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MISSIONSTATEMENT

Clinical Dentistry is committed to the advancement of practical clinical skills in dentistry. Through its focus on inspirational clinical casework, its sole aim is to help general dental practitioners enhance their skills and techniques across every facet of dentistry in an easy-to-assimilate and practical way.

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ONE STEP AHEAD

Technological advancements in dentistry are nothing new. But over the last few years, the surge in digital development has been nothing short of remarkable.

From reports of artificial intelligence (AI) transforming periodontology and implant dentistry to the use of virtual reality (VR) haptic simulators to train dental students, digital innovation in dentistry is here – and it's now. This digital revolution is reshaping the landscape of dentistry for everyone it touches.

Artificial intelligence isn't going anywhere, and in dentistry it is making significant strides in diagnostics and treatment planning. We're witnessing AI-powered systems accurately analysing radiographs, CT scans and patient histories to identify potential issues.

As these systems become more integrated into dental practice, the scope for fully automated preliminary diagnostics and risk assessments is getting tantalisingly – or alarmingly, depending on your perspective – close.

In dental education, virtual reality provides immersive, hands-on training environments that allow dental students to practise procedures in realistic 3D simulations. While this cannot replace real-life experience, there's no doubt that it's a great tool for the dentists of tomorrow to cut their teeth on!

It's technology that's bridging the gap between theory and practice, smoothing out learning curves and offering real-time feedback and skill assessments. As VR technology continues to improve, I'm sure we can expect even more sophisticated modules that incorporate patient-specific cases and complex surgical scenarios.

Nor is everyday dental practice immune to these developments. Just take a look at the digital workflows that utilise intraoral scanners, CAD/CAM systems and 3D printing; every facet of dentistry is being transformed by technological advancements.

As these innovations continue to evolve, the future of dentistry promises greater precision and efficiency than ever before, giving those who pair technology with their own knowledge the potential to deliver exceptional clinical outcomes. There's no question that these advancements offer unprecedented opportunities to enhance patient care, improve precision and streamline workflows. Are you ready to welcome them?

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Meet the experts

Find out more about the people who have shared their expertise in this issue of *Clinical Dentistry*

DR MANRINA RHODE

BDS

From understanding the architecture of a beautiful smile to investing in cutting-edge technology, Manrina offers her top tips for gum contouring in this issue on page 32.

Manrina graduated from Guy's Hospital, London in 2002. She has an interest in aesthetic dentistry and is one of the top cosmetic dentists in the UK.

She sits on the editorial board for *Clinical Dentistry* and has been a judge for the Private Dentistry Awards and Dental Industry Awards. She is a director of the British Association of Private Dentistry and was announced as The Dental Award's Dentist of the Year 2022.

Manrina runs DRMR Academy, teaching cosmetic dentistry and personal brand building to dentists from her Knightsbridge clinic.

AESTHETICDENTISTRY

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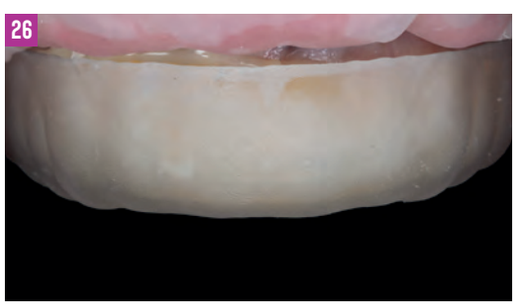

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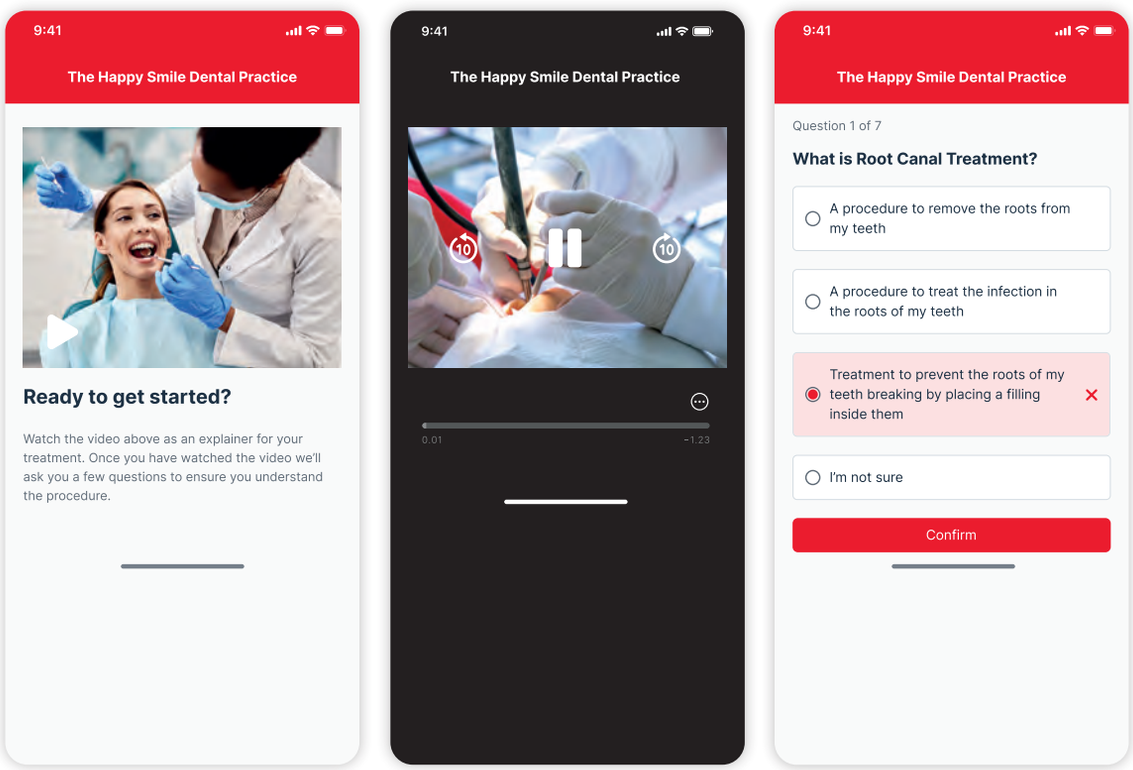

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GENERALDENTISTRY

USMAN RIAZ
Digitally supported immediate maxillary full-arch restoration

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There are usually several treatment options available to the clinician when managing the complexities of extensive endodontic failure. Naturally, our priority is to save the teeth, if possible. When this is no longer clinically or financially viable for the patient, the discussion focuses on the range of prosthetic options – Usman Riaz, p15

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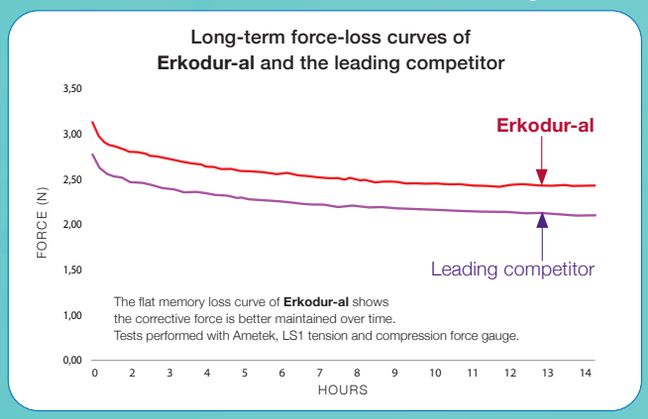

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DR USMAN RIAZ
BDS MFDS RCSED DIP IMP DENT RCSED DENTAL SEDATION AND PAIN MANAGEMENT PG CERT
Usman is the clinical director at Renovo Dental. He has several years' experience in implant, aesthetic and restorative dentistry. He was awarded the prestigious Diploma in Implant Dentistry by the Royal College of Surgeons, Edinburgh in 2017 and holds a postgraduate certificate in Dental Sedation and Pain Management from University College London. Usman is a clinical mentor to masters students at the ICE Dental Institute and Hospital in Manchester. He qualified from the University of Manchester Dental School in 2009.

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: General dentistry

Educational aims and objectives: To present a case highlighting an immediate implant plan for a new dental referral patient with failing heavily restored dentition. This article qualifies for one hour of enhanced CPD; answer the questions on page 80 or scan the QR code.

There are usually several treatment options available to the clinician when managing the complexities of extensive endodontic failure. Naturally, our priority is to save the teeth, if possible. When this is no longer clinically or financially viable for the patient, the discussion focuses on the range of prosthetic options.

CASE STUDY

A 75-year-old gentleman was referred to Renovo Dental for an endodontic consultation by his general dental practitioner who wanted a second opinion on the patient's heavily restored upper anterior and posterior teeth (Figure 1).

The patient had undergone root canal treatments (RCTs) in the past. Although he was asymptomatic at the time, a blister had formed in the UL3/UL4 region. His 12-unit upper bridge was loose and had twice been recemented. The patient had been advised that its long-term prognosis was poor.

CLINICAL AND RADIOGRAPHIC ASSESSMENTS

The gentleman did not smoke and was generally fit and well with no relevant systemic conditions. In addition to several RCTs, extensive crown and bridgework had been carried out. He was missing the upper central and lateral incisors.

A metal ceramic crown (MCC) bridge extending from UR6 to UL6 had been temporarily cemented, with a replacement planned after further endodontic treatment.

FIGURE 1: *The patient had heavily restored and failing upper dentition with compromised root canal treatment*

Usman Riaz reports on an immediate implant plan for a new dental referral patient with failing heavily restored dentition

Digitally supported immediate maxillary full-arch restoration

The outcome of the patient's earlier RCTs had been mixed, and he was aware of potential treatment failures in the future.

An extraoral examination revealed no abnormalities. There was symptomless right-hand-side temporomandibular joint clicking. Nodes and mastication were normal. The patient had a complex occlusion with an anterior open bite.

The MCC bridge was removed during the assessment to reveal buccal sinus, mild tenderness to palpation and percussion on the UL3.

Radiographic examination showed the failed RCTs on the UL5 and UL6 and revealed periapical radiolucency, a key indicator of inflammation.

There was large, well-corticated periapical radiolucency on the UL6 suggestive of a radicular cyst, and a missed mesiobuccal canal on the UR6 with a fused root, commonly linked with failed RCT.

A grade A diagnostic CBCT scan was taken. Apical pathology was confirmed in the UL3, UL5 and UL6. The area between the upper right and upper left lateral incisors showed limited buccal plate. However, analysis revealed there was adequate bone volume for implant placement in the UR5 to UL5 zone (Figure 2) and there were no risk factors or contraindications.

TREATMENT OPTIONS AND CASE PLANNING

Our diagnosis was generalised endodontic failure in the upper arch, with compromised RCTs, a chronic apical abscess in the UL3 with buccal sinus tract, a suspected radicular cyst in the UL6 and local infection in UL5 and UL6.

Three main treatment options were discussed with the patient:

1. Repeating root canal treatment and providing new full-mouth crown/bridgework on the affected teeth. This would be time consuming with a significant financial commitment and no guarantee of long-term success
2. Extraction of the remaining upper teeth and replacement with a denture. However, the patient was not keen on a removable prosthesis
3. Extraction followed by immediate implant placement, with sinus lift, bone grafting and immediate loading of a temporary bridge, transitioning to a definitive prosthesis after the healing period. This was the optimum approach to mitigate further bone loss and meet all of the patient's expectations for a cost-effective, fast, fixed, functional and aesthetic result.

CASE PLANNING

The patient opted for the third plan. The

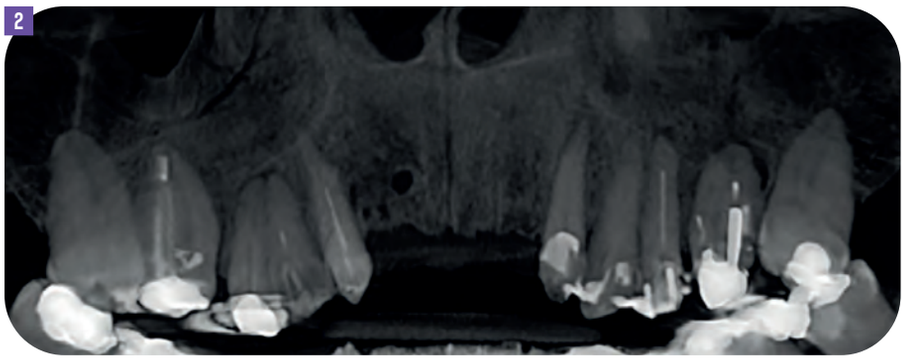

FIGURE 2: *CBCT analysis revealed available bone before implant surgery*

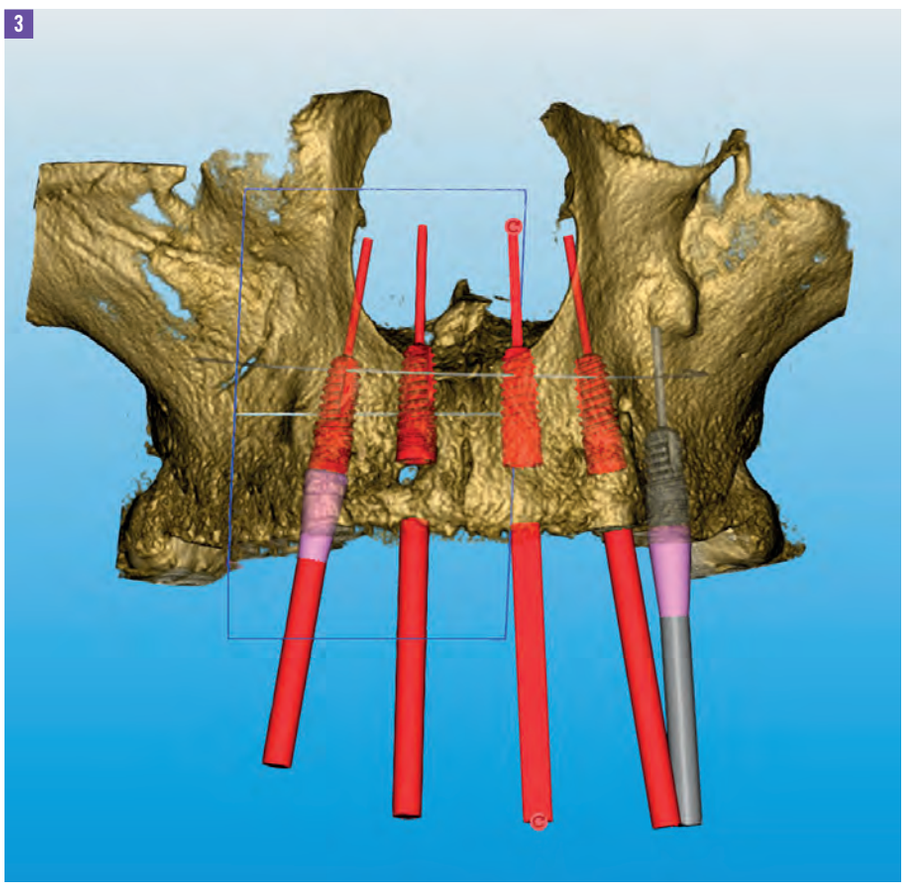

FIGURE 3: *The Sky Fast & Fixed protocol supported with Sky Pro Guide ensured accurate planning and flawless execution*

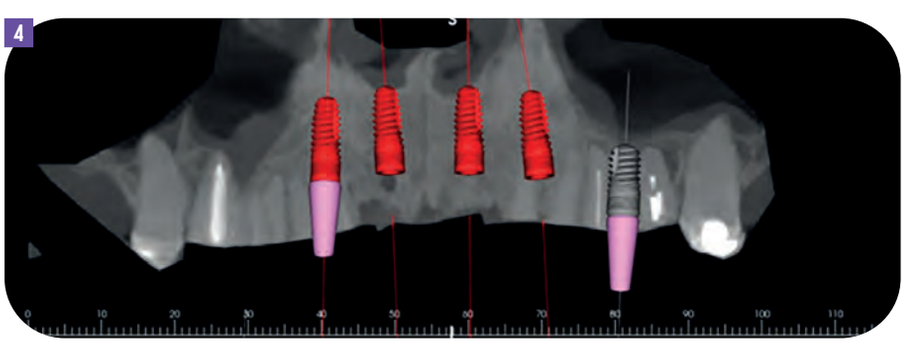

FIGURE 4: *The full-arch plan aimed to optimise load distribution and the aesthetic restoration*

5

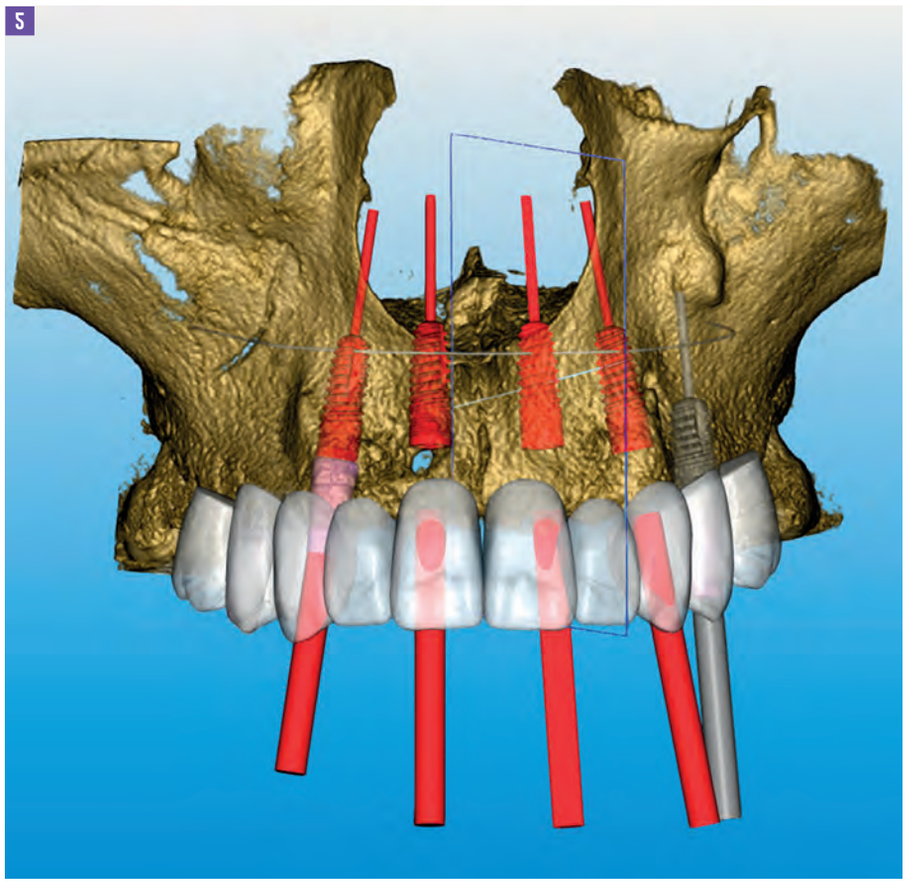

FIGURE 5: *A virtual wax-up was created to aid prosthetically driven implant placement*

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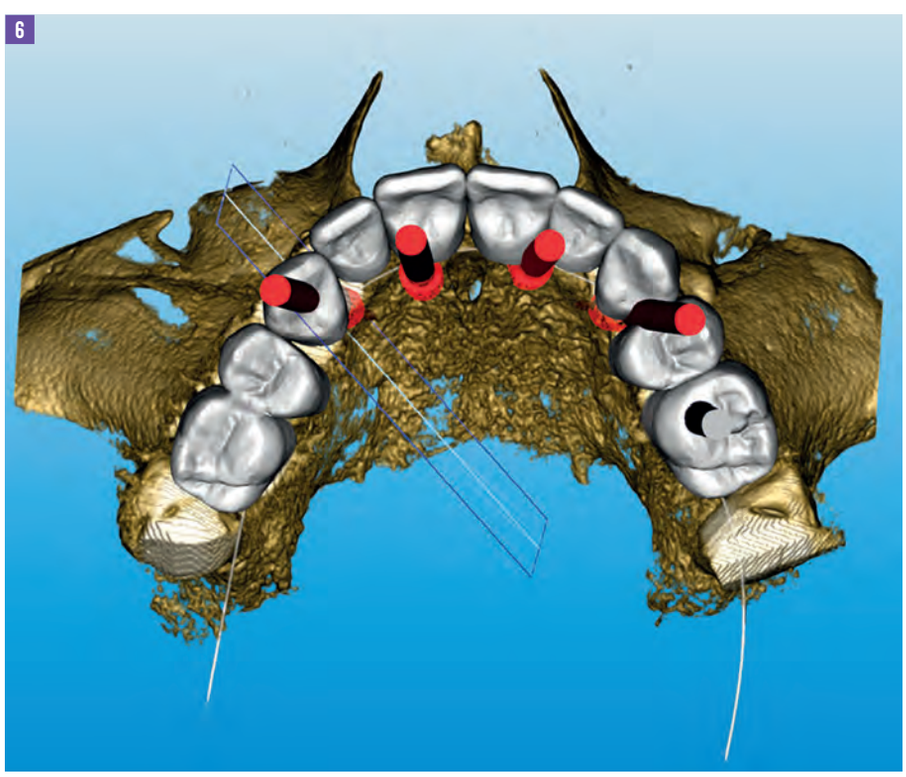


FIGURE 6: *Digital planning ensured ideal implant angulation for immediate loading and best position for function and aesthetics*

The compromised teeth from UR3 to UR6 and UL3 to UL6 would be extracted, followed by immediate implant placement

compromised teeth from UR3 to UR6 and UL3 to UL6 would be extracted, followed by immediate placement of five Bredent Medical Bluesky bone level implants in UR4, UR2, UL2, UL4 and UL6.

The case would be assisted by the Bredent Medical Sky Fast & Fixed same-day teeth system together with the Bredent Medical Sky Pro Guide Plan to achieve the desired prosthetically driven implant placement.

Grafting with bovine-derived and allograft materials would need to be carried out, with a sinus lift performed on the UL6.

The case was supported by Impact Dental Laboratory in Bolton.

A provisional prosthesis, comprising a screw-retained polymethyl methacrylate (PMMA) milled bridge would be immediately loaded on multi-unit abutments. The definitive prosthesis would be created from Luxor Z True Nature zirconia teeth for optimal aesthetics and durability.

The conditions affecting the lower arch would be managed with root canal treatment on the LL3 and composite restorations where required to restore anterior tooth wear.

The patient firmly declined any other restorative work on the lower arch in order to help further correct the occlusion.

DIGITAL WORKFLOW

The Sky Fast & Fixed protocol, supported with Sky Pro Guide implant planning software (Figure 3), ensured accurate planning and flawless execution.

Digital planning supported the restoratively driven approach, ensuring ideal implant angulation for immediate loading and the best position for the desired function and aesthetics of the final prosthetic outcome.

The full-arch plan aimed to optimise load distribution and the aesthetic restoration. A virtual wax-up was created to aid the prosthetically driven implant placement (Figures 4, 5 and 6).

EXTRACTION, PLACEMENT AND IMMEDIATE IMPLANT LOADING

On the day of surgery, the patient received intravenous sedation of 2mg of midazolam in titrated doses. Septanest and Xylocaine were administered for the local anaesthesia (seven cartridges in total).

The patient's failing upper-arch long-span bridge was removed (Figure 7), UR6 to UR3 and UL3 to UL6 were extracted, and five implants were placed with the Sky Pro Guide surgical kit (Figures 8 and 9).

The Bredent Medical Bluesky implant system provides me with complete confidence and delivers the primary stability required for immediate loading. What really makes the difference is the ability to consistently achieve torque values of between 60 and 70Ncm; it is particularly reassuring to feel that level of engagement with the bone.

The Sky Fast & Fixed teeth-in-a-day system simplifies the procedure for immediate loading of restorations, with reduced risk of errors or complications.

Bone grafting needed to be performed to manage the buccal defects in UR2 and UL2 and the distal aspect of the UL6. The sockets were filled with bovine-derived and allograft materials. A membrane was then placed over each site.

A 5.5mm by 8mm implant was placed in the UL6 region, which also required preparation with an internal sinus lift. Four 4mm by 14mm implants were placed in the UL4, UL2, UR2 and UR4. Suturing was carried out with a simple interrupted technique.

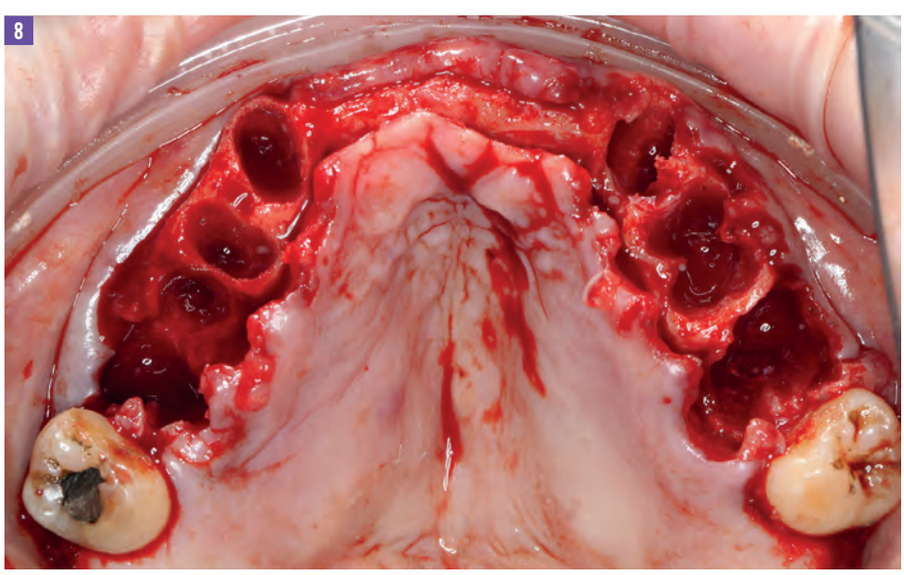
TEMPORARY PROSTHESIS

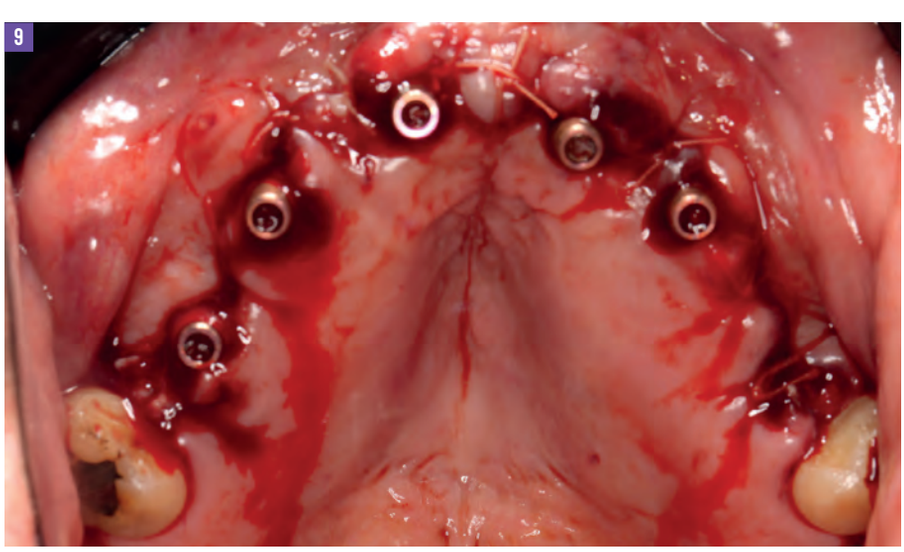
The patient's milled PMMA temporary bridge was digitally planned for chairside delivery (Figure 10).

The implant pick-up technique was carried out using Bredent Medical Qu-resin in a tension-free procedure. The material is a self-curing resin that sets quickly and can be easily applied for intraoral and extraoral use.

Bone grafting needed to be performed to manage the buccal defects in UR2 and UL2 and the distal aspect of the UL6

FIGURE 7: *Initial situation: the patient's failing upper-arch long-span bridge*





FIGURES 8 *and* **9:** *The bridge was removed, UR6 to UR3, and UL3 to UL6 were extracted and five Bredent Medical Bluesky implants were placed*

FIGURE 10: *The patient's milled PMMA temporary bridge was digitally planned for chairside delivery*

FIGURE 11: *A passive fit was achieved, with no occlusal adjustment required for the provisional screw-retained upper full-arch bridge*

FIGURE 12: *The definitive screw-retained upper full-arch zirconia bridge was fitted three months after surgery*

Three months after surgery, the definitive upper full-arch zirconia bridge was fitted

Impression copings are embedded directly within the impression material to enable precise transfer of the implant position and its relationship to adjacent teeth and other structures, producing a fully passive fit, with no occlusal adjustment required for the provisional screw-retained upper full-arch bridge (Figure 11).

Written and verbal postoperative advice was provided and the patient was escorted home.

Healing was uneventful and he returned four weeks after surgery for capture of the data for the final prosthesis.

DEFINITIVE RESTORATION

Three months after surgery, the definitive upper full-arch zirconia bridge was fitted (Figure 12). Made with a custom-milled titanium thimble framework, the bridge is fully screw retained, providing a very accurate fit.

The immediately loaded Bluesky implants placed with the Sky Fast & Fixed protocol will continue to provide stability and optimal conditions for good bone height.

The workflow achieved a tension-free provisional and a durable final fixed implant-supported prosthesis, with high aesthetics provided by the Luxor Z True Nature zirconia restoration (Figures 13a to 13c). In my view, this is now a gold-standard approach for managing failing, heavily restored terminal dentition and delivering a fixed prosthesis on the same day as implant placement.

Postoperative scans confirmed the ideal implant placement position and angle for the restoratively driven approach and the definitive fixed restoration in the final position (Figure 14).

The patient will be reviewed annually and was informed of the need for regular implant maintenance and the importance of practising a strict oral hygiene routine at home. His general dental practitioner will also be involved in his long-term oral care.

CASE REFLECTION

Unfortunately, all too often we see patients in their 50s or older present with heavily restored dentition that has failed, often with compromised jaw bone volume. This type of presentation is now common in everyday

The complexities of managing extensive endodontic failure and prosthetic rehabilitation can be overcome by adoption of a multidisciplinary approach

practice. However, the complexities of managing extensive endodontic failure and prosthetic rehabilitation can be overcome by adoption of a multidisciplinary approach.

The patient's occlusion was particularly challenging. Ideally, indirect restorations on the lower opposing arch would have allowed correction of the bite for the final bridge, but the patient declined.

Conforming to the existing occlusion was made more predictable with digital planning and wax-up. Immediate loading of the implants allowed the possibility to provide fixed teeth on the same day as surgery.

Sky Fast & Fixed immediate loading for full-arch teeth, combined with the Bluesky implant design facilitating high primary stability, provide a clear advantage in rehabilitating this type of patient. The Sky Pro Guide implant planning software also made the workflow very predictable.

A highly aesthetic, full upper-arch implant-supported restoration was successfully delivered for this patient. The result was more convenient for him due to fewer appointments. Less time spent chairside also makes the treatment more cost effective for the surgeon – a win-win outcome. CD

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13A

13B

13C

FIGURES 13A *to* **13C:** *The workflow achieved a tension-free provisional and a durable final fixed implant-supported prosthesis*

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FIGURE 14: *The postoperative scan confirmed the ideal implant position and angle and the definitive fixed restoration*

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CRAIG WELLING AND BARRY LANESMAN ON BUILDING THE FUTURE OF FMC

A NEW ERA OF PRACTICE SUPPORT

FMC is building on 30 years of trusted media leadership to launch a new chapter: a dedicated practice services offering, one shaped by collaboration, a clear vision for practice support, and a deep understanding of the evolving needs of dental professionals.

While FMC media remains an independent and trusted voice in UK dentistry, this new offering aims to provide practices with the support they need to grow and adapt.

At the heart of this next phase is a powerful partnership: Craig Welling, who has long steered FMC's connection to the profession, and Barry Lanesman, whose decades of operational experience in dentistry bring new perspective and depth to this expanding area of focus.

Together, they discuss their shared ambition, the trends shaping the market, and how FMC's evolving platform is designed to help practices navigate complexity and thrive.

BUILDING ON DEEP ROOTS AND CLEAR VISION

Craig Welling has been at FMC for nearly 16 years, leading its growth from a traditional media business into an essential resource for dental professionals.

His unique insight comes from continuous dialogue with practitioners and deep industry relationships.

Craig explains: 'We noticed significant fragmentation within practices – different logins for compliance, HR, marketing, and more.

BARRY LANESMAN

Dentistry Practice Services

FMC
To find out more about FMC's Dentistry Practice Services, visit **dentistry.co.uk**.

'We realised there had to be a better way, a unified solution to support efficiency and scalability.'

To help deliver this next phase of growth, Craig brought in Barry Lanesman as a non-executive director and investor alongside Coniston Capital to bolster FMC's practice services offering with decades of operational expertise.

Barry's career includes over 35 years in dentistry, from clinical practice to financial services, culminating in a decade building corporate dental practices across the UK.

Barry shares: 'Practices often lack the time or specific skills needed to scale and modernise effectively.

'A strong support partner should collaborate directly with principals and practice teams to grow and develop the practice in a meaningful way.'

WHY NOW — AND WHY FMC?

The decision to expand FMC's Dentistry Practice Services comes at a crucial time of rapid technological advancement and increasing patient expectations.

Craig points out: 'Practices face overwhelming changes. Technology now enables smaller practices to access tools previously exclusive to large corporates, but they need help integrating these effectively.'

For Barry, FMC was an ideal partner due to its unique combination of deep community connections and practical market understanding.

He explains: 'FMC has consistent contact with dental practices, suppliers, and practitioners. Their understanding of the profession's needs and the capacity to communicate effectively made it the perfect fit.'

Craig saw Barry's operational background as the essential ingredient for FMC's next stage: 'Barry's extensive experience running practices at scale, combined with FMC's deep industry relationships, creates a powerful dynamic. Together, we offer a genuinely comprehensive support model.'

DIFFERENTIATING DENTISTRY PRACTICE SERVICES

What sets FMC's Dentistry Practice Services apart is its holistic approach. 'We're not offering singular functions but a comprehensive range of services under one trusted brand,' Barry clarifies.

CRAIG WELLING

Craig adds: 'Our values centre on truly understanding our clients' needs. We listen first, then build targeted solutions around specific challenges around efficacy and growth, ensuring practices aren't burdened with excessive technology but equipped with precisely what they require.'

Dentistry Practice Services supports practices across four key areas:

- Dentistry Compliance, with expert tools and advice to ensure regulatory excellence
- Dentistry Consent, offering a fully digital platform to streamline the consent process
- Dentistry CPD, delivering high-quality, GDC-aligned learning
- Dentistry marketing, partnering with Xcelerator Dental, to drive patient growth and brand visibility.

Their support spans clinical excellence and commercial success. Craig emphasises: 'Most dentists enter the profession to deliver patient care, not to run businesses. Our role is to simplify backend management, freeing them to focus on what they do best – patient care – while simultaneously improving their financial health.'

LOOKING AHEAD

Looking to the future, Barry highlights the transformative potential of digital tools: 'Today, HR, compliance, marketing – all previously manual, cumbersome tasks – are becoming seamlessly integrated and tech-enabled. Our job is to ensure these tools genuinely help practices scale effectively.'

Craig visualises success clearly: 'Success is having clinicians openly share how significantly our services have contributed to their practice's growth and their ability to deliver outstanding patient care.'

SUPPORT, PASSION AND VISION

Both leaders are passionate about the journey ahead. Craig summarises: 'We're building something special - driven by support, passion, and vision.'

Barry leaves practice owners with a key message: 'There is powerful support available. Practices no longer need to face these challenges alone; Dentistry Practice Services is here to ensure their success and growth.'

Together, Craig and Barry's partnership signals an exciting future for FMC – and a transformative moment for dental practices throughout the UK. CD

Small changes, big smiles

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AESTHETICDENTISTRY

A sketch was made on screenshots of the digital scans to feed my vision to my digital designer to deliver a full anatomic wax-up on Exocad. I like to communicate the buccal volume for the smile, desired finishing line and a prescribed overbite at the new vertical dimension – Edward Li, p26

EDWARD LI
Edward practises at the a.b.c. smile practice in London. Whether it's rehabilitating tooth wear with composites or crafting new smiles in porcelain, his artful dentistry attracts a meticulous audience seeking contemporary cosmetic and functional makeovers.

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: Aesthetic dentistry

Educational aims and objectives: To present a restorative composite smile makeover, detailing non-surgical crown lengthening.

This article qualifies for one hour of enhanced CPD; answer the questions on page 80 or scan the QR code.

A patient in their mid-20s attended my clinic to see if it was possible to get her smiling again and fix a front tooth that she had hated ever since it needed a repair a child.

The headlining observation from the patient was that the teeth appeared small with one front tooth hidden (Figure 1) and many of the lower front teeth looking heavily chipped (Figure 2).

The patient presented with a mostly unrestored healthy adult dentition with a history of fixed appliance orthodontics 10 years previous with no fixed or removable retainers at present.

The upper fours had been removed to correct the class II skeletal base. The teeth had very mild labial crowding and a midline discrepancy of 2mm of the lower teeth to the right, with class I classifications for incisal, canine and molar (Figure 3).

Assessing the patient's smile and dental anatomy, it was observed that at full smile the lip line is moderate, with the lips showing 1.5 to 2mm of gingivae beyond the zeniths of the upper incisors. However, at this point it was noted that the clinical crown heights appear blunted by excessive free gingivae cervically without any papillae hypertrophy, suggesting altered passive eruption (APE).

The UR1 had a composite restoration, very thin in appearance and heavily worn palatal anatomy due to the occlusion. The patient reported a history of trauma to the UR1 hence its composite repair, which has been replaced multiple times.

The shade of the teeth had the base colour of Vita A3.

TREATMENT OPTIONS

The following treatment options were considered and discussed with the patient:

- Stabilisation
  - Hygiene scale and polish and thorough OHI
- Crown lengthening
  - Gingivectomy
  - Surgical
  - Non-surgical
- Prescription tooth whitening
- Restorative
  - Smile design and trial occlusion at new vertical dimension
  - Composite contouring – eight to 12 upper teeth, six to 12 lower teeth
    - Direct – freehand or transferred via clear silicon stent off a wax-up
  - Porcelain veneers/veneerlays – same number of teeth as above
    - Lithium disilicate
  - Michigan splint for night-time use.

Crown lengthening

Determining the type of APE is crucial for deciding which type of crown lengthening is suitable. With a periodontal probe and no LA at the consultation, I could determine that at the base of the sulcus, the CEJ could not be felt and more enamel was beyond that point on the upper incisors.

Preliminarily, a non-surgical approach using a laser diode to provide the gingivectomy was recommended with the understanding that once the patient is fully numb, an accurate measure of where

FIGURE 1: *Preoperative smile*

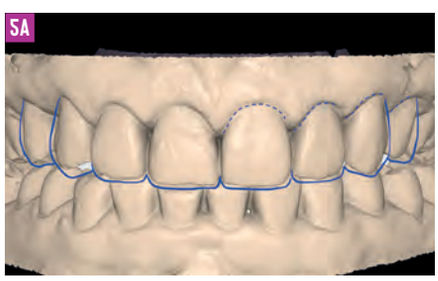
FIGURE 2: *Preoperative retracted*

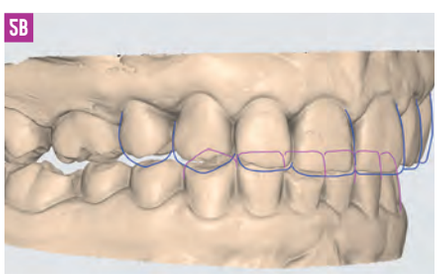
Edward Li presents a composite case detailing non-surgical crown lengthening

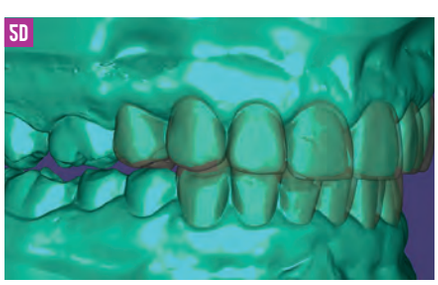
Composite smile makeover

FIGURES 3A *and* **3B:** *Preoperative occlusal views*

FIGURES 4A *and* **4B:** *Prescription and sketches for digital designer to aid digital wax-up*







FIGURES 5A *to* **5D:** *Comparing the digital wax-up to the sketches overlaid onto the preoperative teeth*

FIGURE 6: *Trial smile and occlusion assessment*

the crestal bone/buccal plate began relative to the CEJ would be the final check ahead of any laser gingivectomy.

Direct composite versus lithium disilicate

The development of the silanation processes to allow highly filled yet flowable composites (eg GC Universal Injectables) compete and exceed many paste composites, the ability to additively treat tooth wear with near-to-none surface preparation is increasingly desirable over porcelain.

A desirable feature of composite is its graceful wearability and in a case such as this where localising the treatment to the most affected teeth can allow for the Dahl principle to take effect.

Vertical dimension

Deciding whether the existing vertical dimension, a new full or partial occlusal scheme would deliver the best or necessary outcome is always a balanced and pragmatic decision to make.

In a clinically ideal scenario, a full occlusal design would deliver the most stable and functional occlusion, however combined with escalating fees and more restorative work to maintain, for most of my younger patients this is not a desirable direction.

Utilising a combination of intrusion of the anterior teeth and extrusion of the posterior teeth, the Dahl principle is utilised in the new vertical dimension of the design to minimise the involved teeth while freeing myself from the restorative constraints of a conformative approach.

TREATMENT PLAN

- Stabilisation
  - Hygiene scale and polish and thorough OHI
- Crown lengthening
  - Gingivectomy
    - Non-surgical
- Prescription tooth whitening
- Restorative
  - Smile design and trial occlusion at new vertical dimension
  - Composite contouring – eight upper teeth, six lower teeth
    - Direct – via clear silicon stent off a digital wax-up
  - Michigan splint for night-time use.

CLINICAL CHALLENGES

This case presented several clinical challenges, including deciding on a suitable vertical dimension to allow correct proportions, reaching minimal thicknesses in composite resin and suitable anatomy for axial forces to favour good response for the intrusion of anterior teeth using the Dahl principle.

In addition, we found aesthetically layering the UR1 in combination with injection moulding/pressing of composite for the most exterior layer to be a challenge.

CLINICAL OVERVIEW AND REFLECTION

With the anaesthetic, a diagnosis was made to determine a type 1A APE, which was ideal for non-surgical crown lengthening.

The gingivectomy ranged between 0.5mm and 1.5mm on the upper four to four, performed freehand and guided healing with the use of a high-filler flowable composite applied in a crescent on each newly defined margin, held by lightly etched enamel collar (Figure 4).

A sketch was made on screenshots of the digital scans to feed my vision to my digital designer to deliver a full anatomic wax-up on Exocad.

I like to communicate the buccal volume for the smile, desired finishing line and a prescribed overbite at the new vertical dimension (Figure 5).

At the trial smile, the upper anterior teeth were well balanced and suited the shade of the patient's lip in smile. It showed enough incisal edges when speaking (Figure 6).

The upper molars needed more volume to match the adjoining premolar, but due to cost reasons the patient was unable to have two more additional teeth.

The lower design was too long relative to the size of the upper teeth, an oversight on a screen, so using a pencil I shaded the incisal edges to mimic the silhouette of shorter teeth to replicate in the definitive composites at the next stage (Figure 7).

The patient liked the colour of the trial, Luxatemp BL, which helped indicate the resin selection for the next step.

Luxatemp BL appears closest to BL3 at a medium translucency and fairly comparable to BW in the GC UI range, the intended composite.

With the plan confirmed at the trial smile with an agreeable design, the teeth were ready for the composite transfer in GC Universal Injectable BW.

Composite removal of the UR1, retraction cord in the sulcus, contacts checked and smoothed with a yellow IPR strip, the enamel was etched and ready for embrasure isolation (Figure 8).

The occlusal view of the readied teeth shows the use of a liquid latex to block out the cervical embrasures and contact point, as my technique involves transferring the full anatomy in one go instead of alternating teeth, reducing my opportunity of clinical errors but accepting the need to separate contact points (Figure 9).

The UR1 being instanding and with a large class IV volume missing, layering of the differing opacities and internal anatomy was needed to

FIGURE 7A: *Laser gingivectomy used to level margins and reveal more enamel*

FIGURE 7B: *Two-week review of soft tissues*

FIGURE 8: *Composite removal UR1, retraction of the gums, teeth etched*

FIGURE 9: *Liquid latex embrasure isolation for composite transfer of design*

FIGURES 10A *and* **10B:** *Instanding and class IV space of UR1 requires layering prior transferring new surface anatomy*

FIGURES 11A *and* **11B:** *Dentine-like composite layered finished with achromatic high trans flowable composite for the incisal third*

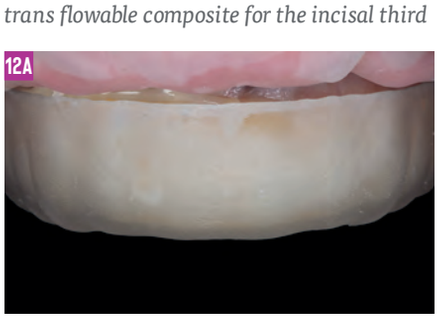


FIGURE 12A: *Printed special tray used to make silicon stents from the printed wax-up models*

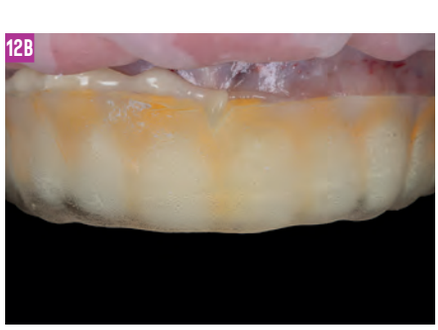


FIGURE 12B: *Allows uniform pressure when seating the GUI pre-loaded*

FIGURE 13A: *Stent removal to reveal accuracy of the pressed GUI in one seat*

FIGURE 13B: *One-month postoperative review showing great soft tissue integration*

FIGURES 14A *and* **14B:** *Same steps repeated for the lower anterior teeth*

FIGURES 15A *and* **15B:** *Lateral ICP views to see the new VD and posterior disocclusion*

FIGURES 15C *and* **15D:** *Occlusal views of the postoperative result restoring upper eight teeth and lower six teeth*

FIGURES 16A *and* **16B:** *Before and after smile*

FIGURES 17A *and* **17B:** *Before and after retracted*

bring life to that one tooth while the other teeth afforded a monolithic resin selection.

Using a classical layering approach to build a palatal shell from a putty stent off the wax-up, dentine opacity composite (DMG Ecosite B1) and translucency flowed in-between the mamelons

Layering of the differing opacities and internal anatomy was needed to bring life to that one tooth while the other teeth afforded a monolithic resin selection

and incisal edge (DMG Ecosite Incisal) prior to the GUI BW composite transfer (Figures 10 and 11).

Without layering, the UR1 would appear too high in value, denser white than all the adjacent teeth if the final thickness was in one monolithic BW.

The desired injectable composite is pre-loaded into my Exaclear stent that is held rigidly in a 3D printed special tray that is seated in one go atop all the teeth in question and on the layered UR1 (Figure 12).

Selectively curing enough of the composite through the firmly held special tray, it is then cured once again without the tray and the apparent excesses removed with the silicon stent in-situ.

Once the stent is removed, a number 12 blade is used to cut away a thin film of cured composite around the sulcus to have a clean reveal (Figure 13). This is repeated for the lower teeth (Figure 14) in the same appointment for a marathon five-hour sitting (with some breaks...)! This is required to ensure the occlusion is stable. Refinements were left for the initial review appointment a few weeks later.

One month later, my postoperative records are captured to observe good soft tissue integration (Figure 15). With the expected posterior disocclusion as seen in the photos, the anterior eight units occluded well with the patient eating all foods. Upon further assessment, the sevens and eights were coming into light occlusion, trapping a thicker 40um articulating as the mandible is repositioned in centric relation. CD

PRODUCTS USED

Exocad Align Technology
Luxatemp BL, Ecosite DMG
G-aenial Universal Injectable, Exaclear GC

COMPOSITE RESTORATION

NICOLÒ BARBERA DISCUSSES TREATMENT OF A DISCOLOURED, TRAUMATISED VITAL TOOTH

DR NICOLÒ BARBERA
Nicolò is assistant professor in the division of cariology and endodontics at the University of Geneva Private Clinical Practice in Lausanne.

FIGURE 1: *Discolouration and palatal position of UR1*

FIGURE 2: *Removal of fractured composite restoration*

FIGURE 3: *Reconstruction of the vestibular emergence profile with an enamel shade of composite*

TOKUYAMA
Tokuyama composites are available from Trycare. For further information, visit **www.trycare.co.uk**, contact your local Trycare representative, call **01274 885544** or email **dental@trycare.co.uk**.

A 30-year-old patient, with a healthy medical history, attended the practice requesting replacement of a previous composite restoration following trauma to the UR1. On clinical examination, the tooth was responsive to vitality testing and did not present periapical lesions radiographically.

The tooth was discoloured and more palatally positioned than the contralateral UL1 (Figure 1).

Aesthetic analysis highlighted an asymmetry of the gingival zenith between UR1 and UL1. Using a periodontal probe, under anaesthesia, a malpositioned marginal gingiva was confirmed according to the classification of Coslet et al.

Wanting to carry out the most conservative restorative treatment possible, taking into account the age and vitality of the tooth, it was decided to carry out a direct composite restoration following planning and a diagnostic wax-up.

FIGURE 4: *Reconstruction of the palatal wall using an enamel shade of composite*

FIGURE 5: *Use of light blue and white effect shades*

FIGURE 6: *Restoration after 12 months*

On the treatment day, following local anaesthesia, the tooth was isolated using rubber dam extending the isolation to the first premolars. The fractured composite restoration was removed and a short bevel was performed on the preparation. Then the entire surface of UR1 was sandblasted with 27µm aluminium oxide powder (Figure 2).

To correct the altered passive eruption, we recreated the emergence profile of the tooth by accentuating the vestibular bulge and seeking symmetry with the contralateral tooth. For this purpose, a pre-formed metal matrix and two wedges were used.

Once the matrix was adapted, bonding was carried out with a three-step etch and rinse system. Each step was followed by polymerization with UV light for 40 seconds. The vestibular emergence profile was recreated with an enamel shade of Estelite Asteria WE (Tokuyama Dental) (Figure 3). After creating a silicone index of the diagnostic wax-up, the palatal wall was reconstructed using an enamel shade of Estelite Asteria WE (Figure 4).

The dentinal anatomy was reconstructed by reproducing the mamelons with an opaque OA2 dentinal shade of Estelite Sigma Quick (Tokuyama Dental); this shade was fundamental for correcting the shade of the dischromatic tooth too.

Light blue and white shades of Estelite Color (Tokuyama Dental) were applied to emulate the opalescence in the incisal area (Figure 5). The layering was completed using Estelite Asteria WE in the vestibular area. The vestibular surface was modelled using 3D volumes in order to require as few final adjustments as possible. It was then polymerized for 20 seconds and 40 seconds in the vestibular and palatal areas, using a covering of glycerine gel to inhibit the hybrid layer.

Finishing and polishing were carried out trying to emulate the transition lines of the UL1.

The patient was reviewed after 21 days and 12 months (Figure 6) to evaluate the aesthetic result in shape and colour. CD

TOP TIPS...

WITH
DR MANRINA RHODE

TOP 10 TIPS FOR GUM CONTOURING

1 Take control of your results. Gum contouring is often referred to a periodontist, but as a cosmetic dentist, you could be doing it yourself. It gives you control over the final aesthetic outcome of your smile makeovers. Since starting to do my own gum contouring in 2008, I've not looked back. Having control over both the teeth and the gingival frame means you can deliver cohesive, natural-looking results.

2 Understand the architecture of a beautiful smile. When designing a smile, gingival architecture is just as important as the teeth. There's a specific ideal shape: centrals should sit level, laterals slightly lower, and canines match the centrals.
Correct placement of the gingival zenith (highest point of the gum) guides how balanced the smile appears. If the margins are off – especially when visible during speech or smiling – the result won't look ideal.

3 Symmetry trumps textbook perfection. With 'perfect smile rules', symmetry wins. If one canine's zenith is unusually high, I'd rather match the other than leave it at the ideal height. Symmetry is what the human eye perceives as beautiful. In many cases, it makes a greater impact than technical perfection. It's about what feels harmonious when the patient smiles.

4 Question your motivation. Sometimes, gum contouring is about the dentist's ego. If the patient's smile line is low and no one sees the gum margins, who are you doing it for? Ask yourself if the treatment truly enhances their beauty or just satisfies your own aesthetic standards. Sometimes, the right thing to do is nothing.

5 Learn the surgical method first. My early gum contouring involved scalpels, flap elevation, bone measurement and sutures. Yes, it looked gory, but it worked. It healed beautifully thanks to the gum's rich blood supply – and it taught me anatomy, precision and decision-making. Don't skip this step, even if you later switch to laser. We currently use lasers for everything.

6 Laser dentistry is a game-changer. I now use a dual-setting laser – soft tissue to shape the gum and hard tissue to contour bone. It's pain-free, blood-free and suture-free. Patients can look in the mirror and see results immediately. However, lasers aren't always the answer. If the bone is thick or anatomy is unclear, it's risky to go in blindly. In those cases, flap elevation gives the control you need.
It's not about favouring one technique, it's about choosing the right one.

7 Gingiva versus bone. You need to understand when to remove just gum tissue and when bone must also be contoured.
The key lies in biological width – typically 3mm between the gum margin and bone. If there's more than 3mm, you can remove the excess gingiva. But if you invade the biological width and don't remove bone, the gum will likely regrow and the results won't last. In that case, a full surgical lift is needed.

8 Invest in cutting-edge tech. Lasers are the future. Just like an eye surgeon wouldn't operate without one, I believe all aesthetic dentists should evolve too. Invest in the best tools from around the world, because when patients expect excellence, your equipment must deliver.

9 Learn, then get mentored. There are excellent courses out there, but don't stop at training. Having someone to consult when you're unsure – or when a case is slightly outside your comfort zone – is priceless.
Mentorship bridges the gap between education and clinical confidence.

10 Start simple, aim for excellence. Gum contouring is surprisingly straightforward once you understand ideal architecture.
Begin with cases that need minor tweaks – a low lateral, an uneven canine.
Build your eye, build your confidence and integrate it into your practice. It's a small adjustment that makes a big difference. CD

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Dr. Henrik-Christian Hollay

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DIGITALDENTISTRY

REBECCA WILLIAMS
Digitally driven orthodontics

36

Spacewize+ (a digital space calculator) was used to help plan the movement of the upper and lower arch. This shows how the dentition needs to move and by how much, highlighting if any extractions or a specialist referral is required. A 3D simulation was used to illustrate to the patient what the dentition could look like following treatment – this was completed through Archwise software – Rebecca Williams, p36

DR REBECCA WILLIAMS
Rebecca is an associate dentist with the Cox and Hitchcock Dental Group in Cardiff, Wales. Since attaining her BDS from the University of Wales in 2007, Dr Williams has fuelled her passion for aesthetic dentistry and orthodontics with a number of courses from the IAS Academy, and is part way through the Advanced Diploma Course.

A young female patient presented at the practice dissatisfied with the appearance of her teeth and wanted them straightened. She sought orthodontic treatment for aesthetic improvement.

The patient was new to the practice, but her family members were regular attenders who had recommended us. A full assessment of her dentition was conducted in December 2023. The patient presented with a class I skeletal relationship and had no facial asymmetry. The naso-labial angle was normal, and her lips were competent at rest.

Moderate crowding was observed in the upper arch, and minimal crowding was present in the lower arch. This was the patient's primary concern.

She had a class I incisal relationship and the canines were in a class II relationship by ¼ unit. The right molars were in a class I relationship and the left were in a class II relationship by ¼ unit. The centreline deviated 2mm to the right and there was a 2mm overjet with an overbite at 20%.

Mild wear was observed throughout the dentition. Adequate oral health was observed and the patient required no restorative treatment prior to care.

TREATMENT PLANNING

A range of treatment options were proposed, including fixed and removable appliances.

After a comprehensive assessment was conducted, which included a full suite of clinical photographs and appropriate radiographs, information was sent to the lab and the case was also sent to my IAS Academy mentor, Dr Utpalendu 'Pinks' Bose, to enlist his support for with this fixed brace case.

FIGURE 1: *Pre-treatment smile close-up*

FIGURE 2: *Pre-treatment upper anterior close-up*

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: Digital dentistry

Educational aims and objectives: To present a case that tackles mild crowding using digital software and fixed braces. This article qualifies for one hour of enhanced CPD; answer the questions on page 80 or scan the QR code.

Rebecca Williams tackles a case of mild crowding using digital software and fixed braces

Digitally driven orthodontics

FIGURE 3: *Pre-treatment anterior in occlusion*

FIGURE 4: *Pre-treatment digital plan of anterior in occlusion*

FIGURE 5: *Pre-treatment digital plan of left lateral in occlusion*

FIGURE 6: *Pre-treatment digital plan of right lateral in occlusion*

FIGURE 7: *Mid-treatment upper occlusal view*

FIGURE 8: *Mid-treatment lower occlusal view*

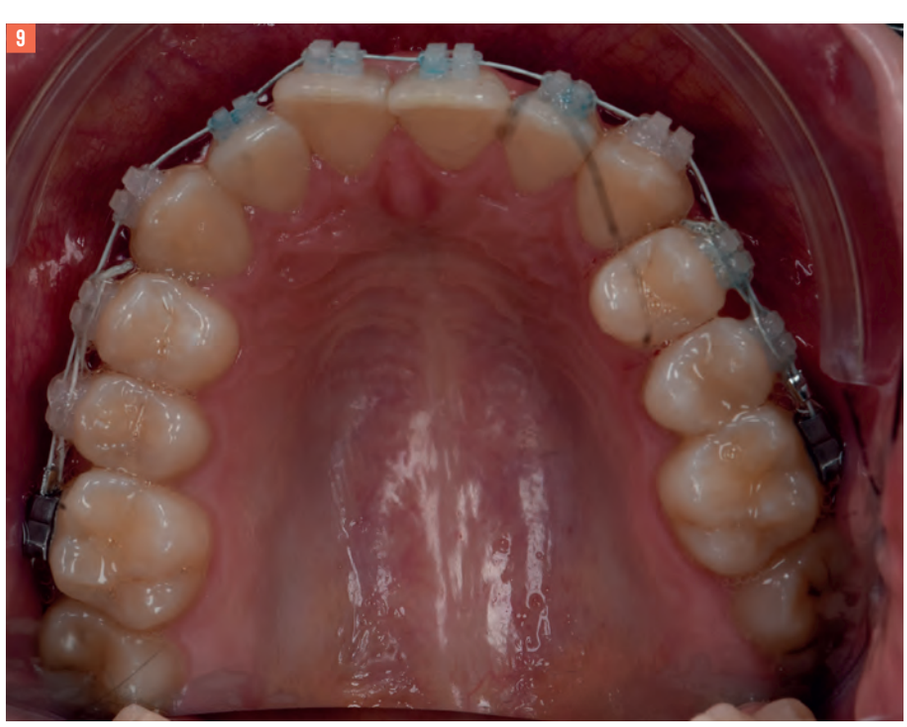

FIGURE 9: *Bond up, upper occlusal view*

DIGITAL PLANNING

Following approval from Dr Bose that the case was manageable, Spacewize+ (a digital space calculator) was used to help plan the movement of the upper and lower arch. This shows how the dentition needs to move and by how much, highlighting if any extractions or a specialist referral is required.

For this case, the movements were relatively minor and straightforward: the lower arch needed 1.2mm of movement and the upper arch needed 1.1mm of movement.

A 3D simulation was used to illustrate to the patient what the dentition could look like following treatment – this was completed through Archwise software.

Three-dimensional models and clinical photographs were excellent for the patient's education and consent.

TREATMENT

Fixed orthodontics were chosen instead of aligners. Given the choice of brace, the patient wanted clear ceramic brackets and 3M Clarity brackets were advised.

IAS plans the movements digitally and the placement of the brackets. The brackets are then provided pre-positioned on a jig, bespoke to the patient. Accurate results are achieved using 3M Clarity brackets, making them an excellent option for beginning a career with braces as you can be confident with the placement. The Clarity brackets were placed quickly and simply.

Appointments occurred every six to eight weeks throughout treatment. The brace sequence started with a .012 nickel titanium wire then progressed without complication to a .016 nickel titanium wire. Treatment continued with a .020" x .020 wire and then a .019" x .025 without any problems.

Because of the movement planned through Spacewize+, interproximal reduction (IPR) was needed. Using a space file, completing IPR by hand provided excellent control and the exact amount of enamel was reduced for optimal results.

Throughout the treatment process, Dr Bose supported each clinical choice, offering invaluable guidance and enhancing my confidence.

The braces were removed 10 months later, achieving the desired results. Tooth whitening followed, brightening the teeth uniformly to keep consistency in the shade colour.

As there were not enough irregularities to justify composite bonding, signature contouring was performed. Safe and minimal, this improved the aesthetics of the final result and treated a couple of minor worn edges. The contouring also lined up the gingival margins.

FIGURE 10: *Bond up anterior in occlusion with brace*

FIGURE 11: *Mid-treatment smile with hot pink powerchain*

FIGURE 12: *Mid-treatment right lateral with hot pink powerchain*

FIGURE 13: *Post-treatment left lateral in occlusion*

FIGURE 14: *Post-treatment right lateral in occlusion*

FIGURE 15: *Post-treatment smile close-up*

FIGURE 16: *Post-treatment upper anterior close-up*

FIGURE 17: *Post-treatment lower anterior close-up*

FIGURE 18: *Post-treatment anterior in occlusion*

Fixed retainers were then made for the upper and lower arches, with removable retainers over the top.

The patient's enthusiasm to participate in a photoshoot afterwards reinforced her satisfaction with the treatment outcome.

Since completing treatment, she has since worn her retainers diligently and the results have endured.

REFLECTION

The treatment plan was followed without any unforeseen problems. Using SpaceWize+, Archwise and having the support of my IAS mentor ensured that the plan was carefully considered.

Both the patient and I were thrilled with the outcome; the functional and aesthetic results exceeded expectations, especially after the contouring, and the shorter time frame was also welcome for the patient.

Gaining the confidence and skills during the Fixed Braces course from the IAS Academy was imperative for cases like this early in my orthodontic career.

From learning hands-on techniques under the guidance of a mentor to applying them to daily practice, continuing the orthodontic journey through further education is vital for attaining optimal results and managing more complex cases.

Completing this case showcased how all orthodontic treatments need careful planning and how technology can streamline the workflow for more reliable, predictable results.

No matter the complexity of the treatment, being able to provide the smile that the patient wants is invaluable, allowing them to feel satisfied with their teeth.

Motivating patients to consistently wear their retainers afterwards is also vital; it can be easy to let good habits slide, leading to poor maintenance of the teeth and the potential for the bite to gradually revert to its pre-treatment position.

Patient compliancy increases a treatment's lifespan and practitioners should always highlight the value of wearing retainers and having an effective daily oral hygiene routine to protect and preserve the smile. CD

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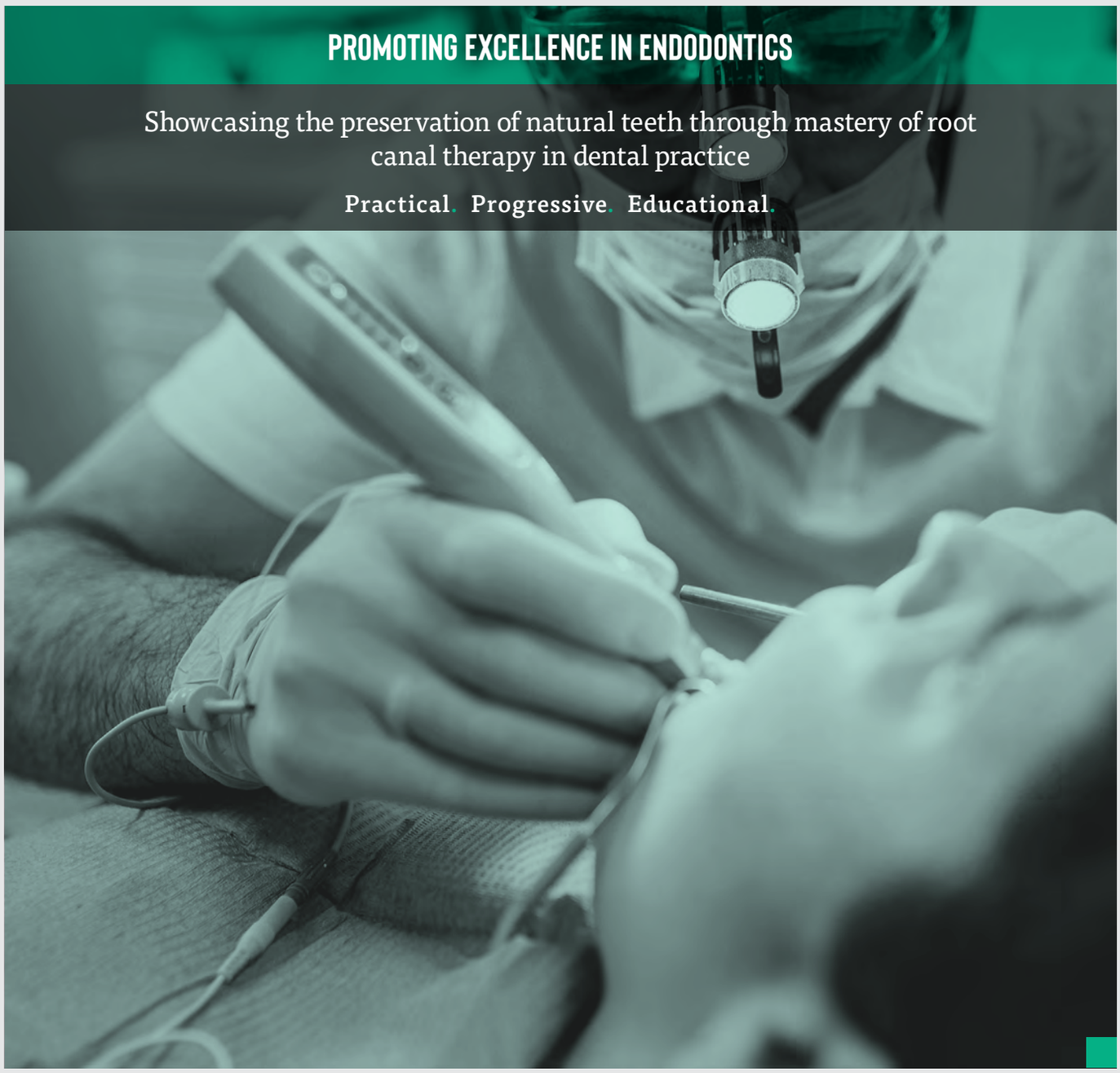
ENDODONTICS

JOHN BARCLAY
Endodontic access and beyond: part two

42

For years, we've debated access cavity design like it's the holy grail of tooth preservation, but the evidence tells a different story. Maybe it's not about TEC, CEC or Ninja access at all. Maybe it's about the tooth's pre-existing condition long before we even pick up a bur – John Barclay, p42



DR JOHN BARCLAY
BSC (HONS) BDS (HONS) DIP ENDO
John practises at Kandy Lodge Dental Practice in Wrexham and runs endodontic hands-on courses. For more details, visit endodonticcourses.com.

ENHANCED CPD
CPD hours: one
GDC development outcome: C
Topic: Endodontics
Educational aims and objectives: To explore endodontic access: alternative designs and managing weakened teeth. This article qualifies for one hour of enhanced CPD; answer the questions on page 80 or scan the QR code.

For years, we've debated access cavity design like it's the holy grail of tooth preservation, but the evidence tells a different story. Maybe it's not about TEC, CEC, or Ninja access at all. Maybe it's about the tooth's pre-existing condition long before we even pick up a bur.

Many endodontically treated teeth are already structurally compromised before access is initiated. The challenge is balancing visibility with conservation – how do we remove just enough tooth structure to work efficiently without increasing fracture risk?

Traditional access designs often assume intact coronal structures, but in reality many teeth requiring endodontic treatment already exhibit significant loss of dentine due to decay, fractures or prior restorations. This raises key questions:

- How can we optimise access for compromised teeth without further weakening them?
- What alternative techniques can be employed to maximise success while preserving as much healthy dentine as possible?
- When is an ultra-conservative approach justified, and when does it hinder predictability?

By integrating modern access techniques (CEC, Truss, Ninja access) with a structural risk assessment, we ensure endodontic success without sacrificing long-term restorability.

UNDERSTANDING STRUCTURAL WEAKNESS IN ENDODONTIC CASES

Teeth requiring root canal treatment often have pre-existing damage due to caries, fractures or previous restorations. Before initiating access, it's crucial to assess:

- Remaining dentine thickness (RDT): how much dentine is left around the access cavity, especially at the cervical level?
- Cusp and marginal ridge integrity: are these structures intact or at high risk of fracture?
- Previous restorations and decay: large composites, crowns, or undermined enamel influence the access strategy
- Tooth location and load considerations: molars endure higher occlusal forces and require different conservation techniques than anteriors.

Understanding stress distribution within the tooth post-access can help predict failure points. For example, premolars under high occlusal loads are more prone to vertical fractures, meaning that an overly aggressive TEC approach may be a greater risk than in molars, where marginal ridge integrity is more critical.

A thorough preoperative assessment helps determine whether the access should be traditional, conservative, or ultra-minimal to balance visibility and structural preservation.

TEC, CEC, TRUSS AND NINJA ACCESS: ADAPTING TO THE TOOTH'S FRAILTIES

Unlike conventional cases, access design for structurally compromised teeth must minimise unnecessary dentine removal while maintaining adequate visualisation.

The approaches in Table 1 can help.

Key adjustments for weakened teeth:

- Minimise occlusal dentine removal – adjust access only as needed to locate canals
- Use ultrasonic troughing instead of large burs – enhances precision without excessive cutting
- Preserve peri-cervical dentine (PCD) – avoids unnecessary weakening of critical stress-bearing areas
- Leverage CBCT and magnification – improves visualisation while allowing conservative access.

By tailoring the access approach based on the degree of structural compromise, clinicians can optimise both endodontic success and restorative longevity.

In the final part of a two-part series on endodontic access – the critical first step in endodontics – John Barclay explores alternative designs and managing weakened teeth

Endodontic access and beyond: part two

Access type	Best for	Advantaged	Challenges
Traditional endodontic cavity (TEC)	Fracture-resistant teeth with complex anatomy	Clear visualisation, straight-line access	Greater dentine loss, potential for weakening
Conservative endodontic cavity (CEC)	Moderately weakened teeth	Preserves peri-cervical dentine, balances visibility and strength	Requires precise technique, slight reduction in visibility
Truss access	Highly compromised molars	Preserves maximum dentine, reduces post-treatment fractures	Reduced visibility, higher technique sensitivity
Ninja access	Teeth with minimal remaining structure	Extreme dentine preservation, long-term strength	Very challenging canal negotiation, increased risk of missed canals

TABLE 1: *Access approaches*

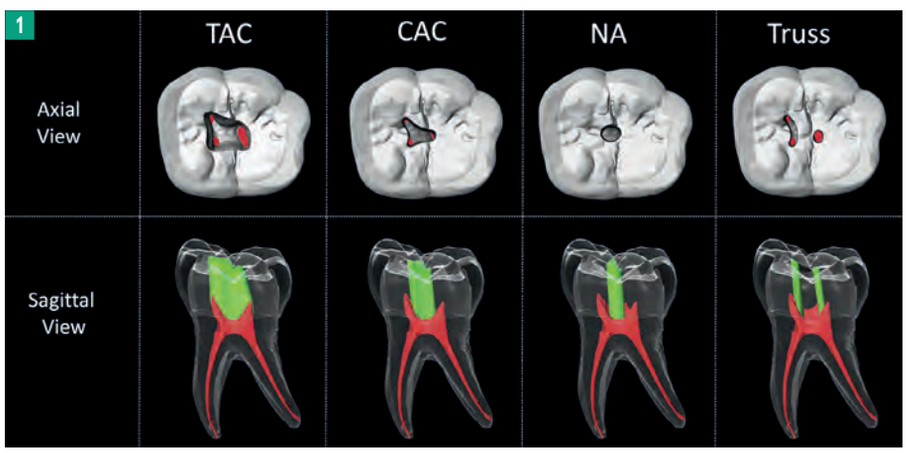


FIGURE 1: *Access cavity preparations (Shabbir et al, 2021)*

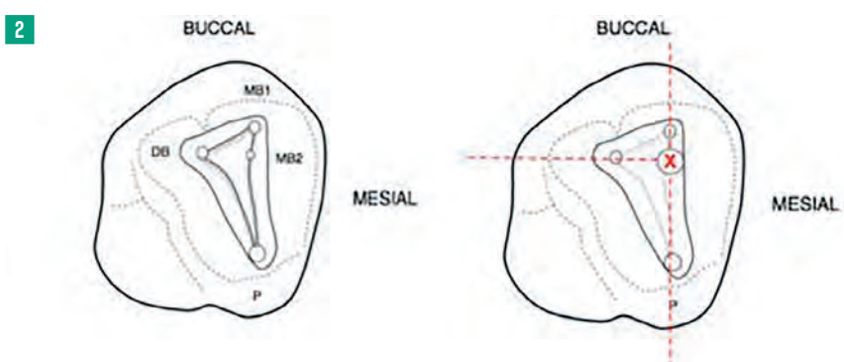


FIGURE 2: *The MB2 search (Darcey et al, 2015)*

ENDODONTIC ACCESS, SHAPING EFFICIENCY AND FRACTURE SUSCEPTIBILITY: EVIDENCE

Endodontically treated teeth experience a measurable loss of structural integrity compared to vital teeth. However, the root cause of increased fracture risk remains debated.

Several competing arguments exist:

- Canal shaping and cleaning: removing infected pulp and dentine may compromise structural integrity, but modern techniques aim to minimize unnecessary removal
- Access cavity design: larger or poorly placed access cavities could weaken the coronal structure, making the tooth more prone to fracture
- A combination of both: is it truly access or shaping, or is it the cumulative effect of both?
- The impact of pre-existing restorations: marginal ridge preservation appears to be more critical than access design alone.

Essentially, the evidence suggests restorability and structural preservation matter more than access size alone – access cavity design should be dictated by the pre-existing condition of the tooth, while also considering instrumentation efficiency.

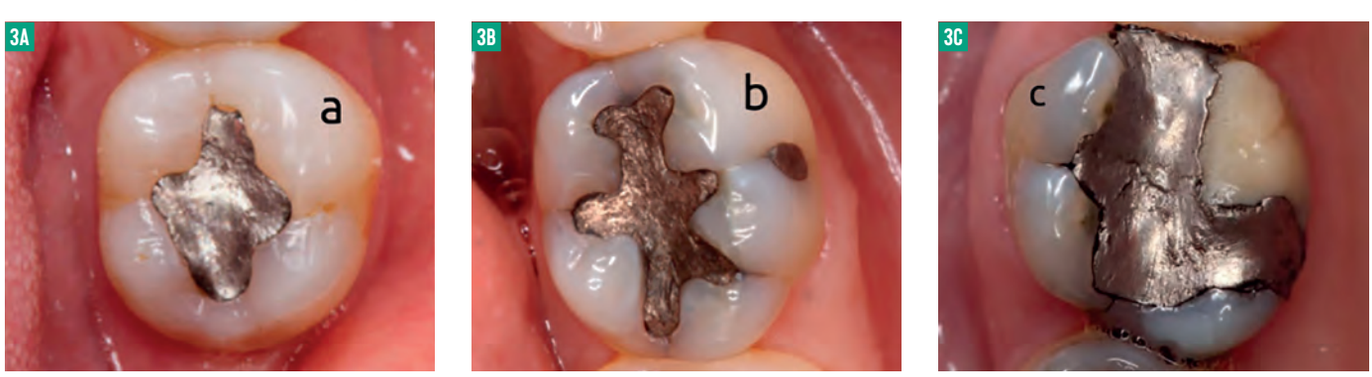
MB2: THE HIDDEN CHALLENGE IN MAXILLARY MOLARS

While much of the access cavity debate focuses on structural preservation, an equally critical issue is canal location and negotiation – particularly MB2 in maxillary molars.

MB2 is present in more than 90% of maxillary first molars, yet studies consistently show it is frequently missed, leading to treatment failure and the need for retreatment.

Access design impacts MB2 identification in the following ways:

- TEC provides clear visualisation and enhances MB2 detection
- CEC and Truss require magnification and ultrasonics to avoid missing MB2
- Conservative access may reduce visibility, increasing MB2 failure rates.



FIGURES 3A *to* **3C:** *Three lower first molars all diagnosed with irreversible pulpitis but different clinical complexity and access challenges*

Studies indicate MB2 detection drops significantly when access is too restricted (Ballester et al, 2021; Krishan et al, 2014).

BALANCING BACTERIAL REMOVAL AND DENTINE PRESERVATION

These are the competing ideologies – bacterial removal versus dentine preservation. Currently, I concur with the conclusion in Maqbool and colleagues (2020) that says: 'There is no conclusive evidence that conservative or ultra-conservative access cavities increase fracture resistance or adequately allow for complete disinfection. While these designs should be used cautiously, the goal should shift from "removing the smallest possible amount of tooth structure" to "removing as little as necessary."'

So how do we apply this in clinical scenarios? Let's go back to our images from the first article (Figures 3a, 3b and 3c), each with identical diagnosis of irreversible pulpitis without apical periodontitis, requiring at least expulp at an emergency appointment.

- Remove compromised restorations fully before finalising the access shape
- Identify and eliminate caries and fractures first – this will often dictate access shape naturally
- Balance coronal disinfection with preservation – too conservative and you risk missing critical areas; too aggressive and you compromise strength
- Cuspal coverage should be considered early – restorative planning begins at the access stage.

This approach ensures the best possible endodontic and restorative outcomes. In the end, it's about strategic preservation, not blind conservation.

CLINICAL SCENARIO

In the following clinical scenario, the UL7 was diagnosed with irreversible pulpitis (Figures 4a and 4b).

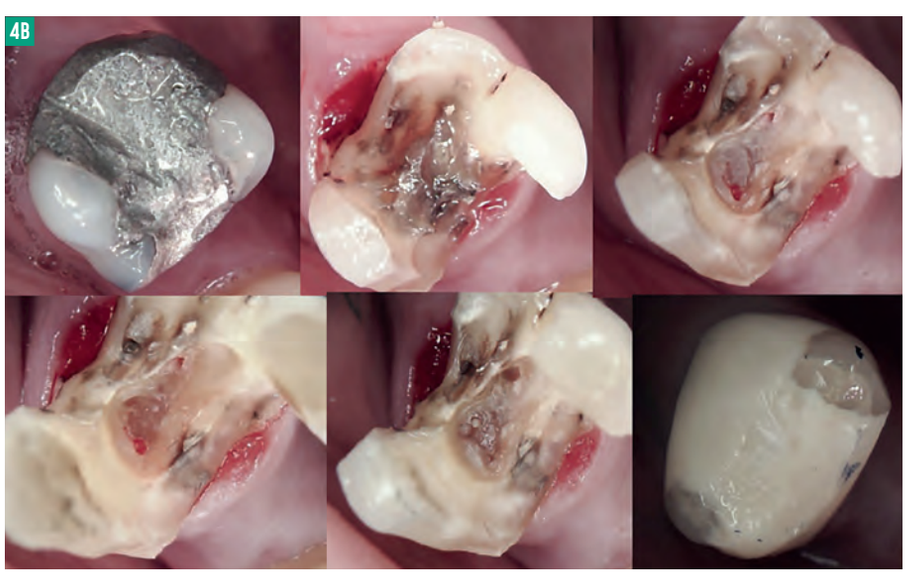
The dentist was eager to treat, but the dental nurse was sceptical. The dentist checked their watch, it was 12:35pm. They made a deal with the dental nurse: 'We'll be done before 1pm – and if we're not, I'll buy your lunch.'

Treatment summary:

- Complete caries removal
- Access cavity refined
- Unsupported cusps reduced
- Located three canals (fourth TBD – not visible)
- Irrigated with bleach and HVS
- 10/15/SX/Ledermix placed
- PTFE pledget applied
- RM GIC build-up with matrix band.

They finished at 13:05pm – and the dental nurse got a Costa lunch!

Endodontics evolves, and so should we. What will you change in your approach after reading this? CD



FIGURES 4A *and* **4B:** *UL7 – diagnosed with irreversible pulpitis*

KEY RESEARCH FINDINGS

- Premolars versus molars: TEC significantly weakens premolars, but marginal ridge loss is a bigger factor in molars (Zelic et al, 2015; Ballester et al, 2021)
- CEC versus TEC: CEC can increase fracture resistance, but only when instrumentation efficiency is not compromised (Krishan et al, 2014)
- Is access design overrated? In some cases, remaining dentine walls matter more than access shape alone (Corsentino et al, 2018)
- CEC and Truss impact on shaping: while CEC and Truss access designs preserve dentine, they can limit instrument penetration and cleaning efficiency, particularly in molar distal canals (Krishan et al, 2014)
- Marginal ridge influence: when marginal ridges remain intact, conservative access improves fracture resistance, but if even one ridge is missing, access design has minimal impact on fracture strength (Ballester et al, 2021).

REFERENCES

Ballester B, Giraud T, Ahmed HMA, Nabhan MS, Bukiet F, Guivarc'h M (2021) Current strategies for conservative endodontic access cavity preparation techniques-systematic review, meta-analysis, and decision-making protocol. *Clin Oral Investig* 25(11):6027-6044

Corsentino G, Pedullà E, Castelli L, Liguori M, Spicciarelli V, Martignoni M, Ferrari M, Grandini S (2018) Influence of access cavity preparation and remaining tooth substance on fracture strength of endodontically treated teeth. *J Endod* 44(9): 1416-1421

Darcey J, Taylor C, Vahid Roudsari R, Jawad S, Hunter M (2015) Modern endodontic planning part 2: access and strategy. *Dent Update* 42(8): 709-720

Krishan R, Paqué F, Ossareh A, Kishen A, Dao T, Friedman S (2014) Impacts of conservative endodontic cavity on root canal instrumentation efficacy and resistance to fracture assessed in incisors, premolars, and molars. *J Endod* 40(8): 160-6

Shabbir J, Zehra T, Najmi N, Hasan A, Naz M, Piasecki L, Azim AA (2021) Access cavity preparations: classification and literature review of traditional and minimally invasive endodontic access cavity designs. *J Endod* 47(8): 1229-1244

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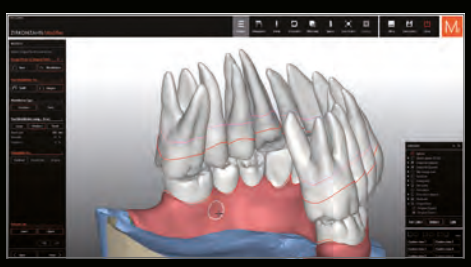

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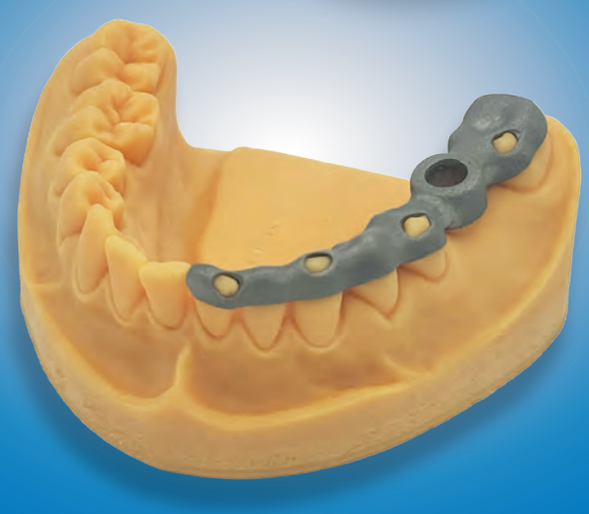

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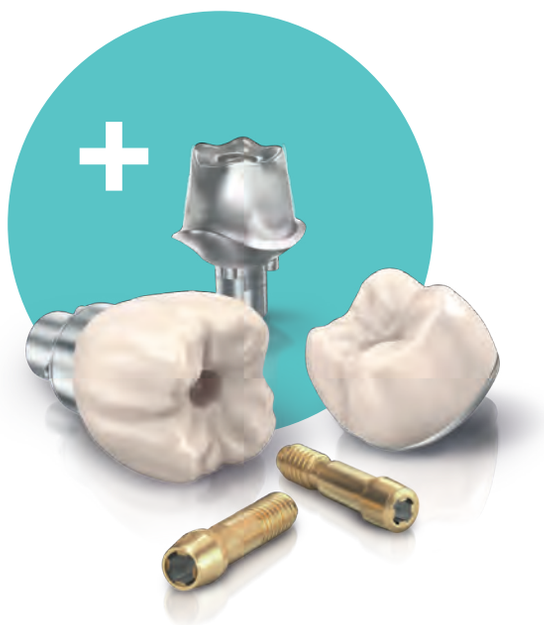

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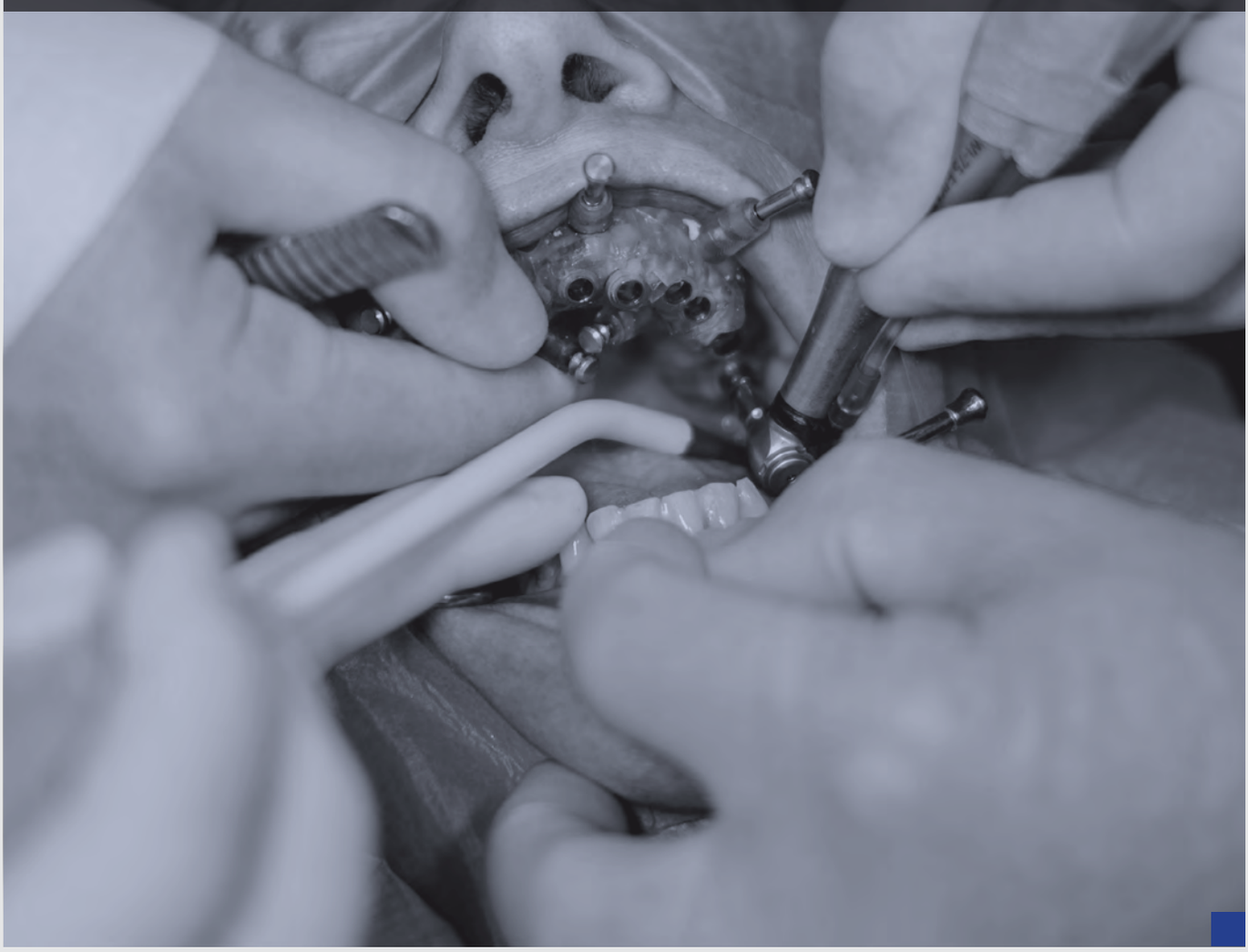
IMPLANTDENTISTRY

This case study demonstrates the success of the open wound healing concept whereby the assimilation of a particulate bone graft was not impeded or compromised even though primary closure of the soft tissues was not achieved – Robert Oretti, p51



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DR ROBERT ORETTI
BDS MGDS RCS(LON) MFDS RCS(LON) MFDSRCPS (GLAS)
Rob qualified from King's College, London in 1987 and has gained years of experience in performing complex implant, orthodontic and cosmetic treatments. He is clinical co-director at Pentangle Dental Transformations (part of Bupa). Rob is a postgraduate tutor for the Thames Valley Deanery, a mentor and faculty educator for the ADI, a mentor and international speaker for the ITI, and a Royal College of Surgeons examiner for the implant diploma, and the Membership in Advanced General Dental Surgery. He presents regularly at scientific meetings and has published several articles on implant therapy.

ENHANCED CPD
CPD hours: one
GDC development outcome: C
Topic: Implant dentistry
Educational aims and objectives: To present a case detailing implant replacement of the upper right lateral incisor utilising Mineross and a connective tissue graft. This article qualifies for one hour of enhanced CPD; answer the questions on page 80 or scan the QR code.

The presence of a sufficient volume of bone is a key prerequisite of successful implant treatment. When working with deficient bone sites, clinicians must utilise additional techniques in order to facilitate implant stability and longevity.

Ridge preservation is a proven bone grafting solution that can deliver enhanced implant success compared to other placement techniques (Yu et al, 2022) and can minimise the physiologic ridge reduction compared to extraction alone by up to 2.07mm (Avila-Ortiz et al, 2014).

For the best outcome for the patient, soft tissue changes must also be considered. The literature shows that autogenous soft tissue grafting and collagen alternatives are highly effective in maintaining or improving soft tissue volume alongside ridge preservation procedures (Canullo et al, 2022).

There is also evidence that an open wound healing approach leads to reduced gingival swelling and enhanced healing (Azab et al, 2022).

The following case study takes all of this into consideration and demonstrates the effectiveness of hard and soft tissue augmentation with a delayed implant protocol.

CASE REPORT

A female patient was referred for implant replacement of her failed upper right lateral incisor tooth.

The tooth exhibited grade III mobility and had drifted forwards and downwards.

FIGURE 1: *Presenting situation*

FIGURE 2: *Mobile UR2*

Robert Oretti presents a case study highlighting implant replacement of the upper right lateral incisor utilising Mineross and a connective tissue graft

Implant replacement

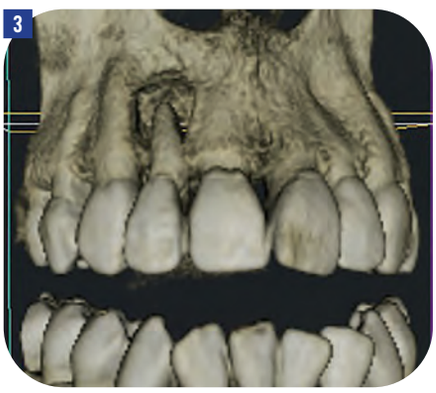
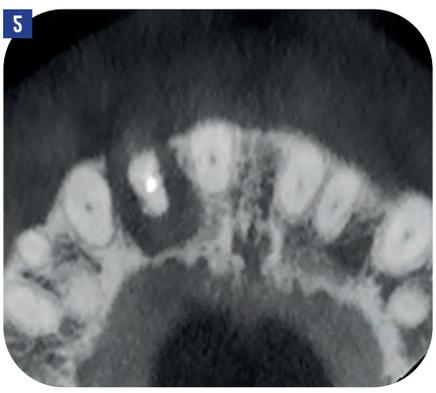


FIGURE 3: *Imaging assessment*



FIGURES 4 *and* **5:** *CT scan diagnostic imaging*

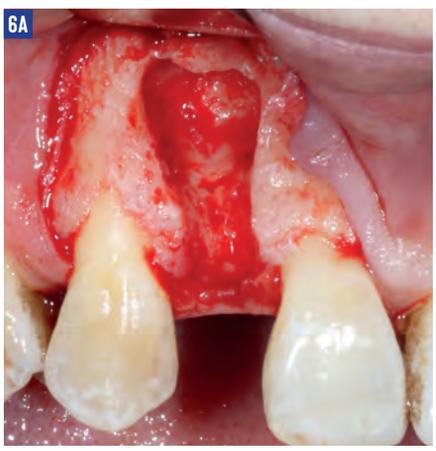


FIGURE 6A: *Large full thickness flap raised*

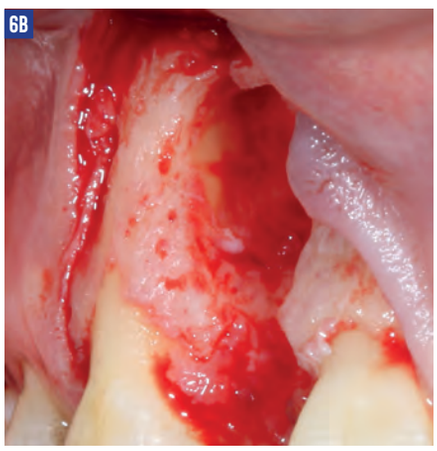


FIGURE 6B: *UR3 root exposure*

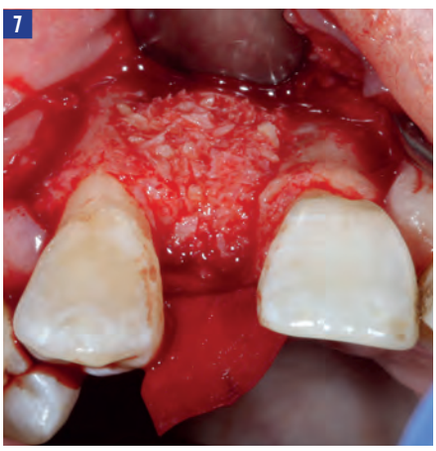


FIGURE 7: *Rebuilding of the bone defect with a particular bone graft*

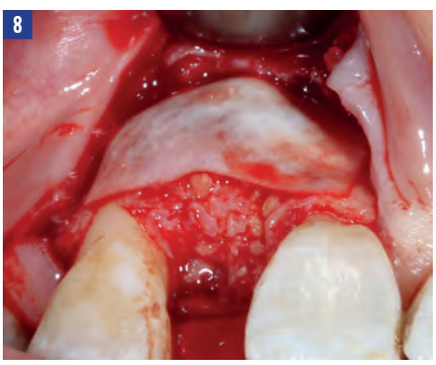


FIGURE 8: *Collagen membrane placed to protect the bone graft*

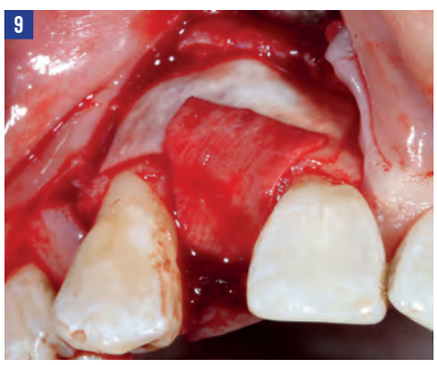


FIGURE 9: *Shorter acting collagen membrane on occlusal aspect of the graft*

A connective tissue graft would be required as part of the next surgical procedure to improve the soft tissue volume

Clinical and CT scan assessment confirmed that the UR2 suffered from extensive bone loss with complete loss of the labial plate and was associated with a large periapical lesion that extended palatally and laterally towards the UR3. The UR3 tested positive to vitality testing.

It was considered high risk to attempt an immediate implant placement in such a compromised site and the treatment plan was to firstly remove the tooth and the granulation tissue and perform a simultaneous ridge preservation procedure to combat the likelihood of severe shrinkage of the socket during the healing period.

The rationale was to fill the bone defect with a bone graft material immediately after tooth removal to reduce the shrinkage of the socket and maintain most of the socket dimensions during the healing phase.

RIDGE PRESERVATION PROCEDURE

The first treatment phase included the elevation of a large full thickness flap to fully expose the area and enable the harvesting of autogenous bone utilising a Safescraper.

The UR2 was then removed, including excavation of all granulation tissue, taking care to avoid any direct curettage of the exposed UR3 root.

The large bone defect was then filled with a 50/50 mix of autogenous bone chips and an allograft (Mineross, a cortico-cancellous mix – Biohorizons Camlog) and the buccal defect was

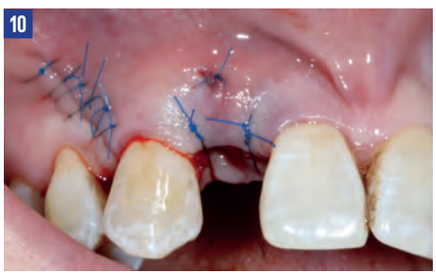
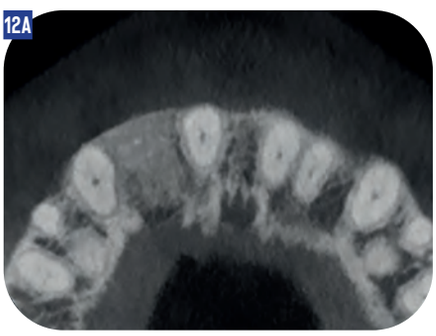
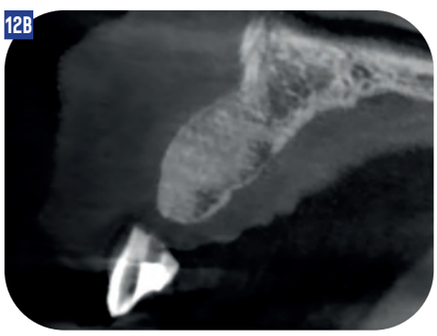


FIGURE 10: *Flap closure with intentional open wound healing*

FIGURE 11: *Seven-month review*





FIGURES 12A *and* **12B:** *Seven-month review CBCT scan*

FIGURE 13: *Seven-month review clinical assessment confirming thin, soft tissues*

FIGURE 14: *Palatal crestal incision made*

FIGURE 15: *Full thickness flap raised revealing good bone turnover*

FIGURE 16: *Guide pin in situ*

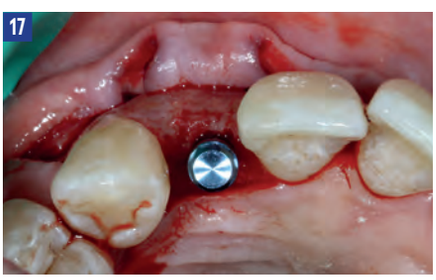


FIGURE 17: *Implant sufficiently surrounded by bone*

FIGURE 18: *Connective tissue harvested from the palate*

covered with a native porcine collagen membrane with a high percentage of collagen type III for a prolonged barrier function of six months. No fixation pins were used.

The occlusal aspect of the bone graft – which would remain exposed during the healing period – was covered with a shorter acting native collagen membrane. The concept was that this exposed membrane would provide a barrier and prevent loss of the bone graft, but would also break down rapidly, favouring early epithelialisation of the open wound by secondary intention healing.

The muco-periosteal flap was sutured back with 6-0 Prolene and no attempt was made to coronally advance the flap for complete closure. The rationale was to maintain the open socket wound and thereby preserve the original mucogingival relationship with no alteration.

The socket entrance was sealed with the short acting membrane, while the original tooth (after root removal) was utilised as a temporary pontic and bonded to the adjacent teeth with flowable composite.

SEVEN-MONTH REVIEW

Healing was uneventful and following a seven-month maturation period, a CBCT scan confirmed the presence of the Mineross/autogenous bone graft and a favourable volume of bone. However, it was noted that the soft tissues covering the bone graft were thin with an absence of interdental papillae.

It was determined that a connective tissue graft would be required as part of the next surgical procedure to improve the soft tissue volume and lead to the creation of papillae during the prosthetic stages.

IMPLANT PLACEMENT/SOFT TISSUE GRAFTING

The second surgery involved a palatal crestal incision and a full thickness flap elevation, revealing good turnover of bone graft into host bone.

A bone level implant was placed in an appropriate three-dimensional position completely surrounded by new bone and no additional bone grafting was required. A 4mm

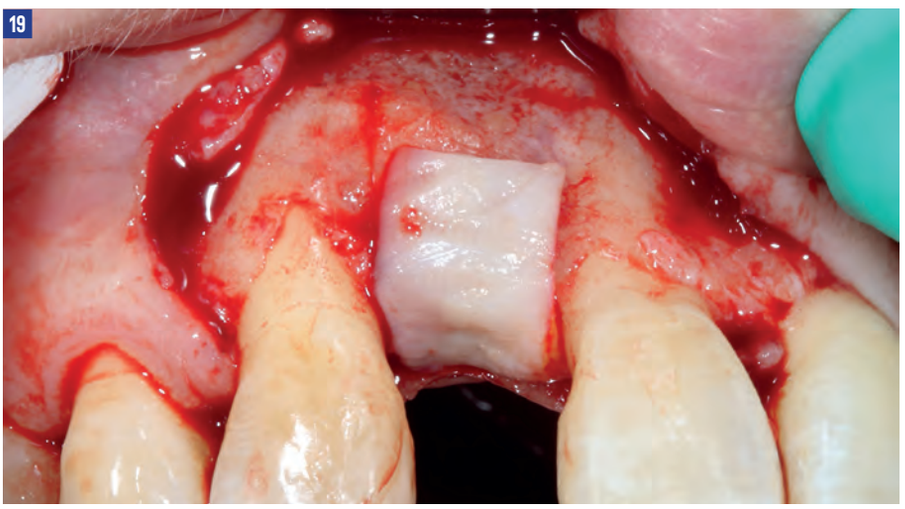


FIGURE 19: *Flap sutured for complete closure*

FIGURE 20: *Emergence profile development with a provisional crown*

FIGURE 21: *Final restoration at three-year review*

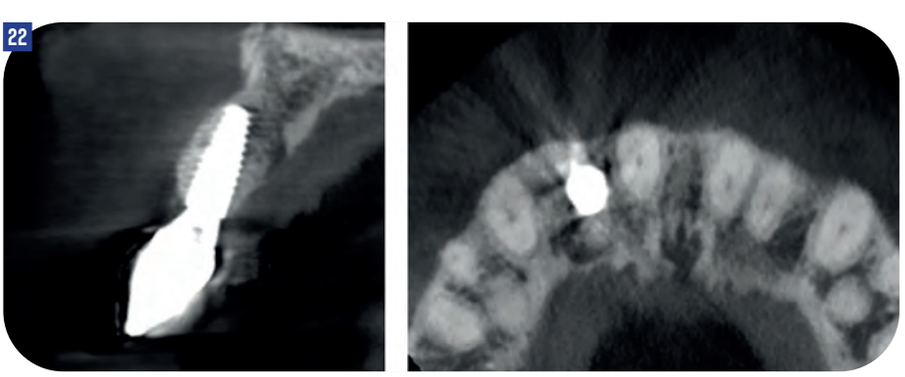


FIGURE 22: *CBCT scan at three-year review*

healing cap was placed. A free gingival graft was taken from the palate below the upper right molar teeth and the epithelium was removed on the surgical table.

The connective tissue strip of graft was then placed on top of the healing cap (and suspended over the healing cap) and secured to the palatal flap with 6-o PGA Resorba sutures. Finally, the buccal flap was closed with complete primary intention wound healing using 6-o Prolene.

PROVISIONAL STAGES

Three months later, a small crestal incision was performed to expose and remove the healing cap and impressions taken to construct an under-contoured screw-retained provisional crown.

Over a period of two visits, composite was incrementally added to the subgingival portion of the temporary crown to expand and modify the soft tissue emergence profile until an acceptable shape was achieved.

A new impression was taken, capturing the new transmucosal shape. A customised abutment and zirconia crown were fabricated as a one-piece screw-retained restoration and fitted to complete the case.

THREE-YEAR REVIEW

A three-year review of the final outcome displayed adequate hard and soft tissue volume with complete papilla infill and a pleasing outcome for the patient.

DISCUSSION

This case study demonstrates the success of the open wound healing concept whereby the assimilation of a particulate bone graft was not impeded or compromised even though primary closure of the soft tissues was not achieved.

It also highlights the importance of product selection for the bone augmentation procedure. I regularly choose Mineross because the combination of cortical and cancellous particulate delivers fast yet controlled bone remodelling. Its rapid turnover to bone allows a shorter overall treatment time, creating a stable environment in which to place an implant only months after augmentation. CD

REFERENCES

siobhan.hiscott@fmc.co.uk

PRODUCTS USED

Mineross Biohorizons Camlog
Safescraper Geistlich
6-o Prolene Ethicon
6-o PGA Resorba

Bien-Air Dental

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Overcoming implant complications

Selvaraj Balaji presents a complex case in which a three-unit implant-retained bridge was required in the aesthetic zone, utilising an existing dental implant and necessitating hard and soft tissue augmentation

The patient, a 46-year-old male, first presented to the practice nine years ago when he received implant treatment for a missing UL2. He revisited two years ago, complaining of a failing UL1 and UR1 – both had undergone root canal treatment that had since failed.

The biggest complicating factor in this case was the existing implant in the UL2 site. The patient also had a thin biotype and soft tissue recession around the natural teeth as well.

TREATMENT PLANNING

Any treatment plan needed to extract the failing UL1 and UR1 and replace them. However, the UL2 made this complicated. As such, there were two key treatment options:

1. Extract the UL1 and UR1 and place two implants in their places. This option would present challenges as there was an existing implant in the UL2. Three total implants could potentially compromise the bone and soft tissue between the implants. This would make this option unpredictable
2. Extract the UL1 and UR1 and place an implant only in the UR1. Following this, use the existing implant in the UL2 to create a three-unit implant-retained bridge.

All treatment options were discussed with the patient, including the option of no treatment (which was not advised in this case).

The patient provided informed consent to proceed with treatment option two, as this would provide good functional and aesthetic outcomes.

Hard tissue grafting would be required in the UL1 socket, and soft tissue grafting would be needed for the UR1, UL1, and UL2 in order to support the restoration and to improve overall aesthetics and function.

A digital workflow was used to plan the ideal position, angle, and depth of the dental implant, in relation to the existing implant and the planned restoration. This was used to inform

FIGURE 1: *Initial presentation*

DR SELVARAJ BALAJI
BDS MFDS RCPS(GLA) MFD SRCS(ED) LDS RCS(ENG)
Selvaraj is the principal dentist of The Gallery Dental Group, which is made up of Meadow Walk Dental Practice and The Gallery Dental & Implant Centre. Selvaraj is also the founder of the Academy of Soft and Hard Tissue Augmentation (ASHA) and runs courses, lectures and study clubs in the UK and around Europe for aspiring implant dentists. Visit www.ashaclub.co.uk for details.

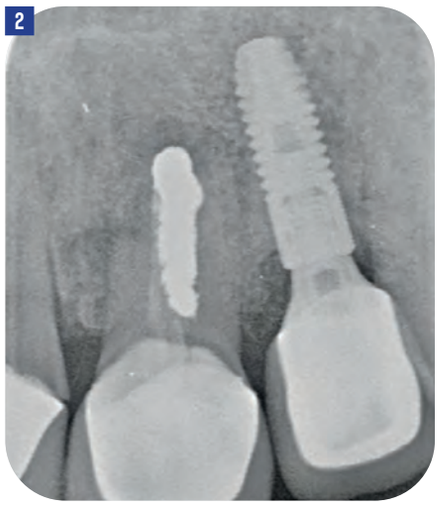

FIGURE 2: *Periapical radiograph showing implant in UL2*

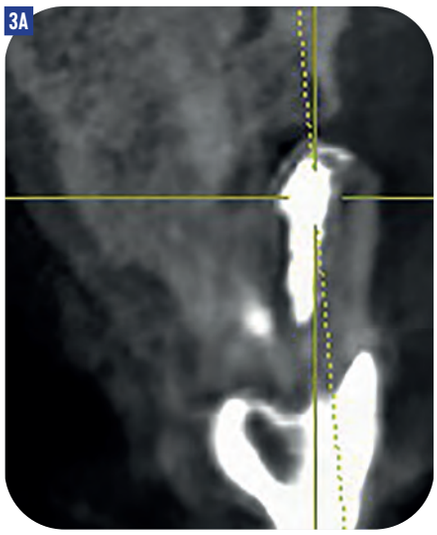

FIGURE 3A: *UL1 cross section CT*

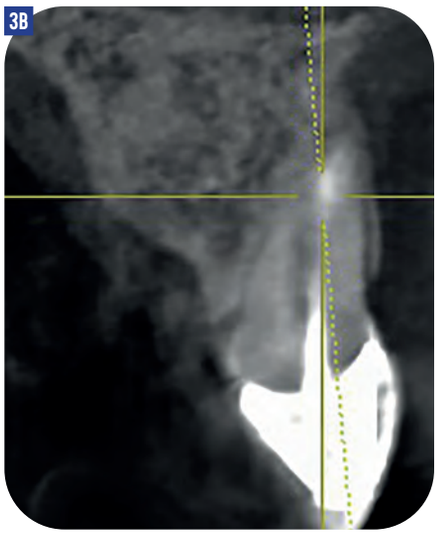

FIGURE 3B: *UR1 cross section CT*

FIGURE 4: *Extracted UL1*

FIGURE 5: *Extracted UR1 root*

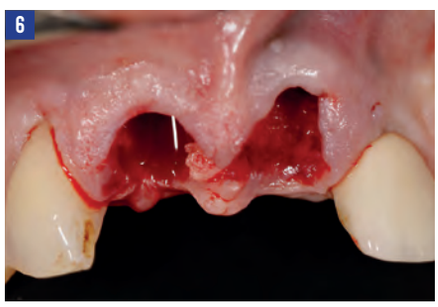

FIGURE 6: *Post extraction site*

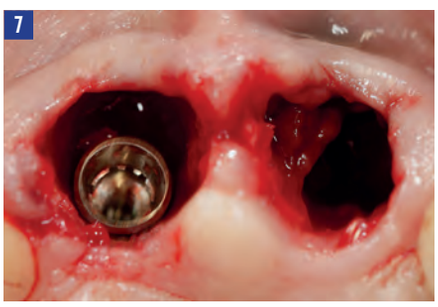

FIGURE 7: *UR1 implant placement*

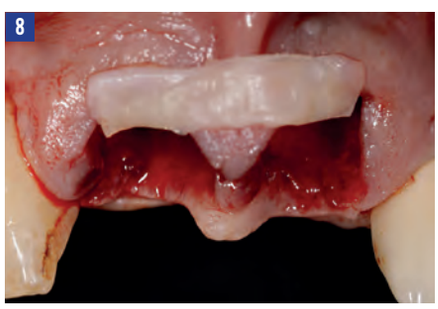

FIGURE 8: *Soft tissue graft*

FIGURE 9: *Custom healing abutment placed*

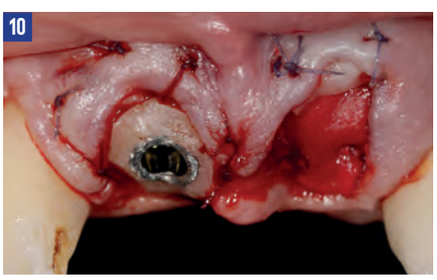

FIGURE 10: *Hard tissue grafting in the jump gap around implant*

a guided surgical approach, which aimed to optimise accuracy and predictability, and improve the overall patient experience.

The diagnostic wax-up, along with accompanying scans and images were sent to the dental lab to enable them to produce the surgical guide.

TREATMENT PROVISION

After numbing the area with local anaesthetic, the first stage of treatment involved extracting the UR1 and UL1 with a flapless approach.

The UR1 root was extracted by using the Benex Extraction System, which allows removal of the tooth without fracturing the buccal plate.

Following this, guided implant placement was carried out on the UR1, this involved fitting the surgical guide in the mouth (which had been fabricated in the lab from a digital impression) and placing the implant through the guide to achieve the exact position, angle, and depth as planned.

A soft tissue graft was harvested from the palate, and added below the buccal flap to gain buccal volume and support the papilla. Additionally, a combination of autogenous bone

The key complicating factor in this case was the existing dental implant in the UL2

and allograft was placed in the jump gap around the UR1 implant, with additional hard tissue socket grafting carried out on the UL1 using allograft/xenograft.

In order to maintain soft tissue contour, a chairside custom temporary healing abutment was created, and the site was left to heal for three months.

After three months, a lab-made provisional bridge was placed to further contour the soft tissue. Another three months later, the final three-unit implant-retained bridge was fitted, replacing the UR1, UL1 and UL2.

DISCUSSION

The key complicating factor in this case was the existing dental implant in the UL2, placed nine years previously. This presented the decision whether to place two implants or one, ultimately deciding that placing one implant and providing a bridge would be the best outcome for the patient.

Achieving a favourable soft tissue contour between the three teeth was another challenge, requiring hard and soft tissue grafting in order to best support the restoration.

The patient and I are very happy with the treatment outcome in this case. The three-unit implant-retained bridge restored the patient's function and aesthetics, without compromising the bone and soft tissue. CD

FIGURES 11A *to* **11C:** *Lab made provisional bridge*

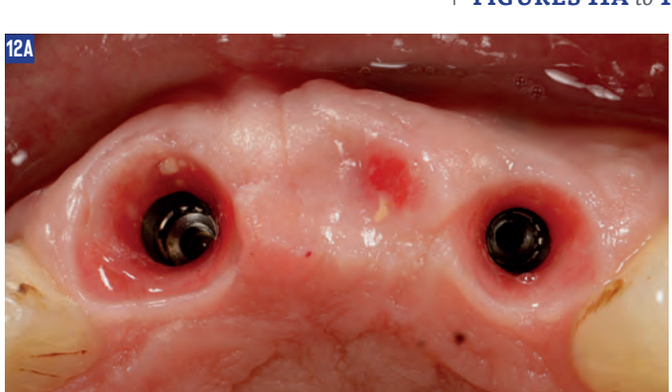

FIGURE 12A *and* **12B:** *Soft tissue contour post healing*

FIGURES 13A to **13C:** *Final three-unit implant-retained bridge*

FIGURE 14: *Post treatment smile*

PRODUCTS USED

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ORALHEALTH

Effectively addressing halitosis requires a multifaceted approach, with simple daily oral hygiene habits playing a significant role. Professional guidelines emphasise the importance of comprehensive oral hygiene education, ensuring patients understand the critical role of mechanical plaque control through proper brushing and interdental cleaning – Nina Garlo, p63

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NINA GARLO
Nina is a journalist specialising in dental, medical and healthcare topics.

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: Oral Health

Educational aims and objectives: To explore halitosis and how to target the root cause of it with antibacterial treatment. This article qualifies for one hour of enhanced CPD; answer the questions on page 80 or scan the QR code.

Bad breath, or halitosis, is a prevalent, global issue. It is often dismissed as a minor concern or inconvenience, however, halitosis can significantly affect patients' quality of life, leading to social and psychological distress.

While halitosis, or bad breath, is often associated with oral hygiene issues, studies reveal that it can also be a symptom of underlying serious local or systemic conditions, including gingivitis, periodontal disease, diabetic acidosis, hepatic failure, or respiratory infection (Durham, Malloy and Hodges, 1993).

This underscores the need for new treatments that target the root causes of halitosis and provide lasting relief without side effects.

While many associate halitosis with foods like garlic, onions or spicy dishes, these are not typically the primary cause. Studies show that more than 85% of halitosis cases originate, in fact, from oral issues like tongue coating and inadequate oral hygiene.

Persistent bad breath can also indicate underlying oral health conditions, such as gingivitis or periodontitis (Renvert et al, 2020).

In a recent statement published for Gum Health Day 2025, Professor Nicola West, secretary general of the European Federation of Periodontology (EFP), said: 'Nearly 30% of the world's population suffers from halitosis (Renvert et al, 2020). This can affect people of all ages, including children, and often impacts their social interactions and self-confidence.'

'In many cases, a person does not notice their breath and only becomes aware of the problem when someone close points it out,' noted Dr Tali Chackartchi, president-elect of the EFP, stressing the key role dental professionals play in diagnosing and managing these cases through targeted treatment strategies.

A COMPREHENSIVE APPROACH TO TREATING HALITOSIS

Effectively addressing halitosis requires a multifaceted approach, with simple daily oral hygiene habits playing a significant role.

Professional guidelines emphasise the importance of comprehensive oral hygiene education, ensuring patients understand the critical role of mechanical plaque control through proper brushing and interdental cleaning (Khounganian et al, 2023).

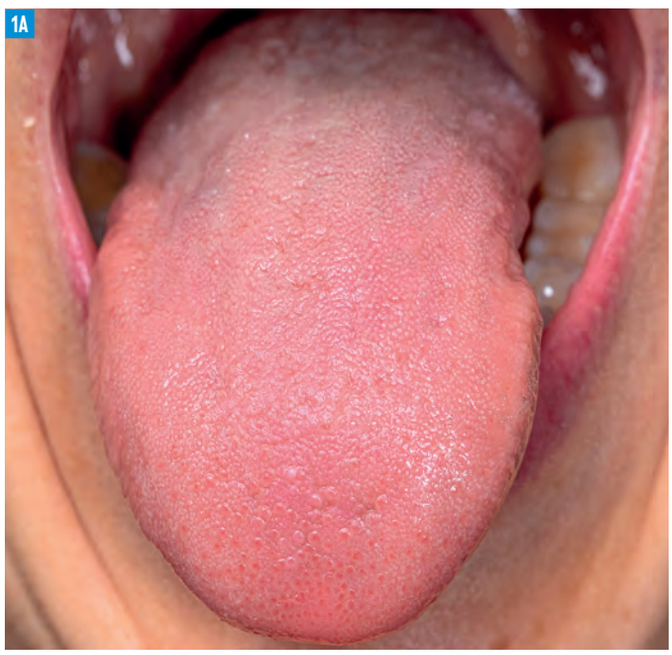
In addition, professional prophylaxis and periodontal therapy are essential for removing bacterial biofilms and halting disease progression. Antibacterial treatments, such as mouth rinses and light-activated therapy, address odour-causing bacteria.

Furthermore, managing xerostomia with hydration and saliva-stimulating products is crucial for preventing bacterial overgrowth and promoting oral health (Talha and Swarnkar, 2023).

'Regular professional cleanings every three to six months are essential in maintaining oral health and preventing recurrent halitosis' emphasises Dr Chackartchi.

Nina Garlo discusses halitosis, exploring causes, management and how to target the root cause of it with antibacterial treatment

Treating halitosis: a multifaceted approach



FIGURES 1A *and* **1B:** *Comparison between a healthy tongue and one with candidiasis and bacterial patina*

BEYOND HALITOSIS

Halitosis often serves as an early warning sign of periodontal disease. Periodontitis is a chronic inflammatory dental disease linked to severe oral and systemic complications.

Periodontitis can cause tooth loss, damage to supporting tissues and systemic inflammation, which may increase the risk of cardiovascular diseases, diabetes and certain cancers (Huang et al, 2024).

Individuals with periodontitis may even have a significantly higher risk of experiencing their first heart attack compared to those with healthy gums.

This connection stems from systemic inflammation and the transfer of bacteria into the bloodstream, which can negatively impact blood vessels (Rydén et al, 2016).

According to Professor Timo Sorsa of Helsinki and Karolinska University, the impact of periodontal disease extends far beyond the mouth. He says: 'Individuals with periodontitis can even have a 30% higher risk of experiencing their first heart attack compared to those with healthy gums.'

The periodontal researcher has pioneered innovations such as the matrix metalloproteinase-8 (aMMP-8) test. This rapid diagnostic tool for detecting active periodontitis enables fast intervention, ultimately reducing healthcare costs and improving patient outcomes.

Studies demonstrate that elevated levels of aMMP-8 are strongly associated with periodontal inflammation and tissue breakdown, making it a valuable tool for assessing disease severity and progression (Sorsa et al, 2020; Aji et al, 2024).

'Investing in oral disease prevention now will save public healthcare resources in the long run,' Professor Sorsa emphasises. 'Good oral health is integral to overall wellbeing.'

LIGHT-ACTIVATED THERAPY

Traditional antibacterial mouth rinses, such as chlorhexidine, have long been used to fight oral bacteria. However, they have several notable drawbacks, including tooth staining and altered taste perception. Prolonged use can lead to more serious side effects.

Studies reveal that chlorhexidine oral rinse can increase tartar on teeth by as much as five times compared to a control. This occurs due to increased calcium and phosphate deposition, potentially worsening long-term oral health outcomes (Sakaue et al, 2018).

Lumoral therapy is a breakthrough in antibacterial treatment as it targets harmful bacteria in the mouth without disrupting the beneficial oral microbiota.

Used as an adjunct to mechanical oral hygiene – daily brushing and flossing, Lumoral selectively eliminates odour-causing bacteria without the side effects of antibacterial chlorhexidine mouthwash.

'Advanced light-activated Lumoral therapy can disrupt bacterial biofilms more effectively than traditional mouth rinses,' says Professor Sorsa. 'Integrating the method with standard oral hygiene practices significantly improves patient outcomes.'

A CALL FOR PREVENTION

Developed by a team of Finnish scientists – including a paediatric heart surgeon – Lumoral therapy specifically targets odour-causing bacteria while preserving the mouth's beneficial microbiota.

Its patented, light-activated technology combines both endogenous and exogenous antimicrobial effects to effectively eliminate harmful dental plaque bacteria.

'The combination of aPDT (810nm antibacterial photodynamic therapy) and aBL (405nm antibacterial blue light) enhances the antimicrobial effect, while heat and infrared light also play a crucial role in this oral health-enhancing method,' Professor

Effectively addressing halitosis requires a multifaceted approach, with simple daily oral hygiene habits playing a significant role

Werner Birglechner, a German expert in dental prevention and periodontology, explains.

Lumoral's antibacterial blue light (aBL) works by stimulating chromophores in bacterial cells, producing reactive oxygen species (ROS). These reactive molecules damage bacterial cell membranes and proteins, ultimately killing the bacteria.

Additionally, aBL provides a photobiomodulatory effect by improving cellular energy production in the mitochondria.

Meanwhile, aPDT employs indocyanine green as a photosensitizer – a key component of the Lumorinse mouth rinse, which is an integral part of the Lumoral method.

As the rinse is swished around the mouth, the molecule binds to the biofilm and absorbs light energy in the 810nm range.

This energy activation creates heat and triggers the production of highly reactive singlet oxygen, effectively eliminating harmful bacteria, viruses and fungi – without adverse side effects.

'This dual-action mechanism is what sets Lumoral apart,' explains Professor Birglechner.

Unlike traditional antibacterial treatments such as chlorhexidine, Lumoral does not rely on chemical agents that may cause unwanted side effects.

'Pharmaceutical antibacterial agents are effective but unsuitable for long-term use due to their side effects. Lumoral, on the other hand, provides a safe and efficient alternative without these drawbacks,' explains Professor Birglechner.

Meanwhile, Professor Sorsa reminds that periodontitis treatment, especially severe periodontitis, is costly and places a significant burden on people's health and healthcare resources. Furthermore, its harmful effects extend beyond the oral cavity.

'Integrating these game-changing innovations with standard oral hygiene practices significantly improves patient outcomes,' he says.

'Now is the time to start investing in oral disease prevention as public healthcare resources are already stretched. Early detection and treatment of periodontal disease is cost-effective.

'Good oral health is part of overall health and improves patients' quality of life.' CD

REFERENCES

siobhan.hiscott@fmc.co.uk

GUM HEALTH DAY: PROMOTING PREVENTIVE CARE

Launched eleven years ago, Gum Health Day is a worldwide campaign created by the EFP and celebrated on 12 May every year.

Its goal is to educate the public on the detrimental effects of gum diseases – including gingivitis, periodontitis, peri-implant mucositis, and peri-implantitis – on oral and general health.

The campaign emphasises the advantages of maintaining healthy gums from an early age and promotes preventive care to improve long-term oral health outcomes.

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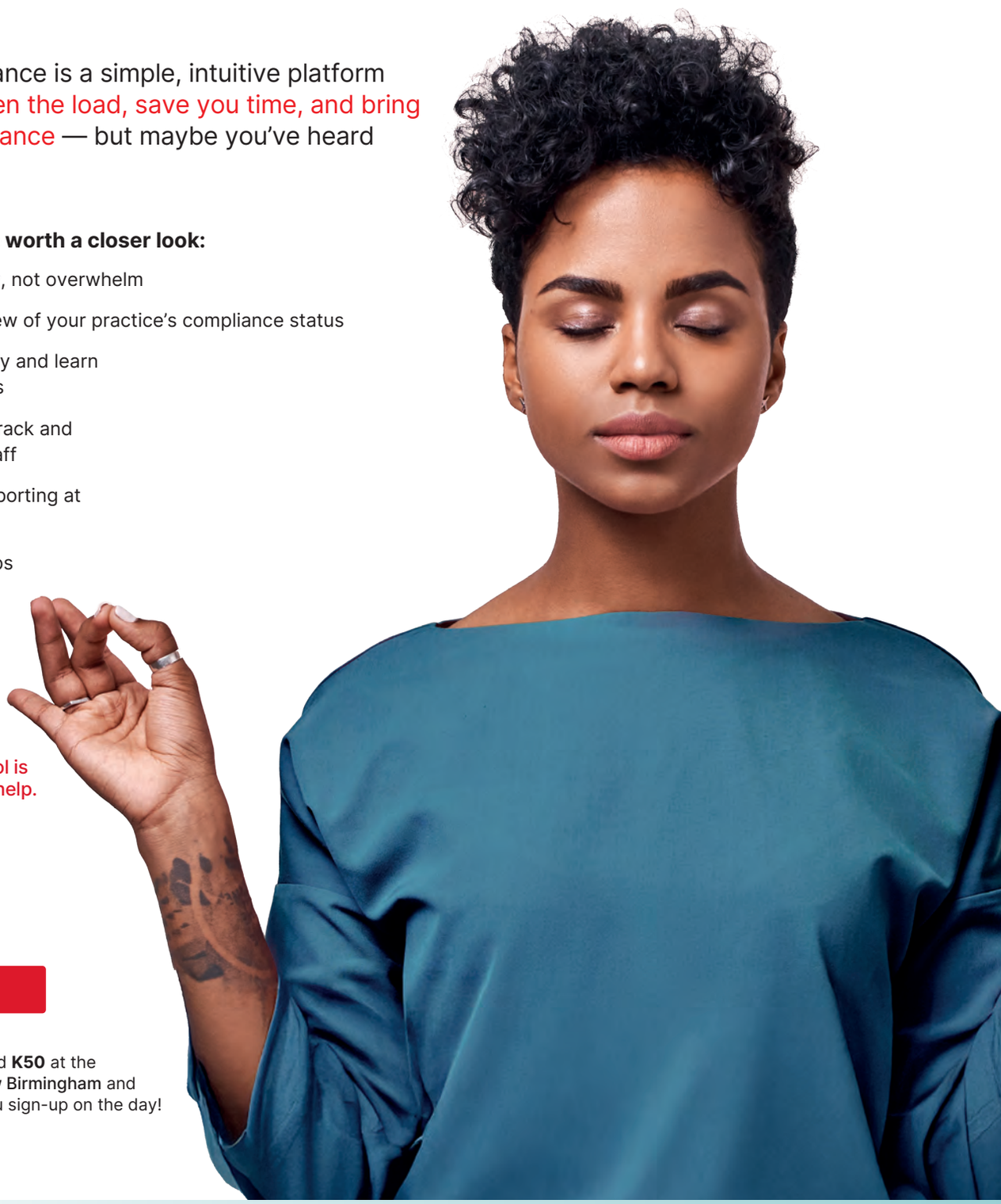

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ORTHODONTICS

When teeth are moved orthodontically, in the presence of plaque and inflammation, this force can cause excessive bone and attachment loss, and the periodontal ligament does not regenerate after tooth movement – Shivani Patel, p68

SHIVANI PATEL
Shivani is a specialist orthodontist at Elleven Dental in London.

In this article, I would like to explore the question – can we do orthodontics in patients with periodontal disease?

When teeth are moved orthodontically, in the presence of plaque and inflammation, this force can cause excessive bone and attachment loss, and the periodontal ligament does not regenerate after tooth movement.

However, this doesn't mean that a patient with compromised periodontal tissues cannot benefit from orthodontic treatment. It simply means their periodontitis needs to be controlled before, during and after the entirety of orthodontic treatment.

ORTHODONTICS AND PERIODONTAL HEALTH

Orthodontics can be an adjunct treatment to improve periodontal health by:

- Uprighting or repositioning of abutment teeth prior to restorations or implant placement
- Space creation or reduction/closure to facilitate prosthetic replacement of teeth
- Correcting crossbites that are causing bite interference
- Extruding or intruding teeth to facilitate restorative work
- Correcting crowding of teeth
- Restoring lost vertical dimension
- Increasing or decreasing overjet/overbite
- Closure of spaces in-between teeth.

CAN ORTHODONTICS INDUCE PERIODONTAL ISSUES?

In most patients, a transient gingival inflammation occurs after placement of fixed appliances that usually does not lead to attachment loss.

Gingival hyperplasia can develop around orthodontic bands, leading to pseudo pocket formation. However, this condition resolves after few days of debonding.

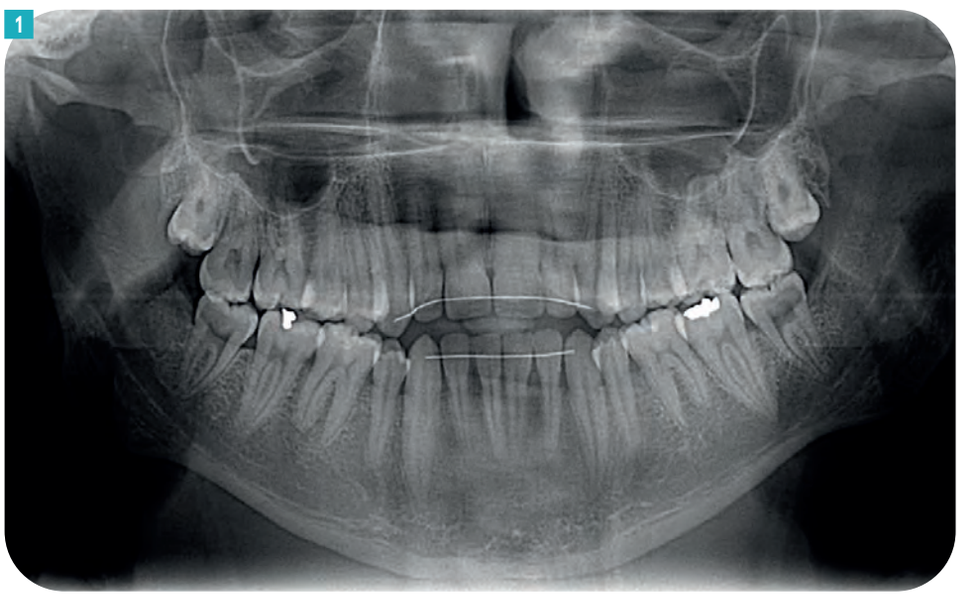


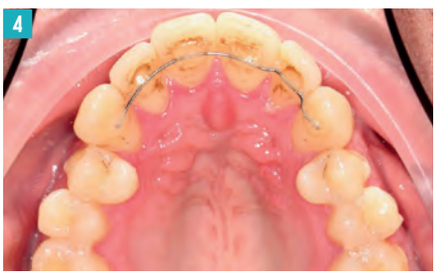
FIGURE 1: *Preoperative OPG*

ENHANCED CPD
CPD hours: one
GDC development outcome: C
Topic: Orthodontics
Educational aims and objectives:
To discuss if periodontal issues restrict orthodontic treatment. This article qualifies for one hour of enhanced CPD; answer the questions on page 80 or scan the QR code.

Shivani Patel answers the question: can clinicians perform orthodontic treatment in patients with periodontal disease?

Periodontal issues and orthodontics






FIGURES 2 to **7:** *Preoperative photographs*

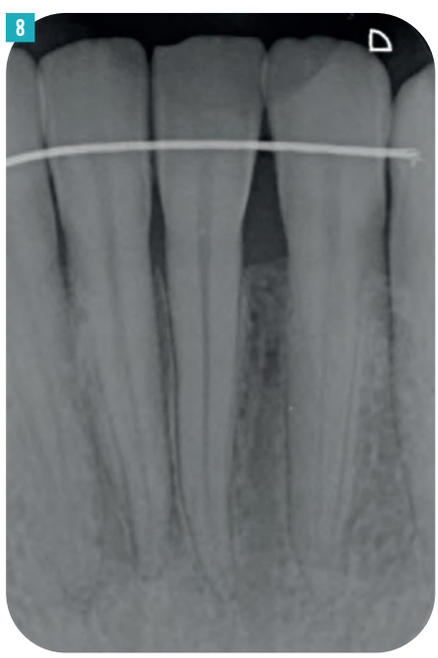


FIGURE 8: *Preoperative lateral ceph*

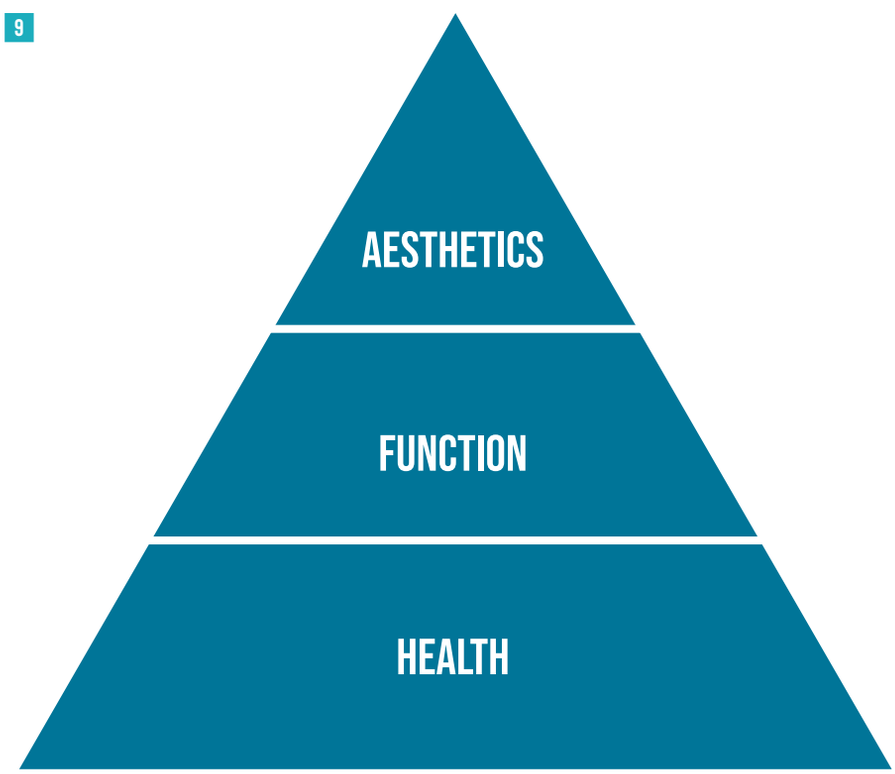


FIGURE 9: *Elleven Dental's triangular lens*

A review of the evidence-based literature shows that with optimum forces, correct orthodontic movements, good oral hygiene and the absence of pre-existing periodontal disorders poses no periodontal risk to patients.

Thin, delicate tissues are more likely to undergo gingival recession than normal or thick tissues.

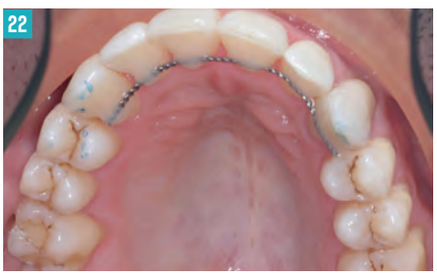
If the patient exhibits a minimal zone of attached gingiva or a thin tissue, then a free gingival graft placed before initiating any orthodontic treatment will help in enhancing tissues around the tooth and in controlling the inflammation.


FIGURES 10 and **11:** *Periodontal surgery, before and after graft*

FIGURES 12 *to* **15:** *Pre-surgery photographs*

FIGURES 16 *to* **19:** *Post-surgery photographs*






FIGURES 20 *to* **25:** *Debond photographs*

Carefully controlled and planned movements are required, especially when considering tipping anterior upper and lower teeth or expansion.

In the following case report, we'll see how previous, poorly planned orthodontics combined with a thin biotype has reduced the long-term prognosis of the patient.

CASE REPORT

A patient attended E11even Dental in Wimpole Street in London with the complaint of having difficulty eating. The patient reported that he was a performer, and didn't like his smile.

Myself, specialist periodontist Lorena Mumford, restorative dentist Sameer Patel, and maxillofacial surgeon Ben Gurney carried out the treatment in this case.

We made the following observations:

- Skeletal III – under-developed maxilla
- Long lower face height
- Mouth breather
- Class III
- Anterior open bite
- Narrow upper arch with crossbites
- Proclined upper incisors
- Retroclined lower incisors
- Mild crowding
- Previous orthodontics that involved the extraction of two lower premolar teeth
- Large amount of generalised gingival recession.

During the initial consultation, we took preoperative photos, a scan, a lateral ceph and an OPG (Figures 1 to 8).

DETRIMENTAL PREVIOUS ORTHODONTICS

Growth is hard to predict – especially in patients exhibiting skeletal III growth. This patient had orthodontics in his teenage years, which had unfortunately involved the extraction of two lower premolar teeth.

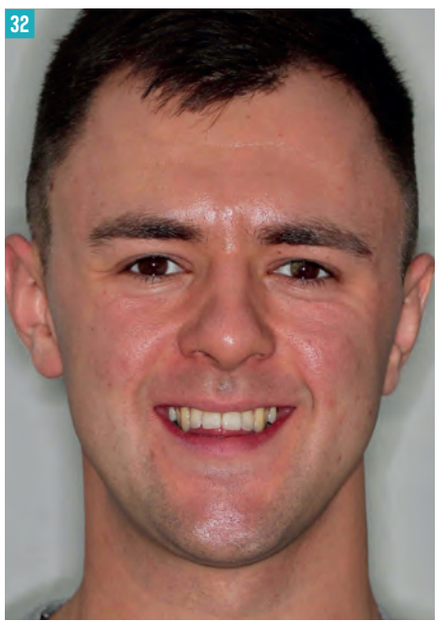
Following this, he grew further both in an antero-posterior direction and a vertical direction with a posterior rotation.

Hence when you look at the start photos you can see the anterior open bite and skeletal III with compensated incisor positions – the lowers






FIGURES 26 *to* **31:** *Review*



FIGURES 32 to **34:** *Full face comparison photographs – before, after and at review*

are very retroclined, which have further led to gingival recession due to the roots being too close to the alveolar plate.

TREATMENT OPTIONS

We discussed the following treatment options with the patient:

- Do nothing – accept the malocclusion but the periodontal health would need addressing
- Orthodontics alone – this would not be an option as any orthodontics would decompensate the lower incisors (proclining) accentuate the class III, worsening the periodontal health, function and aesthetics for the patient
- Comprehensive multidisciplinary care – the optimum option.

At Elleven Dental, we always like to look at every patient through the triangular lens of health, function and aesthetics (Figure 9).

At Elleven Dental, we always like to look at every patient through the triangular lens of health, function and aesthetics

Health

In this case, we aimed to restore the basic health, provide education and reinforce prevention.

We provided a general dental check-up and a full comprehensive periodontal assessment. In terms of treatment, we placed a free gingival graft in the lower anterior region.

The patient was placed on a customised hygiene and periodontal regime.

Restoration of function

We opted for orthodontic treatment with fixed braces combined with orthognathic surgery to decompensate the upper and lower anterior teeth.

We needed careful uprighting of the lower anterior teeth and wanted minimal expansion.

Coordination of the arches followed by a differential maxillary impaction and advancement. Total treatment time was predicted to be 18 months.

Aesthetics

Regarding aesthetics, any further free gingival gum grafting, restorative care and tooth whitening would be offered if required.

Retention and maintenance

A combination of fixed and removable retainers would provide lifelong retention. A periodontal regime was also provided.

PERIODONTAL STABILISATION

Without periodontal stabilisation, we cannot progress further with the orthodontics.

Elleven Dental's in-house periodontist ensured that the periodontal support system was disease free and stable enough to be able to withstand the forces of fixed braces for a prolonged period of time.

It was also imperative that the patient understood their involvement in keeping with the periodontal regime of regular hygiene etc as we were decompensating the lower incisor teeth, which would involve moving the lower roots back into the alveolar bone.

A free mucogingival graft was considered in the lower labial segment to create a more favourable condition as we were uprighting the lower incisor teeth. Orthodontic treatment commenced three months after this.

At the end of orthodontic therapy, the site should be reevaluated along with other sites and a second intervention considered. Figures 10 to 34 illustrate the periodontal surgery, pre-surgery, post-surgery, debond and case review.

SHIVANI'S TIPS

Skeletal III growth is unpredictable, so if you're at all in doubt of unfavourable growth then only consider non-extraction alignment.

No orthodontic treatment should ever be carried out in patients with active periodontal disease. Orthodontic treatment of periodontal patients should be with a multidisciplinary approach.

In addition, I would highly recommend having a free gingival graft placed in areas of moderate to severe recession to assist in creating favourable conditions for orthodontic tooth movement. CD

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Root movement biomechanics in aligner therapy

Raman Aulakh explores force-driven Invisalign biomechanics for challenging root movements

One of the most valuable lessons I've learned in clinical practice is the importance of applying biomechanics to aligner therapy. It's the difference between nudging teeth into place and guiding them with precision toward a planned outcome.

This becomes especially critical in complex cases, where transitioning from a mindset of displacement-driven mechanics to force-driven biomechanics is essential.

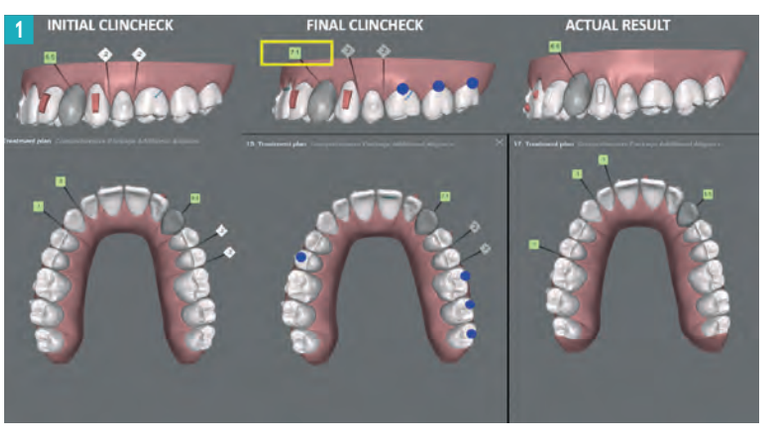
STEERING VERSUS PUSHING: THE FORCE-DRIVEN ALIGNER SYSTEM

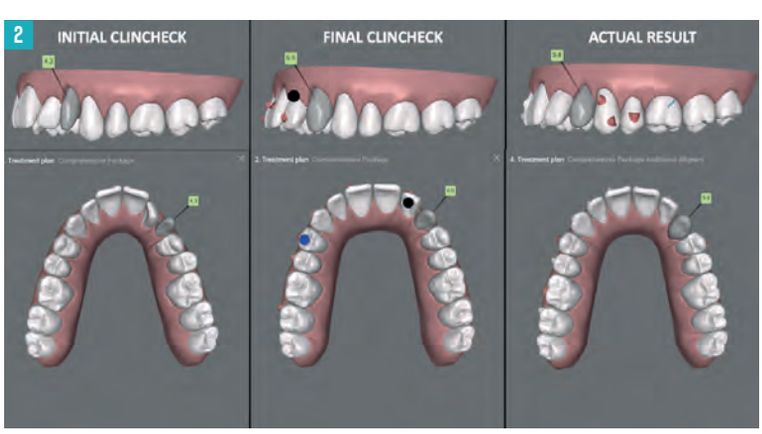
A useful analogy for understanding force-driven systems is the difference between pushing a shopping trolley and steering a car. Pushing the trolley involves effort and guesswork – it often doesn't go where you want. Steering a car, on the other hand, offers controlled, predictable movement.

Displacement-driven mechanics follow the trolley model, relying on the aligner's shape to push teeth into position. While this works for simpler movements like tipping, it frequently falls short for more complex movements such as torque, bodily translation or extrusion.

Force-driven systems resemble the car's steering system – applying targeted, intentional forces to direct tooth movement.

Align Technology seeks to achieve this through three innovations:





FIGURES 1 *and* **2:** *Clincheck treatment plan*

1. Smartforce directs force precisely using attachment design, pressure points and built-in torsion
2. Smarttrack, a flexible and durable material aiming to deliver a more consistent force
3. Smartstaging sequences staging shifts strategically for anchorage control and consistent force systems.

But beyond the marketing language, what does this actually mean for us as clinicians?

DR RAMAN AULAKH
Raman is the course director of the Safe Clear Aligner MSc and diploma. He is co-founder of the Aligner Dental Academy.

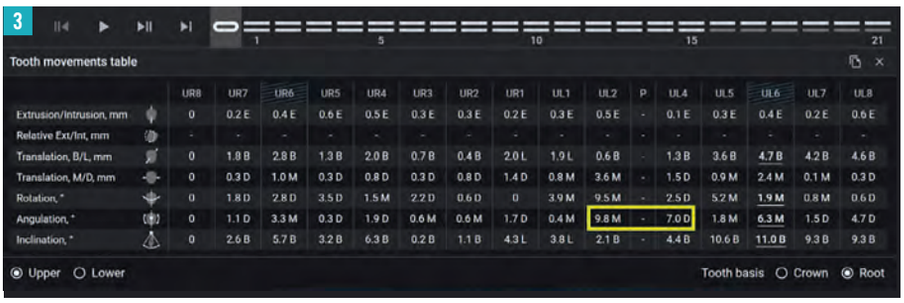
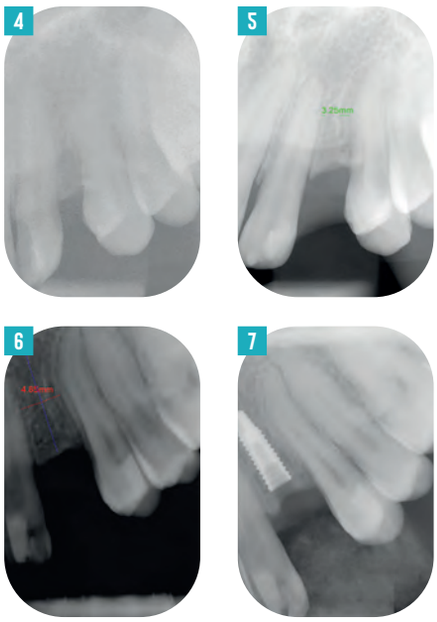


FIGURE 3: *Tooth movements*



FIGURES 4 *to* **7:** *Radiographs verified the successful creation of 6.5mm of space at the crown and 5.5mm between the roots in this case*

WHY FORCE-DRIVEN MECHANICS ARE ESSENTIAL

Even with the most advanced aligner materials, plastic behaves like plastic – it bends, flexes and deforms.

The challenge lies in these inherent material property limitations, particularly for complex movements. However, with a thorough understanding of biomechanics and utilising the force-driven system, we can overcome these challenges.

As a clinician, we have the control of applying additional torque, using auxiliaries like elastics, attachments, modifying staging, and often overcorrecting movements to compensate for expected lag.

EVIDENCE AND PREDICTABILITY OF TORQUE AND ROOT MOVEMENT

From both experience and evidence, torque and root movement remain among the least predictable outcomes in aligner therapy.

Early papers such as Rossini and colleagues (2015) found aligners were ineffective in achieving significant torque changes, while Simon and colleagues (2014) showed only ~42% of planned incisor torque was expressed clinically.

Haouili and colleagues (2020) reported a mean accuracy of ~50% across all movements, with complex ones like root translation often underperforming.

More recently, Castroflorio and colleagues (2023) reaffirmed the challenge of achieving root control without compensatory strategies.

To overcome this, I rely on overcorrection for specific movements, torque staging to avoid uncontrolled tipping, attachment planning to give priority to certain movements and controlled force application through staging – all of which are discussed in more recent literature and finite element studies as methods to be considered to increase predictability.

CASE STUDY

A recent case in my clinic involved creating space for a missing upper left canine (UL3) with force-driven mechanics and Invisalign.

Initially, there was only 4.3mm of space at the crown level and 2.5mm between roots – insufficient for implant placement (Figures 1 and 2).

Our goal was to achieve bodily movement and parallel root alignment and adequate space for the implant.

Initial set of aligners

We started without overengineering the plan and aiming for 6mm of crown-level space.

While this achieved 5.8mm coronally, the roots remained only 3.8mm apart, creating a triangular space – a clear indication of uncontrolled tipping and the limitations of predictability with root movements.

Additional aligners

In the final refinement phase, we employed a force-driven strategy:

- Mesial root torque UL2 overcorrected by 7.5° to 9.8°
- Distal root torque on UL4 overcorrected by 5.0° to 7.0°
- Overcorrected space at crown level to 7.1mm to generate force to the plastic and attachments
- IPR between UL4 to UL5 and distal to UL5 to facilitate distalisation.

This plan successfully created 6.5mm of space at the crown and 5.5mm between roots, verified radiographically (Figures 4 to 7).

The roots were parallel, enabling appropriate space for implant placement.

In effect, controlled force application transformed a tipping movement into root movement.

THE FIXED APPLIANCE ANALOGY

This scenario closely parallels traditional fixed appliance techniques: using a push coil and gable bend on a rectangular arch wire to achieve bodily or root tooth movements.

In aligner therapy, we replicate this through programmed torque, overcorrection and rectangular vertical attachments in this case – all digitally planned, yet grounded in the same fundamental biomechanical principles.

UNDERSTANDING PREDICTABILITY THROUGH BIOMECHANICS

Success in clear aligner therapy depends on understanding and applying biomechanical forces.

In complex cases, relying on software staging alone is not sufficient. It's the deliberate overengineering and use of force-driven mechanics that elevates treatment outcomes from basic to advanced.

To determine the degree of overcorrection required, you must analyse the predictability of movements achieved in prior aligner stages, while also considering current evidence-based insights on predictability.

Rigidly adhering to 'set' protocols can risk clouding clinical reasoning and hinder a tailored, patient-specific approach.

I encourage colleagues doing complex cases to embrace biomechanics in aligner therapy.

Through advanced training – such as the Safe Clear Aligner diploma – dentists and orthodontists can develop the expertise to plan, predict and execute more challenging treatments confidently.

With this knowledge, you're not just going along for the ride – you're in the driver's seat, directing every case with increased precision and purpose. CD

REFERENCES

siobhan.hiscott@fmc.co.uk

ZIRKONZAHN'S LECTURE TOUR IN WEST KINGSDOWN, LIVERPOOL AND GLASGOW FROM 17 TO 19 JUNE 2025

DIGITAL WORKFLOW FOR FULL DENTURES

Zirkonzahn (South Tyrol, Italy) will soon begin the third part of its lecture tour, 'High-Tech Meets Handicraft – Optimisation of the Digital Workflow for the Fabrication of Full Dentures', this time reaching dental technicians and dentists in West Kingsdown, Liverpool and Glasgow.

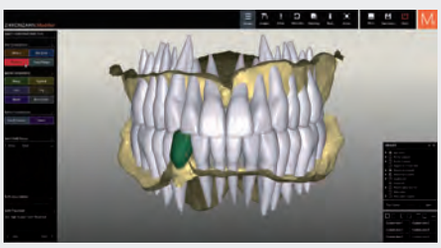
The lecturer, MDT Alessandro Cucchiaro, will present state-of-the-art methods and techniques for the creation of functional and aesthetically pleasing full dentures as an alternative to implant-supported prostheses. Indeed, even if minimally invasive procedures are becoming increasingly important, there are still patients who need a complete restoration after total tooth loss.

Participants will be guided through the challenges faced when creating a full denture with 28 teeth, considering the different initial patient situations: whether the patient is edentulous or wearing existing prostheses in good or poor condition, the lecture will provide insights into the tailored approaches needed for optimal results.

The process of creating high-quality dentures also involves digital technologies and correct materials.

For this reason, the lecture will introduce two new particularly biocompatible PMMA-based resins that are almost monomer-free and will demonstrate how digital solutions with automated set-up functions can simplify tooth placement and gingiva creation, ensuring an efficient, accurate and optimised workflow.

Furthermore, participants will benefit from hands-on demonstrations of bonding teeth to denture bases using an innovative protocol based on the principle of cold welding. CD



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A jack of all trades, and master of them all too, the CS 9600 CBCT scanner is a five-in-one solution, featuring 2D panoramic and cephalometric imaging alongside CBCT imaging, 3D facial scanning and 3D model scanning. Plus, clinicians can select from up to 14 fields of view to target specific diagnostic needs.

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Abro Basic Multistratum shows a natural colour gradient from dentine to the enamel and improved material properties in terms of translucency values, flexural strength as well as fracture and abrasion resistance, which make it particularly suited for the manufacture of denture teeth. However, it can also be used for long-term temporaries and various secondary and tertiary structures.

On the other hand, Denture Gingiva Basic Mono Pink is a gingiva-coloured resin with improved material properties in terms of flexural strength and fracture resistance, specifically conceived for the production of denture bases. The resin blanks are also available in Ø125mm for the manufacture of up to two denture bases in just one milling process.

The gingival area of the restorations can be then characterised individually with Gingiva-Composites. Their colour spectrum is based on the company's ICE Ceramics Tissue shades from light to dark: through the temporary, dentists and patients can get an immediate aesthetic impression of the final restoration.

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British Endodontic Society

Vital pulp therapy is a rapidly evolving area of endodontics, enabling clinicians to provide patients with a minimally invasive solution. Research shows that with appropriate case selection and treatment provision, vital pulp therapy offers predictable pulp preservation.

The British Endodontic Society (BES) wants to support its members in providing this cutting-edge treatment type, and is hosting an inaugural BES Early Career Group (ECG) Masterclass to explore the theory and hands-on application of vital pulp therapy.

The Vital Pulp Therapy Masterclass will take place on 4 July 2025 at the Eastman Dental Hospital Education Centre.

britishendodonticsociety.org.uk/events/38/vital_pulp_therapy_masterclass
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ORAL PRESENTATION PRIZE AWARDED
Schottlander

The winner of the prestigious BSSPD/ Schottlander Oral Presentation Prize was Eda Dzinovic from King's College, London. Her presentation was entitled 'Advancing dental materials with high-fidelity octopus-inspired suction cups'.

Complete dentures frequently exhibit poor adhesion to oral tissues. However, nature provides many examples of organisms that overcome such challenges through highly ordered topographies.

A method of reproducing the topography of fresh octopus suction cups, reducing them in size, incorporating them onto the fitting surface of a denture and testing for adhesion was presented.

Against dry mucosa, adhesion was reduced but in a wet environment adhesion was increased. This research opens the possibility of improving the rather limited adhesion of PMMA to the mucosa and so both improving retention and reducing the reliability on denture adhesive creams.

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RETURNING TO LEARNING
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GENERAL DENTISTRY
CD/MAY/RIAZ/PAGE 15

1. **How many times had the patient's 12-unit upper bridge been recemented?**
   - ☐ a. One time
   - ☐ b. Two times
   - ☐ c. Three times
   - ☐ d. Four times
2. **What size implant was placed in the UL6 region?**
   - ☐ a. 4mm by 14mm
   - ☐ b. 4.5mm by 12mm
   - ☐ c. 5mm by 10mm
   - ☐ d. 5.5mm by 8mm
3. **How many 4mm by 14mm implants were placed in total?**
   - ☐ a. Two
   - ☐ b. Three
   - ☐ c. Four
   - ☐ d. Five
4. **How long after surgery was the definitive upper full-arch zirconia bridge fitted?**
   - ☐ a. Four weeks
   - ☐ b. Two months
   - ☐ c. Three months
   - ☐ d. Six months

AESTHETIC DENTISTRY
CD/MAY/LI/PAGE 26

1. **When assessing the patient's smile and dental anatomy, at full smile the lip line was moderate, with the lips showing how much gingivae beyond the zeniths of the upper incisors?**
   - ☐ a. 0.5 to 1.0mm
   - ☐ b. 1.0 to 1.5mm
   - ☐ c. 1.5 to 2mm
   - ☐ d. More than 2mm
2. **The initial assessment revealed that the UR1 was...**
   - ☐ a. Restored with composite
   - ☐ b. Very thin in appearance
   - ☐ c. Heavily worn (palatal anatomy)
   - ☐ d. All of the above
3. **How long did the treatment appointment last?**
   - ☐ a. One hour
   - ☐ b. Three hours
   - ☐ c. Five hours
   - ☐ d. Seven hours
4. **When did the author capture his postoperative records that showed good soft tissue integration?**
   - ☐ a. Two weeks after treatment
   - ☐ b. One month after treatment
   - ☐ c. Six weeks after treatment
   - ☐ d. Six months after treatment

DIGITAL DENTISTRY
CD/MAY/WILLIAMS/PAGE 36

1. **In the case, why did the patient present at the dental practice?**
   - ☐ a. She wanted orthodontic treatment for aesthetic improvement
   - ☐ b. She wanted composite bonding for aesthetic improvement
   - ☐ c. She wanted veneers for aesthetic improvement
   - ☐ d. She wanted tooth whitening for aesthetic improvement
2. **During the initial assessment, it was noted that the centreline deviated by how much to the right?**
   - ☐ a. 1mm
   - ☐ b. 1.5mm
   - ☐ c. 2mm
   - ☐ d. 2.5mm
3. **How much movement did the upper arch need?**
   - ☐ a. 1.1mm
   - ☐ b. 1.2mm
   - ☐ c. 1.3mm
   - ☐ d. 1.4mm
4. **How long did treatment take in this case?**
   - ☐ a. Five months
   - ☐ b. Six months
   - ☐ c. 10 months
   - ☐ d. One year

ENDODONTICS
CD/MAY/BARCLAY/PAGE 42

1. **In the context of the article, what does CEC stand for?**
   - ☐ a. Conservative endodontic cavity
   - ☐ b. Complex endodontic cavity
   - ☐ c. Compromised endodontic cavity
   - ☐ d. Common endodontic cavity
2. **According to the author, many teeth requiring endodontic treatment exhibit loss of dentine due to...**
   - ☐ a. Decay
   - ☐ b. Fractures
   - ☐ c. Prior restorations
   - ☐ d. All of the above
3. **According to the author, MB2 is present in how many maxillary first molars?**
   - ☐ a. 50%
   - ☐ b. 75%
   - ☐ c. 90%
   - ☐ d. More than 90%
4. **In the clinical scenario presented in the article, how many canals were located?**
   - ☐ a. One
   - ☐ b. Two
   - ☐ c. Three
   - ☐ d. Four

IMPLANT DENTISTRY CD/MAY/ORETTI/PAGE 51

1. **In the case presented, which tooth tested positive to vitality testing?**
- ☐ a. UR1
- ☐ b. UR2
- ☐ c. UR3
- ☐ d. UR4

2. **Which tooth was extracted in this case?**
- ☐ a. UR1
- ☐ b. UR2
- ☐ c. UR3
- ☐ d. UR4

3. **What happened at the seven-month review appointment?**
- ☐ a. A free gingival graft was taken
- ☐ b. It was determined that a connective tissue graft would be required
- ☐ c. The buccal defect was covered with a native porcine collagen membrane
- ☐ d. A customised abutment and zirconia crown were fabricated

4. **What size healing cap was placed during the second surgery?**
- ☐ a. 2mm
- ☐ b. 3mm
- ☐ c. 4mm
- ☐ d. 5mm

ORAL HEALTH CD/MAY/GARLO/PAGE 63

1. **According to Renvert et al (2020), what percentage of the world's population suffers from halitosis?**
- ☐ a. Nearly 30%
- ☐ b. 30%
- ☐ c. 50%
- ☐ d. More than 60%

2. **Halitosis can be a symptom of underlying serious local or systemic conditions, including...**
- ☐ a. Diabetic acidosis
- ☐ b. Hepatic failure
- ☐ c. Respiratory infection
- ☐ d. All of the above

3. **According to the author, what percentage of halitosis cases originate from oral issues like tongue coating and inadequate oral hygiene?**
- ☐ a. 25%
- ☐ b. 50%
- ☐ c. 80%
- ☐ d. More than 85%

4. **In the article, who said: 'Individuals with periodontitis can even have a 30% higher risk of experiencing their first heart attack compared to those with healthy gums'?**
- ☐ a. Professor Timo Sorsa
- ☐ b. Dr Tali Chackartchi
- ☐ c. Professor Nicola West
- ☐ d. Professor Werner Birglechner

ORTHODONTICS CD/MAY/PATEL/PAGE 68

1. **Gingival hyperplasia can develop around orthodontic bands – how long after debonding does the condition typically resolve, according to the author?**
- ☐ a. A few hours
- ☐ b. A few days
- ☐ c. A few weeks
- ☐ d. A few months

2. **In the case report, what was the patient's main complaint at presentation?**
- ☐ a. Difficulty eating
- ☐ b. Discoloured central incisors
- ☐ c. Tooth sensitivity
- ☐ d. A swelling on the UR6

3. **What treatment had the patient undertaken in his teenage years?**
- ☐ a. Endodontics
- ☐ b. Orthodontics
- ☐ c. Veneers
- ☐ d. Tooth whitening

4. **Regarding orthodontic treatment for patients with active periodontal disease, what does the author advise?**
- ☐ a. No treatment should ever be carried out
- ☐ b. Only a periodontist should carry out treatment
- ☐ c. Only an orthodontist should carry out treatment
- ☐ d. None of the above

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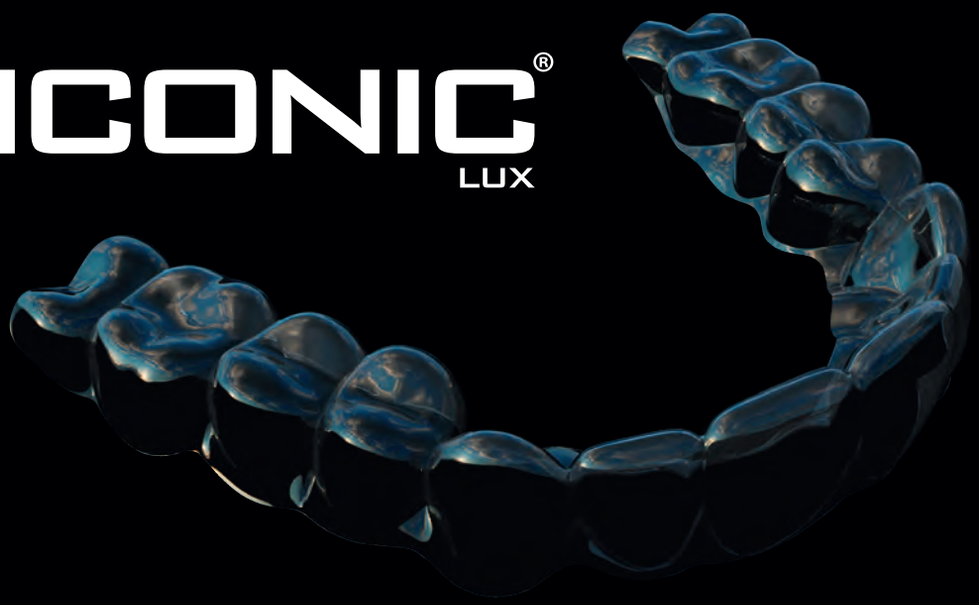

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