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A CLINICAL CASE REPORT

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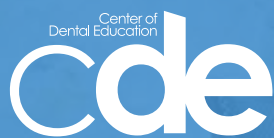
What is Dental Diaries?

Practising dentistry at the highest standards today is a challenge. As dentists we have to stay on top of a rapidly changing science, decide among growing technological innovations and new products and serve patients with ever-changing needs and expectations. All these, while striving to maintain work-life balance in difficult times for all, can be tough, and it is no surprise that dentistry is among the most stressful professions.

At Dental Diaries, we aspire to support dentists of Hong Kong and Macau on every step. Every quarter, our editorial team will gather the most up-to-date news in the dental field, short scientific articles and case studies, together with lifestyle information, suggestions and ideas to balance a busy working life with some fulfilling personal time. We also want to foster a network, by sharing messages, news and classified ads for the local dental community.

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SPEAKER

Dr. Cheung Chi Hang, Alex

VENUE

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Lecture

07
AUG 2026

ITI Study Club: ANCHOR

Understanding the Principle of Management of Peri-implant
Complications, from Resective to Regeneration:
Cases Sharing Session & ITI Study Club Game

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Dr. Ho King Lun, Dominic

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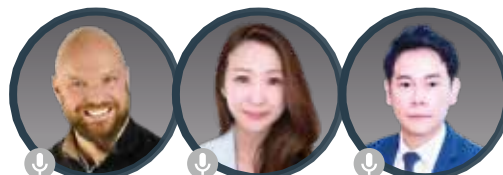
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Dr. Irene Lau
Dr. Stanley Liu

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Hands-on:
T.O.P Dental by Family Smile

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Lecture

01
SEP 2026

ITI Study Club: Macau Guided Pathways
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Practical Considerations

Topic 2: Sinus Lifting Techniques and Sinus Healing

SPEAKER

Dr. Ho King Lun, Dominic
Dr. Bosco Hui

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Lecture

09
SEP 2026

ITI Study Club: Synergy
AI applications in implant dentistry:
How close are we to clinical use?

SPEAKER

Prof. Hung Kuo Feng

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SEP 2026

ITI Study Club: ANCHOR Do's and Don'ts in Guided Implant Surgery - Part I Lecture

SPEAKER

Dr. Ho King Lun, Dominic

VENUE

Center of Dental Education



Lecture

Live Surgery

Hands-on

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SEP 2026

Full Digital Workflow for Single Tooth and Partial Cases Using Markerless Navigation and Chairside Nano Ceramic 3D Printing for Immediate Restorations

SPEAKER

Dr. Chow Kwok Fai, James

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SEP 2026

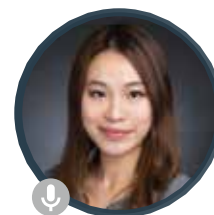
ITI Study Club: WIN — Woman Implantology Network Periodontal & Peri-Implant Regeneration Part 2 — ITI Study Club Night with bonus Milk Tea Tasting with a Brewmaster

SPEAKER

Dr. Chan Man Ha, Anita

VENUE

Eaton Hotel



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OCT 2026

ITI Study Club: ANCHOR Do's and Don'ts in Guided Implant Surgery - Part II Hands on: Digital implant planning and Static Guided Surgery

SPEAKER

Dr. Ho King Lun, Dominic

VENUE

Center of Dental Education



Lecture

Hands-on

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OCT 2026

ITI Study Club: Brain-Guided The Sealing Socket Abutment Technique for Immediate Implants

SPEAKER

Prof. Melissa Fok,
Dr. Wong Hok Ling, Janet
Dr. Tse Ming Nga, Judy

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Education



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Live Surgery

Hands-on

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26-28
OCT 2026

CyberSmile Inaugural Leaders Course - The Future of Implant Surgery In Your Hands

SPEAKER

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Dr. Chow Kwok Fai, James
Mr. Hailong Bai

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CyberSmile



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11
NOV 2026

ITI Study Club: WIN Periodontal and Peri-implant Regeneration Part 2

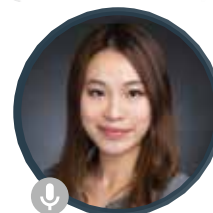
SPEAKER

Dr. Chan Man Ha, Anita

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NOV 2026

ITI Study Club: Brain-Guided Free Gingival Graft (FGG) Hands-On Workshop with Lecture: Techniques for Predictable Soft Tissue Augmentation

SPEAKER

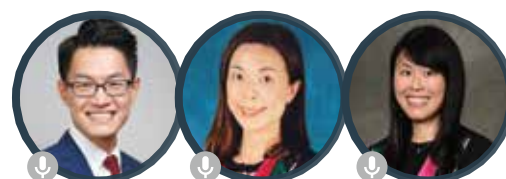
Dr. Chan Yat Him, Dave
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14-15
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Implant Management in the Atrophic Posterior Maxillary Region. Pterygoid vs Sinus Lift with Dynamic Navigation

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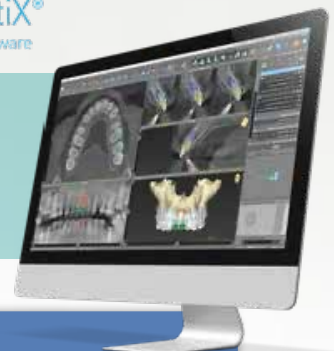
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Current Workflow in Digital Dental Implantology

Prosthetically Driven Planning, Illustrated by
a Full-Arch Mandibular Case



Dr. Tommy Fung

Introduction

Implant treatment has always depended on placing the fixture according to the prosthetic design, so that both function and biological health are preserved. What has changed is our ability to determine that position before surgery rather than during it. The convergence of cone-beam computed tomography (CBCT), intraoral scanning, and dedicated planning software has moved implant dentistry from a surgery-driven discipline to a genuinely restoration-driven one (Joda et al., 2026). This article outlines how digital planning is performed and how it builds upon the fundamental skills of the conventional workflow, illustrated through a complex full-arch mandibular rehabilitation.

The Conventional Workflow and Its Limits

Conventional planning combines clinical examination, mounted study casts and a diagnostic wax-up with two- and three-dimensional radiography. Each element is informative in isolation, but relies on the clinician to integrate them mentally. Panoramic and periapical films convey only the vertical and mesio-distal dimensions. Three-dimensional CBCT adds detail on the morphology of the available bone and allows localisation of critical anatomical landmarks. The anatomical plan and the prosthetic plan nonetheless remain separate, and are reconciled only at the moment of surgery. In practice this means the final implant position is often dictated intraoperatively by the available bone, with the planned prosthetic set-up effectively hidden from the surgeon.

From a straightforward single-tooth site with generous bone to a cross-arch reconstruction, this constraint leaves the delivery of a long-lasting restoration largely to chance. The limitations become most apparent where bone is scarce, where multiple implants must be positioned in relation to one another and to a shared prosthesis, or where screw-access channels and abutment angulation must be controlled across a full arch. These are precisely the cases in which an intraoperative decision cannot be reliably undone.

What Digital Planning Adds

Digital planning integrates the anatomical and prosthetic datasets into a single environment before any incision is made. Volumetric CBCT data, stored in Digital Imaging and Communications in Medicine (DICOM) format, is registered against an optical surface scan in stereolithography (STL) format, producing a virtual patient in which bone volume, nerve position, soft-tissue contour, and tooth position are visible simultaneously (Kernen et al., 2020). A digital wax-up then defines the intended restoration, and implant positions are planned backwards from it, so that the prosthetic result governs the surgical plan rather than the reverse (Joda et al., 2026).

Three practical gains follow. First, feasibility is established in advance: whether the available bone can accept the required implants and, if not, what grafting or alternative configuration is needed. Second, prosthetic detail that conventionally emerges only at the impression stage, including abutment angulation, screw-access emergence, and inter-implant distribution, is verified while it can still be changed. Third, the plan can be transferred to surgery through a static surgical guide, and the fidelity of that transfer is well documented: pooled randomised trial data show fully guided placement to be significantly more accurate than freehand, with a mean coronal deviation 1.18 mm smaller (95% CI [-2.14, -0.22]; $p = .01$) (Gargallo-Albiol et al., 2020). Accuracy is not automatic, however. Registration quality, guide support and guide stability all influence the outcome, with tooth-supported guides generally outperforming mucosa- and bone-supported designs (Chackartchi et al., 2022).

Case Illustration

The following case demonstrates the digital implant planning workflow, augmented by conventional impression technique, in a situation where anatomical constraint and prosthetic demand had to be resolved simultaneously. The implant planning software coDiagnostiX® (Dental Wings, Basel, Switzerland) was used throughout. It was essential in executing the virtual case set-up and prosthetic design, followed by implant positioning and surgical guide construction.



Figure 1 — A 72-year-old lady presented with difficulty eating. Teeth 32 to 43 showed grade III mobility and the two adjacent implants were failing. Eight relatively stable maxillary teeth remained, and her medical history was unremarkable. The patient requested a fixed prosthetic replacement and elected to address the mandibular arch first.



Figure 2 — Three-dimensional imaging revealed the extent of bone loss around the mobile anterior teeth and failing implants, together with limited residual bone volume posteriorly. Cross-sectional views clarified ridge width and the course of the inferior alveolar canal, information unobtainable from two-dimensional films. The extensively resorbed ridge, together with the thick buccal cheek and strong tongue, precluded intraoral scanning. A conventional alginate impression was therefore taken to capture the edentulous ridge accurately. A stone model was poured and scanned, and the resulting STL file was superimposed on the patient's CBCT within the coDiagnostiX® environment.

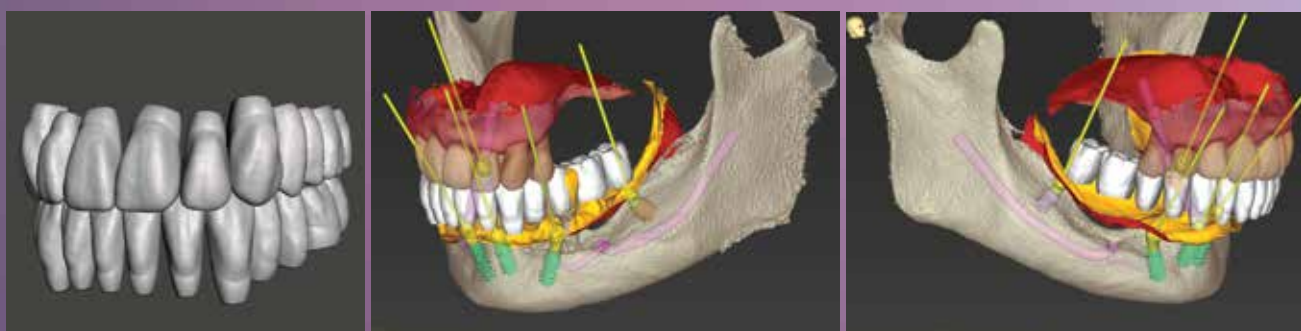


Figure 3 — A digital wax-up was constructed in Meshmixer (Autodesk, California, USA). This step establishes the future prosthesis position, allowing implant placement to be designed accordingly. The wax-up was registered in coDiagnostiX®, and implant positions were then planned virtually. Angled screw-retained abutments were selected, with their rotation planned so that the screw access holes emerged on the occlusal table.



Figure 4 — The surgical guide was designed and 3D-printed by the dental laboratory. Surgery was performed in two stages. Posterior implants were placed first to allow early osseointegration; short implants (Straumann BLX, diameter 5.5 mm × length 6 mm) were selected because of the limited vertical bone available. Lower anterior clearance, bone reduction and subsequent implant placement were carried out two months later as the second stage.



Figure 5 — Immediate loading of the temporary prosthesis was performed one day after surgery, and the patient was able to eat with it immediately. Five Straumann BLX implants were placed: three inter-foraminal and two short implants at the second molar sites to extend distal support. The BLX design was selected to favour insertion torque and support immediate loading. The static guide transferred this plan into clinical reality.



Figure 6 — The screw-retained definitive prosthesis (milled zirconia on a titanium bar) was fitted five months after surgery. At 18 months the reconstruction remained stable with good function. The patient's medical condition currently precludes maxillary surgery, and she continues under half-yearly review and hygiene maintenance.

Conclusion

Digital implant planning does not replace clinical judgement, but relocates it to a point where it can still be exercised freely and safely. By integrating anatomy and prosthesis into a single dataset and resolving the plan before surgery, it converts intraoperative improvisation into preoperative decision-making. In cases such as the one presented, where bone was limited, implant number and distribution were prosthetically constrained, and immediate loading depended on achieving planned primary stability, that shift is the difference between a predictable result and a hopeful one.

This article was written by Dr. Tommy Fung, with AI used for grammatical cross-checking and sentence structuring. Dr. Fung advocates the digital implant workflow (planning and execution) to enhance clinical accuracy and safety.

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1. Joda T, et al. Digital Implant Dentistry: The Past, the Present, the Future. *Journal of Periodontal Research*. 2026.
2. Kernen F, Kramer J, Wanner L, Wismeijer D, Nelson K, Flügge T. A review of virtual planning software for guided implant surgery. *BMC Oral Health*. 2020;20:251.
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4. Chackartchi T, et al. Reducing errors in guided implant surgery to optimize treatment outcomes. *Periodontology 2000*. 2022;90(1).

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Yet Hong Kong's dental ecosystem is unique: Placed firmly at the crossroads between East and West, can be the recipient of global innovation, capital and talent, fostering the cutting edge of modern technology and care. Combining the patient-centred philosophy with latest digital technology tools and a robust evidence-based framework of care, Hong Kong can become a global hub into the future of dentistry and training of dental professionals!

Dentistry in Transition

Globally, dentistry is shifting from artisanal craftsmanship to data-driven precision, from manual skill to augmented intelligence, and from experience-dependent outcomes to predictable, standardized workflows. Digital technologies — AI diagnostics, navigation, robotics, CAD/CAM, and 3D printing — are redefining clinical practice. At the same time, new technologies place a significant burden on currently practising dentists worldwide, who urgently need structured and efficient training to implement the new workflows into their daily practice and benefit patients. Hong Kong, a city known for efficiency and internationalism, can be the world's new classroom in digital dental care!



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Cutting Edge Technology

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Immersive Learning

Offering clinicians end-to-end digital workflow training, from multimodal data acquisition to robotic-assisted surgery and CAD/CAM restoration.

Global Mission

Elevating digital dentistry standards across Asia, Europe, the Middle East, and the Americas.

Catalyst for Regional and Global Collaboration

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📍 Mainland China

With rapid adoption of intraoral scanning, CAD/CAM, 3D printing, and robotics, China's ecosystem is scaling at unmatched speed. CyberSmile provides a neutral, international platform for joint research, workflow validation, and cross-border training.

📍 APAC Region

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📍 Global Industry Leaders

CyberSmile collaborates with implant manufacturers, navigation and robotics companies, 3D printing innovators, and digital workflow platforms to validate and integrate technologies into seamless clinical experiences.





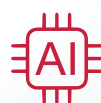
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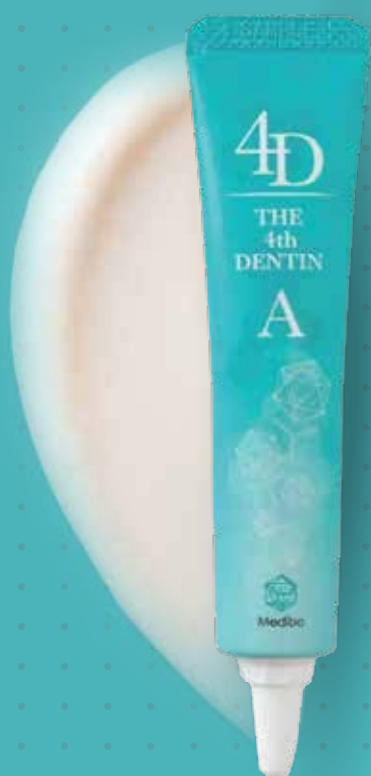
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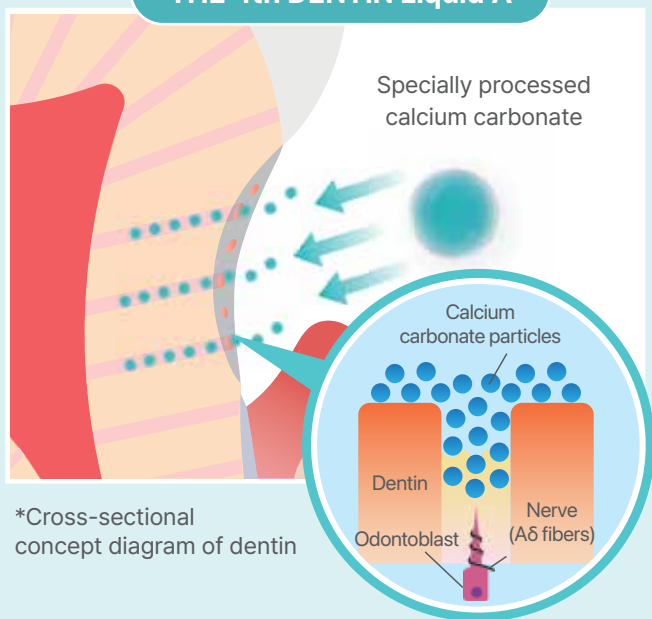


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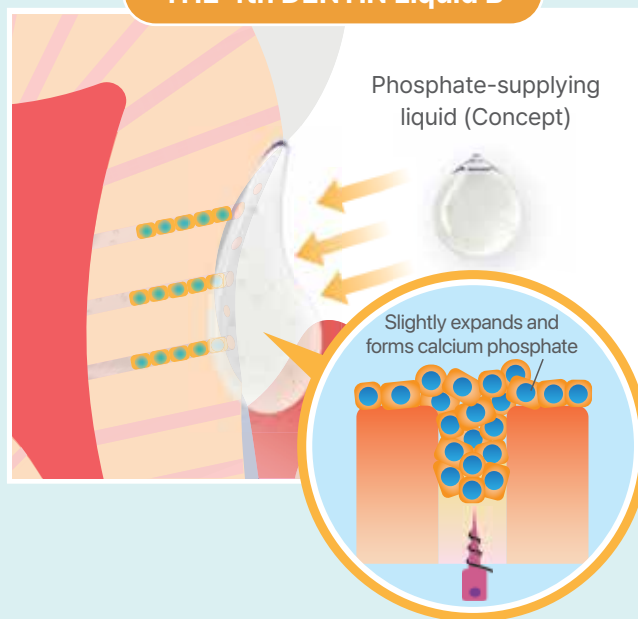
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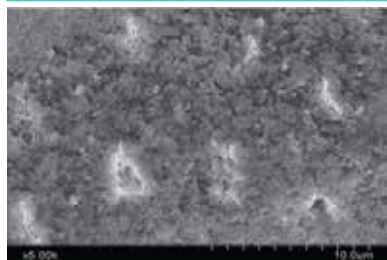


Retention Even After Brushing

Before Application



After 3 Applications



After Brushing



Brushing: 20 times
Rinsing: 30 seconds

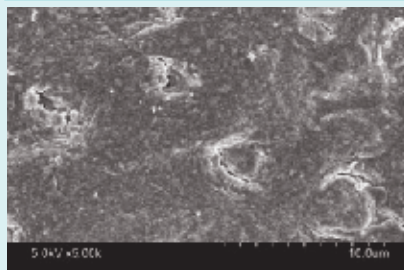
Measurement condition: Bovine dentin was used.

* One back-and-forth stroke was counted as one brushing cycle. The water temperature during rinsing was set at 37°C.

* In clinical use, results may vary depending on the time elapsed after application and oral conditions.

POINT

After Ultrasonic Cleaning



Ultrasonic Cleaning: 2 minutes

(Photographed by the Department of Oral Pathology, Osaka Dental University)

POINT

4D gradually begins to calcify deep inside the dentinal tubules. Repeated application allows it to seal densely into deeper areas, making it difficult to remove.

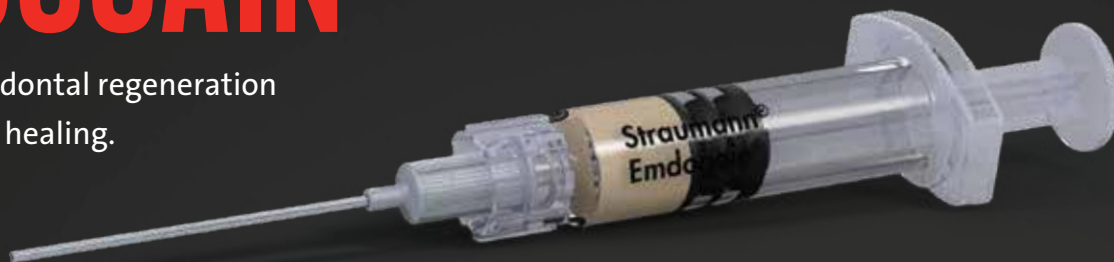
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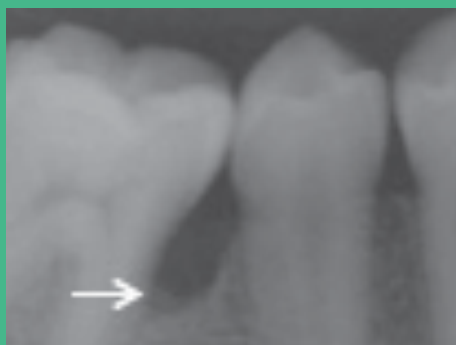
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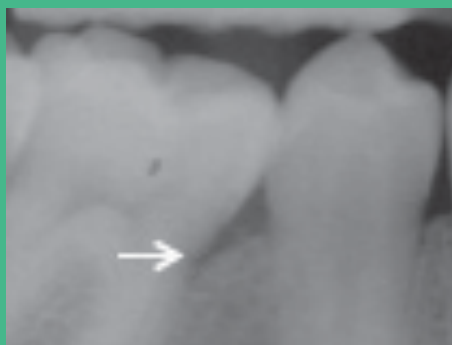
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20 years after treatment with
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- ITI study club director, Hong Kong session.

RECOMMENDATIONS FROM THE EXPERT

“Multiple studies suggested that application of Emdogain into intrabony defects enhanced CAL gain. (1) Studies also showed that application of Emdogain in mandibular class II furcation could enhance periodontal regeneration. (1) And because Emdogain can prevent ingrowth of epithelial cells, there is no need to apply physical barrier (i.e. membrane) when Emdogain is applied on defect. (1)

In recent years, Professor Zucchelli demonstrated the use of connective tissue graft wall on periodontal regeneration surgery to improve the wound stability of defect itself, this is particularly important in cases with inadequacy of soft tissue at baseline. (2, 3)

This surgery aimed to improve the sub class of furcation, if furcation cannot be fully closed after surgery. By improving sub class itself (subclass C to A), prognosis of the tooth can be successfully improved. (4)

PATIENT'S CHIEF COMPLAINT

“I was told that I have periodontitis by GDP, I was also told that my lower molar is in very bad condition. I wanted to try every means to save the tooth, because I don't want another implant, I am having peri-implantitis on my implant (#11) at the moment.”

PATIENT INFORMATION

Age	59
Site	#36 furcation
Health status	Healthy
Smile line	n/a
Local situation	36mid buccal 11mm, furcation involvement class II sub class C
Periodontal diagnosis	Stage 3 Grade C Generalized Periodontitis
Anatomical defect	Bony angular defect on mesial side of distal root
Complicating factors	Furcation involvement, soft tissue recession so that furcation exposed.

INITIAL SITUATION



11mm pocket depth at 36 mid B.



Angular defect on mesial side of distal root up to apex of the root.

TREATMENT PLANNING

- Non surgical periodontal therapy, with oral hygiene instructions
- Root canal treatment by referring dentist
- Periodontal Regeneration on 36mid B, with emdogain and Bio-Oss collagen, together with connective tissue graft and coronal advancement flap.
- Periodontal maintenance every 4 months.

SURGICAL & PROSTHETIC PROCEDURES



Flap design.



Flap preparation, tension free after periosteal releasing incision.



Carefully clean up the furcation and angular defect.



After defect cleaned up. Also de-epithelized the papilla region.



Emdogain application after PrefGel conditioning.



Insertion of Bio oss collagen.



FGG was taken from palate, and de-epithelization was performed.



Connective tissue graft secured as buccal ctg wall covering the furcation opening area.

TREATMENT OUTCOME



Immediate post op photo.



Immediate post op radiograph.



Control after six months, after temporary splint removed.



Radiographic control after six months.

PATIENT'S EXPERIENCE

"I am thankful that the tooth could be saved. Glad that the surgery paid off".



Before



After six months

References

1. Sculean A, Schwarz F, Becker J, Brex M. The application of an enamel matrix protein derivative (Emdogain) in regenerative periodontal therapy: a review. *Med Princ Pract.* 2007;16(3):167-80. doi: 10.1159/000100386. PMID: 17409750.
2. Zucchelli G, Mazzotti C, Tirone F, Mele M, Bellone P, Mounssif I. The connective tissue graft wall technique and enamel matrix derivative to improve root coverage and clinical attachment levels in Miller Class IV gingival recession. *Int J Periodontics Restorative Dent.* 2014 Sep-Oct;34(5):601-9. doi: 10.11607/prd.1978. PMID: 25171030.
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4. Tonetti MS, Christiansen AL, Cortellini P. Vertical subclassification predicts survival of molars with class II furcation involvement during supportive periodontal care. *J Clin Periodontol.* 2017 Nov;44(11):1140-1144. doi: 10.1111/jcpe.12789. Epub 2017 Sep 22. PMID: 28771794.

STRAUMANN® EMDOGAIN® CLINICAL CASE 2

EMDOGAIN CASE CONTEST APAC REGION



Winners From Hong Kong!



THE EXPERT



Dr. Ho King Lun, Dominic

Hong Kong

- Specialist in Periodontology, BDS (HK), MDS (Perio) (HK), AdvDipPeriodont (HK), MRD RCSEd (Perio), FHKAM (Dental Surgery), FCDSHK (Periodontology), FDS RCSEd, FDS RCPS (Glasg), FDS RSD Eng, PhD
- Honorary Clinical Associate Professor at Periodontology and Implant Dentistry, Faculty of Dentistry, University of Hong Kong.
- Clinical work with Straumann Emdogain® since 2007.
- Director of Specialty Clinic in Periodontology.
- ITI Fellow.

RECOMMENDATIONS FROM THE EXPERT

“

Repairing deep V-shape gingival recession is challenging. Double papilla technique allows closure of the pedicles from both sides of the recession defect and forms a buccal flap to cover the exposed root and connective tissue graft. Considering the root prominence is out of the alveolar ridge housing after orthodontic treatment, application of Straumann® Emdogain® was demonstrated to be beneficial on stability of the outcome, improved percentage of complete root coverage and degree of root coverage.

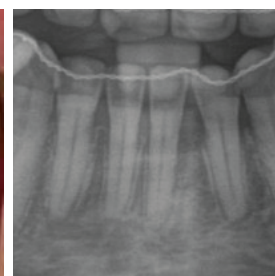
PATIENT'S CHIEF COMPLAINT

“The lower incisor has gradually become longer several years after I finished my braces. I am very unsatisfied with significant uneven gumline. I felt tooth sensitive and gum pain when brushing.”

PATIENT INFORMATION

Age	39
Site	31
Health status	Healthy
Smile line	N/A
Local situation	Localised mid-buccal gingival recession up to 5mm on 31
Periodontal diagnosis	Gingival Recession Type 2
Anatomical defect	Gingival recession up to mucogingival junction with limited Keratinized mucosa
Complicating factors	Root out of the alveolar ridge housing

INITIAL SITUATION



TREATMENT PLANNING

- Cause-related periodontal treatment with oral hygiene instruction and information.
- Root coverage surgery with coronal advancement flap with double papilla technique, connective tissue graft and Straumann® Emdogain®.
- Periodontal maintenance every 3-6 months.

Root coverage surgery with coronal advancement flap with double papilla technique, connective tissue graft and Straumann® Emdogain®

SURGICAL & PROSTHETIC PROCEDURES



Incision and flap elevation with 3-sided flap design



Suture of both sides of pedicles with 6/0 Seralene suture.



Flap elevation with partial-full-partial approach. Root surface cleaning when ultrasonic instrumentation.



Root conditioning with 20% EDTA and application of Straumann® Emdogain®.



Fixation of connective tissue graft.



Flap position with coronally advanced flap.

TREATMENT OUTCOME



PATIENT'S EXPERIENCE

"I am very satisfied with the result of the root coverage. The healing after the root coverage is uneventful and the discomfort is minimum. It relieved my hypersensitivity and improve the comfort of brushing the affected area".



Before



After 3 months

Chairside Fabrication of a Zirconia Crown with IPS e.max ZirCAD Prime in a Single Visit



Dr. Michael Weyhrauch

Introduction

A 71-year-old patient presented with an extensive restoration on tooth 46 and secondary caries. Due to the insufficient restoration, treatment with a full crown was indicated. Ivoclar's new zirconia material IPS e.max ZirCAD Prime was selected for the present case, as it allows the chairside fabrication of restorations and thus offers an innovative alternative to conventional procedures. The aim was to provide the patient with a full contour zirconia crown in a single visit lasting about 90 minutes.

Clinical Procedure

"Due to the recurrent cusp fracture and the presence of an extensive restoration (**Fig. 1**), I decided to first restore tooth 46 with a new core build-up and then prepare it for a single crown."

The treatment plan for tooth 46 involved the placement of a chairside-fabricated IPS e.max ZirCAD Prime crown. After the initial diagnostic scan and digital isolation of the preparation area, the tooth was excavated and reconstructed with a new core build-up using MultiCore (Ivoclar). In addition, Delite Premium MTA (Kaniedenta) was applied to cover the pulp-near dentin. The tooth preparation was carried out with a light chamfer finish line, followed by gingival retraction using the double-cord technique.

After the removal of the retraction cords, a detailed scan of the prepared area was performed (**Figs 2, 3**).

In the next step, the crown was designed using CEREC software (version 5.3.3) and milled with CEREC Primemill (Dentsply Sirona) in approximately 14 minutes. This was followed by finishing of the zirconia restoration (**Figs 4 – 7**). The connector was removed using a carbide bur from a CAD/CAM chairside finishing instrument set and subsequently smoothed with a rubber polisher from the same system.

The crown was then speed-sintered in the Programat CS6 (Ivoclar) in just 15 minutes. This was followed by the polishing of the occlusal contact points and the application of the glazing material IPS e.max CAD Crystall./ Glaze Paste/ FLUO (Ivoclar) and glaze firing in the Programat CS6.

Alternatively, due to the multilayered structure of the block and the resulting natural shade and translucency gradient, the crown can be polished to a high gloss before and after sintering using the polishing set Ivoclar specifically developed for this purpose, thereby eliminating the need for glaze firing. In the present case, glaze firing was selected because sufficient time was available.

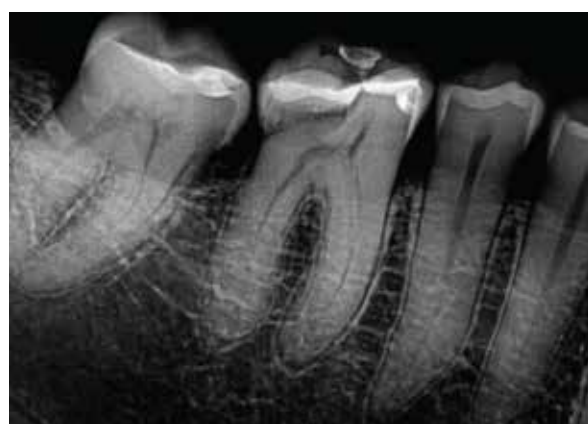


Fig. 1: Initial intraoral image of region 46.



Fig. 2: Lower jaw scan restoration planning.



Fig. 3: Detailed view of the scan of tooth 46 and preparation margins.



Fig. 4: Instruments used for finishing the CAD/CAM chairside restoration.



Fig. 5: Smoothing the connector area.



Fig. 6: Speed sintering in Programat CS6.



Fig. 7: Glazing to achieve a natural esthetic appearance.

In a subsequent step, the inner surfaces of the crown were blasted using 50 μm alumina at a pressure of 1.5 bar. After try-in and verification of the preparation margins, proximal contacts and occlusion, the crown was cleaned with Ivoclean and adhesively cemented with SpeedCem Plus (Ivoclar). Finally, any cement residue was removed, and the occlusion checked once again.

Clinical Result

At the follow-up appointment one week after the placement, the final restoration was thoroughly evaluated. The patient was extremely satisfied with the harmonious, esthetic integration of the restoration in the dental arch as well as with the natural shade effect. She found the restoration comfortable to wear and easy to chew with. (Figs 9, 10).

Conclusion

Dentists already using a chairside system will be able to prepare zirconia crowns with IPS e.max ZirCAD Prime (Ivoclar) for their patients in just one session. The material is characterized by high mechanical strength (flexural strength of up to 1,100 MPa) and enables tooth-preserving preparation due to minimal wall thicknesses starting at 0.8 mm. The different layers incorporated in the block create a natural esthetic appearance as the crown shows a harmonious natural progression of shade and translucency. This ensures uncomplicated processing, reliable strength, and an esthetically pleasing result in your dental practice.

About the Author

Dr. Michael Weyhrauch began his professional career as a dental technician at the Teuber dental laboratory in Darmstadt before studying dentistry at the Johannes Gutenberg University in Mainz, where he worked as a research assistant in the prosthetics department and published numerous specialist articles, particularly on dental ceramics and shade selection. Since 2016, he has been running his own dental practice in Mühlthal together with his wife.

Contact

Address: Zahnarztpraxis am Fliednerplatz, Fliednerweg 8, 64367 Mühlthal, Germany



Fig. 8: Instruments for the cementation of a zirconia crown – prepared for clinical use on site.



Fig. 9: Harmonious integration in the posterior region.



Fig. 10: Lateral view with open jaw.



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Universal cleaning paste for all restorative materials.



Effective:

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Effectively removes saliva contamination to ensure a strong, durable bond between the adhesive luting material and the restoration.



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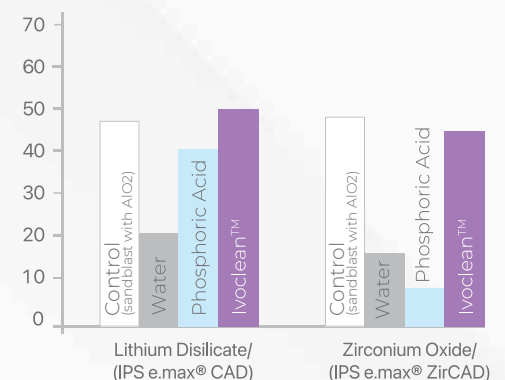
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R&D Ivoclar Vivadent AG, Schaan, Liechtenstein, 2011



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TETRIC® EVOCERAM ALIGNER



15%
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Ensure long-lasting, stable, abrasion-resistant restorations throughout aligner treatment

E-Module	Flexural Strength	Abrasion Resistance
10 GPa	120 Mpa	268 μ m

76%
filler content
by weight



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Composite Indirect Restoration with Proximal Box Elevation Technique

SR Nexco the material of choice for an esthetic restoration



Asst. Prof. Burcu Gözetici Çil

Substructure Made of

The restoration need for large posterior defects with proximal cavity margins extending below the gingiva is a very common clinical situation. Indirect restorations are recommended for such defects to prevent polymerization shrinkage related problems and promote reinforcement of teeth compromised with caries or fractures. PBE combined with composite build-up and immediate dentin sealing (IDS) can be proposed for a simple and clear indirect restoration procedure. With composite build-up, it is possible to block the undercuts without excessive hard tissue removal and a dry working field can be obtained by proximal box elevation (PBE) for proper luting of the indirect restorations. Since the manufacturing of indirect resin composite restorations is less complicated and the risk of wear of antagonist enamel is lower compared to ceramics, SR Nexco is the material of choice in my clinical practice routine, specifically for teeth with partial cuspal loss and natural antagonist.

Additional Information About the Material

Partial indirect resin composite restoration made of SR Nexco material performed well in load-bearing area without any bulk fracture or chipping after more than three years in this case. Additionally the esthetic and marginal quality of the restoration was excellent without any deterioration.

Initial Clinical Situation

23-year-old female, who had a defective large restoration and secondary caries. The tooth was vital and caries progression might have threaten the vitality of the pulp and integrity of the tooth (**Figs 1 and 2**). Thus, an immediate restoration replacement was essential.



Fig. 1: Defective restoration on tooth 16.



Fig. 2: Cavity after caries removal.

Initial Clinical Situation with Composite Build-Up, PBE and Preparation

After removal of defective old restoration and carious tissue, circumferential matrix band was placed and fixed with wooden wedges. Remaining cavity walls with less than 2 mm thickness reduced occlusally for 1,5-2 mm. Resin composite (Tetric-N Ceram, Ivoclar Vivadent AG, Schaan, Liechtenstein) build-up with IDS (Syntac Primer/Adhesive System, Heliobond, Ivoclar Vivadent AG) and PBE using flowable composite (Tetric-N Flow, Ivoclar Vivadent AG) with a maximum thickness of 1-1.5 mm was performed. Principles of morphology driven preparation technique were followed. Hollow chamfer or concave bevel preparation coronal to the equatorial tooth line and butt-joint preparation (1-1.2 mm, max 1.5 mm) apical to the equatorial line using a shoulder bur was performed. Fine-grit diamond burs were used for finishing. Thus, the cavity consisted of box configuration in the gingival margins and inclined plane in cuspal covering areas. Interior walls diverging 6 to 10 degrees with rounded inside angles obtained by conical medium-grit diamond bur. The occlusal surface was free of slots (**Fig. 3**).



Fig 3: Preparation after IDS and PBE.

Impression

Impression was made with the double impression technique using a putty and low viscosity condensation silicone material.

Provisional Restoration

After preparation and impression, provisional resin restoration was placed.

Working Steps in the Laboratory

The dental technician fabricated the indirect restoration using SR Nexco according to manufacturer's instructions. Indirect restoration was polymerized for 5 min using a laboratory polymerization device (GC Labolight LV-III, GC Corporation, Tokyo, Japan).

Cementation

The restoration was permanently bonded within 1 week. After removal of provisional restoration try-in of the indirect restoration was performed to check proximal contacts and marginal fit. Good isolation conditions were obtained using cotton rolls, wedges and transparent molar matrices. The internal surfaces of the restoration has been coated with silane coupling agent (Monobond N, Ivoclar Vivadent AG). The cavity was cleaned and then etched 30 seconds for enamel margins and 15 seconds for internal surfaces with 37% phosphoric acid (Total Etch – Ivoclar Vivadent AG), rinsed thoroughly with water, and air-dried. A three-step system (Syntac Primer/Adhesive/Heliobond System, Ivoclar Vivadent AG) used for conditioning of tooth surfaces. The primer, and adhesives were applied and air-dried in sequence for 15 seconds and 10 seconds, respectively. The adhesives were not photo-polymerized before restoration placement to avoid inadequate fitting. A dual polymerized resin cement (Variolink-N, Ivoclar Vivadent AG) was used for cementation. Restoration was placed under slight pressure and the excess material was not manipulated to prevent marginal gaps. The restoration was photo-polymerized with 1200 W/cm² intensity LED light device for 40 seconds from buccal, lingual/palatinal and occlusal sides for final polymerization. Once the restoration was bonded, margins, residual excess cement and occlusion were checked. Necessary adjustments were made using fine grit diamond burs under water cooling. Polishing was performed using discs and strips.

Clinical Result

The indirect restoration was excellent in terms of marginal adaptation esthetic appearance (Figs 4 and 5). No deterioration, staining, chipping or bulk fracture observed after more than 3 years in function (Figs 6 to 8). The patient was very satisfied for both esthetic and function.

About the Author

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Fig. 4 : Immediately after cementation.



Fig. 5 : Occlusal marking.



Fig. 6 : After 6 months in function.



Fig. 7 : After 24 months in function.



Fig 8 : After more than 36 months in function.

Indirect Restoratives For Efficient Esthetics





DIMO

with Markerless Location

Navigated Implantology — Simple,

▶ Intelligent Treatment Planning



CT Automatically Fusion of CT and Intraoral Scan Data

 Automatic Identification of Crown Anatomical Morphology

 AI-Assisted Planning of Nerve Canals and Panoramic Lines

 Making Every Surgery Easy & Efficient

▶ Implant Workflow



Initial CT /Intraoral Scan



Systematic Treatment Planning



Navigation-Guided Surgery

▶ Proprietary Binocular Camera Calibration Technology



Positional Deviation $\leq 0.2 \text{ mm}$



Angular Deviation $\leq 1^\circ$

▶ Integrated Visual Navigation for Surgical Precision



- Precise positioning with binocular visualization
- CBCT registration for safer, more accurate surgical navigation
- Real-time spatial pose tracking for smarter, more reliable surgical navigation

DCARER

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Precise, Efficient

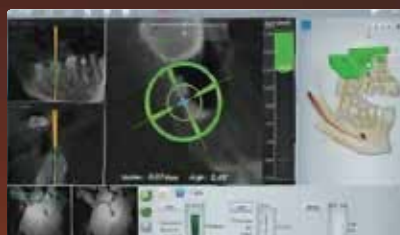


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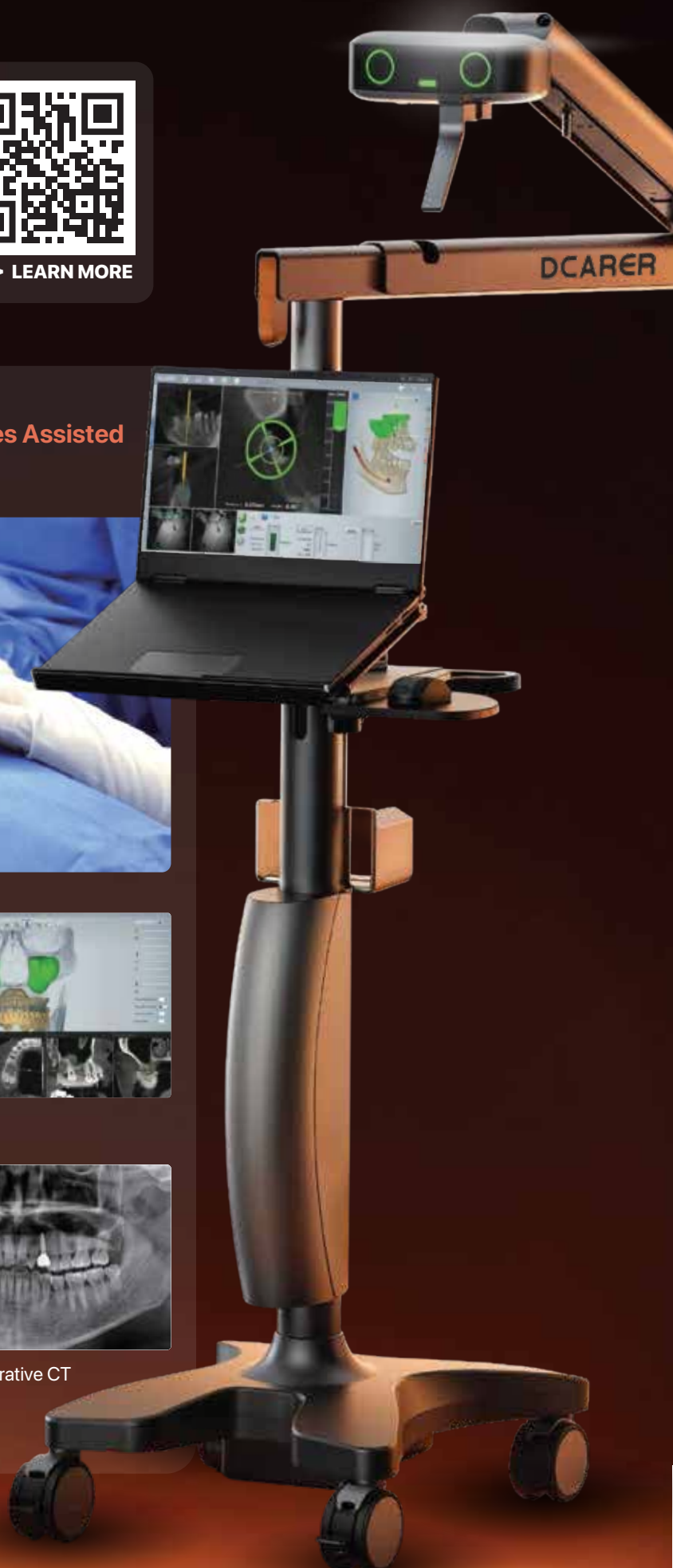
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Various Uses of CeraPutty



Clinical Cases

Courtesy of Dr. Talal Al-Nahlawi

Micro-surgery of persisting apical pathosis with CeraSeal & CeraPutty retrograde obturation (3.5 years recall)



Pre-OP
(Persisting apical lesion
after apicoectomies)

Hermetic seal by CeraPutty and CeraSeal

Post-OP

3.5 years recall
(Complete healing
and bone formation
over the CeraPutty)

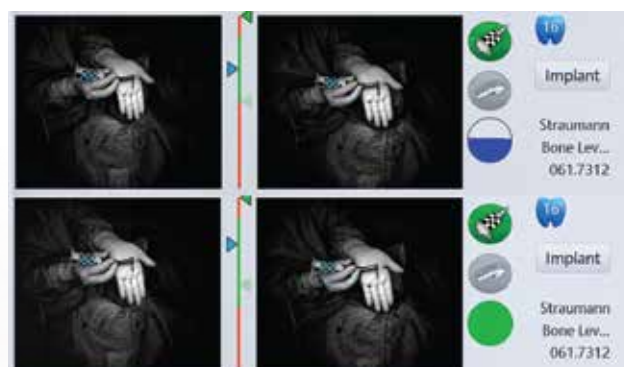


Learn More >>

Seeing Through Anatomy: Markerless Dynamic Navigation in Implant Dentistry



Dr. James Chow



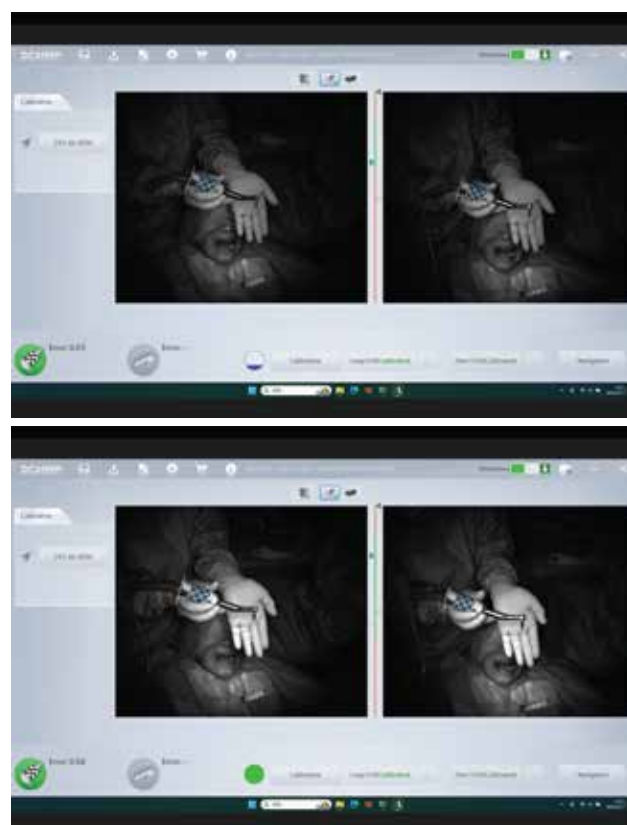
Calibration

Dynamic computer-assisted implant surgery (dCAIS) has transformed implant placement by combining preoperative 3D planning (typically from CBCT and intraoral scans) with intraoperative tracking. The DCarer markerless dynamic navigation system advances this further through machine vision. It enables clinicians to “see through” the anatomy in real time and perform the entire procedure under continuous interactive image guidance. This approach addresses longstanding limitations of freehand surgery and static guides while reducing some practical frictions of earlier marker-based navigation systems.

Core Technology: Machine Vision and Markerless Tracking

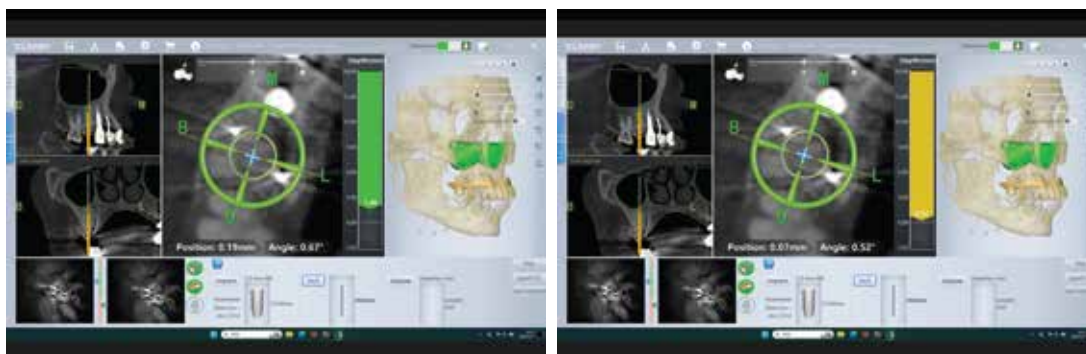
Traditional dynamic navigation systems rely on optical tracking of fiducial markers or patient-mounted trackers registered to the CBCT volume. These deliver high accuracy (often sub-millimeter linear and low-degree angular deviations in clinical studies) but introduce extra steps: marker placement, potential line-of-sight issues, patient discomfort, and risk of tracker displacement.

DCarer’s newer-generation markerless systems leverage machine vision and intelligent algorithms. Registration and continuous tracking draw on anatomical features (such as anterior tooth anatomy or natural surface characteristics) rather than physical optical markers on the patient in many workflows. Optical sensors (commonly infrared) track the handpiece/instruments with high precision—reported tracking accuracy around 0.25 mm in company technical descriptions—while software fuses the live instrument position with the patient’s 3D dataset. The result is real-time visualization of the drill or implant relative to planned trajectories, bone contours, nerves, sinuses, and adjacent roots, displayed on a screen for continuous interactive guidance.



Drill Registration

This “see-through” capability is the system’s defining clinical advantage. The surgeon no longer depends solely on direct visualization of the surgical field or mental interpolation of 2D radiographs. Critical anatomy becomes visible in three dimensions throughout osteotomy preparation and implant insertion, allowing immediate corrective adjustments if the instrument drifts from the planned path.



Implant Osteotomy

Key Clinical Benefits

1. Enhanced Precision and Safety

Dynamic navigation consistently outperforms freehand placement in linear and angular accuracy and matches or approaches static surgical guides in many comparative studies, while offering greater flexibility. Real-time interactive feedback helps the clinician stay on the planned trajectory, reducing the risk of encroaching on the inferior alveolar nerve, maxillary sinus, or adjacent teeth. This is particularly valuable in anatomically constrained sites, narrow ridges, immediate implant cases, and full-arch reconstructions. Intraoperative targeted real-time correction is explicitly highlighted as a strength of the DCarer platform.

2. Flexibility Compared with Static Guides

Static guides require fabrication time, limit intraoral access (especially in restricted mouth openings or posterior sites), and lock the clinician into a predetermined path. Dynamic systems allow same-day planning and surgery, use of standard surgical kits in many cases, and on-the-fly adjustments if unexpected clinical findings arise (for example, soft bone quality or altered anatomy). Markerless operation further reduces setup complexity by eliminating patient trackers that can obstruct the field or require the mouth to remain partially open.

3. Support for Minimally Invasive and Flapless Approaches

Accurate real-time guidance facilitates flapless or minimal-flap techniques when bone volume and soft-tissue conditions permit. Reduced soft-tissue trauma typically translates into less postoperative swelling, pain, and faster recovery—advantages repeatedly noted in clinical descriptions of navigation-assisted implant surgery. Patients experience a smoother recovery profile, which supports higher satisfaction and can expand treatment acceptance among medically compromised or anxious individuals.

4. Workflow Efficiency and Ergonomics

Preparation is streamlined: no need for surgical guide fabrication or extensive per-case instrument calibration in optimized markerless setups. Instruments with 360° recognition features and systems that avoid external power supplies for handpiece components improve intraoperative flexibility. Surgeons can maintain a more upright posture by viewing the navigation screen rather than continually leaning into the mouth. Studies of related marker-free approaches have reported modestly shorter surgical times, improved patient comfort during the procedure, and higher procedural satisfaction scores.

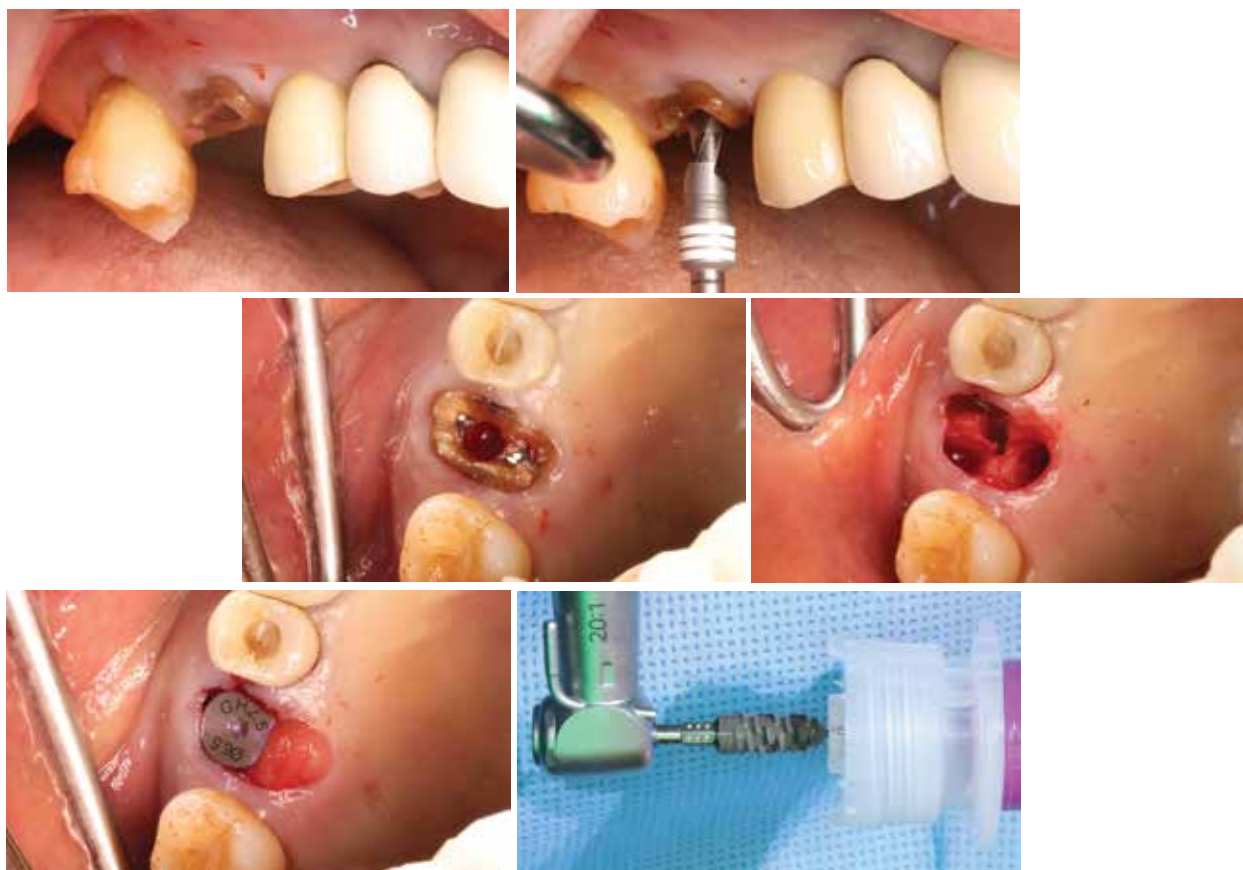
5. Broader Applicability and Learning Support

The technology is useful across single-tooth, partial, and full-arch cases, including challenging indications such as limited inter-radicular space or residual ridge atrophy. Intelligent software assists with preoperative planning (nerve canal and panoramic line delineation, restorative-driven implant positioning). Real-time visual feedback can flatten the learning curve for less experienced clinicians by providing continuous positional cues, although mastery of the overall digital workflow remains essential.

Acknowledging the Barriers: Cost and Learning Curve

Despite clear clinical advantages, two practical barriers remain prominent. Upfront capital cost for the navigation unit, cameras, software licenses, and ongoing support is substantial and must be weighed against case volume, reduced complication rates, potential for higher-fee complex cases, and operational efficiencies (same-day surgery, fewer guide-related laboratory fees). The learning curve involves mastering registration protocols, interpreting the live display while operating, maintaining line-of-sight or feature visibility (even in markerless systems), and integrating the technology into existing digital workflows. Structured training, hands-on practice on models, and progressive clinical application help shorten this period. Markerless designs and user-friendly interfaces aim to lower the barrier relative to earlier generations, but consistent accuracy still depends on careful technique and verification steps.

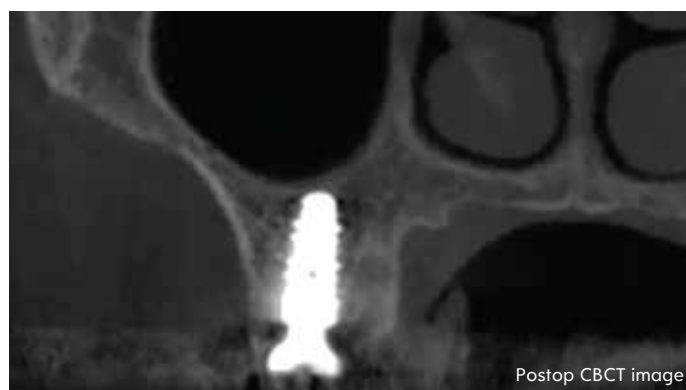
Clinical Case: Immediate Implant with Markerless Navigation



Accuracy: Planned vs Actual

Post-operative verification against the preoperative plan demonstrates the clinical precision achievable with the markerless workflow. In this representative case the measured deviations remained well within accepted safety margins for implant placement.

Item	Error
① Entry Point Error	0.74mm
② End Point Error	0.91mm
③ Implant Angle Error	1.09°
④ Entry Point Horizontal Buccal Error	0.66mm
⑤ Entry Point Horizontal Distal Error	0.34mm
⑥ End Point Horizontal Buccal Error	0.73mm
⑦ End Point Horizontal Distal Error	0.55mm
⑧ Entry Point Deep Error	-0.00mm (shallower)
⑨ End Point Deep Error	-0.07mm (shallower)



Clinical Context and Future Implications

Dynamic navigation does not replace clinical judgment or surgical skill; it augments them. Success still requires sound case selection, accurate preoperative imaging and planning, proper registration verification, and the ability to interpret and act on real-time data. When these elements align, the combination of machine-vision-enabled “see-through” anatomy and continuous interactive guidance delivers measurable gains in precision, safety, minimal invasiveness, and adaptability.

As markerless machine-vision systems mature and integrate further with AI-assisted planning, robotic assistance, and expanded implant databases, accessibility is likely to improve. For practices already invested in digital dentistry, platforms such as DCarer’s markerless dynamic navigation represent a practical step toward more predictable, patient-centered implant surgery—provided the investment in technology and training is matched by disciplined clinical application.

In summary, the DCarer markerless dynamic navigation system exemplifies how machine vision can give implant clinicians real-time interactive image guidance that effectively lets them see through the anatomy. The clinical benefits in accuracy, safety, flexibility, and reduced invasiveness are substantial; the primary remaining hurdles of cost and learning curve are real but increasingly manageable with thoughtful implementation and ongoing technological refinement.

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Less Is More



Excellent Ergonomics

Designed for comfortable handling with a pen-like grip, allowing for intuitive and relaxed scanning.



Simplified Connection

A single Type-C cable enables instant plug-and-play setup, reducing clutter and enhancing usability.



Outstanding Accuracy

Optimized algorithm and enhanced imaging deliver great precision and trueness for scans of various applications, ensuring reliable results throughout clinical workflows.

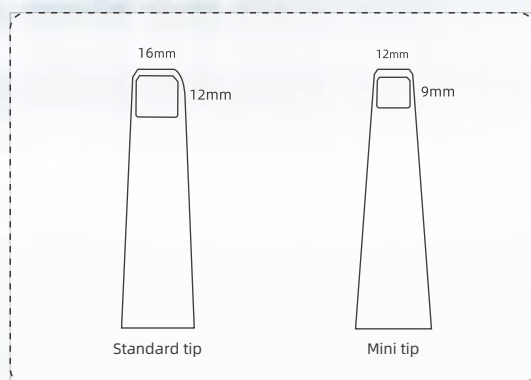


Extended Scanning Depth

A depth of field up to 22mm allows for easy capture of fairly deep holes and narrow gaps.



116g



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Ceramix-Nano Capsule 3D Printer

Imagination Encapsulated



Lightweight at Just 2 kg

The 2kg All-in-One Micro Lab.



Ultra-Fast Printing

Patented APS Technology

Print a permanent ceramic crown in 8-11 mins.



Permanent Restorations

Over 50% Ceramic Filler Content

Designed for chairside long-term restorations with high ceramic-content materials.

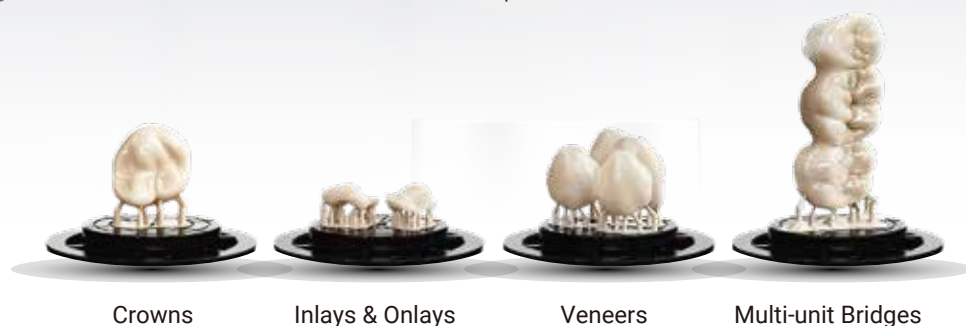


2-in-1 Print & Cure

Integrated Curing Chamber

Built-in curing at up to 80°C, completed in under 3 mins.

One Capsule, Multiple Restorations



Crowns

Inlays & Onlays

Veneers

Multi-unit Bridges

Lumicera High-Performance Ceramic Resins

Lumicera is the ceramic resin inside the Ceramix-Nano capsule, pre-measured and ready to print. It combines exceptional restorative properties with a minimalist chairside workflow, ensuring superior clinical results with unparalleled simplicity.



Long-Term Durability

Over **50% ceramic filler** content for lasting mechanical strength.



Biocompatibility

FDA Class II 510(k) cleared for permanent intraoral use.



Five VITA shades

Covering the most common natural shades: BL, A1, A2, B1, and C2.



BL



A1



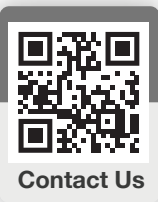
A2



B1



C2



Contact Us



30-Minute Revolution From Intraoral Scan to Permanent Crown

Step 1



Scan

Scan the prepared tooth with your intraoral scanner.

Step 2



AI Design

Select the scan order and generate a crown design in under 2 minutes with the AI Design tool.

Step 3



Print & Cure

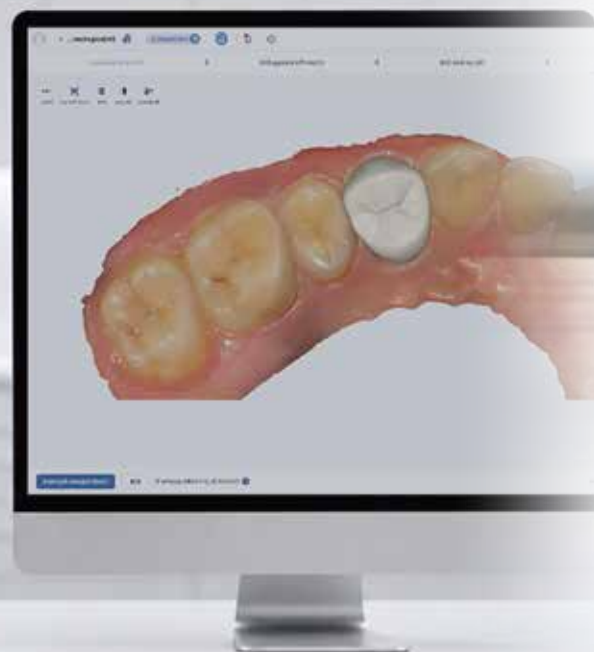
Load the capsule, press print, and slide the restoration into the curing drawer. Your high-quality restoration is complete.

Step 4



Deliver

Cement the restoration and send your patient home.



MACSTUDIO

BY MICRODENTAL LABORATORIES

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Universal cleaning paste for all restorative materials.

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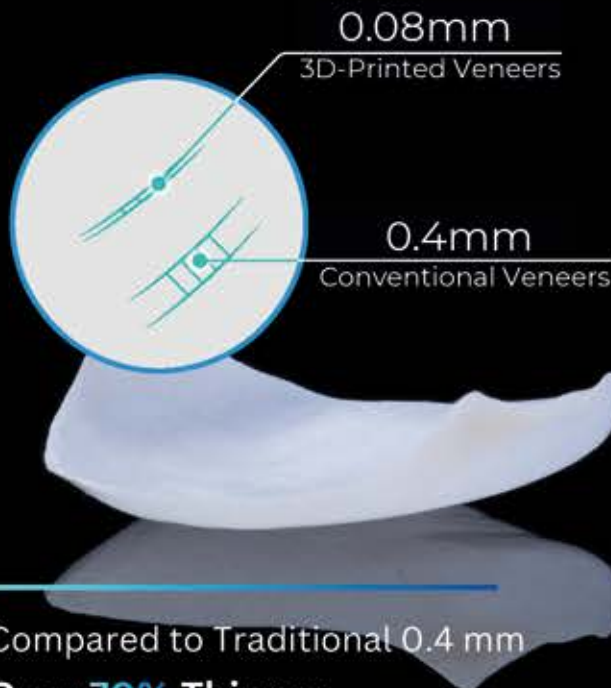
Micron-level High-precision Printing: 3D-Printed Zirconia Veneers

3D-Printed Zirconia Veneers as thin as **0.04mm** have been developed using the Micro-Stereolithography (PμSL) technology.

Through repeated practice and optimization, 3D-printed zirconia veneers of just **0.08mm** have been successfully produced at scale, far surpassing the 0.4mm thickness limit achievable with traditional milling, while more than doubling the edge fit precision.



BROCHURE



Compared to Traditional 0.4 mm
Over 70% Thinner



Printed Veneer



Milled Veneer

*Veneers milled below 0.3 mm are prone to defects and damage



Before



After



TAILORED TO PERFECTION

Ecodont[®] IS MORE THAN A Clear Retainer

NEW

VeneerShield[™]

Next-Level Protection for Post-Restorative Smiles, especially for patients with different types of veneers.



Straight-line trimming placed 2mm away from the gingiva over veneered teeth, **Minimizes Stress on Veneers During Daily Use.**



Veneer Contact Points, specially designed contact areas apply significantly less force directly on veneers while still providing reliable orthodontic retention.



TrioDim Force[™] Technology **Reduces Force on Anterior Veneers.**



Removal Buckle, an intuitive, easy-to-grip area allows patients to remove the retainer easily.



Variable Trimline

Scalloped

Straight

• 0mm • Extend (1-2mm)

Combi Retainer

2 Fixed Wire Choices:
Rounded/Flat

Aesthetic Pontic

Buttons

• Round-shaped
• Tear-shaped

Slit Cut

Bite Ramp

All available on the TrioClear[®] Submission Portal
with just a few clicks!*

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CLEAR

*An additional fee may apply for customization. Contact us for details.

Photos are for reference only.

Mucogingival Approach to Delayed Implant Placement with Immediate Replacement (Type 4A) in the Esthetic Zone

Case Report Part I



Dr. Gregory Fung Wai Ki

Specialist in Periodontology, ITI fellow

Introduction

In cases of delayed anterior implant placement, the extraction socket has already healed. Due to the horizontal and/or vertical bone loss, the gum line might recede or change shape over time. This makes it difficult to achieve the perfect emergence profile to match the adjacent natural teeth and achieve aesthetic pleasing result.

The approach advocated by Professor Zucchelli is useful in this sort of situation. With the use of connective tissue graft (CTG) and coronal advancement flap (CAF) [together with or without guided bone regeneration], we may compensate mild deficiency of bone with soft tissue graft to provide a more aesthetically pleasing result, which is difficult to achieve with traditional guided bone regeneration approach alone.

In this case report, I would demonstrate the clinical steps of this mucogingival approach for delayed implant placement with immediate replacement (Type 4A) in the esthetic zone.

Clinical Situation

Patient came to my clinic presented with a resin bonded bridge replacing tooth #21, which debonded and dislodged a few times before. He is a non-smoker with clear medical history, no reported para-functional habits and periodontally stable. As he expressed a strong desire for a more permanent solution with improved esthetics, a mucogingival approach of implant treatment was proposed.

Intra-oral scan using Straumann SIRIOS was performed and CBCT was taken (CS 8200 3D). The intra-oral scan was then superimposed on the CBCT scan. A digital wax-up was created by mimicking tooth #21 for a prosthetically driven treatment plan.



Clinical Procedures

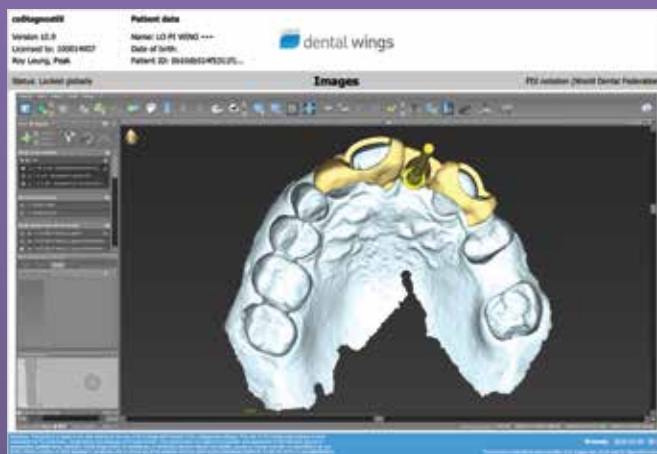
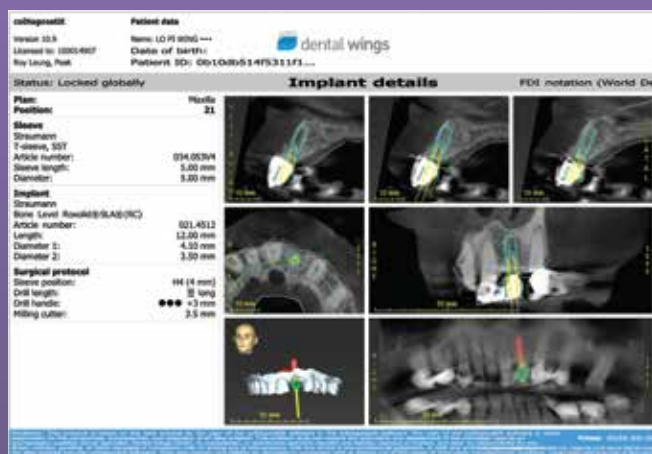
1 Flap Design – Split-Full-Split: (#21 Crestal Soft Tissue and Papilla are Not Involved)

- Split thickness surgical papilla.
- Full-thickness to expose the bone crest.
- Once the flap passed about 3mm the mucogingival junction into the lining mucosa, a deep split incision (parallel to bone), followed by a superficial split incision (parallel to the flap) was used to raise the flap for coronal advancement.
- With the use of metal surgical guide (Modern Dental Laboratory), the soft tissue at the drilling site was removed with 15C blade.



2 Guided Site Preparation and Implant Placement

The implant treatment planning was done with the coDiagnostiX software. Metal surgical guide [Modern Dental Laboratory] was then made to increase the accuracy of implant placement and reduce the time of surgery.



Drill handles were used to bridge the gap between the sleeve and the drills. These are color-coded to match the specific drill diameter and feature depth markings.



A guided implant placement [Straumann® Bone Level SLA 4.1 RC 12mm] was adopted to ensure the implant platform is 3-4mm apical to the ideal future gingival margin of the planned crown.



3 Prosthetic Guidelines for Provisional Crown

A temporary shell crown mimicking #21 was digitally created in Modern Dental Laboratory. It was then relined clinically with ProTemp4 [3M] and composite [3M Filtek Z350]. The emergence profile of the provisional crown was contoured to provide space for the connective tissue graft and the future papilla growth. The connective tissue would be placed 1 mm coronal to the adjacent CEJ to allow soft tissue molding in the future.



4 De-Epithelialization of the Anatomical Papillae

The adjacent natural papillae and the papilla of 21 were de-epithelialized to allow surgical papilla adaptation during coronal advancement.



5 Harvest & Fixation of Connective Tissue Graft (CTG)

A de-epithelialized free gingival graft was harvested from the palate. It was then anchored to the base of the anatomical papilla and periosteum with 6/0 vicryl suture.



Haemostasis was achieved at palatal donor site with the use of PeriAcryl HV [GS GluStitch inc.] in about 5 minutes.

6 Placement of Provisional Crown and Suture

The entire flap is coronally advanced with the provisional crown in place [tighten up 35 Nm]. Surgical papilla was anchored to the anatomical papilla. Sling sutures were used to adapt the flap into the final position. The flap must be passive in place without tension.

The provisional crown must not be in occlusal contact with lower teeth.



BEFORE & AFTER

Before the Surgery



After the Surgery



4 Weeks post-op



About the Author

The Inspire to Aspire ITI (International Team for Implantology) Study Club in Hong Kong is a hands-on professional network led by Dr. Gregory Fung Wai Ki. Designed specifically for dental implantologists and periodontists, it offers deep-dive clinical case mentoring and specialized technique workshops.

The club is designed as a supportive peer environment where practitioners can elevate their skills from where they are to where they want to be.

Members frequently collaborate with other experts like Dr. Ernest Tang and Dr. Alex Cheung to master implant fundamentals from planning to surgery.

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2. M. Stefanini, et al., (2023). "Avoiding errors and complications related to immediate implant placement in the esthetic area with a mucogingival approach." *Periodontology* 2000, Volume 92, Issue 1 pp. 362-372
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4. O González-Martin, et al., (2020). "Contour Management of Implant Restorations for Optimal Emergence Profiles: Guidelines for Immediate and Delayed Provisional Restorations." *The International journal of periodontics & restorative dentistry* 40(1):61-70. DOI:10.11607/prd.4422

Rapid 5

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Featherweight Handling

- Weighs less than 6 oz (162g)
- Balanced ergonomic form
- Reduces hand fatigue



Comprehensive One-Pass Capture

- 25 mm depth of field
- Capture deep structures in one scan
- Minimizes chair time



Ultra-Fine Detail

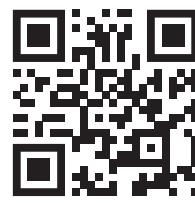
- 10 μ m precision (single crown)
- ≤ 20 μ m full arch precision
- Supports highly accurate diagnoses



Advanced Software Functions



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3D SLEEP

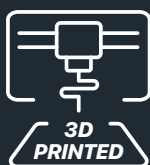
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SNORE LESS SLEEP BETTER.

Find Your Right Solution

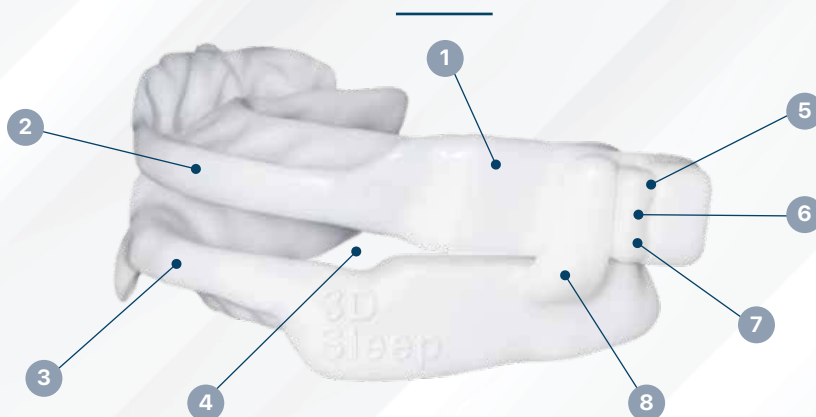


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FOR REDUCING SNORING



3D Sleep Appliance

" State of The Art Finishing "



1

With Vapour Polishing

The smooth surface allows for easy cleaning, while the polished finish helps prevent bacterial growth, enhancing overall hygiene

2

Exceptionally Thin

Just 1mm in thickness

3

Minimal Anterior Coverage

Allowing patients to feel comfortable and natural

4

Maximum Tongue Space

Without significantly affecting the tongue's range of motion

5

Interchangeable Titration Tabs

Allows precise mandibular advancement in 1 mm increments for customised treatment adjustments.

6

Easy-Removal Slot

Designed for secure placement and effortless removal, minimising the risk of handling errors.

7

Exceptional Mandibular Advancement

Provides flexible mandibular advancement from 1 to 5 mm, with 5 pairs of titration tabs included for precise adjustment.

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Slimline Dorsal Fin

Providing a sense of comfort and naturalness for patients

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3D Sleep Appliance



Serene Silensor™



EMA®



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Feature	3D Sleep Appliance	Serene Silensor™	EMA®	MOSES® Elite
Material	3D Printed Nylon	Acrylic	Plastic	Acrylic and Plastic
Thickness	1 mm	2.5 mm	1.5 mm	2.5 mm
Comfort Level	★★★★★	★★★	★★★★★	★★★
Durability	★★★★★	★★★★★	★★★	★★★★★

A CLINICAL CASE REPORT

Socket Preservation at 36 region with the use of NOVAMag[®] xenograft and collagen membrane



Dr. Fung Wai Ki, Gregory

Specialist in Periodontology

BDS (HK), MDS (Periodontology) (HK),
FRACDS, Adv Dip Periodont (HK),
MRD RCSEd (Perio),
FCDSHK (Perio), FHKAM (Dental Surgery)

ABOUT THE AUTHOR

- Specialist in Periodontology
- Honorary Clinical Assistant Professor in Periodontology and Implant Dentistry, Faculty of Dentistry, HKU
- Fellow of International Team of Implantology (ITI)
- ITI Study Club Director "Inspire to Aspire"

PATIENT INFORMATION

Gender	Male
Age	65
Medical history	Controlled Hypertension (Under medication)
Smoker	No
Parafunctional habit	Bruxism
Clinical presentation	Vertical root fracture at 36 mesial root



Increased probing pocket depth at tooth #36 up to 10mm at MB site with suppuration.

CBCT



Preoperative CBCT demonstrating root-filled tooth #36 restored with a full metal crown, with halo radiolucency around the mesial root.



Extensive bone loss at 36 MB region with residual 5.7 mm bone away from inferior alveolar nerve.



CBCT 3D reconstruction demonstrating the extension of buccal bone loss at the site of #36.

IMPLANT ASSESSMENT

Bone density	Type 1
Bone volume	Insufficient bone volume at 36MB due to local infection (root fracture)
Bone health	Not affected by his medical condition
Soft tissue condition	Enough keratinized tissue and soft tissue thickness

TREATMENT PLANNING

- **Extraction of tooth #36** with **socket preservation**, utilizing **NovaMag®** membrane and xenograft:
 · A biodegradable magnesium-based barrier membrane
- **Delayed implant placement** planned **6 months after socket preservation**, allowing adequate time for bone maturation

SURGICAL PROCEDURES



Extraction of tooth #36 with abscess removal.



Vertical root fracture at 36 mesial root, with complete removal of periapical granulation tissue.



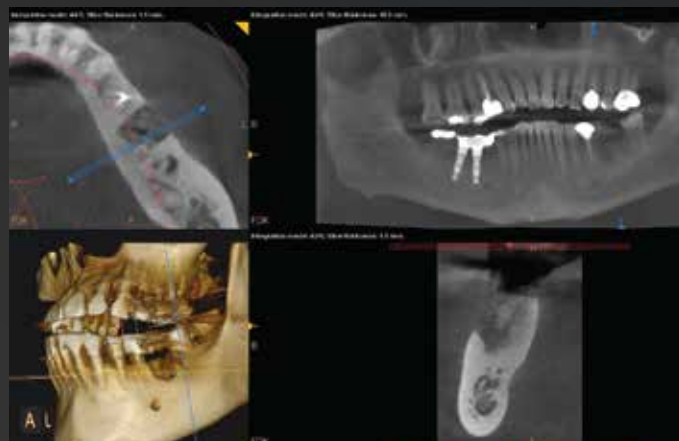
Placement of NovaMag at the mesio-buccal aspect of the extraction site to address the buccal bone defect.



Socket grafting with xenograft.



Collagen membrane applied with pTFE suture used for wound closure.



Post surgical CBCT.



Immediate after surgery.



1 Week healing.



10 Weeks healing.



6 Month healing.



Full-thickness flap reflected at 36 region, revealing complete bone healing with well-contoured ridge after socket preservation.



Straumann Tissue Level Implant:
- SP WN 4.8 x 10mm
Notice sufficient bone thickness around the implant.



Trans mucosal healing to avoid second stage surgery.



Post operative OPG.



6 Months after implant crown installation.

TREATMENT OUTCOME

Clinical Benefits Using NOVAMag® :

Native collagen membranes can sometimes collapse into a defect and reduce the amount of bone gain, but the mechanical properties of NOVAMag® resist soft tissue pressure and maintain space for bone formation.

NOVAMag® materials can be naturally broken down and metabolized by the body over time, eliminating the need for surgical removal.



NOVAMag®

RESORBABLE MAGNESIUM

bone & tissue
regeneration

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biomaterials



The magnesium membrane is strong but ductile. It can be trimmed to size and shaped for treating individual bone defects. Because the NOVAMag® membrane is completely resorbed within a few months after implantation, a second surgical intervention to remove the membrane is not necessary.

Product	Size	Amount	Art.No.
NOVAMag® membrane	S – 15 x 20 mm	1/ box	721520
	M – 20 x 30 mm	1/ box	722030
	L – 30 x 40 mm	1/ box	723040

Indications

- Bone defects and bone wall defects
- Sinus floor augmentation
- Ridge augmentation or reconstruction for prosthetic treatment
- Treatment of fenestration defects
- Periodontal bone defects (one to three-wall defects, furcation defects)
- After apicectomy, cystectomy, resection of retained teeth and resection of other bone lesions
- Extraction sockets after tooth extractions
- GBR in conjunction with immediate or delayed
- Implant placement

Product Properties

Origin	Synthetic
Composition	Magnesium (Mg)
Thickness	140 ± 20 µm
Fixation	The membrane should be completely immobilized on both sides of the defect (orally and buccally) with the NOVAMag® fixation screw XS or other commercially available fixation systems comprising of titanium screws or sutures.
Degradation Time	Resorbable (within 2-4 months)
Removal	Not necessary (resorbable)

biomaterials

CONTACT US

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Horace Cheng (+852) 9305 0915

Available
NOW

BRIDGING CLINICAL INTENT AND TECHNICAL REALITY:

Fully Digital Workflow for Complex Full-Mouth Rehabilitation

Introduction: The Evolution of Clinical Partnership

Managing extensive oral rehabilitation is one of the most demanding aspects of contemporary aesthetic and restorative dentistry. Achieving predictable outcomes for patients presenting with terminal dentition requires a coordinated, digitally driven workflow that bridges clinical vision with precise technical execution. The relationship between the clinic and the laboratory has evolved past simple transactions; today, a premium laboratory operates as an essential strategic partner throughout the entire treatment journey.

MICRODENTAL
LABORATORIES

At Macstudio APAC, this partnership forms the foundation of our philosophy. Originally established in California in 1964 under MicroDental Laboratories to provide high-quality, FDA-compliant prostheses, the Micro Advanced Cosmetics Studio (MACSTUDIO) brand has focused for over two decades on delivering premium, personalized services. Today, operating with a direct presence across the Asia-Pacific region—including our local production headquarters in Hong Kong—our focus remains on balancing cutting-edge innovation with direct, open technician-to-clinician communication. By grounding our production locally, we eliminate communication barriers and transit delays, ensuring that premium restorations are planned, designed, and fabricated right here in Hong Kong.



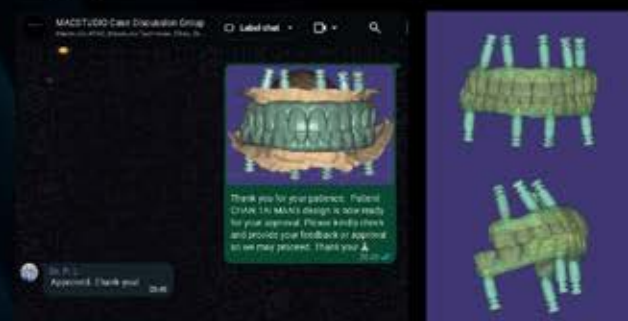
The Collaborative All-on-X Lab-to-Clinic Workflow

We stay ahead of industry trends by regularly updating our skills and equipment, relieving clients of the need to keep pace with rapid technological advancements. Our premium technical support fully integrates advanced diagnostic systems—including Shining 3D workflows, iCAM 4D photogrammetry systems, intraoral scanners, 3D face scanning, and on-site shade matching—ensuring comprehensive full service across all regions.

This interactive lab-to-clinic workflow replaces traditional manual methods with a streamlined, four-step digital data exchange:

Step 1: 1-on-1 Pre-Operative Planning:

Long before surgery, clinicians are paired 1-on-1 with a dedicated Macstudio technician to clarify case logistics and pre-surgical scan requirements. The clinic uploads initial intraoral data and optional 3D face scans. Our team designs the case in exocad, providing design files for the clinician to open, review, and approve the vertical dimension of occlusion (VDO) and restorative parameters before surgery.



Step 2: On-Site Technical Support & Scanning:

On the day of surgery, Macstudio provides premium on-site technical support directly chairside to guide the clinic through data collection. Our team assists with advanced equipment, offering versatile integration across systems like Shining 3D and iCAM 4D photogrammetry. We implement a two-fold digital scan protocol: utilizing an intraoral scanner to map the soft tissue, while simultaneously capturing the precise 3D implant coordinates via photogrammetry. This micron-level accuracy entirely eliminates physical impression errors.



Step 3: Same-Day Milled Provisionals:

Once the post-surgical data is transmitted to our Hong Kong laboratory, our design team aligns the precise implant coordinates with the pre-approved design. The files are processed and carved using local high-speed milling machines. Managing production directly in Hong Kong allows us to deliver the completed temporary bridges on the same day, ready for immediate seating onto the clinician-provided Multi-Unit Abutments (MUAs). This enables the clinical team to secure a stable, fixed prosthesis before the patient leaves.



Step 4: Final Material Transition:

Following osseointegration, mid-treatment adjustments are recorded via a clinical update scan. Macstudio transitions the approved profile into a definitive, premium All-on-X Hybrid Bridge. This framework features a custom CAD/CAM milled titanium bar core for a stress-free, passive fit, bonded to a full-contour zirconia super-structure. The layered translucency of the zirconia replicates natural enamel aesthetics while masking the metal core, completed with custom local gingival characterization.



Conclusion - Collaborative Security in Complex Outcomes

The success of a complex full-mouth All-on-X rehabilitation highlights the value of a structured, digital lab-to-clinic workflow. By replacing traditional manual methods with photogrammetry, facial scanning, and collaborative CAD/CAM platforms, the entire restorative process becomes highly predictable and precise. For the modern clinician, partnering with a locally based laboratory provides essential clinical security. Managing production directly in Hong Kong ensures rapid case turnarounds, immediate technical support, and strict quality control. When clinical expertise is backed by robust technical systems and transparent digital validation, complex rehabilitations can be approached with absolute confidence, delivering dependable, premium outcomes that clinicians and patients can trust over the long term.



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Non-abrasive formulation, peroxide-free; reduces irritation and sensitivity



FRESH & CONFIDENT 植物萃取 氣味清新

Plant-based extracts, leaves the aligners and retainers feeling clean, fresh, and odor-free.

Non-abrasive Formulation 無磨損配方



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3-DAY CERTIFICATION PROGRAM

SKILL ENHANCEMENT

LEARNING PATHWAY

ACADEMIC ACHIEVEMENTS

Learning, Laughter, and Lasting Impact: Highlights from the SNU x KAED Certificate Program



From October 17 to 19, 2025, dental professionals from across the region gathered in Seoul, South Korea, for an intensive three-day certificate program by the Seoul National University and the Korean Academy of Esthetic Dentistry (K.A.E.D.), **Predictable Restorations for the Aesthetic Zone**, which blended advanced clinical insights, hands-on mastery, and authentic fellowship.

Hosted in a collaborative environment that encouraged both clinical excellence and peer connection, the program covered a comprehensive range of topics — from pink to white aesthetic, soft tissue augmentation and periodontal plastic surgery to laminate and crown preparation.

HONG KONG

SINGAPORE

TAIWAN





“The hands-on sessions were particularly beneficial, allowing us to apply our skills in real-time under expert guidance.”
— Dr. Bonita Sin, Hong Kong

“The instructors generously shared their techniques and clinical insights, demonstrating every detail with patience and genuine passion for teaching.”
— Dr. Teng Hsiang Chun, Taiwan

From Theory to Practice: Aesthetic Mastery

The 3-day certificate program was carefully structured to create a seamless learning journey, beginning with solid foundations in theory and culminating in practical mastery. The focused lectures by renowned speakers, followed by immersive, hands-on sessions, were not just to inform, but to transform the way clinicians think and work — turning complex theoretical concepts into tangible, clinical confidence.

Participants were guided through the nuances of veneer and crown preparation, as well as soft tissue grafting, gaining practical experience under expert supervision and allowing attendees to see, feel, and refine every step of the process.



Beyond Skills — Building Connections

While the clinical content was the highlight, it was the human element that made the experience unforgettable. Smiling faces filled every break, group activities fostered new friendships, and the welcome dinner and evening tour added a touch of warmth and local charm.



Wrapping Up on a High Note



“

What stood out most was how medical aesthetic philosophy has been fully integrated into Korean dental practice. Their approach goes **beyond disease treatment and prevention — emphasizing facial harmony, youthfulness, and anti-aging**. This represents a modern evolution in healthcare: treating disease is essential, but creating beauty is the higher art of medicine.

This experience deepened my understanding that art and science coexist in dentistry. Aesthetic dentistry is not merely about restoration — it is a discipline where philosophy, design, and emotion intersect.

— Dr. Teng Hsiang Chun, Taiwan

“

I've been a dentist for 16 years, with over 10 years of experience in orthodontics. I also perform veneer and prosthetic treatments. Periodontal soft-tissue management is the area I've always wanted to refine further.

The program content was intensive and comprehensive. And the professors at Seoul National University were generous and transparent, clearly breaking down the integration of orthodontics, periodontics, and prosthodontics.

Their teaching helped even beginners feel more confident when dealing with periodontal cases in Asian patients. The Korean professors spoke fluent English and shared many clinical approaches different from those in Taiwan — for example, using biomaterials to close black triangles and the latest advancements in intraoral scanning technology.



— Dr. Chen Jie Yu, Taiwan

“

It was a great privilege to attend the Advanced Aesthetics course, hosted by the Korean Academy of Esthetic Dentistry at the prestigious Seoul National University. This was an invaluable learning experience.

Modern dental reconstruction now goes far beyond simple repair; it is a **high-level specialty integrating function and aesthetics**. The curriculum covered essential global trends: from refined soft tissue management and the digital workflow for all-ceramic restorations, to the integrated use of injectables (Botox/fillers) in perioral aesthetics.

South Korea is a leader in this field. The professors at Seoul National University are academically brilliant yet incredibly approachable, and through intensive hands-on sessions, I gained a clear grasp of the latest international concepts.

— Dr. Liao Chao Min, Taiwan





Dr. Bonita Sin



Dr. Mark Kwon



Dr. Baik Gi Won



Dr. Anna Beth Seow

“

It was truly transformative. The curriculum was thoughtfully designed, covering essential concepts and state-of-the-art techniques. The instructors were not only experts in their field but also passionate about sharing their knowledge, which made the learning process engaging and impactful.

I also appreciated the collaborative atmosphere, where I could exchange ideas and experiences with peers from various backgrounds.

— Dr. Bonita Sin, Hong Kong

“

*The KAED x SNU Predictable Restorations For the Aesthetic Zone course was an **amazing opportunity to learn about pink and white aesthetics**. With SNU Professors and KAED instructors providing their insight on up-to-date techniques as well as useful tips and tricks on making it useful for GPs in daily practice, there was so much to take away from every single day.*

— Dr. Mark Kwon, Singapore

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I have gained valuable knowledge and practical skills from the KAED x SNU course. I appreciate the lecturers' enthusiasm to teach and pass on knowledge without gatekeeping. Left the course with upgraded skills and new friendships!

— Dr. Baik Gi Won, Singapore

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The programme was thoughtfully designed, covering a wide scope of topics across the three days that addressed both white and pink aesthetics—the key components that together define a balanced and natural smile.

*One of the main highlights was the breadth and quality of the lectures. English may not be the first language, but each lecturer did their best, and the translators were clear. Each topic was approached with depth and clarity, and I **appreciated how the lecturers were candid in sharing their own clinical experiences, including lessons learned from challenges and failures**. This openness made the sessions highly relatable and grounded in real clinical practice.*

The sessions led by Dr. Woohyun Kim on veneers, Dr. Seung-Kyu Lee on crowns, and Dr. Dong Won Lee on connective tissue grafting were particularly impactful. Their clear instruction and emphasis on detail and precision made complex procedures approachable and directly applicable to daily work.

— Dr. Anna Beth Seow, Singapore



Participants' Voice

I highly recommend this course to any dentist looking to advance their skills in the 'Perfect Triangle' of anterior aesthetics—orthodontics, periodontics, and prosthodontics."

— Dr. Chen Jie Yu, Taiwan



I would strongly recommend the course to anyone interested in esthetic dentistry and periodontal surgery.

— Dr. Mark Kwon, Singapore



This course has deepened my appreciation for dental esthetics and equipped me with new tools to enhance my practice. I wholeheartedly recommend it to anyone eager to elevate their skills in this exciting field.

— Dr. Bonita Sin, Hong Kong

I left Seoul inspired and grateful to the KAED for their professionalism and passion, which reshaped how I perceive the relationship between beauty and medicine.

— Dr. Teng Hsiang Chun, Taiwan

I am fully committed to implementing these advanced aesthetic philosophies and techniques in my practice back in Taiwan. I anticipate this experience will be a crucial step in continuously elevating our service quality and ensuring Taiwan's dental aesthetics remain aligned with the world's top standards."

— Dr. Liao Chao Min, Taiwan



Registration is now open!

OCT 16-18 2026

LIMITED SEATS LEFT



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SAVE THE DATE