment and predictable outcomes.

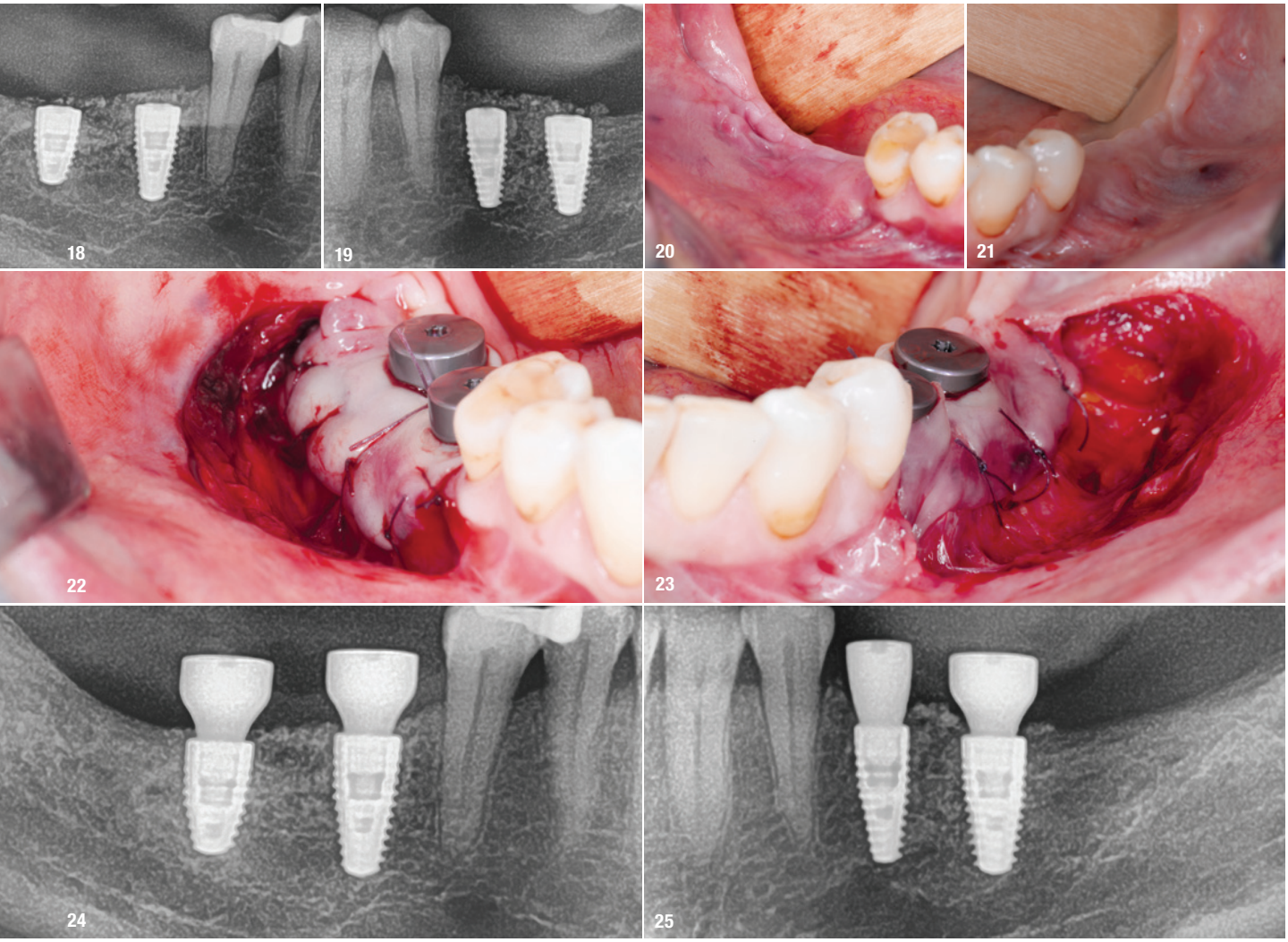
Try Navident's precision guidance for yourself.
Call +32.475.75.52.26 or email info@claronav.com
Visit us at Booth G10 at EAO Congress

CE

allogeneic bone plates were divided according to the anatomical situation and fixed buccally and lingually in the third quadrant using four micro-screws (Fig. 8). The resulting cavity was then filled with autologous bone chips that were left over from the augmentation in the fourth quadrant (Fig. 9). The wound was closed analogously to the procedure in the fourth quadrant.

After a four-month healing period, a panoramic radiograph with reference balls revealed a clear vertical bone gain after four months in both quadrants (Figs. 10 & 11). The third and fourth quadrants were reopened before implantation. To this end, the micro-screws were removed on both sides after the crestal incision and flap raising (Figs. 12 & 13). Straumann Bone Level Tapered implants (SLActive) were then inserted in region #35 (diameter: 4.1 mm; length: 10.0 mm), 46 and 36 (diameter: 4.8 mm; length: 10.0 mm) and 47 (diameter: 4.8 mm; length: 8.0 mm) according to the manufacturer's instructions. After the implants had been inserted, sufficient bone was seen to be available in the buccal and lingual areas, having a thickness of approximately 1–2 mm (Figs. 14 & 15). After buccal incision of the periosteum, a collagen membrane was attached to the apical periosteum with resorbable sutures. The alveolar ridge section was then covered with bovine bone material with a layer thickness of one particle size (1–2 mm). The membrane was secured with resorbable sutures on the lingual side of the flap (Figs. 16 & 17). The final step was the plastic covering of the augmentative relining (Figs. 18 & 19).

After a healing period of four months, the implants were exposed. As the area had been augmented twice, there was a lack of keratinised tissue in the region of the implants (Figs. 20 & 21). Consequently, a vestibuloplasty according to the Kazanjian technique was performed.[19,20] To this end, after the initial preparation of a supramuscular mucosal flap, the muscle was sharply separated from the periosteum in an apical direction. The mucosal



Figs. 18 & 19: Close-ups from the post-op dental panoramic tomogram after implantation and guided bone regeneration from augmentative relining in the third and fourth quadrants. **Figs. 20 & 21:** Tissue after a healing period of four months. **Figs. 22 & 23:** Conical gingival formers with diameters of 5.0 mm in region #35 and 6.5 mm in regions #47, 46 and 36. **Figs. 24 & 25:** Post-op situation on the panoramic radiograph.

K3pro
KONUS DENTAL IMPLANTS

ARGON
MEDICAL DEVICES & DENTAL IMPLANTS

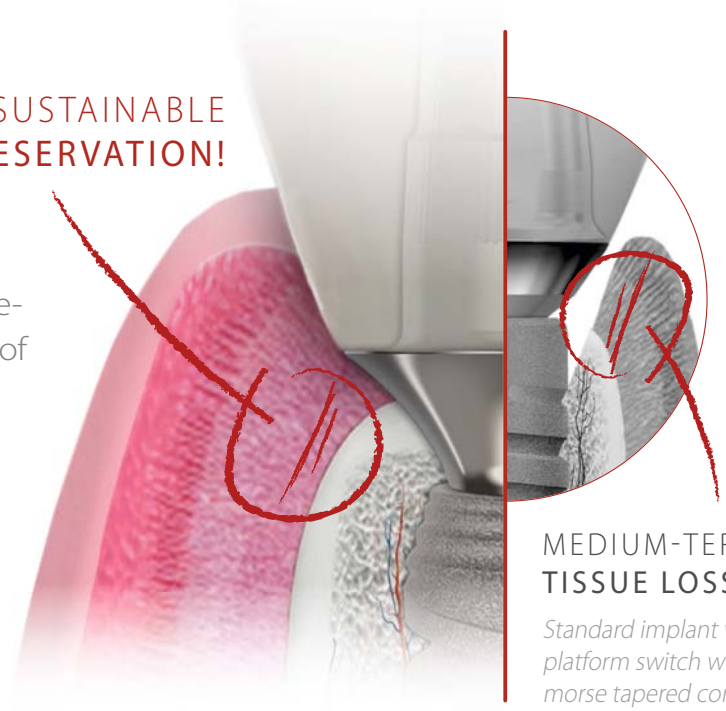
THE SUBCRESTAL IMPLANT SYSTEM
FOR BIOLOGICAL LONG-TERM STABILITY

NO CHANCE FOR BACTERIAL INTRUDERS!

The form- and force-fit morse tapered Implant-Abutment connection avoids any gap formation but seals the cavity permanently

SUSTAINABLE
TISSUE PRESERVATION!

The K3Pro Implant is free from micro-movements and guarantees long-term stability of the peri-implant hard and soft tissue



MEDIUM-TERM
TISSUE LOSS!

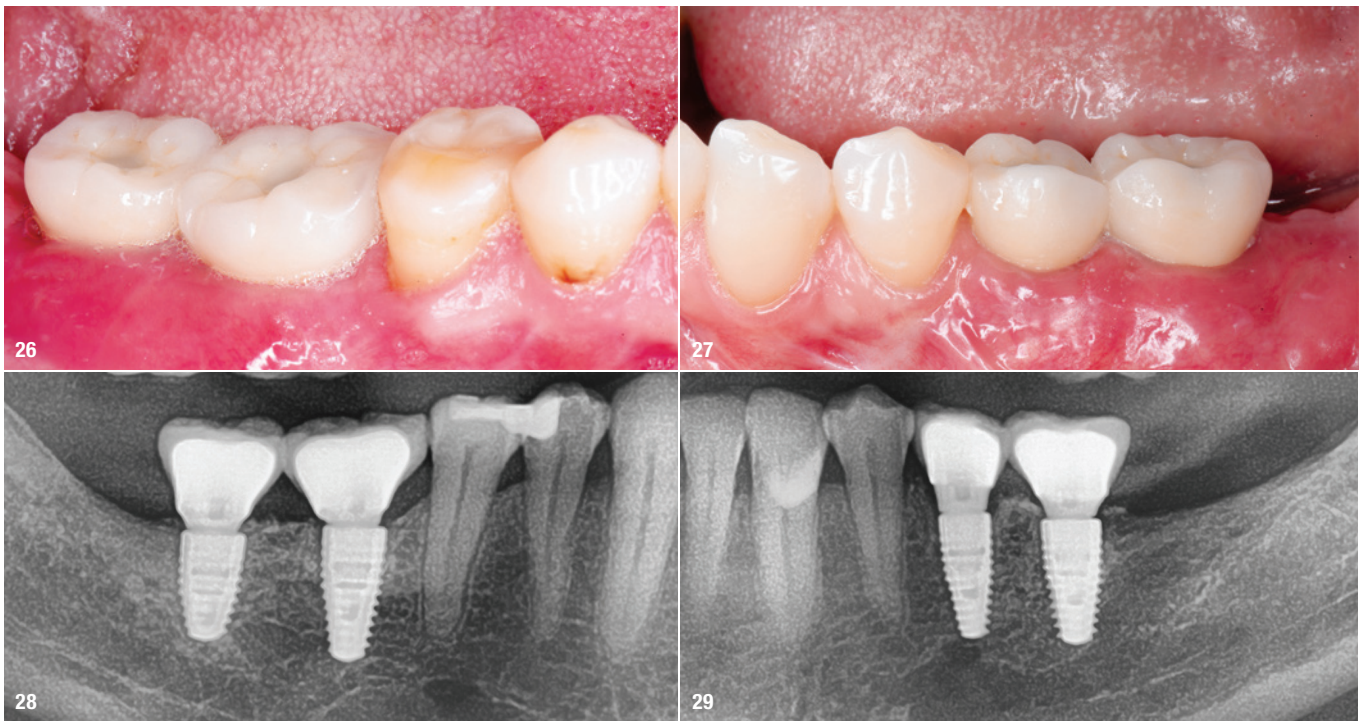
Standard implant with platform switch without morse tapered connection

K3PRO – IMPLANTS FOR EVERY INDICATION

QUALITY & DESIGN
MADE IN GERMANY

ARGON Medical
Fon: +49 6721/ 3096-0
info@argon-medical.com
www.argon-medical.com

PURE IMPLANT TESTED PURITY · STABLE TISSUE SUBCRESTAL POSITIONING · ACTIVE THREAD-DESIGN BONE-CONDENSING & PROGRESSIVE · 1,5° KONUS® CONNECTION · OSSEO INTEGRATION® GUARANTEE · PERI PROTECT® DESIGN · OSTEO ACTIVE® SURFACE



Figs. 26–29: Stable peri-implant bone conditions and sufficient keratinised tissue, clinically free of inflammation, after a six-week healing period.

flap was secured to the periosteum with resorbable sutures. Finally, the implants were exposed by stab incisions. Conical gingival formers with diameters of 5.0 mm in region #35 and 6.5 mm in regions #47, 46 and 36 were used as healing abutments (Figs. 22–25).

Prosthetic procedure

After a healing period of six weeks, the prosthetic restoration was carried out by the referring dentist. The final check-up showed stable peri-implant bone conditions and sufficient keratinised tissue, clinically free of inflammation (Figs. 26–29).

Treatment outcomes

The augmentative relining technique can also be carried out with allogeneic bone plates. No clinical problems were observed in association with this procedure, and there were signs of good integration of the xenogeneic bone substitute into the augmented bone.

Recommendations

In cases of limited vertical bone availability, when the patient requests a fixed restoration on the posterior area of the mandible, the shell technique for bone augmentation is our first choice, as it offers high predictability combined with low complication and resorption rates. Usually, the patient chooses whether to opt for allogeneic or autologous bone shells. In the case of bilateral sites that need to be treated, we often choose the combined approach, as we can easily harvest enough autologous bone chips without a second bone harvesting site in order to reduce morbidity and provide a better patient experience. In my daily practice, the allografts have proved to perform equally effectively as autografts in terms of complication and resorption rates with less morbidity.

Dr Jochen Tunkel

Literature

about the author

Dr Jochen Tunkel completed his dentistry degree at the University of Würzburg in Germany in 1998 and specialised in periodontics through the German Society of Periodontology in 2003 and in implantology through the German Association of Oral Implantology and European Association of Dental Implantologists in 2004. In 2006, he obtained a master of oral medicine in implantology at the International Medical College, associated with the University of Münster in Germany. He taught periodontics at the Münster university hospital from 2004 to 2015 and has worked in a joint private practice in Bad Oeynhausen in Germany since 2007. His practice is accredited by the European Centers for Dental Implantology and is a Straumann centre of dental education. Dr Tunkel is an International Team for Implantology fellow and speaker, and a visiting and supervisory consultant at the German Association of Oral Implantology, German Society of Periodontology and academy for practice and science, a provider of further dental training.

contact

Dr Jochen Tunkel
Königstraße 19
32545 Bad Oeynhausen
Germany
info@fachzahnarzt-praxis.de

Fast, precise and *easy to use*

NeoScan™ 1000

- Easy to use
- Fast scanning
- High precision
- Attractive price

The NeoScan 1000 is a fast and easy-to-use intraoral scanner that provides the possibility for a flexible workflow with open and compatible output.

With a simplified cable connection, full-touch screen support, and without the need for powder or pre-heating, the NeoScan 1000 is what your practice needs and it comes at the right price!

neoss.com

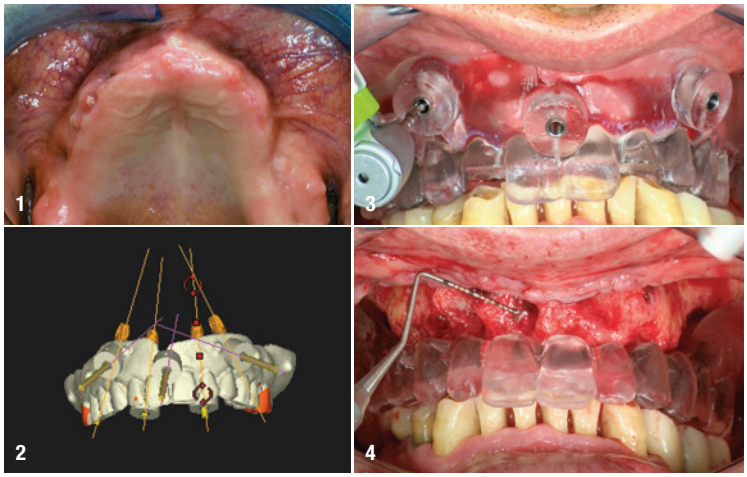
Intelligent Simplicity

Neoss Ltd • Windsor House • Cornwall Road • Harrogate, HG1 2PW • T +44 1423 817 733 • F +44 1423 817 744 • E info@neoss.com

Immediately loaded full-arch restoration on four implants in the maxilla

Digital workflow and surgery, including definitive restoration

Dr Marco Toia, Italy



A 78-year-old male patient with an ASA physical status of II and a previous history of implant treatment requested an implant-supported restoration. Four PrimeTaper EV implants (Dentsply Sirona) were inserted according to digital planning, and the two distal implants were angled to make the best use of the height of the bone crest.

MultiBase EV abutments (Dentsply Sirona) were inserted, and an immediate impression was taken. Four hours after the start of the appointment, a temporary screw-retained implant-supported restoration was delivered to the patient. After healing of the site, a digital impression was taken for the definitive restoration, which was realised with a full monolithic zirconia sleeve on an Atlantis BridgeBase suprastructure.

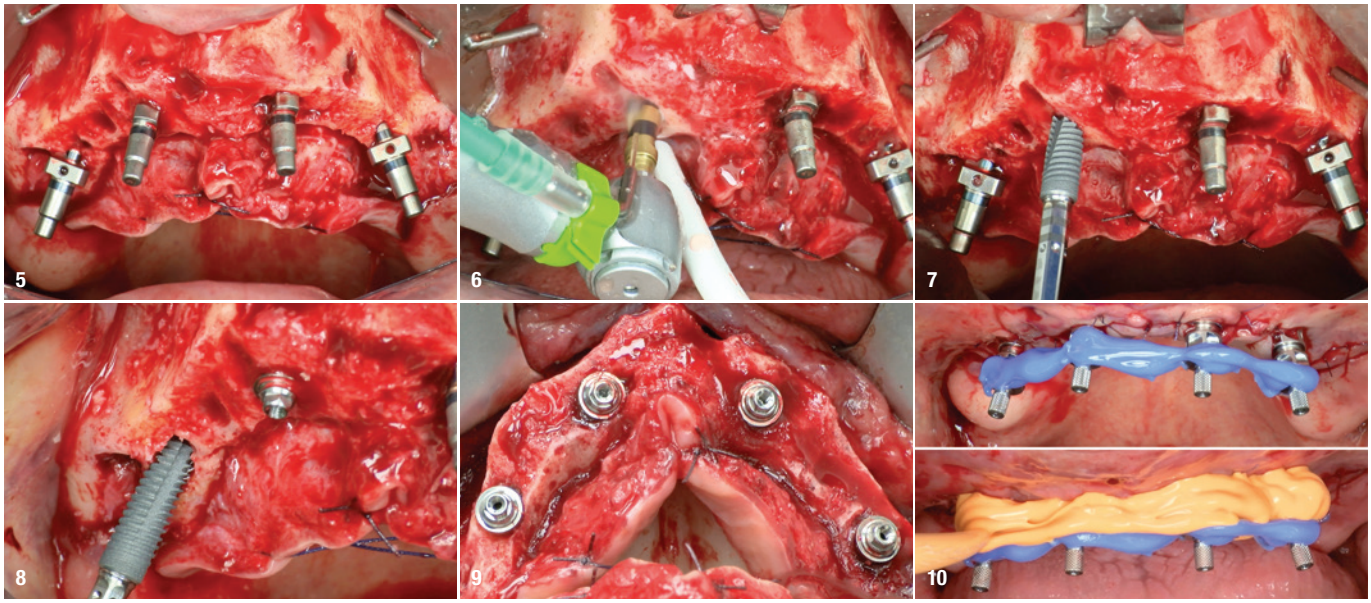
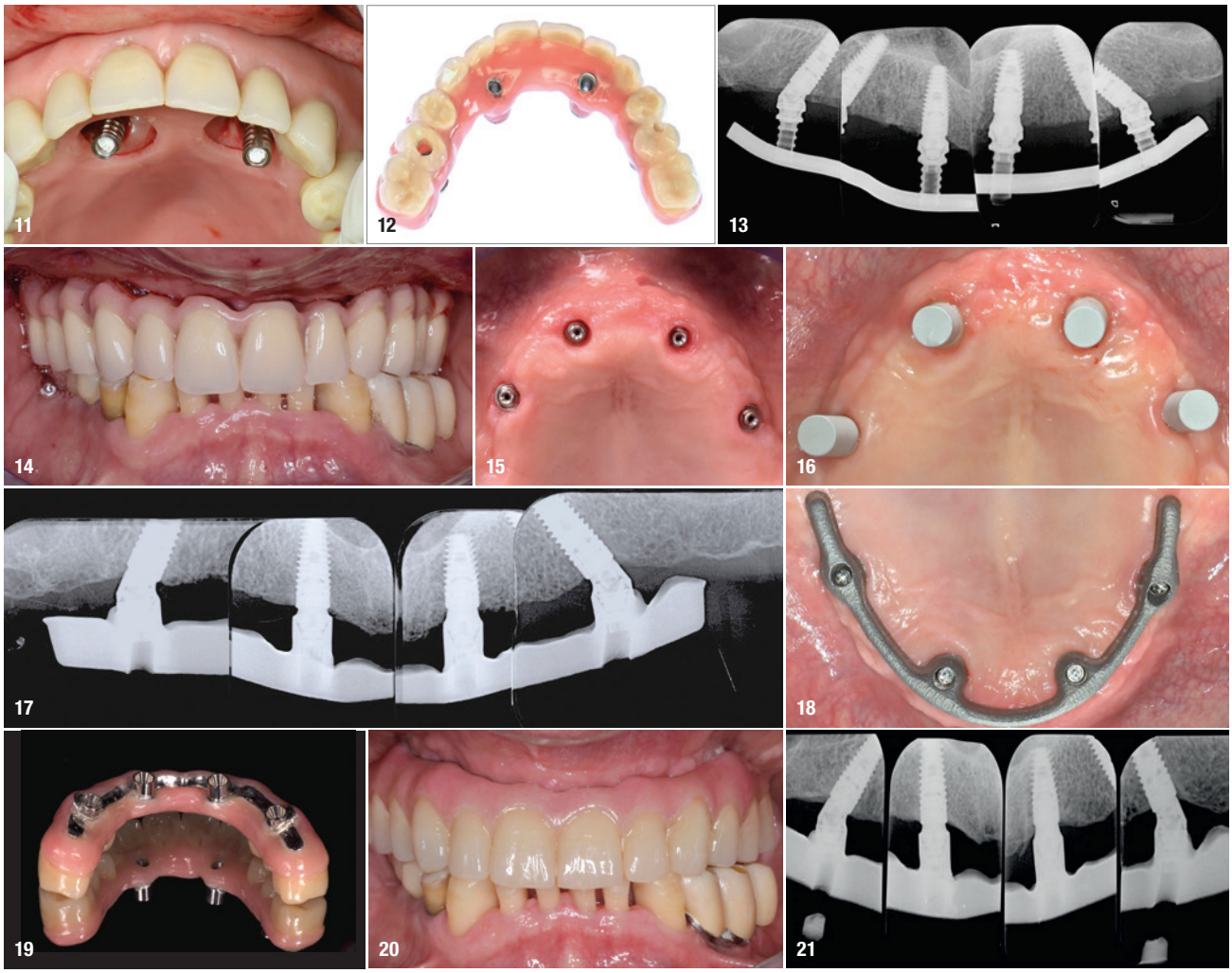


Fig. 1: Pre-op view of the edentulous maxilla, showing the healing area on the right side where the original implants had been removed. **Fig. 2:** Digital implant treatment planning was performed in Simplant software (Dentsply Sirona) with a bone reduction guide mask for four implants in the maxilla. **Fig. 3:** A surgical guide was used for the first drill to ensure precise implant positioning. **Fig. 4:** After making the surgical incision, the bone reduction guide was placed to de-



termine the amount of bone reduction needed. **Fig. 5:** The FRIOS MicroSaw (Dentsply Sirona) was used to remove bone to create a flat and homogenous bone plate. Guide pins were used to check the implant positions. **Fig. 6:** The recommended drilling protocol for PrimeTaper EV was followed for implant placement in position #12. The drilling procedure ended with the #4 PrimeTaper drill. The #5 PrimeTaper drill was used for 2 mm cortical preparation. **Fig. 7:** A PrimeTaper EV 4.2 × 11.0 mm implant was placed in position #12. **Fig. 8:** A PrimeTaper EV 4.2 × 13.0 mm implant was placed at a 30° angle in position #15. **Fig. 9:** Occlusal view of the four abutments in place. **Fig. 10:** MultiBase EV pick-up copings were attached and tightened (5–10 Ncm) for the impression, taken using Aquasil Ultra+ low-viscosity impression material (Dentsply Sirona). Autopolymerising flowable resin was used to secure the copings. **Fig. 11:** MultiBase EV temporary cylinders and autopolymerising resin were used to attach the denture. **Fig. 12:** Occlusal view of the temporary screw-retained restoration. **Fig. 13:** Radiographic evaluation of the temporary screw-retained restoration. **Fig. 14:** Temporary restoration in place four hours after the start of the appointment. **Fig. 15:** Healed soft tissue with abutments in place. **Fig. 16:** Atlantis IO FLO-S scan bodies in place for intra-oral scanning for manufacturing of the definitive restoration. **Fig. 17:** Try-in of the fixed Atlantis BridgeBase suprastructure. **Fig. 18:** Radiographic evaluation showing passive fit of the suprastructure. **Fig. 19:** The full monolithic zirconia sleeve was tried in on top of the suprastructure prior to cementation finalising the definitive restoration. **Fig. 20:** Definitive restoration seated. **Fig. 21:** Radiographic evaluation twelve months after implant placement.

about the author

Dr Marco Toia graduated in dentistry from the University of Milan in Italy in 2001 and specialised in orthodontics in 2004 and oral surgery in 2007 at the same university. He received his PhD from Malmö University in Sweden in 2020 on clinical and mechanical aspects of implant-supported screw-retained multi-unit CAD/CAM metal frameworks. Dr Toia is in private practice in Milan and conducts research in affiliation with Malmö University. He is an active member of the Italian Academy of Osseointegration, the Italian president of PEERS (the Platform for Exchange of Experience, Research and Science, founded by Dentsply Sirona) and an ordinary member of the Italian Academy of Prosthetic Dentistry and European Association for Osseointegration.

contact

Dr Marco Toia
+39 0331 623144
www.studiotoia.com

Dr Marco Toia

Fig. 1: Neoss CEO Dr Robert Gottlander (left) and Dental Tribune International CEO Torsten Oemus at the Neoss booth at EuroPerio10.

"At Neoss, we have the luxury of being able to be more forward-oriented"

An interview with Dr Robert Gottlander, CEO of Neoss, Sweden
Franziska Beier, Dental Tribune International

At EuroPerio10, *Dental Tribune International* met up with Dr Robert Gottlander, who took over the position of CEO and President of Neoss at the end of 2020. In this interview, he shared his vision for the future of his company and how dentistry is changing and with it the demands for manufacturers and explained what makes Neoss's new high-precision intra-oral scanner unique.

Dr Gottlander, this year, Neoss is celebrating 20 years of intelligent simplicity. You invited the dental community to join your company from 9 to 11 June in Gothenburg in Sweden for Integrate 2022. Can you tell us a bit more about the event?

Neoss is in a period of change. We are building on strong product lines and strong research and increased

communication. We had over 600 participants, and from what I heard from external and internal participants, they really enjoyed it. The goal for us was to integrate, educate and celebrate. Our basic feeling is that education "only" is no longer sufficient, because people are used to getting new information on the Internet, especially since the pandemic. What is lacking is exchange. Our event offered short lectures and the opportunity to engage with speakers and other participants by asking questions and having discussions. In addition, we offered evening events, like themed dinners. We thought that this mixture would attract participants, and it really did. The meeting as such exceeded our expectations, and we are very happy with the outcome.

You called the meeting "Integrate 2022". Does that imply a further integration process in the coming years?
The basic plan—which has not been officially confirmed yet—is to have five to seven small meetings in different countries next year and to have another Integrate meeting in 2024. That's the plan, but we will have to see whether it works out.

I really like the name "Integrate" because for a lot of dentists daily work is about integration. I think that what we have learned during the pandemic is that we really have to integrate all parts of the dental community, including clinicians and manufacturers. The dental community works better if it's integrated and when we all work together.

Choosing Gothenburg as the location for the meeting was probably no coincidence, considering that Neoss has its origins in the city and Gothenburg is very closely connected with Per-Ingvar Brånemark, who was central to osseointegration research.
Neoss is based on the tradition of implantology from Gothenburg. We try to stick to the basics, to follow Brånemark's principle, which was to always think about the patient. Therefore, as a company, we think about what we need to do for the clinician in order to get the best outcome for patients.

The office in Gothenburg is very close to the University of Gothenburg's dental school, and we are in the same building as the Department of Biomaterials. I think that Neoss is more focused on science than other implant companies are—although, I don't know if we are an implant company. I don't think so. I don't want us to be.

What do you want Neoss to be, if not an implant company?
I think we would like to be a company that helps dentists treat patients in the best possible way, in an ease-of-use way but with predictable results. Today, implants are very different from what they used to be 40 years ago, and I think that implants in the coming 20 years will be different too. The tools being used—such as scanners and software—are also being used in many other treatments. Three decades ago, an implant crown used to be made completely differently from a crown for a tooth. Today, there is no difference. In this way, implant dentistry has come closer to other fields of dentistry. This shift is evident in all of the traditional implant companies because they are different from what they were 20 or 30 years ago. At Neoss, we want to offer technology that is easy to use and to stick to our intelligent simplicity. Simplicity has always been important, but I think it is becoming even more important.

In my opinion, this development has to do with today's dental education system. When I went to dental school, we learned a lot about very few things. Today, there are so many different dental specialties; however, the time students spend in dental schools has not been expanded. Therefore, today's students learn, I don't want to say little, but less about a lot. As a result, when they leave dental school, they need to find a way to get more education. In addition, students and clinicians have changed their view of life. When I graduated, the main goal was to become a specialist or to have one's own private practice. Today, a lot of dental students want to be employed, and that means that the requirements for manufacturers are changing. We have to develop products and handle education in a different way. At Neoss, we aim to back up our products with an immense effort in training and education because I believe manufacturers have to take responsibility for showing dental professionals how our products are supposed to be used.

So, with regard to your question about what I think Neoss should be—these are the topics we try to think about. We are not a large company, and I think that the biggest advantage of that is that we do not have to adhere to a strict traditional structure and this flexibility gives us the possibility of doing things that will make a difference in the future. Legacy implant companies need to concentrate on how to manage their business. At Neoss, we have the luxury of being able to be more forward-oriented.

Many implant companies are branching out into areas that are not part of their core business—such as aligners and intra-oral scanners. Neoss just launched the NeoScan 1000. What was the rationale for this product?
We have had the ScanPeg for five years. It is the smartest digital workflow product currently on the market, offering the combination of a scanning abutment and a healing abutment. I thought: this is really smart, but we cannot really sell it unless we also offer a scanner.

Fig. 2: The new NeoScan 1000 scanner from Neoss is easy to use, very precise and fast.

What makes your scanner unique?
We stuck to the easy-to-use approach. I really believe in intelligent, simple use built on science. When developing the scanner, we did not focus on multiple software features but on it being fast, precise and really easy to work with. It's very lightweight—it only weighs 198 g—so basically the weight of a smartphone. The mirror is a bit lower, so the captured image is larger than usual. If something is missed while scanning, the user can go back and the scanner will pick it up quickly, which really reduces the scanning time. It has one button for the upper jaw and another one for the lower jaw, so actually the user can't do anything wrong.

So, it's idiot-proof?
Yes, that's my point! [laughs] This scanner is for dentists who want a simple scanner that takes a precise picture at a very competitive price. I think that at the moment it's the scanner with the best price–performance ratio on the market. Most other scanners in the same price range don't have a colour mode or don't work at the same speed. The speed of our product is the same as that of high-end scanners. We just don't have all the different modules for the software. However, it's truly open. The dental professional can incorporate the scanned data into other design and scanning software. It's for dental professionals who want to focus on their clinical work. We presented data at Integrate 2022 which shows that the precision of our scanner is at least as good as the leading brands on the market today.

EuroPerio10 is one of the first major shows to take place since the COVID-19 pandemic began. How does it feel to be back?
I think that it's great to be back and to be able to communicate and see people again. I personally really enjoy it. I think that it is different to before COVID-19 because now shows are more about getting together and socialising. Our coffee machine at the booth is constantly running. [laughs]

To come back to Neoss at EuroPerio, we have another product that we wanted to highlight: NeoGen, which is a non-resorbable PTFE titanium membrane. These membranes are actually not easy to work with, but if used correctly can achieve vertical bone growth in a way that is amazing. We have had this product for five to six years, and it has been well researched.

I joined Neoss because of its great implant product line, including its easy use and predictable, well-researched outcomes—and because of its novel products, such as the ScanPeg and PTFE membrane. Very few companies have such an offering.

contact

Neoss GmbH, Germany
+49 221 96980-10
info@neoss.de
www.neoss.com

Neoss

NEW GENERATION

Monitor Osseointegration

Reduce treatment time
Manage risk patients

Visit us in Geneva

EAO
EUROPEAN ASSOCIATION FOR OSSEOINTEGRATION

29/9-1/10 2022
Booth: E37

penguin II

www.penguininstruments.com

Integration Diagnostics

Quality products at accessible prices

An interview with Salih Sanli, NucleOSS, Turkey
Timo Krause, Germany

NucleOSS was established in 2001 in Izmir by Şanlılar Ltd. Over the past decades, the company evolved to a highly reliable implant manufacturer. In this interview with *implants*, NucleOSS CEO Sahli Sanli discusses the company's values and gives a slight outlook of the NucleOSS future.

The last two years marked significant challenges for the world. How could you encourage your company to keep the paste of this fast moving and changing industry?
As NucleOSS, we are aware that the greatest legacy we will pass on to future generations is a livable nature and environment. NucleOSS establishes its environmental policy and transfers the corresponding corporate culture to its employees, production processes and suppliers through various trainings. We work continuously for a clean and livable environment with the understanding of "Smile for the Future". That said, we are a family at NucleOSS and this is our highest value and motivation.

With the T6 implant system, you launched a new era of high quality and yet affordable implant systems. How can you ensure this high demand and quality in your production?
We want to produce the best, most biocompatible and cleanest dental implants for our customers by combining our meticulous research and development studies and knowledge with a world-class precision manufacturing protocol. We share our knowledge, experience, scientific data and research findings with our clinicians and academics through the Together for Implantology Academy (TFI Academy), which we established to enhance the effectiveness of our ongoing R&D studies.

What are your plans especially for the future? Any specific ideas for Germany?
NucleOSS will have a re-start at EAO Congress in Geneva. We are looking forward to presenting our products worldwide but first we would like to establish our strengths in Europe. As part of our open approach to change, which is the first prerequisite for growth and progress, we are developing our export network day by day. To do this, we use our effective distribution network. Our company in Germany is leading the way for this, suitable solutions in close cooperation with our 14 domestic partners and as well as our more than 20 international partners.

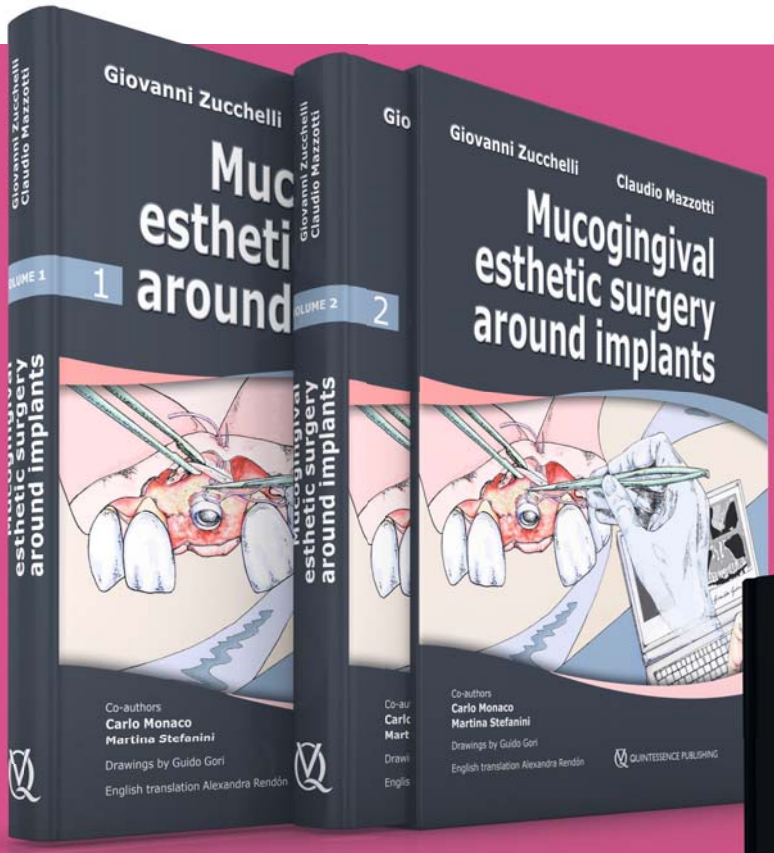
Will you be participating in this year's trade shows and congresses? If so, what can customers look forward to?
We will be at EAO Congress in Geneva with our team and we are looking forward to our customers and all dentists that are looking for a high-quality dental implant system designed to provide a beautiful smile.

> "Our ultimate goal is to offer quality products at affordable prices and to be a brand that allows everyone to trust their smile."

contact

NucleOSS
+90 232 7990304
www.nucleoss.com

HIGH IMPLANT ESTHETICS



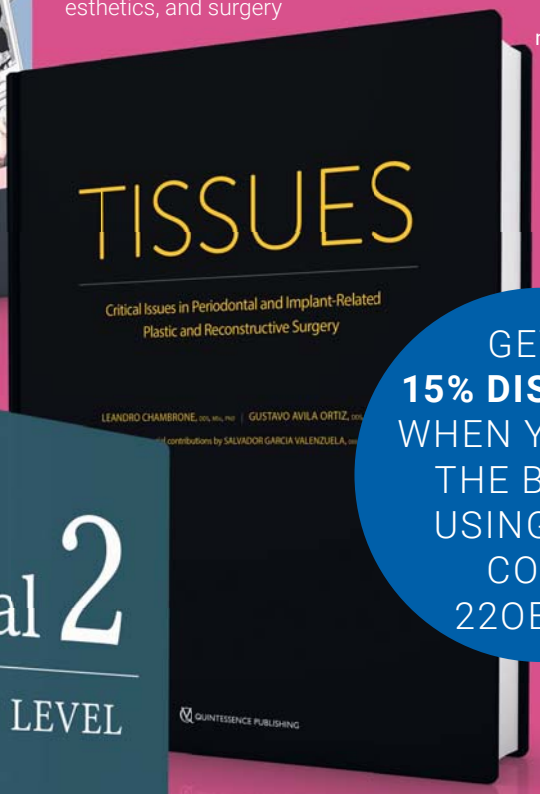
Giovanni Zucchelli | Claudio Mazzotti
Carlo Monaco | Martina Stefanini (co-authors)

Mucogingival Esthetic Surgery around Implants

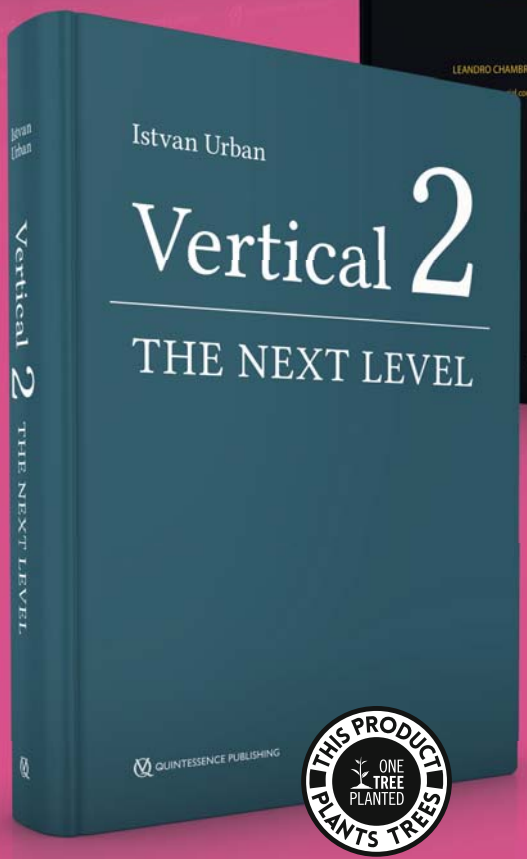
1st Edition 2022, two-volume book with slipcase
1,100 pages, 6,557 illus, ISBN 978-88-7492-091-4, €360

- Masters the management of soft tissue
- Combines innovative and traditional solutions
- Offers a guided journey between biology, esthetics, and surgery

For more info, an extract, and to order: www.quint.link/mastering-soft-tissue



GET A **15% DISCOUNT** WHEN YOU BUY THE BOOKS USING THIS CODE: 22OEM15



Istvan Urban

Vertical 2: The Next Level

of Hard and Soft Tissue Augmentation

1st Edition 2022
560 pages, 2,050 illus
ISBN 978-1-78698-108-0, €248

- Continuation of the author's bestselling first book but at a more advanced level
- Brand new information about vertical ridge augmentation

For more info, an extract, and to order: www.quint.link/vertical-2

Leandro Chambrone | Gustavo Avila Ortiz

Tissues

Critical Issues in Periodontal and Implant-Related Plastic and Reconstructive Surgery

1st Edition 2022, 624 pages, 2,500 illus
ISBN 978-0-86715-963-9, €298

- Clear narrative, stunning visuals
- A true masterpiece in periodontology

For more info, an extract, and to order: www.quint.link/tissues

books@quintessenz.de
+49 (0)30 761 80 667

QUINTESSENCE PUBLISHING

Driven by science, not trends

Janine Conzato, Germany

The innovative company Thommen Medical has been dedicated to a single goal since the beginning: To produce the best possible dental implant system. They consistently rely on Swiss precision in manufacturing, rigorous quality controls and close collaboration with the best experts in dental medicine worldwide. This results in a unique dental implant system that combines Swiss quality, simplicity and an innovative design, based on over 35 years of clinical experience.

The company focuses on dental implantology and clearly positions itself as an expert in dental implants. The production takes place at the company's facility in Grenchen, Switzerland. However, part of the recipe for success is that the company invests in ecology, research and the social responsibility of the dental manufacturer in addition to innovative product development.

Under the name "Thommen Medical Education", Thommen Medical offers training at the highest level, carried out by clinicians who are leaders in their fields on the one hand, and on the other hand, through their practical and pragmatic approach, are able to pass on directly applicable knowledge. Participants receive scientifically based and practice-oriented knowledge that they can use in their daily work. Knowledge that can be used to further optimise not only the clinical results, but also the intraoperative, dental-technical, and organisational processes related to dental implants.

As an internationally active company, Thommen Medical is also present at numerous congresses and events. This year's EuroPerio in Copenhagen was no exception. The company's symposium took place on the second day of the congress and was very well attended. In it, Prof. Leonardo Trombelli, Prof. Stefan Renvert and Prof. Markus Hürzeler addressed the question of whether implant rehabilitation in stage IV periodontitis patients is a permanent solution or the genesis of future problems. The experts looked at the question from periodontal, implantological and interdisciplinary perspectives. The symposium was chaired by none other than periodontist Dr Otto Zuhr, who has been a board member of the Deutsche Gesellschaft für Parodontologie.

It is important to the Swiss company that research, development and the further development of the company are always congruent and financially viable. If you grow too fast, you can also jeopardise a solid foundation. That is not Thommen Medical's philosophy. When a new product comes onto the market, it is absolutely reliable and mature. And this serious development takes time.

contact

Thommen Medical AG
info@thommenmedical.com
www.thommenmedical.com

Thommen Symposium

Thommen Medical

Fig. 1: Dr Otto Zuhr welcomes the participants at the Thommen Symposium at this year's EuroPerio in Copenhagen. **Fig. 2:** Dr Otto Zuhr, Prof. Markus Hürzeler and Prof. Stefan Renvert (from left) at the Thommen Symposium at the EuroPerio in Copenhagen on "Implant-supported rehabilitation in stage IV periodontitis patients: permanent solution or source of future problems?"

Last call for current quality assessment study and education on implant impurities ex-factory at the EAO Congress in Geneva

The non-profit CleanImplant Foundation will attend the 29th Scientific Congress of the European Association for Osseointegration (EAO) from 29 September to 1 October 2022 with its information booth at F 50. In the setting of the European congress, the Foundation continues its global awareness campaign concerning production-related contamination on new, sterile-packaged implants. On the same occasion, Dr Dirk U. Duddeck, Managing Director and Head of Research at CleanImplant, aims to advance the implant procurement for the Foundation's current and fifth overall scientific study on the quality of dental implants. The presence of numerous implant manufacturers is sought to conclude the collection process, initiating the next iteration of the large-scale quality assessment study conducted in collaboration with internationally renowned universities such as the Charité–University Medicine in Berlin, Germany.

In what has become the most extensive overview of surface cleanliness performances across the entire industry, the surfaces of commercially available implant systems are examined for concerning remnants from the production processes using complex, state-of-the-art SEM analyses. To ensure a comprehensive overview of the manufacturing quality of the implants available for sale on the market, the implant types to be tested were, in advance, selected by the Foundation's scientific advisory board. All implant manufacturers with implants examined in the study are invited to participate in this study.

Results of the previous year's studies are alarming: Over a third of all sterile-packaged and "ready-to-use" implant types exhibited significant levels of foreign particles and concerning residues on their surfaces. However, there is an easy way to avoid purchasing untested, risky implants. At the information booth in Geneva, CleanImplant experts will inform about these contaminants' impacts and advise on selecting the best implant systems: With the "Trusted Quality"-seal, CleanImplant creates transparency and awards implant systems with a high-quality surface. To date, selected implant types carrying the coveted seal are from manufacturers such as Biotech Dental, bredent medical, BTI, CAMLOG, Global D, medentis medical, MegaGen, NucleOSS, Sweden & Martina, Zircon Medical, and SDS. The quality seal is valid for two years. Other implant systems are currently undergoing the testing process.

CleanImplant Foundation experts continue the global awareness campaign concerning production-related contamination on new, sterile-packaged implants. CleanImplant Managing Director and Head of Research, Dr. Dirk U. Duddeck (left), will give insights and information about the latest study results to all interested colleagues at booth F50.

contact

CleanImplant Foundation
+49 30 200030190
www.cleanimplant.com

Straumann

The tapered standard

The Straumann® BLT implant has been introduced to the markets in 2015. Since then, it has become the most popular and most used implant line of Straumann Dental Implant System. Building on the clinically proven features, the BLT implant offers a powerful combination of Roxolid®, SLActive®, Straumann's high performance surface for high predictability and accelerated osseointegration, and an anatomical fit, thanks to the slim and tapered implant body. With a portfolio range from implant diameter 2.9 mm, to 3.3, 4.1 and up to 4.8 mm all tooth positions can be treated, be it single tooth, small bridges, or full arch rehabilitations. For the latter, with Straumann® Pro Arch, a scientifically proven immediate fixed, full arch solution for an immediate, aesthetic, and reliable outcome is offered. The Straumann® BLT implant system was designed for a natural look and feel, providing great flexibility and a balanced prosthetic portfolio for the everyday use.

Institut Straumann AG, Switzerland
+41 61 9651111
www.straumann.com

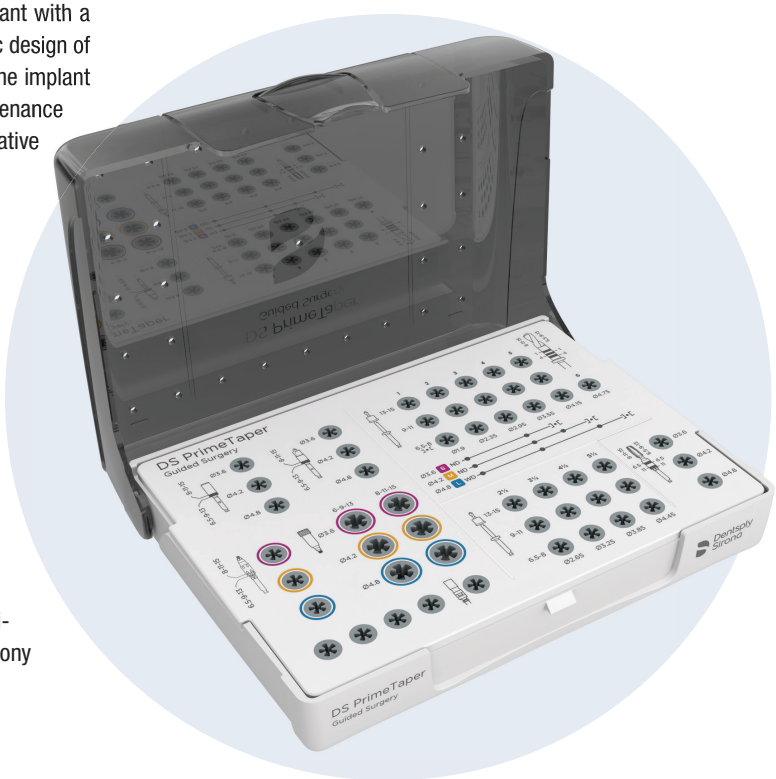
Dentsply Sirona

Preserve smiles with DS PrimeTaper implant system

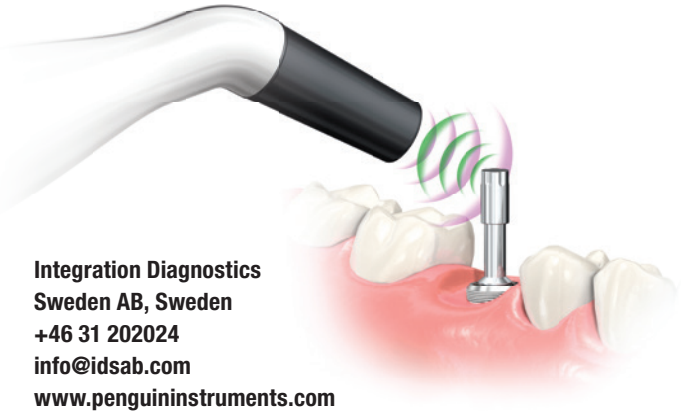
DS PrimeTaper implant system features a tapered implant with a progressive thread design inspired by the proven classic design of Astra Tech Implant System, including MicroThread on the implant neck, the OsseoSpeed surface for long-term bone maintenance and aesthetics, and the conical EV connection for restorative flexibility and ease.

The variable thread shapes on the implant contribute to initial and immediate stability and cutting efficiency, linear torque build-up throughout the implant installation for predictable implant placement, and immediate installation stability for all implant cases.

Excellent aesthetics begin with careful planning and DS PrimeTaper implant system offers a comprehensive digital solution for implant placement to provide improved efficiency throughout the workflow and reliable results, even in fully edentulous patients. Add Primescan for Atlantis suprastructures for seamless digital implant workflows where everything works in harmony to help preserve the patients' smile.



Dentsply Sirona, Sweden
+46 31 3763000
www.dentsplysirona.com/dsprimetaper



Integration Diagnostics

Monitor osseointegration

With its core philosophy of easy, affordable and accessible products, Integration Diagnostics have supplied the dental implant market with Penguin RFA since 2015. Penguin accurately and predictably measures implant stability to support the dentist's decision for when to load an implant. As implant dentistry continues to trend towards a more limited or in some cases eliminated healing phase prior to loading, accurate techniques to support the clinical teams' decisions become more important. If case conditions are suboptimal, poor implant stability could increase the risk for implant failure. To measure and confirm osseointegration and implant stability before loading, potentially improves the outcome for the patient as well as helps the dentist develop a more efficient protocol and treatment.

Penguin instruments are used with MulTipegs; measuring devices manufactured in durable, tissue friendly titanium with sealed magnets. The design enables the MulTipeg to be autoclaved and reused up to 20 times, which, when considering environment impact and cost effectiveness is beneficial. The MulTipegs can be used for all major implant systems and are laser marked with type number, have an optimal platform fit and are ISQ standard calibrated.

At EAO 2022, Integration Diagnostics will release the new generation Penguin instrument—Penguin II. With an updated design and added features, this will meet dentist demands when searching for an uncomplicated system to monitor osseointegration, manage risk patients and reduce treatment time.

Penguin instruments—removes doubt!

More information can be obtained by visiting the Integration Diagnostics Sweden booth (E037) at EAO Congress in Geneva.

Integration Diagnostics Sweden AB, Sweden
+46 31 202024
info@idsab.com
www.penguininstruments.com

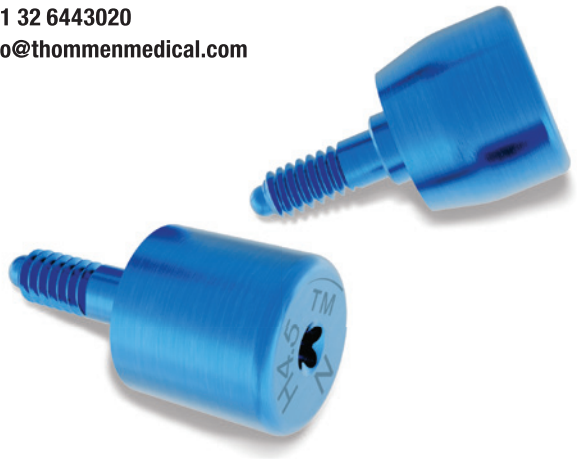
Thommen Medical

New gingiva former narrow—the solution for optimal soft tissue management

Inflammation-free gingiva and sufficient soft tissue volume are central to the long-term success of an implant restoration. From now on, the new gingiva former narrow from Thommen Medical provides more flexibility in soft tissue management—for best possible outcomes. In combination with the gingiva former standard, the new gingiva former narrow can be used to exert controlled compression on the soft tissue in a two-stage procedure.

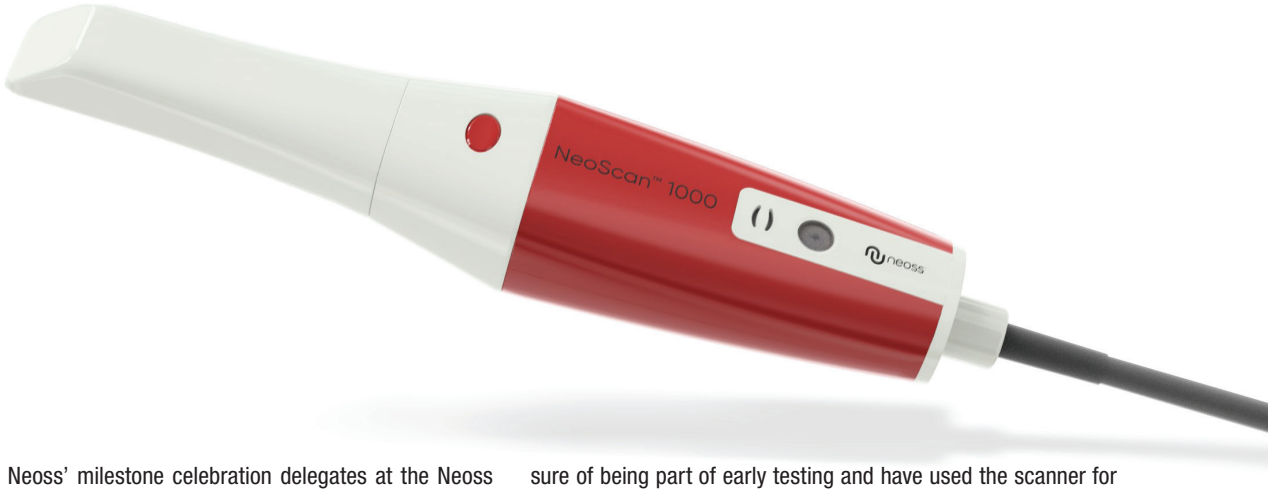
The narrow shape is the optimal basis for aesthetic and functional peri-implant soft tissue, as the tighter wound closure promotes effective wound healing. The narrow design reduces tension around the suture and minimises free wound surfaces. Thereby, the risk of infection is limited while optimal blood circulation is supported.

Thommen Medical AG, Switzerland
+41 32 6443020
info@thommenmedical.com



Neoss

Digital dentistry made easy



As part of Neoss' milestone celebration delegates at the Neoss Integrate 2022 congress in Gothenburg, Sweden were given the first access to the NeoScan 1000 intra-oral scanner which is set for full commercial launch in September 2022. "I am excited to introduce the NeoScan 1000 into our range of intuitive dental solutions. The performance of the scanner is beyond my expectations with clear competitive advantages. The scanner will allow Neoss to significantly expand its proprietary digital dental offering," says Dr Robert Gottlander, CEO and President of Neoss Group. Designed for scanning accuracy and speed, the compact, lightweight scanner provides the possibility for a flexible workflow with open and compatible output at a competitive price. "The NeoScan 1000 is a superfast, lightweight, and easy-to-use scanner. I had the pleasure of being part of early testing and have used the scanner for several digital impression indications at my clinic with excellent results. Digital dentistry is in need of more cost-efficient solutions so that clinicians can use it to its full potential. The NeoScan 1000 has the potential to do just this," says Dr Marcus Dagnelid, DDS, board-certified prosthodontist. With an easy USB cable connection and full touch screen support, the NeoScan 1000 is sure to please and excite dental professionals alike!

Neoss GmbH, Germany
+49 221 9698010
info@neoss.de
www.neoss.com/neoscan1000

BioHorizons Camlog

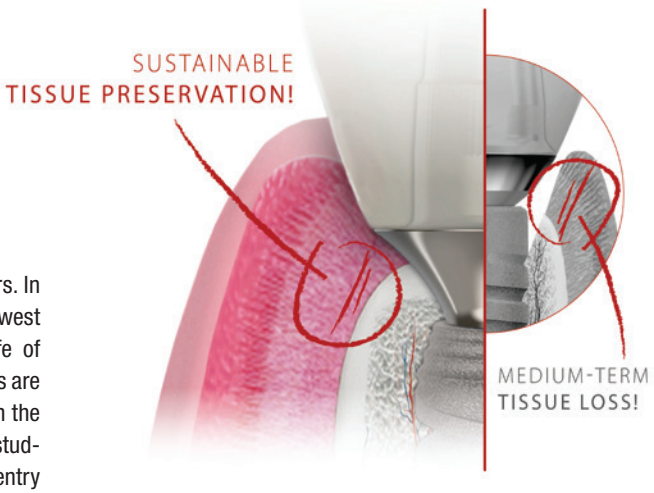
The next generation soft-tissue augmentation material

When choosing a biomaterial, there is a strong demand in clinical practice for predictable outcomes. For over 20 years, LifeCell, a leading global medical technology company, has developed innovative products for use in a wide range of applications. BioHorizons Camlog expands its soft-tissue portfolio to bring NovoMatrix, an innovative soft-tissue augmentation material. NovoMatrix is an acellular extracellular dermal matrix consisting of tissue-engineered porcine material. It is a breakthrough in xenogeneic processing ensuring a structurally intact, undamaged scaffold that supports cell and microvascular ingrowth. The proprietary tissue processing allows for rapid revascularisation, cell repopulation and minimal inflammation. NovoMatrix comes pre-hydrated and ready to use and offers a true alternative to autogenous soft-tissue grafts and current products on the market. The NovoMatrix indications include guided tissue regeneration procedures in recession defects for root coverage, localised gingival augmentation to increase keratinised tissue (KT) around implants and natural teeth, and alveolar ridge reconstruction for prosthetic treatment.

Camlog Biotechnologies GmbH
Switzerland
+41 61 5654141
www.biohorizonscamlog.com

Argon Medical

K3Pro gives no chance of bacterial colonisation!



The sustainability of implantological success has many factors. In addition to the absence of mechanical complications, the lowest possible bacterial load is indispensable for the service life of implant-supported restorations. Mucositis and peri-implantitis are biological complications that should be avoided at all costs in the area of peri-implant hard and soft tissue. Numerous clinical studies have shown that gaps in multi-unit implant systems are entry gates for microorganisms and have negative consequences for bacterial colonisation of the peri-implant mucosa. Colonies of bacteria in the implant interior that migrate are a main factor for the development of biofilms.

The prevention of peri-implantitis therefore begins with the selection of the implant: if the focus is on the design of the implant–abutment connection and in particular the freedom of micromovement—and thus bacterial tightness—K3Pro from Argon Dental with its Peri-Protect-Design is the way to go. Its unique several-millimetre-long yet reversible tapered connection not only successfully eliminates micromovements, but also seals reliably. You as the practitioner, who can rely on sustainable hard and soft tissue stability with K3Pro, are not the only winner: your patient also benefits and enjoys a biologically proven bacteria-proof and odour-free implantological restoration that poses no risk whatsoever to microbial contamination of the oral flora.

We are Creating Stable Tissue. Be part of it and realise highly biological solutions with us.

Argon Medical, Germany
+49 6721 3096-0
www.argon-medical.com

ClaroNav

Introducing Navident 4: Why do I need one?

Are you constantly looking for ways to elevate and differentiate your practice from mainstream dental providers? We know the challenges you face when you are aiming for the highest levels of performance and results—both functionally and aesthetically.

Navident provides breakthrough surgical navigation with advanced function and form. From more efficient single implant replacements to a fully edentulous rehabilitation workflow, Navident is poised to revolutionise and differentiate your practice: Conduct high-precision implant treatments quickly and confidently. Reliably detect important anatomical structures. Locate root canals and other fine anatomical structures with precision and efficiency. High-precision navigation of your piezotome enables accurate assessment and predictable outcomes.

The new Navident system is equipped not only with next-generation, 3X resolution camera technology, but also provides everything from ergonomic design to reimagined touchscreen interface, and is created to provide smooth workflow integration for clinicians at every stage of their career. Precision dentistry for the precision dentist.

Navident 4 comes in cart-based or new wall or ceiling mount configurations for ultimate versatility. Navident 4 is now available at a special pre-order price and shall be showcased at the EAO Congress in Geneva (booth G10).

ClaroNav, Canada
+1 647 951-1525
anna@claronav.com, www.claronav.com

EuroPerio10 brought together an amazing diversity of over 130 speakers from around the world. (© EFP)

Younger and more dynamic and exciting than ever before

Janine Conzato, Germany

Copenhagen delighted visitors to this year's EuroPerio—both with its location and beautiful weather. From 15 to 18 June, attendees were offered an engaging programme covering innovations and proven classics of the dental industry. A leading global congress for periodontics and implantology, EuroPerio once again pleased visitors and industry participants alike.

EuroPerio10 promised to be one of the best events in the history of the European Federation of Periodontology (EFP), which organises the meeting, and this expectation was realised: this year's congress was considered by both visitors and industry participants to be the most exciting yet. Prof. Phoebus Madianos, chair of EuroPerio10, said: "EuroPerio attracts the best speakers, scientists and clinicians from around the world to the Olympic Games of dental congresses." This fosters experiences for all participants that will have a lasting impact on the entire dental world.

In a similar spirit of enduring influence, the organisers decided to hold the congress in the most sustainable city in Europe and incorporated sustainability in the event on many levels. Instead of receiving the traditional programmes distributed on-site, all participants could download a free congress app with all the information about the event, reducing paper use by 50% compared with EuroPerio9. In addition, all participants received a free ticket for public transport, and only local and seasonal food was served.

Marking EuroPerio's 30th anniversary, the tenth edition attracted more than 7,000 participants from 110 countries, and the proportion of younger attendees was noteworthy: 66% of the participants were under 45 years old and 33% under 35 years old. Original research was presented in more than 900 scientific abstracts during the congress.

There were 41 scientific sessions on emerging topics of interest to practitioners, researchers and academics, presented by over 130 high-profile speakers from more than 30 countries.

The research covered a wide range of topics, including new areas of study, such as the role of artificial intelligence in the diagnosis and treatment of periodontitis. New findings on areas already studied were also presented, including the long-term outcomes of periodontal treatment and the associations between periodontal disease and heart disease, diabetes, premature birth and lung function.

A significant highlight of the EuroPerio10 programme was the presentation of the first European guideline on the treatment of Stage IV periodontitis. Commenting on this, EFP President Prof. Andreas Stavropoulos said, "The EFP is the global benchmark in periodontal health and disease. The EFP's main mission is to raise awareness of the importance of periodontal disease and health, and our motto is periodontal health for a better life. This is what we communicate to society and policymakers so that we can influence decision-making and improve oral health."

He concluded by saying, "Our main educational event is EuroPerio, and this edition has attracted a very young audience, […] we look forward to seeing the dental community again at EuroPerio11 from 14 to 17 May 2025 in Vienna in Austria."

contact

European Federation of Periodontology, Spain
www.efp.org

Picture gallery

51st International Annual Congress of the DGZI

University meets practice—A congress for the entire practice team

Berlin is always worth a visit. There is hardly any other German metropolis where advanced training, culture and leisure can be better combined. Many reasons to travel to the German capital. And a visit to the DGZI Annual Congress at the Vienna House Andel's Berlin is worthwhile for the entire practice team.

The focus of the 51st Annual Congress of the German Association of Dental Implantology (DGZI) in Berlin will be the claim to be a guideline in implantology for the participants. They should not only know where the joint implantological journey is going but should also be personally able to play a significant role in shaping the route. The DGZI has had this aspiration for the past 50 years and will continue to have it for the next half century!

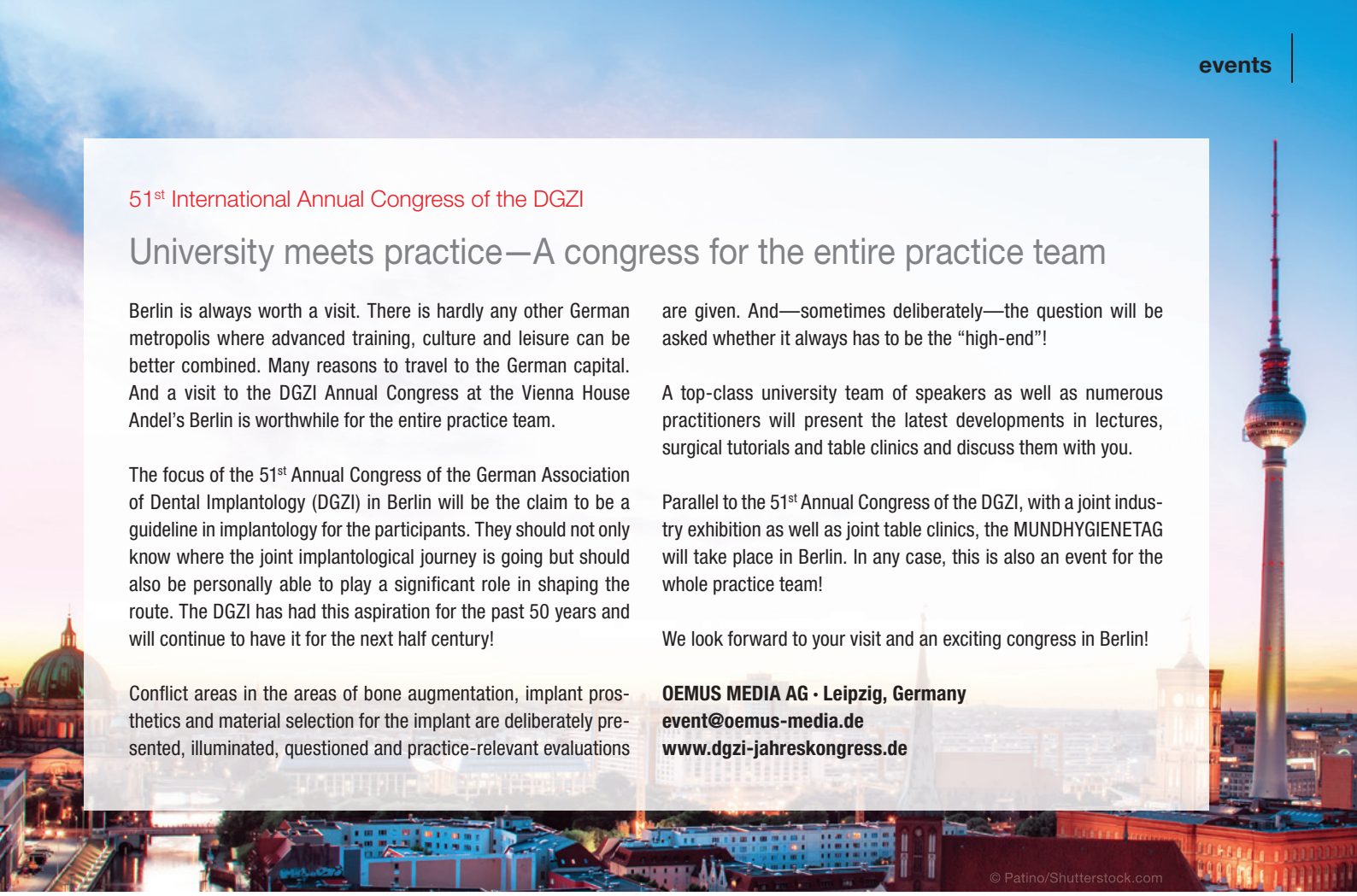
Conflict areas in the areas of bone augmentation, implant prosthetics and material selection for the implant are deliberately presented, illuminated, questioned and practice-relevant evaluations are given. And—sometimes deliberately—the question will be asked whether it always has to be the "high-end"!

A top-class university team of speakers as well as numerous practitioners will present the latest developments in lectures, surgical tutorials and table clinics and discuss them with you.

Parallel to the 51st Annual Congress of the DGZI, with a joint industry exhibition as well as joint table clinics, the MUNDHYGIENETAG will take place in Berlin. In any case, this is also an event for the whole practice team!

We look forward to your visit and an exciting congress in Berlin!

OEMUS MEDIA AG · Leipzig, Germany
event@oemus-media.de
www.dgzi-jahreskongress.de



Fotona

Innovative laser treatments presented at 12th LA&HA Symposium

More than 70 clinical lecturers from around the world and over 500 attendees assembled together at the 12th annual Laser & Health Academy (LA&HA®) Symposium, held in late May in Portoroz, Slovenia. The annual event, sponsored by the manufacturer Fotona, is organised to present, share and discuss the latest knowledge and clinical experiences in the field of medical laser treatments. Some of the topics covered this year included: Clinical Applications of the LightWalker Laser in Regenerative and Resective Periodontal Surgery; Solving the Problem of Peri-implant Complications; Using the LightWalker for Oral Surgery; and Clinical Experiences with Laser-Assisted Orofacial Pain Management.

The Laser and Health Academy (LA&HA®) is a non-profit organisation dedicated to the promotion of research, education, and publishing in the field of laser medicine. LA&HA® also serves as a comprehensive platform for continuous education in the medical laser community, with numerous professional workshops offered worldwide on a wide variety of medical laser topics.

LA&HA, Laser and Health Academy, Slovenia
journal@laserandhealth.com
www.laserandhealthacademy.com

Fig. 1: The ADT held its 50th annual conference this year.

Fifty years of experience—strategies for the future

Dr Rolf Vollmer, Germany

This year, the Arbeitsgemeinschaft Dentale Technologie (dental technology working group; ADT) celebrated its 50th annual conference in Nürtingen in Germany from 16 to 18 June. The ADT offered visitors a wide-ranging overview of relevant new publications and the latest research results and promoted exchange between dental technology, dentistry, academia and industry, creating opportunities for exchange on an equal footing.

In six workshops and 28 lectures, those interested in dental technology and dentistry had the opportunity to learn about the current state of development of dental technologies. The topics ranged from the transformation of dental technology and the shortage of skilled workers in the industry to technical topics such as the use of digital technologies for removable dentures and minimally invasive prostheses. The lectures were analysed in detail by dental technician Oliver Beckmann and Vice President of the German Association of Dental Implantology Dr Rolf Vollmer regarding their significance in practice.

Digital impressions were met with great interest overall, and the high percentage of dental practices and laboratories that already use them, both for the fabrication of crowns, bridges and splints and for printed models in the laboratory, was surprising. It was interesting that studies have shown that printed models do not have permanent volume stability. Consequently, before the models are sent to the customer with the finished work, they must be printed out again and the model has to be adjusted manually, if necessary.

It is also possible to implement the corresponding occlusal concepts in the digital world. The participants agreed

Fig. 2: Discussion in the expert panel (from left): Axel Springer, dental technicians Werner Gotsch and Florian Schmidt, Dr Ingo Baresel and ADT board member Dr Jan-Frederik Güth. **Fig. 3:** Dental technician Oliver Beckmann, Frederik Schroll and DGZI Vice President Dr Rolf Vollmer at the DGZI booth.

that milling removable partial dentures, for example, is very time-consuming and wasteful of material, but ultimately delivers good quality. A favourable option is the additive technology of powder bed fusion which allows the printing of several removable partial prostheses in one job. The long-term quality of this remains to be seen. There are also possibilities for the production of complete dentures. Both the dental crowns and the base of the dentures can be produced by printing or milling, but like the milling of removable partial dentures, the large amount of material required must be considered. The excess material must then be recycled again. Furthermore, there are currently no plastics that allow relining or repair from the same material. Although it is possible to print complete denture bases, studies have shown that the surface is too rough and therefore very susceptible to plaque adhesion.

Another interesting topic was the shade consistency of artificial teeth. It was impressively explained that Shade A3 is not always Shade A3. In an elaborate investigation, samples of the same shade were produced by different companies, and the result was that almost every sample appeared to be of a different shade to that of the shade guide. The shade is determined by the different layer thicknesses of the materials solely. There is certainly still much to be done in this respect, and unfortunately it is not possible to prescribe standards for the individual shade. In this area, like in others, the manual skills and experience of the technician are indispensable.

Under the topic of treatment without implants, various cases of and indications for all-ceramic adhesive bridges in the anterior and posterior regions were presented. These were indicated mainly for adolescent patients who were too young for implant placement or for whom orthodontic treatment was not able to adequately retain the space for an implant. Durability was reported to be very good, to the extent that many patients later decided not to have implants.

As a conclusion of the event, one could say that analogue knowledge and skills are indispensable for digital work. Finally, innovative processes and possibilities in referral networks were presented in an impressive way under the topic of digitalisation for surgery. In this respect, team spirit and practice are of enormous importance.

contact

Arbeitsgemeinschaft Dentale Technologie, Germany
www.ag-dentale-technologie.de

Congresses, courses and symposia

51st International Annual Congress of DGZI

30 September–1 October 2022
Berlin, Germany
www.dgzi-jahreskongress.de

Dental World 2022

13–15 October 2022
Budapest, Hungary
www.dentalworld.hu

ICOI World Congress 2022

3–5 November 2022
Las Vegas, USA
www.icoi.org

IDS – International Dental Show 2023

14–18 March 2023
Cologne, Germany
www.ids-cologne.de

implants
international magazine of oral implantology

Imprint

Publisher
Torsten R. Oemus
oemus@oemus-media.de

CEO
Ingolf Döbbecke
doebbecke@oemus-media.de

Member of the Board
Lutz V. Hiller
hiller@oemus-media.de

Chairman Science & BD
Jürgen Isbaner
isbaner@oemus-media.de

Chief Editorial Manager
Dr Torsten Hartmann
(V. i. S. d. P.)
hartmann@dentalnet.de

Editorial Council
Dr Rolf Vollmer
info.vollmer@t-online.de

Dr Georg Bach
doc.bach@t-online.de

Dr Suheil Boutros
SMBoutros@aol.com

Editorial Management
Janine Conzato
j.conzato@oemus-media.de

Executive Producer
Gernot Meyer
meyer@oemus-media.de

Product Manager
Timo Krause
t.krause@oemus-media.de

Art Director
Alexander Jahn
a.jahn@oemus-media.de

Designer
Fanny Haller, Pia Krah, Sarah Schröter
grafik@oemus-media.de

Customer Service
Marius Mezger
m.mezger@oemus-media.de

Published by
OEMUS MEDIA AG
Holbeinstraße 29
04229 Leipzig, Germany
Tel.: +49 341 48474-0
Fax: +49 341 48474-290
kontakt@oemus-media.de

Printed by
Silber Druck oHG
Otto-Hahn-Straße 25
34253 Lohfelden, Germany

implants **international magazine of** oral implantology is published in cooperation with the German Association of Dental Implantology (DGZI).

DGZI
DGZI Central Office
Paulusstraße 1
40237 Düsseldorf, Germany
Tel.: +49 211 16970-77
Fax: +49 211 16970-66
office@dgzi-info.de

www.dgzi.de
www.oemus.com
www.implants.de

PERFECT MATCH

MIS CONICAL CONNECTION. **MAKE IT SIMPLE**

MIS conical connection feature a 12-degree friction fit which ensures a secure seal and minimal micro-movements. Visit MIS Blog to get tips from experienced, world-renowned implant specialists on optimizing working with conical connection implants and restorative components: www.mis-implants.com/blog

CAN'T BUY ME LOVE

The CleanImplant Trusted Quality seal* is not for sale. It must be earned.

* These implant systems were awarded the CleanImplant „Trusted Quality" seal after an unbiased and peer-reviewed quality assessment.

- Receive quality information about your implant in use.
- Provide more safety for your patients and avoid negligence claims.
- Win new patients as a CleanImplant Certified Dentist.
- Find out more. Join in and support the charitable initiative.

More information about this non-profit initiative:
www.cleanimplant.com/dentists

CLEAN IMPLANT FOUNDATION