Glidewell Laboratories presents Hahn Tapered Implant System

Glidewell Laboratories, one of the largest dental laboratories in the US and the manufacturer of industry-leading restorative materials and cutting-edge implant technologies, is showcasing its new Hahn Tapered Implant System at the 2015 ICOI World Congress in Berlin in Germany. Developed in collaboration with Dr Jack Hahn, creator of the original tapered implant, the system was designed for general dentists by combining clinically proven features with contemporary innovations.

Since its launch at major conferences in the US this year, such as the Chicago Dental Society Midwinter Meeting, sales have increased significantly. “At ICOI, Glidewell will be introducing the implant system to the European market,” said Brian Banton, Vice President of International Sales. “ICOI is an ideal place for us to present the new implant system to an international audience. Being a world congress, it allows us to reach customers from many different areas, particularly from the Middle East and Asia.”

In order to expand patient access to implant therapy and to make implant therapy simpler, safer and more predictable, Hahn designed this system for both general practitioners and specialists. The tapered implants allow for swift insertion and precise control during placement, as well as increase the likelihood of achieving primary stability.

“Benefitting from Dr Hahn’s 40 years of experience, we have been able to develop a high-quality implant system that delivers premium results for a very cost-effective price. The implants are able to utilise an already existing surgical component, which allows dentists to switch to the Hahn Implant with a minimal amount of change,” Banton explained. “To date, we have also seen a 100 per cent success rate with Hahn Tapered Implants,” he added.

The implant system has been granted approval for the European market and is available in five different diameters, from 3 to 7 mm. For more information, go to www.hahn-implant.com or visit Booth 18 at the ICOI World Congress.

Glidewell Laboratories, based in Newport Beach in California in the US, is an industry-leading provider of affordable, high-quality dental laboratory products and services to dental professionals worldwide. Established in 1970 by certified dental technician Jim Glidewell, the company offers a wide range of crown and bridge, removable and implant restorations. The company’s CAD/CAM processing capabilities are recognised as being among the most advanced in the industry, and enable it to manufacture award-winning restorative materials and proven implant systems.
Minimally invasive sinus lift with iRaise
A case report. By Prof. Gabi Chaushu, Israel

Introduction
Implant placement in the atrophic posterior maxilla is a challenge. Bone augmentation (sinus floor elevation) is very often indicated. When the subantral residual bone height is very limited, open sinus lift surgery or lateral window Caldwell-Luc antrostomy is the conventional therapy used by most dentists. This is a traumatic invasive surgery with several postoperative complications for the patient and long term recovery.

Chen was the first to introduce a hydraulic sinus lift technique, during which the surgeon lifts the Schneiderian membrane from the sinus floor using the hand-piece and by spraying a liquid. The newly formed space is filled with bone grafting material and followed by implant placement.

The present case will demonstrate a novel approach to the hydraulic sinus lift technique utilizing the iRaise implant system (Maxilient). The implant design includes an L-form internal channel leading to the apical portion of the implant, which allows for saline and bone grafting material to be injected into the sinus cavity. A sterile 0.9% NaCl solution is injected through the implant’s internal channel in order to detach the Schneiderian membrane from the sinus floor. Aspiration of the saline is then followed by injection of bone grafting material (in gel form) through the same implant channel, thus filling the space between the sinus floor and the Schneiderian membrane.

In the last step, the entire implant body is placed into the augmented bone. The hydraulic lift of the sinus membrane is performed through the alveolar crest. Once the implant has been fully inserted, the internal channel is closed by the bone and there is no communication with the implant prosthetic platform, preventing penetration of bacteria from the oral cavity to the bone graft after implant placement.

Case presentation
A 40-year-old healthy female patient presented to the dental office. Clinical and radiographic examination revealed that tooth #15 was missing (Fig. 1). The residual alveolar ridge height was 5 mm. The treatment plan included placement of an endosseous implant followed by an implant-re-tained crown. In order to be able to realize this plan, a sinus augmentation was required.

The iRaise implant was used in this case, which allowed placing of the implant and hydraulic elevation of the sinus membrane simultaneously. Prior to the surgery, 1,000 mg amoxicillin was prescribed as a prophylactic treatment and a full-thickness mucoperiosteal flap was raised.

The exact point of implant placement was marked in region #15. Special drills were used to engage the cortical bone of the sinus floor. A diamond bur was then used to cross the cortical bone. The use of a diamond bur prevents rupture of the Schneiderian membrane. An iRaise implant of 4.2 mm in diameter and 14.5 mm in length was inserted halfway. The orifice of the internal channel reached the bone and was placed facing the buccal side. The implant connector was attached to the implant orifice, and 2 ml of NaCl was injected through the connector in order to detach the sinus membrane by equal hydraulic pressure. The Valsalva manoeuvre test was performed to confirm membrane integrity.

Aspiration of the saline followed, and a mixture of saline and blood appeared in the syringe, indicating that the Schneiderian membrane had detached and become elevated and the blood capillaries had ruptured. The iRaise system injection of 2 ml of a synthetic bone grafting material of tricalcium phosphate and hydroxyapatite in gel form (MBCP Gel, Biomatlante). The connector was removed and the implant inserted to its full length, to crest level.

A CBCT scan was taken immediately after treatment and showed a beautiful four-layer creation of air, bone, grafting material and the residual alveolar ridge (Fig. 2). The integrity of the Schneiderian membrane and a healthy sinus were also observed. The internal channel of the implant had been completely filled with the injected bone.

The surgery ended with closure of the flap by conventional suturing. The patient found the surgery easily tolerable and immediately returned to her everyday routine. No side-effects, such as swelling, pain or haematoma, were reported. Follow-up examinations at three and six months postoperatively were performed, and the periapical radiographs showed calcification, which is associated with bone formation (Figs. 3 & 4).

Discussion
The iRaise sinus lift technique is easy to perform. Two separate surgeries are combined in one short surgery to create a minimally invasive procedure that is well tolerated by the patient and allows for a quick return to normal life, as opposed to other sinus lift surgery approaches, such as the open lateral window technique, which have been shown to cause substantial side effects, such as swelling pain and haematoma, and require longer recovery. The present minimally invasive hydraulic sinus lift technique is likely to become a routine procedure in private practices and hospitals.

Editorial note: A list of references is available from the publisher.
Implant planning affects periimplant diseases

A time shift link

By Rainer Buchmann1*, Daniel Torres-Lagares2, Guillermo Machuca-Portillo2
1 University of Düsseldorf, Germany; 2 University of Seville, Spain

Implants are becoming increasingly popular with low-cost offers promoting this development. The number of customers preferring implants to customary restorations is expanding. The variety of implants, individual settings, treatment options and risks related to inflammation and bone loss following implant treatment advocate evident, comprehensible and durable solutions.

Safeguarding implant treatment commences with careful tooth removal, pre-implant treatment and implant planning respecting four key issues:
1. Early decision making to ensure implant bone support with limited number of implant placements. Sound tooth removal to protect bone loss by intrabulvelar root section.
2. Accuracy of implant diagnosis and implant placement by 3D visualization (DVT) of implant surgical access.
3. Minimal surgical involvement with short and low diameter implants while restricting augmentation to prosthetic relevant settings.
4. Decision Making

Early implant decision making comprises anatomical, functional and economic issues:

a) Anatomy: Treated severe peri-combines anatomical, functional decompensation and resorption (DVT) of implant surgery.

Planning

b) Function: Following untreated periodontal diseases or tooth removal, shifting of single tooth initiates due to myofunctional imbalance. By loss of front-canine equilibration, side shift emerges with further bite reduction as result of age and misalignment.

c) Dura: Periodontal therapy of severely compromised teeth with bone loss > 50% often results in a later date implant treatment that doubles dental efforts and bills. Economic issues should downregulate this strategy.

d) Oral comfort: Stability, oral hygiene and esthetics become fostered by timely implant placement and optimized implant prosthetics.

Clinical practice emphasizes a time-tested planning with (i) removal of severely compromised teeth, (ii) periodontal therapy securing the residual dentition, supplemented by (iii) microsurgical revision of deep intrabony pockets prior to implant placement to safeguard implantation (Figs. 3 & 4). Implant planning proceeds tentatively. A final quotation will be drawn after completion of functional relief and 3D digital evaluation of the implant bone anatomy.

Functional decompensation

Fully and partially edentulous patients frequently reveal a bite disturbance by usage (wear) with loss of front-canine equilibration and a resulting left and right grouped pedomolar and molar side shift.5 Dysfunction and habits (pressing, grinding etc.) promote further damage. In severe periodontitis, group side shift accelerates disease progression, impedes post therapy healing and weakens alveolar bone assigned for later implant placement. Early implant planning includes following key issues:

1. Inspection of the oral cavity containing maxillary and mandibular molar occlusion muscules (M. temporalis, M. masseter) and the temporomandibular joints (M. pterygoideus medialis und lateralis) with focus of tension, induration and pain pressure.

2. Osteopathic examination of craniofacial dysfunctions initiated by body statics (inclined position), (miss) posture, walk (activity) etc. should exclude somatic sources. If applicable supportive therapy. If applicable, manual osteopathic treatment to improvephysiologic function, i.e. body alignment, symmetry and support homeostasis that has been altered by somatic dysfunctions.4

3. Careful reduction of prominent protrusive contacts (front) and sliding bars during laterotrusion on the operating side.

4. Placement of a relaxation appliance in the maxilla (overbite and deep bite in the mandible) for functional decompensation with a frontal plateau allowing a front-canine equilibration and temporary relief in molars by vertical relief of 1 mm (Fig. 5).

The primary objective is the decompensation of use-related dysfunctions to achieve relief, vascularization and mineralization of the alveolar bone prior to implant placement. Subsequent realization of the

issues 1–4 ensures dispenses of the habitual use patterns after 4 to 6 weeks wearing. Due to hygiene and stabilization, the intraoral appliances are manufactured as straw splints in a dimension of 1.5 mm with extension limited to the first molars.

Digital imaging 3-D

Digitalization means information and safety. The generation of a DVT in early implant planning hinders 3 advantages:

i. Commitment: The expenses of a DVT in early implant planning hinders expenses and personal contact addresses. Regard: For the intended 3D image, always allocate the exact DVT data, details and viewer software.

ii. Cost: Partially edentulous patients and maxillary patients benefit from the digital analysis and planning advantages should be utilized by all dental health care providers, even with long-term clinical expertise even those with long-term clinical expertise.

You are not a DVT owner, oral surgeons (specialists) and diagnostic radiology clinics are appropriate contact addresses. Regard: For the intended 3D image, always allocate the exact DVT data, details and viewer software.

The expenses both of the DVT and the digital analysis and planning are subjects to private cash.

Interimplant distance

If an implant is placed adjacent to a tooth, the interdental papilla re...

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1. Sensitivity.

2. Equilibration, a group side shift implant treatment that may result in a later date implant planning.

3. Osteopathic examination of craniofacial dysfunctions initiated by body statics (inclined position), (miss) posture, walk (activity) etc. should exclude somatic sources. If applicable supportive therapy.

4. Careful reduction of prominent protrusive contacts (front) and sliding bars during laterotrusion on the operating side.

5. Placement of a relaxation appliance in the maxilla (overbite and deep bite in the mandible) for functional decompensation with a frontal plateau allowing a front-canine equilibration and temporary relief in molars by vertical relief of 1 mm (Fig. 5).

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ticipated, and short and diameter-
reduced implants are advocated to
determine implant distances
mains. If 2 implants are inserted side
by side, the exposed coronal biological
width and the papilla as result dissap-
pear, independent of the implant
type used.1 The effects of implants
with platform switching, concave abutments, micromachined neck or implant abutment micromove-
rents on stable crestal bone and soft tissues are limited to subclinical notice.1,2 The inter-
plant distances primarily follow prosthetic requirements of the
residual dentition.10 From anatomy, the present rules occur:

1. Minimal distance between single-

etooth inci. pref. 7 mm

2. In molars interimplant distances of

at least 11 mm (Fig. 8).

For appropriate implant place-

ment according to prosthetics, the

local interdental space is often inade-
quate, especially in patients with
cross bite or long-term periodontal
damage etc. Fig. 9. The clinical set-
ings implicates deficient implant
bone support, 3-D digital imaging of
alveolar bone including individual-
ized implant positioning with diam-
ter-reduced implants is allocated.
Note: Prior to surgery, calculate addi-
tional efforts, extent and expenses of
alternative augmentation, bone grafting
or autogeneous bone grafts includ-
ing pedicle flap surgery and in-
duction due to soft tissue advance-
ments.

Implant placement

Perfusion

Maintenance of vascularized im-
plant bone is indispensable to avoid furt-
ther implant damage as a result of
spongious bone tissue injury during implant surgery (early im-
plant failure).12 For those reasons, the elim-
ination, bleeding of cortical bone fol-
lowing drilling is a necessary re-
quirement for uneventful healing and
functional decompensation with for-
some tissues (Fig. 10).12 The fol-
lowing step by step procedure has been
grooven effective:

a) Utilization of keen pilot und multi-

to tap drilling (removal early, then high drilling forces and
danger of deviation from drilling
axis occur).

b) Interruption of implant bed prepa-

ration under permanent cooling with
0.9% saline.

c) Prior to implant placement, wait

until implant bed has been replen-
ished with blood.

d) Wetting of implant surface with

blood prior to implant insertion.

i) Limited rotation speed <800 rpm

during implant bed preparation, has
demonstrated a primary fixation of
implant is mandatory for all implant types (cylindrical,

root-formed etc.), bone quality and
anatomical localization. The au-

thors strongly discourage from fur-

ther “scrubbing” to avoid ongoing tu-

nishment of the implant bone inter-

face.1

Periimplant tissue (volumen)

Due to alveolar bone defects

resulting from tooth removal, peri-
odontitis or dysfunction, the condi-
tions of periimplant keratinized gin-

giva around implants are not ade-
quate.9,24 Safeguarding implant plan-
ning and surgery, the additional

stages of soft tissue surgery to enlarge periimplant gingiva should be im-
plemented into the quotation:

Mandible:

1. Alveolar and periimplant bone loss in

premolars and molars (numer-
ous).

2. Proximity to N. alveolaris.

Maxilla:

1. Close anatomical relationship to

arteries.

2. Atrophied or edentulous maxilla

following longterm appliance of

removable dentures.

Horizontal alveolar bone levels, as

result i.e. of longstanding peri-
odontitis, are compensated surgically

during implant placement to

avoid extended implanto-prosthetic
abundant susceptible for recurrent
soft tissue infection (Fig. 15). Fixed

implant prosthetic restorations of the

partially endentulous mandible are

achieved with axially screwed, incemented and unlocked crowns to

improve hygiene and avoid fur-
ther damage by cementing and peri-
implantitis. Integration in clinical
practice is successful with focus on

biology and both renuncia-

tion from mechanical dentistry and

interlocking theories.

Enlargement:

Initially, implant planning (not to

forget case models) and implant place-

ment. During implant inser-

ion into local bone, enlargement of

periimplant gingiva with a “ridge in-

cision” in 1–2 mm orally is usually ade-
quite.

In lateral augmentation in the

maxilla, periimplant enlargement is

frequently mandatory as result of

flap advancement to cover the de-

fect. During healing and prior to im-

plant exposure, vestibuloplasty/surgi-

cery with free autogeneous gingival

graft from palatine at implant site in

a separate visit (Figs. 11 & 12). In indi-

idual cases and edentulism in the

mandible, periimplant enlargement with

Edan Mojar-Mñz-Vetit-bal scraping

of free autogeneous gingival graft at

emergence profile.22

To safeguard implant placement

and protect against periimplant dis-

eases, an adequate periimplant

bone is indispensable to avoid

periimplant bone and implementation of

Perfusion during surgery. Periim-

plant bone is indispensable to avoid

periimplant disease.

Periimplantitis:

Defect depths ≤4–5 mm: Addi-

tional 0.2% CHX, ER-YAG deconti-

nuation, if applicable (dentist).

Defect depths ≥6 mm: Periimplant

periostitis, systemic antibiotics: amoxicilline

500 mg 2OT and Clont 400 mg 2OT, t.i.d for 7 days.

Together with decapitation by

occipital appliances (mentioned above), safeguarding by front-ca-

nine equilibration and removal of implanto-prosthetic restoration, the

clinical recommendation is often imple-
mented. The procedure can be easily

repeated. The recommendation to re-

moveably screws implant resta-

tions axially (only premolars and

molars) is becoming a strong re-

levance in the treatment of periim-

plant damage.

Periimplant Therapy

<table>
<thead>
<tr>
<th>Step</th>
<th>Defect (PD in mm)</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≤3 mm</td>
<td>Oral Hygiene + RIMP Cleaning</td>
</tr>
<tr>
<td>B</td>
<td>≤4.5 mm</td>
<td>CHX 0.2%, ER-YAG</td>
</tr>
<tr>
<td>C</td>
<td>≥5 mm</td>
<td>Implant Removal/Revascular Therapy</td>
</tr>
</tbody>
</table>

Diameter reduced (<4 mm), small

implants (minim) allowing track-

ing venal healing. According to their mate-

rial properties (fracture) and re-

nected implants prosthesis indica-

tions and compatibility. Minis are

limited to individual applications in

multimorph subjects with edentu-

lous mandible, enhanced risk for sur-

gery i.e. advanced diabetes mellitus or

hematopoietic diseases and hand-

icaps for oral hygiene.22

Augmentation and revision

Except for sinus floor grafting,

the number of augmentative im-

plants surgery is declining and con-

ducted to fixed reconstruction following surgery and trauma by verti-

dal distraction or individual prosthetic or esthetic settings.23 The indica-

tions for surgical augmentation during implant placement include:

a) Tooth loss in cross bite settings.

b) Lateral alveolar bone defects (pre-

molars and molars).

c) Modelling of periimplant bone in

esthetically demanding situa-

tions at incisors and canines

(emergency profile).

The authors have recently re-

ported the results of a retrospec-

tive evaluation of autogenous bone and bony-

ous bone chips and their syntheti-

cal substitutes in implant surgery in
detail.24

The progressive developments of

implant augmentation in clinical

practice implicates the necessity to

create new standards.15 To regen-

erate periimplant bone tissue, the

reductions for surgical revision of

periimplant defects. The following pro-

tocol is available (Tab. 1).12

Mucositis:

Defect depths ≤3 mm: Oral hy-

giene and implant cleaning (by

dentist).

Defect depths ≤5–6 mm: Addition-

ally 0.2% CHX, ER-YAG deconti-

nuation, if applicable (dentist).

Periimplantitis:

Advanced periimplant damage with

circumferential angular bone loss

encumbers – Defect depths ≥8 mm. Explana-

tion, surgical revision (if applica-

ble).

In these clinical settings, implant

removal with repeated insertion, aug-

mentation (where appropriate) and

prosthetic restoration following he-

aling is advocated, if the client ap-

proves the treatment. In periim-

plant damage, the benefit of rapid

implant bone healing following in-

sertion of short and diametre-re-

duced implants is obvious. In individ-

ual, strategically important implant

sites, i.e. canine implant areas in

edentulism, revision is emph-

ized with the following surgical

protocol (Tab. 2).

– Removal of implants.

– Periodontal surgery.

– Stimulation of bleeding plus au-


togeneous bone grafts for defect fill

and reconstruction.

– Systemic antibiotics.

Summary

The prevention of periimplant diseases is based on a comprehen-
sive analysis, evaluation and plan-
ing prior to implant placement. Se-
cutaneous, nonhealing retention from perio-
dental disease, on time re-

moval of compromised teeth and

functional decompensation with fo-

cus on front-canine equilibration are the key issues during implant

planning. Prior to surgery, DVT diag-

nostic evaluation is required if prox-

imity to anatomical structures is an-
ticipated, and short and diameter-

reduced implants are advocated to
determine implant distances

and safeguard implant treatment.

Implant placement succeeds with minimal mechanical loading of im-

plant bone and implementation of perfusion during surgery. Periim-

plant enlargement is scheduled dur-

ing implant healing, either by free

implant surface with pedicle flap. Pre-

molar and molar implant restora-

tions are screwed fixated axially to

axially to avoid movement in case of periimplant damage. The conceted action

degradation of inflammation, stabiliz-

ing regeneration function while minimiz-

ing surgery secures implant success, pre-

vents periimplant diseases and pro-

mates the reputation of dental

practice providers in the commu-

ity.12

The authors appreciate the encour-

agement and support of Dr Gerhard Kochran, Düsseldorf, in periimplant care.

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sue of implants, international maga-

zine of oral implantology.

“Safeguarding implant treatment commences with careful tooth removal, pre-implant treatment and implant planning.”

Table 1: Key treatment issues to combat periimplant damage, to a large extent by early and careful implant planning.

Table 2: Surgical revision of advanced periimplant bone defects is limited to single clinical set-

cations due to the extent of surgery and additional patient arguments.