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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.

Group Managing Editor
Siobhan Hiscott siobhan.hiscott@fmc.co.uk
Tel: 01923 851758

Content Director
Guy Hiscott guy.hiscott@fmc.co.uk
Tel: 01923 851754

Designer
Glenn Baxter glenn.baxter@fmc.co.uk

Production Manager
K-Marcelyne McCalla k-marcelyne.mccalla@fmc.co.uk

Chief Commercial Officer
Tim Molony tim.molony@fmc.co.uk
Tel: 07595 282680

Media Partnerships Manager
Ivana Perkins ivana.perkins@fmc.co.uk
Tel: 07760 887016

FMC CONNECTING DENTISTRY
Hertford House, Farm Close, Shenley, Hertfordshire WD7 9AB
T: +44(0)1923 851777 E: info@fmc.co.uk W: www.fmc.co.uk

DISRUPTIVE DENTISTRY

There's a lot of talk of 'disruptors' in business circles – and it's a term that always leaves me a bit bemused. It's a word that I think has a mixed reputation, carrying different meanings depending on your viewpoint.

Historically, being disruptive was seen as a bad thing when I was growing up – disruptors in school would have seen themselves at the headteacher's office awaiting their comeuppance. I don't think it's unreasonable that, for some, the term 'disruption' has negative connotations.

But if we look beyond that negative reading, to the more modern interpretation, disruption has come to mean innovation, opportunity and the courage to challenge the status quo.

When it comes to dentistry, what does being a disruptor mean to you?

For the FMC team, it means trying to push the profession forward positively. Since its inception 30 years ago, FMC has been disrupting the dental media landscape – indeed, it's something we wanted to do with the launch of this very journal. For us, refusing to accept 'the way it's always been done' has often been a key strategy.

I know that this is a strategy that's served many people in practice well too, whether that's embracing new models of care, integrating advanced technologies or reimagining the patient experience – not for the sake of change alone, but to create measurable improvements in outcomes, access and value. Because positive disruption doesn't mean reckless upheaval. It comes from strategic shifts led by clinicians, practice owners, manufacturers, and educators who believe the profession can (and must) do better. Whether it's using AI to enhance diagnostics, adopting minimally invasive treatment protocols or developing remote care pathways, effective disruptors combine innovation with empathy, efficiency and ethical leadership.

The past few years have proven that agility and adaptation are essential traits for any dental business.

At its core, disruption challenges us to rethink our assumptions – about access, affordability, equity and the dental professional's role in public health. It forces us to get uncomfortable and lean into transformation with purpose.

So, I pose this question to you: how can you positively disrupt the profession?

Siobhan Hiscott
Group Managing Editor
siobhan.hiscott@fmc.co.uk

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Richard Horwitz
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Specialist in periodontics and a visiting lecturer at UCL Eastman and QMUL.

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BDS
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A fresh way to manage consent

Clinical Dentistry details a new digital tool that could 'revolutionise' dental consent

A new digital tool that promises to make the process of gaining valid consent easier, more efficient and less stressful has launched to the profession.

Dentistry Consent – the latest practice service tool from FMC, publisher of *Clinical Dentistry* – offers practices and clinicians a fresh way to manage dental consent. The platform automates patient follow-up after the initial consultation, sending out documentation and explainer videos that help patients review the treatment in their own time.

After watching, patients complete a short series of questions to confirm their understanding of the key risks and benefits. Each step is recorded, forming a secure digital audit trail.

While the system is designed to build trust and help patients feel more confident in their treatment, it also makes clinicians' record keeping more robust, providing better medicolegal protection in case of complaints or litigation involving consent.

REINFORCING CLINICAL DISCUSSIONS

Biju Krishnan, clinical director at FMC, said: 'Gaining valid consent is fundamental to providing a high standard of dental care.

'Many clinicians find the process challenging and stressful and it's not always easy to be sure patients have understood the risks and benefits of different treatment options. Dentistry Consent changes that: it's built around helping them to truly understand their treatment options. It's a pressure-free way to reinforce the clinical discussions that already happen in practice, meaning patients and practices can feel more confident about the whole process.

'Equally importantly, it's also built around protecting clinicians in the event of litigation or a complaint that ends up at the GDC. We want to revolutionise dental consent – it's time to make the process work better for everyone.'

New users can trial Dentistry Consent for just one pound per month for the first three months: find out more at www.dentistry.co.uk/consent. CD

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*Taha et al. 2018

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FEATURES

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Letitia McElmurray, Treatment Coordinator, at a Practice Plan event.

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GENERALDENTISTRY

BEATRICE WELSH
Biomimetic restorations

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This was quite a challenging case involving a seriously broken down central incisor. However, by utilising biomimetic principles and state-of-the-art restorative materials, it was possible to deliver a predictable, stress-reduced, hyper-realistic, direct composite restoration that blended with the environment – Beatrice Welsh, p14

BEATRICE WELSH
BDS MSC
Beatrice qualified from UCM in Madrid, Spain in 2006 and obtained her master's degree in pedodontics two years later. Beatrice completed a one-year mastership programme in biomimetic restorative dentistry at the Alleman Centre in Biomimetic Dentistry. She has founded a two-day hands-on course, Artistika Anteriors, in which dentists can master the art of restoring anterior teeth with composite resin.

ENHANCED CPD
CPD hours: one
GDC development outcome: C
Topic: General dentistry
Educational aims and objectives: To explore a biomimetic approach to restoring a severely fractured class IV restoration using minimally invasive free-hand composite resin.
This article qualifies for one hour of enhanced CPD; answer the questions on page 80 or scan the QR code.

A 57-year-old male made an emergency appointment because his upper left central had snapped off the previous day while eating bread (Figure 1).

The patient's main concerns were his appearance and that he wanted as minimally invasive treatment as possible. He was also willing to consider having additional smile enhancement treatment in the future.

Despite the patient's last dental visit being three years ago, other than the sharp edges rubbing against his tongue, the patient was otherwise pain-free and was not experiencing any extreme sensitivity.

Upon examination, the presence of a non-complicated oblique fracture on his upper left central incisor involving both enamel and dentine was obvious (Figure 2).

Vitality testing using ethyl chloride elicited a positive response. Periapical radiography suggested there was no pathology either, so no endodontic intervention was required at this stage.

The patient had not kept the fractured piece of tooth, which meant we could not consider reattaching it using heated composite. Therefore, the most appropriate alternative at this stage was a stress-reduced direct composite resin class IV restoration utilising a biomimetic minimally invasive approach.

There was also the presence of a class III composite restoration on the UR1 that was exhibiting microleakage and untidy margins. This would be replaced at the same time.

The patient presented a class III malocclusion, with heavy occlusal contacts in the anterior region. Heavy attrition was detected on both the upper and

FIGURE 1: *Initial presentation extraoral view*

Beatrice Welsh describes a biomimetic approach to restoring a severely fractured class IV restoration using minimally invasive free-hand composite resin

Biomimetic restorations

FIGURE 2: *Initial presentation with black background for contrast*

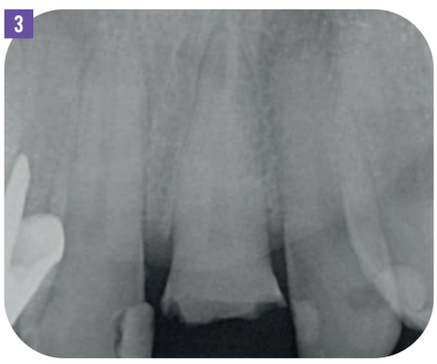

FIGURE 3: *Periapical radiography showing fractured UL1 and UR1 with leaking class III*

FIGURE 4: *Shade selection using uncured composite buttons*

FIGURE 5: *Digital mock-up of final restoration using a mirror image of UR1*

FIGURE 6: *A mirror image during treatment planning*

FIGURE 7: *Primary anatomy, shape of mock-up with silicone matrix in situ*

FIGURE 8: *Rubber dam in situ*

FIGURE 9: *Initial reduction of enamel margins to create bevel. Class III in UR1 removed*

Because UL1 was vital, a biomimetic minimally invasive approach was recommended

lower incisors. Prosthetic space was limited, which would create an additional challenge.

TREATMENT PLANNING

Various options were discussed including a ceramic restoration, but this would require more tooth reduction, which was something the patient was keen to avoid.

Consequently, because UL1 was vital, a biomimetic minimally invasive approach was recommended in order to preserve pulp vitality and maximise the longevity of the restorative work.

A stress reduced biomimetic approach was recommended because it is the gold standard and the least invasive option. This would be a free-hand layered, class IV stress-reduced composite resin restoration on UL1. The faulty class III restoration on UR1 would be replaced at the same time.

A visit to the hygienist for a scale and polish was arranged, as well as a full case assessment consultation and follow up appointment.

As part of the treatment planning for the restoration of his fractured central incisor, a discussion was carried out to emphasise the importance of treating the existing malocclusion. This is in order to resolve the existing traumatic anterior relationship to protect and prolong the longevity of the other teeth and planned restorative work, and to improve function.

The patient agreed to proceed with a stress-reduced layered composite class IV restoration on UL1 and a replacement class III on UR1.

An Essix night guard would also be prescribed, pending a decision on corrective treatment for the malocclusion, which the patient accepted could put the anterior teeth and restorations at risk.

BIOMIMETIC TREATMENT PROTOCOL

Treatment began by taking appropriate extraoral and intraoral photographs (Figure 3).

Next, shade assessment was made by creating a button try-in (Figure 4) and a composite mock-up for the patient to approve (Figures 5 and 6).

I used Clearfil AP-X (Kuraray) shade A3D for the deepest layer of the dentine replacement, following a more superficial dentine replacement

layer with Estelite Sigma Quick, shade OA3 (Tokuyama). I prefer to use the PLT version because it makes placement on the tooth quicker, easier and with reduced risk of waste.

The enamel layer was added using Estelite Asteria (Tokuyama), shade NE, again using the PLT version.

The occlusion of the patient was checked and assessed in maximum intercuspation as well as during excursive movements. Adjustments were made on the palatal aspect as well as on the incisal edge of the mock-up.

Once the patient had approved the mock-up, I created a silicone index using Imprep AC Impression Material Putty Soft Rapid (Fast Set) dark blue from Unodent (Figure 7).

Local anaesthetic was administered before complete isolation was achieved using Isodam heavy blue rubber dam and modified B6 and B5 Brinker rubber dam clamps (Coltene) (Figure 8).

The interproximal surfaces of UR1 and UL1 were cleaned using an ultrasonic scaler before the existing failing class III composite restoration in UR1 was removed.

Restoration of UL1 began by preparing the tooth. This involved creating a minimal rounded bevel margin, removing any irregular and non-supported enamel prisms, and extending the fine bevel 2-3mm cervically using a diamond bur FG Medium Grit 556 (25) from Perfection Plus.

The bevel should be extended as long as the fracture extension (Figure 9). Afterwards, finishing of the preparation with a coarse abrasive disc (Optidiscs, Kerr) was performed to acquire a feathered limitless margin and allow seamless integration of the restoration into the environment. This facilitates a gentle shade transition to ensure an optimised aesthetic result (Figure 10). The surface of both the enamel and dentine was then conditioned by air particle

By utilising biomimetic principles and state-of-the-art restorative materials, it was possible to deliver a hyper-realistic direct composite restoration

FIGURE 10: *Bevel refined for smoother transition and enhanced aesthetic result*

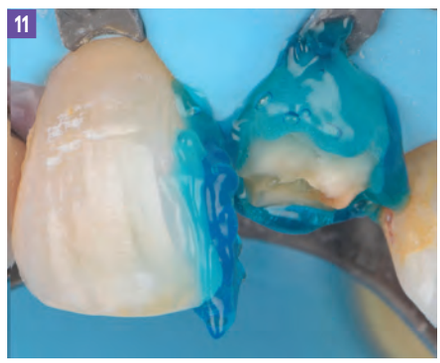

FIGURE 11: *Selective enamel etching of enamel on UL1 and UR1*

FIGURE 12: *Frosted appearance after enamel etching completed*

FIGURE 13: *Immediate dentine sealing using SE Bond & Protect and Optibond FL adhesive and resin coating with 0.5mm Clearfil Majesty Flow in place*

FIGURE 14: *Biobase created with Everex Posterior*

FIGURE 15: *Initial build-up of palatal shell using Estelite Universal Flow Medium CE*

FIGURE 16: *Initial build-up after the clamp was replaced*

FIGURE 17: *Mamelon build-up using Estelite Sigma Quick AO3*

abrasion using Aquacare 28µm aluminium oxide particles and an Aquacare air abrasion unit (Veloplex).

Selective enamel etching was performed with 37% phosphoric acid for 20 seconds, then rinsed and dried (Figures 11 and 12). The first stage of the restoration build-up was to provide immediate dentine sealing (IDS) to reduce postoperative sensitivity by sealing the dentine tubules and to increase the bond-strength.

A fourth generation self-etching two bottle adhesive system, SE Bond Seal and Protect (Kuraray), was used.

The primer (bottle one) was gently rubbed onto the dentine only, air-dried to remove the solvent, before a second application of the primer was applied to the dentine only and again air-dried to remove the solvent. The bond (bottle two) was then rubbed onto the dentine only, and the excess was removed with a clean/dry microbrush. This was light-cured for 20 seconds.

Optibond FL (Kerr) (bottle two) adhesive was then applied to the sealed dentine surface and the excess was removed using clean Microbrushes (Centrix) before being light-cured for 20 seconds (Figure 13).

The second stage was to build a resin coat over the IDS by applying a 0.5mm layer of Clearfil Majesty Flow (Kuraray), shade A2, to the dentine area (Figure 14).

This will secure the hybrid layer and increase the bond strength of the restoration to the tooth.

This was overlaid with Everex Flow (GC), shade A3, and finally Estelite Sigma Quick (Tokuyama), shade OA3, to complete the build-up of the deep dentine replacement area or biobase.

To begin the enamel layer build-up, more Optibond FL was applied to the etched enamel surfaces and any excess removed using clean Microbrushes. This was light-cured for 20 seconds.

The palatal shell was built-up using Estelite Universal Flow Medium CE (Tokuyama) and the silicone index created during the mock-up stage (Figure 15).

Once the palatal shell was in place, the clamp was repositioned (Figure 16) and the dentine mamelon replacements were built-up using Estelite Sigma Quick AO3 (Figure 17).

Characterisation was created using white and ochre Estelite Color (Tokuyama) (Figure 18) and Transopal Flow (Ivoclar).

The final composite layer, Enamel replacement on the labial aspect, was created using Estelite Asteria (Tokuyama), shade NE (Figure 19).

Because of their patented rapid amplified polymerisation technology, Tokuyama composite resins can be completely cured to a greater depth in just 10 seconds, but do not require such a high level of camphorquinone. This means that they have a longer working time in ambient light and don't experience the post-curing 'yellowing' associated with conventional composite resins with a higher camphorquinone content, as they 'age'.

A layer of glycerine gel was applied to allow full polymerization of the oxygen inhibition layer before a second light-cure for 10 seconds was applied.

Once cured, we finished working on the tooth's primary anatomy, shaping the morphology using Optidiscs (Kerr) (Figure 20). The secondary anatomy was achieved with various shaped medium grit diamond burs.

We used H48LQ flame shaped tungsten finishing bur (Komet) for a more controlled and smooth finishing of our primary and secondary anatomy (Figure 21). Then Enhance (Dentsply) points and cups were employed to complete the finishing stage.

Final polishing was achieved using a combination of Optishine (Kerr), Flexicups and Flexipoints (Cosmedent) and – for the ultimate shine and finish – Diacomp Twist (Eve) silicone polishers and Flexibuffs with Enamalize (Cosmedent) (Figure 22).

FIGURE 18: *Adding intrinsic characterisation using white and ochre Estelite Color*

FIGURE 19: *The enamel layer completed using Estelite Asteria NE. The restoration is really taking shape!*

FIGURE 20: *Creating the primary anatomy. Note the blue on UL1 to help highlight its morphology*

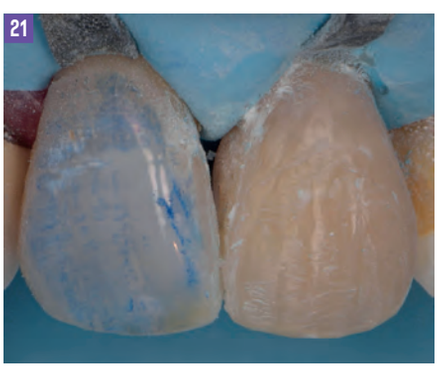

FIGURE 21: *Creating the secondary anatomy including striations*

FIGURE 22: *The final restoration after polishing*

FIGURE 23: *The final restoration*

FIGURE 24: *The final restoration after rubber dam removed*

FIGURE 25: *Intraoral view before and after*

FIGURE 26: *Extraoral view before and after*

Because all Tokuyama composite resins are manufactured using patented spherical filler particles, I find it is possible to produce a significantly higher degree of shine in a significantly lower amount of time than is possible with any alternative brand of composite resin material. This saves me a lot of time and effort and the lustre is retained for a longer period of time (Figure 23).

OCCLUSAL PROTECTION

As mentioned previously, the patient had a class III malocclusion, with heavy occlusal contacts in the anterior region.

There was evidence of heavy attrition on both the upper and lower incisors. Therefore, in order to protect the new restorations and the rest of the dentition, an upper night Essix splint was prescribed along with appropriate occlusal adjustment to ensure proper function. An intraoral 3shape (Trios) scan was taken and the upper night guard splint was fabricated.

At the control appointment, and following complete rehydration of the teeth, optimal integration of the restorations on UR1 and UL1 was observed (Figures 24 to 27) – or rather not observed, as they were undetectable from the surrounding natural dentition.

The occlusion was assessed and stable bilateral contacts were established during maximum intercuspation and during excursive movements. However, there was a traumatic anterior bite still present that put the teeth and restorative work at risk.

We discussed the need for correction of the malocclusion and an extensive full examination appointment was offered to the patient, so that we could discuss this further.

We stressed the importance for a healthy mouth, free of disease and the need to replace the missing posterior teeth to improve function and prolong longevity of the dentition and restorative work. However, until this is delivered the patient will continue to wear the night guard.

The patient was extremely happy with the appearance of his new restorations and will be recalled for future appointments for a comprehensive examination and scale and polish with the hygienist.

CONCLUSION

This was quite a challenging case involving a seriously broken down central incisor. However, by utilising biomimetic principles and state-of-the-art restorative materials, it was possible to deliver a predictable, stress-reduced, hyper-realistic, direct composite restoration that blended with the environment.

We achieved a satisfying result for the patient that was relatively quick and easy. An outcome the patient was extremely pleased with. CD

FIGURE 27: *The patient's new smile*

PRODUCTS USED

Eve Diacomp Twist
Trios 3shape
Clearfil AP-X, Clearfil Majesty Flow, SE Bond Seal and Protect Kuraray
Optidiscs, Optishine, Optibond FL Kerr
Flexicups, Flexipoints, Flexibuffs, Enamalize Cosmedent
Estelite Asteria, Estelite Color, Estelite Sigma Quick, Estelite Universal Flow Medium CE Tokuyama
Everex Flow GC
Aquacare Veloplex
Microbrushes Centrix
Transopal Flow Ivoclar
Imprep AC Unodent
Isodam Coltene

WHEN 21ST CENTURY TECH CANNOT COPE

DR MIKE GREGORY EXPLAINS HOW TECHNIQUES AND MATERIALS FROM THE 19TH CENTURY COULD HELP GENERAL DENTISTS IN THE 21ST CENTURY

DR MIKE GREGORY
Mike is a clinical lecturer at Bristol University Dental School.

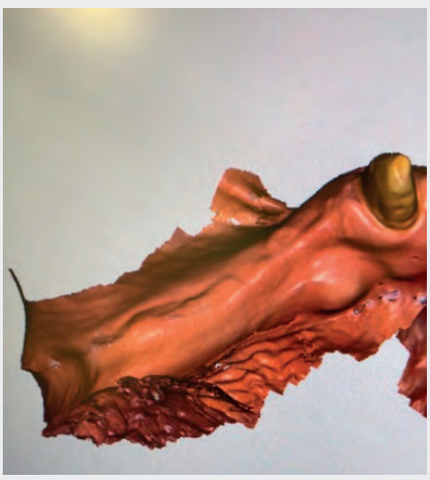

FIGURE 1: *The limitations of scanning the retromylohyoid space*

MATERIALS USED:
Kemdent White Impression compound, Kemdent Green tracing sticks: **www.kemdent.co.uk**

VIDEO TUTORIALS:
@kemdentUK

The advent of digital scanning is transforming the practice of clinical dentistry in the 21st century. There's no doubting the precision and accuracy achieved by scanning hard tissue and attached mucosa when providing fixed restorations and some removable prosthesis, but it is not without issues.

Problems arise when we are trying to record movable, displaceable soft tissues when providing removable dentures. The goal in these situations is to record the true functional sulcal depths and how the surrounding musculature determines the borders of a prosthesis.

In such situations, the aim is to manipulate the tissues and request the patient to make functional movements. Classically, in trying to record the lingual sulcus, we request the patient to lick the upper lip and swallow in order we can ensure tongue movements will be possible with the completed dentures.

Figure 1 shows the difficulty in achieving a good representation of the retromylohyoid space let alone the true functional depth in this area. The tongue and lingual tissues are not easily identifiable by scanners and the software cannot easily determine what is needed to create a representation of the eventual denture bearing area.

Asking a patient to replicate movements with a camera in the lingual sulcus is pretty much impossible.

Old school techniques and materials can quite easily utilised in these situations.

FIGURE 2: *Capture of the retromylohyoid space with Kemdent thermoplastic Impression Compound and Kemdent Greenstick (www.kemdent.co.uk)*

GAME CHANGER

Charles Stent (1807-1885) was a 19th-century English dentist notable for his advances in the field of denture making who made a major stride in the area of removable prosthodontics.

His work on making gutta percha, a material used for dental impressions in the mid-1800s transforming the quality and stability of materials at the time. He used waxes, resins and talc mixed with gutta percha to produce a 'game changing' thermoplastic impression material.

This radically changed the way impressions of soft tissues were taken – and still are over 150 years later.

These materials are readily available today in most countries around the world and require very little in the way of technology to be used a clinical environment.

Water maintained to approximately 60° and a heat source, either electric or gas burner, will allow a clinician to record the oral soft tissues with relative ease. With the addition of dental alginates, an accurate representation of the mouth is entirely possible with minimal financial outlay.

Whilst there is no denying that digital dentistry is transforming treatments and outcomes, many believe there is still a place for analogue methods when it comes to capturing impressions of soft tissues in the field of removable prosthodontics.

The recognition of the limitations when using dental scanners and the utilisation of techniques and materials from the 19th century can greatly enhance the outcomes of dental treatments in the field of removable prosthodontics for general dentists in the 21st century. CD

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AESTHETICDENTISTRY

Every patient's whitening journey is different, and success depends on understanding the cause of discolouration and selecting the proper treatment – Linda Greenwall, p23

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Tooth whitening in modern dentistry

Linda Greenwall explores the evolving role of tooth whitening in modern dentistry, examining key techniques, patient cases and the science behind safe and effective treatments

Tooth whitening has become one of the most sought-after cosmetic dental treatments, with patients eager to achieve a brighter smile. Interest in this treatment has broadened primarily among millennials and generation Z, with 40% of individuals under 35 having had whitening, according to a 2020 National Smile Month survey from the Oral Health Foundation.

Most notable is how social media has played a pivotal role in shaping gen Z's perceptions of dental aesthetics, with one survey reporting that 72% compare their smiles to those seen on social platforms (Williams, 2024).

As demand has grown so too have advancements in professional whitening and the range of options available. From in-practice treatments to take-home kits, key developments have centred around clinical efficacy, accessibility and improvements to sensitivity, thus making treatment quicker, accessible and patient-friendly.

TAILORING WHITENING TO THE PATIENT

Every patient's whitening journey is different, and success depends on understanding the cause of discolouration and selecting the proper treatment. I have treated a wide range of cases, from mild surface staining to complex internal discolouration.

Professional hygiene treatments can be highly effective for patients with extrinsic stains caused by coffee, tea or smoking. For deeper stains, peroxide-based bleaching is the gold standard. In-practice whitening treatments, such as those performed with hydrogen peroxide or carbamide peroxide gels, are ideal for patients seeking immediate results. Often completed within an hour, these treatments penetrate the enamel and break down pigmented molecules. I have treated many patients who need a quick transformation, such as brides preparing for their wedding day or professionals wanting to enhance their confidence before a significant event.

Take-home whitening kits, provided by dentists, offer a more gradual approach. These involve custom-made trays filled with whitening gel, typically worn overnight or for a few hours daily over two weeks. In my experience, these treatments work well for patients who want control over their whitening process or those with mild to moderate discolouration.

TRANSFORMING SMILES THROUGH WHITENING

Over the years, I have managed to achieve outstanding results for a range of challenging cases. The following cases illustrate how tailored whitening treatments can impact a patient's smile and confidence.

Case one: managing discolouration in a young patient

One particularly sensitive case involved a patient under 18 with dark orange patches on their teeth (Figure 1a). I opted for Pola Night 10%, which was applied overnight in customised trays over eight to 10 weeks.

Treatment focused on the upper arch first, allowing for faster whitening with reduced sensitivity. Regular reviews every two to three weeks ensured close monitoring, with the lower teeth treated once the upper arch reached the desired shade.

Once the brown patches were removed, resin infiltration blended in any remaining white spots, demonstrating how whitening and restorative techniques can deliver a natural result (Figure 1b).

FIGURE 1A: *Case one – before, dark orange patches were present on the teeth*

FIGURE 1B: *Case one – after, a natural result was achieved*

DR LINDA GREENWALL

Linda is a leading expert in aesthetic dentistry and tooth whitening, has spent decades refining techniques, educating dentists and ensuring safe, effective patient treatments. Her deep understanding of whitening science and clinical experience highlight the importance of choosing the right approach for each case.

FIGURE 2A: *Case two – before, severe yellow-grey staining caused by tetracycline antibiotics*

FIGURE 2B: *Case two – after, the result exceeded expectations*

FIGURE 3A: *Case three – before, grey-toned teeth following Roaccutane treatment for acne*

FIGURE 3B: *Case three – after, an eight-shade improvement*

FIGURE 4A: *Case four – before, non-vital upper central incisor*

FIGURE 4B: *Case four – after, effective shade matching with minimal sensitivity was achieved with careful sequencing*

Case two: tetracycline staining in a middle-aged patient

This case involved a 55-year-old patient with severe yellow-grey staining caused by tetracycline antibiotics taken in adolescence (Figure 2a). The treatment plan involved six to eight weeks of overnight whitening using Pola Night 10%, resulting in a 12-shade improvement.

Tetracycline cases are notoriously challenging to treat, but the predictable nature of Pola Night, combined with careful monitoring and patient support, led to a result that exceeded the patient's expectations (Figure 2b).

Success depends on understanding the cause of discolouration and selecting the proper treatment

Case three: post-Roaccutane whitening

In a third case, a 20-year-old patient with grey-toned teeth following Roaccutane treatment for acne presented for whitening (Figure 3a). Again, Pola Night 10% was used overnight for four to six weeks, delivering an eight-shade improvement.

This case highlights Pola's ability to address systemic discolouration caused by medication, a growing concern among younger patients (Figure 3b).

Case four: non-vital tooth following orthodontics

In this case, a 24-year-old patient presented with a non-vital upper central incisor following orthodontic treatment (Figure 4a). This required a combination of internal and external whitening, starting with 16% Pola Night sealed inside the access cavity of the non-vital tooth. The dressing was changed three times until the dark tooth matched the neighbouring teeth. This was followed by full arch whitening using Pola Night 10%. Careful sequencing, upper arch first and lower arch second, ensured effective shade matching with minimal sensitivity (Figure 4b).

The cases presented highlight the life-changing impact of whitening

MANAGING SENSITIVITY AND PATIENT COMFORT

One of the most common concerns with whitening treatments is tooth sensitivity. While hydrogen peroxide is highly effective at breaking down stains, it can temporarily open the enamel's tubules, leading to discomfort when exposed to cold or heat. I find using desensitising agents alongside whitening treatments can help with sensitivity issues.

Many modern whitening gels, such as Pola, contain potassium nitrate or fluoride and built-in desensitising properties to inhibit post-whitening sensitivity. For sensitive patients, slower, lower-concentration treatments such as take-home whitening with a milder gel can be a more comfortable option.

CONCLUSION

As whitening technology advances, the focus is on achieving long-lasting results while minimising side effects. I have worked with many systems throughout my career and have come to recognise the importance of selecting the right one for each patient.

Systems such as Pola Whitening, used in the cases above, have gained popularity among dental professionals due to their high-performance whitening gels incorporating built-in desensitising agents. These gels allow patients to achieve brighter smiles with greater comfort through in-practice treatments or take-home options. The convenience and predictability of such systems make them an excellent choice for dentists and patients looking for a practical, well-tolerated whitening experience.

The cases presented here highlight the life-changing impact of whitening treatments. They demonstrate how tailored approaches can address various types of discolouration while preserving long-term oral health. CD

REFERENCE

Williams V (2024) Social media causes 72% of Gen Z to compare their smiles to others. Forbes Health. Available at: www.forbes.com/health/dental/social-media-impact-on-smiles

Tokuyama

OMNICHROMA

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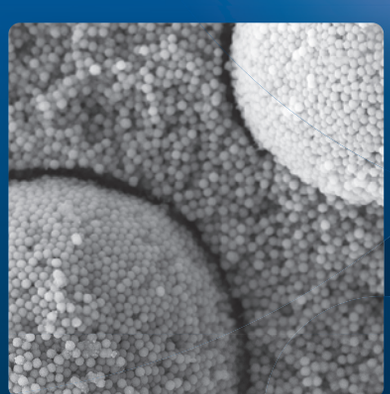

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BDS MFDS RCPS(GLA) MFD SRCS(ED) LDS RCS(ENG)
Selvaraj is the principal dentist of The Gallery Dental Group, which is made up of Meadow Walk Dental Practice and The Gallery Dental & Implant Centre. Selvaraj is also the founder of the Academy of Soft 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.

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: Aesthetic dentistry

Educational aims and objectives: To present an advanced case that involved hard and soft tissue augmentation to create an aesthetic and functional outcome in the upper right quadrant.

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

A 68-year-old female patient presented to the practice complaining about the appearance of her teeth. She had existing crowns in the UL1, UL2 and UL3, in addition to a bridge in the upper right quadrant that was placed 10-15 years ago (Figures 1 to 6).

The patient's main concern was the marginal fit of the crown, and she felt that the bridge was too big.

A full medical history was taken, showing the patient to be generally fit and well. A clinical exam was conducted, requiring the bridge to be removed (Figures 7 and 8). This revealed hard and soft tissue defects in the UR2, UR3 and UR4 region.

The patient had a retained root on UR3, a failing crown on UR5 with marginal leakage and gingival recession, and was missing UR2, UR4, UR6 and LL6.

An X-ray and CT scan were taken, in addition to creating study models. Digital treatment planning incorporated both the hard and soft tissue to enable us to achieve the optimal result. The CT scan confirmed a lack of bone and soft tissue, making this a challenging case to achieve a good result.

TREATMENT PLANNING

The patient was presented with all of the appropriate options for treatment, including replacement of the existing crowns to improve smile aesthetics, replacing the LL6 missing molar with a dental implant, and placing an implant retained bridge in the UR2, UR3 and UR4 region.

Due to the insufficient hard and soft tissue, a decision was made to place implants on UR3 and UR4 with bone grafting and a connective tissue graft to enhance the gingival thickness and aesthetic outcomes in the upper right quadrant.

All aspects of the treatment were discussed with the patient in depth, including conversations about the benefits and risks.

As the patient was particularly concerned about the aesthetic outcome, it was important to manage her expectations at this stage, to ensure she had a complete understanding of the limitations of the treatment. Once all the patient's questions were answered and she was comfortable with treatment, she provided informed consent to proceed.

FIGURE 1: *Pre-treatment anterior view*

FIGURE 2: *Pre-treatment right lateral view*

FIGURE 3: *Pre-treatment left lateral view*

Selvaraj Balaji presents an advanced case that involved hard and soft tissue augmentation to create an aesthetic and functional outcome in the upper right quadrant

Aesthetic transformation with implant treatment

FIGURE 4: *Pre-treatment OPG*

FIGURE 5: *Pre-treatment upper arch*

FIGURE 6: *Pre-treatment bridge*

FIGURE 7: *Pre-treatment anterior bridge removed*

FIGURE 8: *Pre-treatment right lateral bridge removed*

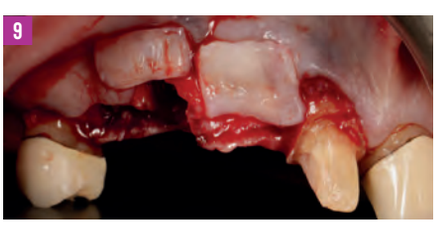

FIGURE 9: *Flap raised and UR3 extraction*

FIGURE 10: *Implant placed and flap closed*

FIGURE 11: *Lab-made provisional bridge placed*

FIGURE 12: *Post treatment smile*

FIGURE 13: *Post treatment anterior view*

FIGURE 14: *Post treatment right lateral view*

FIGURE 15: *Post treatment left lateral view*

TREATMENT PROVISION

The patient visited restorative dentist Dr Evangelos Viskadourakis (a general dental practitioner at our practice) for the initial phase of treatment, in which he removed the existing bridge and crown.

Following this, the patient was referred to me for implant placement at the LL6, and to restore the upper right quadrant with dental implants.

On the day of surgery, the upper right quadrant was numbed using local anaesthetic and a mucogingival split thickness flap was raised (Figure 9). The UR3 was extracted atraumatically and autogenous bone was harvested from the mandible to form a bone graft comprised 60% autogenous and 40% xenograft material.

Two Sweden & Martina Prama dental implants were placed in the UR3 and UR4 locations at the pre-determined position, angle, and depth.

FIGURE 16: *Post treatment OPG*

FIGURE 18: *Post treatment anterior maxilla*

FIGURE 19: *LL6 final crown*

A key challenge... the upper right quadrant required dental implants, while the upper left quadrant comprised natural teeth and a crown

FIGURE 20: *Post treatment composite bonding lower anterior*

FIGURE 17: *Post treatment smile*

Bone augmentation was carried out in these areas following the 'layering technique' to ensure the graft attached effectively all around the implants for maximum stability.

Soft tissue was harvested from the patient's palate and a connective tissue graft was then placed over the implant site to increase the gingival volume and build papilla. The flap was advanced to enable it to be closed tension-free (Figure 10). In the same appointment, the patient's original bridge was adapted to fit onto the dental implants. The area was scanned and sent to the dental lab in order for them to create a provisional bridge (Figure 11).

On the same day, a dental implant was placed in the LL6, with a connective tissue graft was provided to improve soft tissue and papilla thickness, and a final crown was fitted.

After four months of healing, the bridge was removed and replaced with the lab-made provisional bridge. The aim of the provisional bridge was to encourage soft tissue contour. Three months later, the lab-made provisional bridge was removed and the final implant retained bridge and crowns were placed.

Composite bonding was then carried out in the lower anterior teeth in order to improve occlusion and enhance aesthetics (Figures 12 to 20).

CASE REFLECTION

The patient and clinician were both pleased with the functional and aesthetic outcome of this case. It demonstrates the need to listen to patients' concerns attentively and ensure clear communication when it comes to expectation management, to ensure patients can provide fully informed consent and avoid disappointment. A key clinical challenge in this case was soft tissue contouring. This was not easy because the upper right quadrant required dental implants, while the upper left quadrant comprised natural teeth and a crown. As such, it was difficult to match the two sides and achieve an aesthetic and still natural-looking outcome on both sides. CD

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DIGITALDENTISTRY

NEIL HARRIS
Three-dimensional printing in practice

33

The key to this case was the technology involved. I believe the equipment allowed us to deliver better dentistry to the patient, offering a same-day solution that would not have otherwise been possible to this standard. The concept has been made possible previously for individual units, or maybe a quadrant, but to be able to achieve the same for multi-unit smile makeovers is a significant advancement – Neil Harris, p33

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NEIL HARRIS
Neil is clinical director at HRS Dentalcare in Stonehouse, Gloucester.

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: Digital dentistry

Educational aims and objectives: To explore the application and utilisation of 3D printing in dentistry, and present a six-unit restorative case designed to restore a patient's smile in one appointment.

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

It is no secret that 3D printing is transforming dentistry as we know it. The latest technologies on the market make faster, more efficient, more predictable and easier workflows a reality for a broad range of dental professionals.

Just as importantly, the solutions are enhancing the patient experience, facilitating shorter treatment times and better fitting devices. However, in order to maximise the investment, it's crucial to understand the comprehensive application of 3D printing technologies.

RESTORATIVE AND PROSTHODONTIC DENTISTRY

With many clinicians already employing digital workflows for restorative and prosthetic dentistry, this is an excellent area in which to utilise 3D printing. The introduction of such technology allows a completely digital chairside process, from impressions to the fabrication of temporary and final 3D printed crowns, bridges and more.

The various resins and 3D printing materials available today deliver a previously unmatched level of accuracy, strength and aesthetics. The in-house approach offers the added advantages of significantly lower production costs and impressively fast treatment times.

The same can be said of removable denture production, where devices can now be created that ensure comfort, natural-looking aesthetics and durability for the patient.

ORTHODONTICS

Another discipline in which 3D printing can be successfully applied for a number of practices is orthodontics. Much like the creation of prosthetics, the fabrication of clear aligners or splints is made faster, simpler and more cost-effective by bringing it on-site. The literature has also found no differences in accuracy of dental models for aligners when comparing 3D printed and milled solutions (Elsaharty, Hafez and Abdelwarith, 2023).

Given the substantial demand for clear aligner treatment in the UK right now and expected in the future, the ability to promise a predictable and efficient patient experience is huge for practices. Most of the major commercial manufacturers of such appliances already use 3D printing and thermoforming, which means practices can implement very similar workflows in-house for similar results.

There is also merit in the opportunity to reprint lost or broken aligners without any hassle or significant extra cost to the patient. In addition, you will be able to print the retainer directly in the near future – saving a number of steps in the process.

FIGURE 1: *Preoperative photograph*

FIGURE 2: *Prepared teeth*

Following a discussion of the application and utilisation of 3D printing in dentistry, Neil Harris presents a six-unit restorative case designed to restore a patient's smile in one appointment

Three-dimensional printing in practice

IMPLANT DENTISTRY

For clinicians providing oral surgery, the 3D printer is the ideal chairside companion once again. As part of a digital workflow, the technology can be used to create patient-specific guides, which have been shown to increase the accuracy of implant placement compared to freehand in appropriate cases (Chandran et al, 2023).

Where required, the same technology makes it possible to create custom abutments and prosthetics to fit onto placed implants as well, further personalising treatment and increasing the chance of long-term surgical and restorative success.

OPPORTUNITIES AND BARRIERS

The above is in no way an exhaustive list of applications for in-house 3D printing. For example, there are opportunities to utilise 3D printed endodontic guides. Chairside printed models can also be useful for oral health education and helping patients understand their current condition, proposed treatment and expected outcomes.

One of the key barriers to implementation of 3D printing in dentistry is a lack of familiarity among the dental team (Loges and Tiberius, 2022).

Despite the technology having existed for several decades, only in the last decade has it become more commonplace in the dental practice. Options available today have been refined and optimised to be simple to use, helping an increasing number of dental teams overcome this barrier.

With thorough training and ongoing support from a trusted supplier, all dental practices can now very successfully implement 3D printing within their workflow for enhanced patient care.

It is also important to consider the calibre of equipment and supplier you choose. For instance, only very few in the UK offer MDR-approved equipment and a certified workflow that can be easily audited for complete peace of mind.

This is a cornerstone of Sprintray's approach to providing 3D printing solutions for dental practices across the UK. No matter the size, previous experience or ambitions of your business, Sprintray provides the MDR-approved technology and support you need to reap the many rewards of 3D printing.

For any dental practices aspiring to develop their digital workflow and make the most of the very latest solutions on the market, chairside 3D printing will offer clear advantages. Introducing the technology and training the team to be confident in using it will be a fruitful investment in the future of your business.

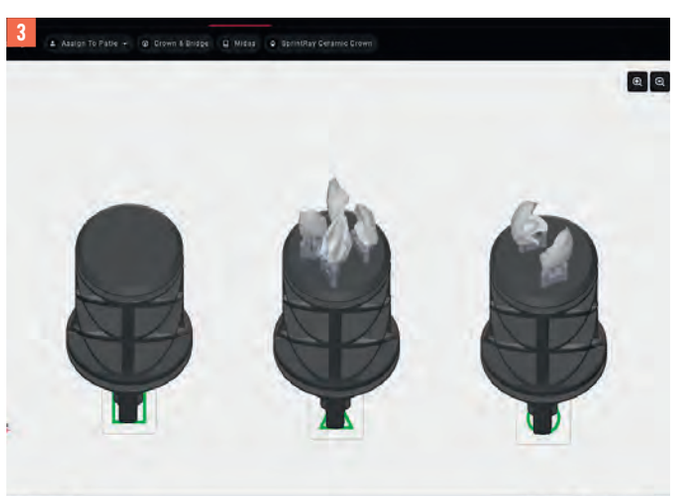

FIGURE 3: *Rayware Midas screen*

FIGURE 4: *Adjusted prototypes*

FIGURE 5: *Two-month postoperative photograph*

CLINICAL CASE

In the following case study, Neil Harris presents a six-unit restorative case designed to restore a patient's smile in one appointment after years of damage from a historical eating disorder.

PATIENT PRESENTATION

A long-time patient of the practice presented looking to improve the appearance and function of her lower dentition. With a history of bulimia and significant wear of the teeth, she had previously received full upper arch rehabilitation and had an implant-retained prosthesis in place.

The lower anterior teeth had since deteriorated and been treated periodically over the years with composite to enhance their aesthetics. The patient was now interested in a more robust solution.

ASSESSMENT AND PLANNING

A full assessment was conducted of the current dentition and oral hygiene. Radiographically, no issues were detected and the teeth were periodontally sound. Severe signs of wear were identified and the lower anterior teeth appeared short and uneven. Due to the wear, a lack of guidance for the occlusion was also recorded.

Initially, intraoral scans were taken with the 3shape Trios scanner. A full suite of clinical photographs was also taken and the information was combined to help plan the best shape and size of the lower teeth.

The key to this case was the technology involved. The equipment allowed us to deliver better dentistry to the patient

The scans were sent for a digitally designed prototype, which mocked up the incisal edge positions of the lower anterior teeth and allowed us to view them on the photographs as a type of smile simulation for the patient to see.

Once the crown designs were approved, a model was 3D printed with the Sprintray Pro 95 so stents could be created with a thermoformer.

TREATMENT

Pioneering same-day dentistry, the 3D printing workflow allowed the delivery of fast and efficient patient care in this case. The stents were used to create prototypes of the final restorations in the mouth. Using these, the lower teeth were prepared accordingly, after removing all the current restorations.

The teeth were scanned again with the Trios, and six individual restorations were designed using the Sirona Inlab software.

During the same appointment, the final restorations were 3D printed in under 10 minutes on the Midas 3D printer, using the Sprintray Ceramic Crown resin in a B1 shade, and fitted in the mouth.

In a singular appointment of approximately four hours in total, the patient was taken from a fairly extreme condition to fully restored. This included just over an hour to design, print and glaze the final crowns.

The candy coating technique was implemented to finish the crowns. This requires a combination of Sprintray crown resins and GC Optiglaze to characterise the restorations for a natural-looking aesthetic.

The crowns were then bonded onto the teeth using a combination of Clearfil SE Bond (Kuraray) and Variolink Esthetic (Ivoclar). These were light cured, following the manufacturer's instructions.

OUTCOME

The patient was delighted with the outcome, especially considering that the drastic difference that was made to their dentition in just one half-day appointment. Aesthetically, the smile looks fantastic compared to the broken-down teeth at the very beginning.

From a functional perspective, guidance was re-established and occlusion improved. The patient has since returned for a six-month follow-up, which revealed restorations that look great and have lasted really well.

DISCUSSION

The key to this case was the technology involved. I believe the equipment allowed us to deliver better dentistry to the patient, offering a same-day solution that would not have otherwise been possible to this standard. The concept has been made possible previously for individual units, or maybe a quadrant, but to be able to achieve the same for multi-unit smile makeovers is a significant advancement.

In my experience, the Sprintray 3D printers are the best on the market – they are robust and open source for convenience, but provide predictable outcomes for high-quality same-day dentistry.

This is where dentistry is headed now. The described case was the first we completed using this workflow, but it will not be the last. We are already offering same-day crowns and veneers to patients as standard, and have at least one multi-unit case scheduled per week for the coming months.

We are able to invite patients in at 9am with broken teeth and low self-esteem, and see them leave by lunchtime with a smile they are proud to show off. It's highly rewarding work. CD

REFERENCES

Chandran KRS, Goyal M, Mittal N, George JS (2023) Accuracy of freehand versus guided immediate implant placement: a randomized controlled trial. *J Dent* 136: 104620

Elsaharty M, Hafez A, Abdelwarith A (2023) Accuracy of 3D printing versus milling in fabrication of clear aligners dental models. *Al-Azhar J Dent Sci* 26: 263-276

Loges K, Tiberius V (2022) Implementation challenges of 3D printing in prosthodontics: a ranking-type delphi. *Materials (Basel)* 15(2): 431

PRODUCTS USED

Pro 95, Midas 3D, Ceramic Crown Sprintray
Inlab Sirona
Optiglaze GC
Trios 3shape
Clearfil SE Bond Kuraray
Variolink Esthetic Ivoclar

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'I check before I embark on any course of treatment, that the patient has gone through this program' – Dr Mervyn Druian, cosmetic dentist expert and pioneer.

Dentistry Consent is straightforward to use, works on any device, and fits seamlessly with your practice management system. You can personalise documents with your own details and adapt the language to suit your approach. CD

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INSIDE ZIRKONZAHN'S PREMOLARIS

THE MANUFACTURING SITE WHERE ZIRKONZAHN'S M6 TELESKOPER BLANK CHANGER MILLING UNIT IS ASSEMBLED, TESTED AND CUSTOMISED

In line with the company's 'in-house' core value, Zirkonzahn has built over the years five manufacturing sites hosting the different phases of the production chains, all located within the vicinity of the firm's headquarters in South Tyrol (Italy).

Built in 2021, Premolaris is the fourth of the five production sites owned by Zirkonzahn, and is dedicated to the assembly, testing and customisation of all company's milling units, furnaces and scanners as well as to the surface treatment of their own-produced implant prosthetics components. This place also hosts the company's chemistry labs where, for instance, colours and resins are developed or burs are diamond-coated.

In the premises of Premolaris, also the company's new M6 Teleskoper Blank Changer milling unit and the Zirkonofen 600/V4 sintering furnace are assembled, calibrated and fine-tuned at individual stations according to standardised production processes.

A new machine must pass through numerous quality stations before it reaches the final inspection and each employee is responsible for a specific assembly step, becoming an expert in what he or she does. For example, this is the place where spindles and orbits are assembled into the milling units with all hardware and software components: precision tests and measurements are carried out on each spindle before they are mounted in the machines and all data obtained is recorded and registered.

Machine assembly is a very complex procedure and employees have to comply with strict checklists, which serve to coordinate the different working steps and ensure safety.

PERSONALISATION

An area of Premolaris is also dedicated to casting resin production and laser marking. Here, machines are marked with their names, and products that can be customised – such as Zirkonzahn Shade Guides – are laser-marked with the name of the clinic or the laboratory.

A selection of glass cases, which the clients can choose from to personalise their equipment, is also available in this area.

Premolaris is also the place where the first milling, scanning or sintering processes are performed on the new machines: only after the execution of the final checks and tests is the equipment ready to leave the production site, moving on to the on-site logistic department. CD

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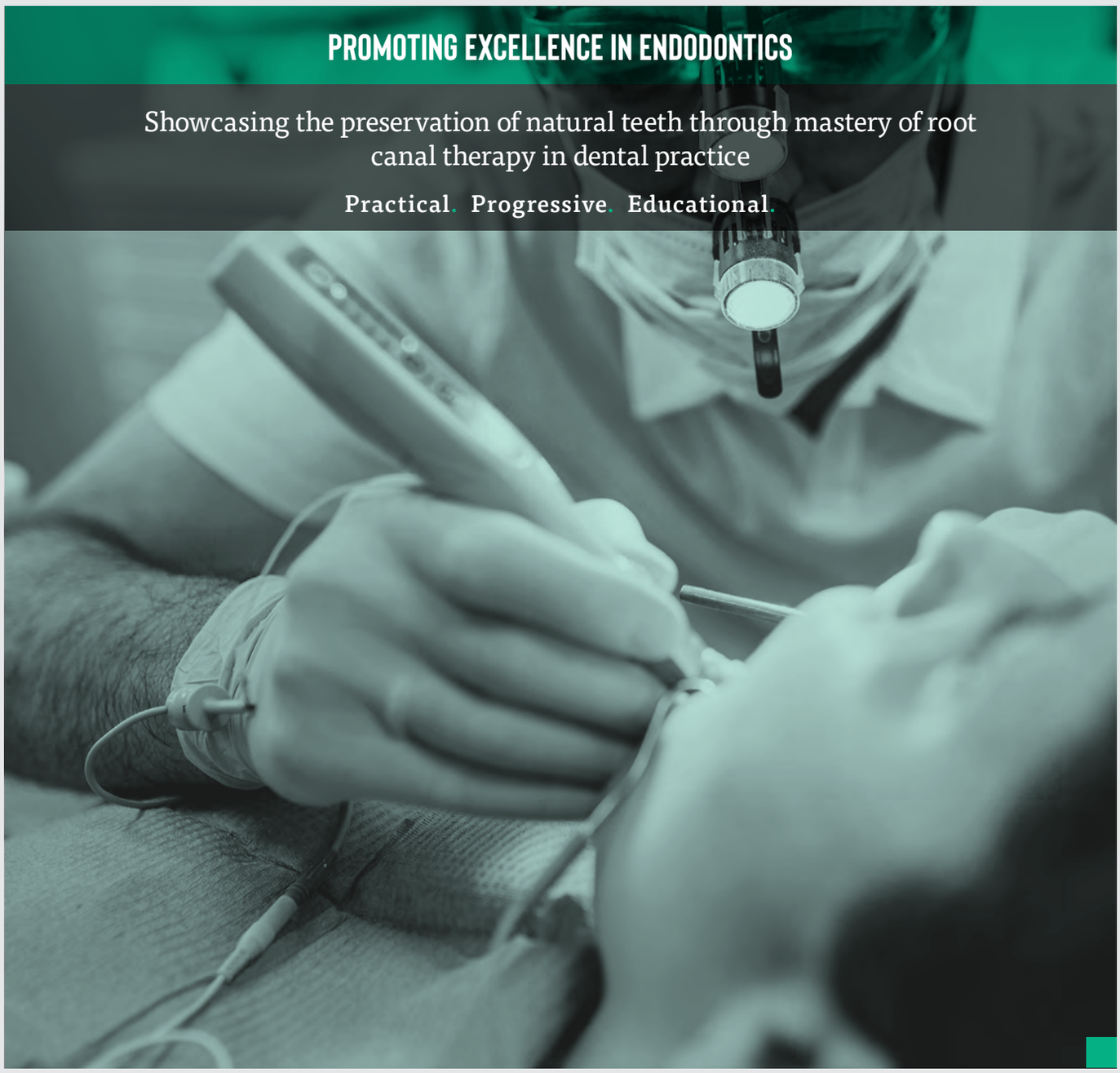
ENDODONTICS

ARFAN RASHID
Root canal treatment and nervous patients

40

Coronal flare treatment was implemented to enlarge the coronal third of the root canal to minimise coronal interferences during subsequent treatment with nickel titanium files. The tooth was then dressed with a dental cement containing antibiotics, anti-inflammatories and steroids, as well as an antifungal treatment to temporarily seal the root before extensive root canal treatment could take place – Arfan Rashid, p40



DR ARFAN RASHID
BSC BDS MSC
Arfan is the principal dentist with Dentalogica Dental Practice in Witham. He achieved the Barbers Association of Surgeons award for Clinical Excellence in 1996, while studying Dentistry at United Medical Dental Schools in London. He qualified with his BDS in 2000 and received his master's degree in laser dentistry from Università degli Studi di Genova in 2014. Arfan has been the clinical adviser for Dental Practice Systems and has been a clinical demonstrator at King's College University, London.

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: Endodontics

Educational aims and objectives: To describe a challenging case in which root canal treatment as well as restorative treatment was provided for a nervous patient.

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

The patient, a woman in her late 50s, had been a regular attender to the practice since joining in 2004. However, after the death of her husband in 2021, there had been a decline in her wellbeing and she had not received any dental care in the intervening three years.

As well as experiencing discomfort, the patient was very anxious about her visit, and had fear and trepidation about receiving treatment.

ASSESSMENT AND DIAGNOSIS

In June 2024, the patient was given an emergency appointment to address swelling accompanied by severe dental pain.

Upon examination, it was established that the patient had an abscess in the UL6. There was very little remaining of the tooth, and it required urgent care.

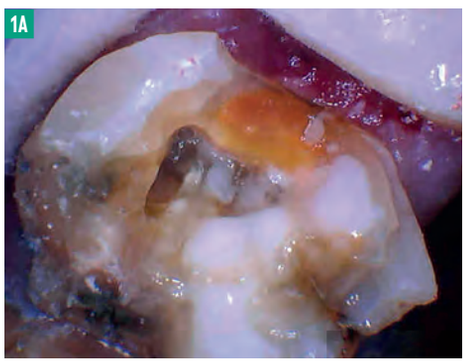
The patient was presented with three options. Doing nothing was not a viable option due to the risks to the patient from the infection. The second option was to extract the tooth and replace it with an implant-retained restoration. The third option was to provide emergency root canal treatment and attempt to save the tooth.

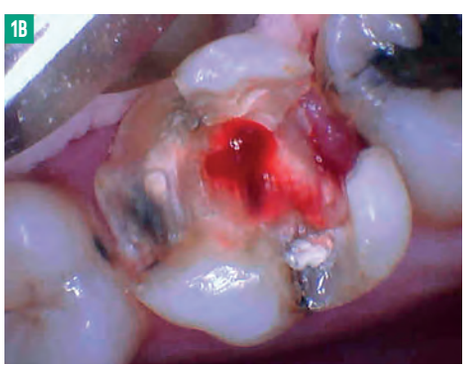
After explaining the options to the patient, she consented to emergency treatment and follow-up root canal treatment.

The UL6 was then excavated, and the blood vessels were removed from the tooth. The decay was removed, and access was cleared to three canals (Figures 1a to 1c).

Coronal flare treatment was implemented to enlarge the coronal third of the root canal to minimise coronal interferences during subsequent treatment with nickel titanium files.

The tooth was then dressed with a dental cement containing antibiotics, anti-inflammatories and steroids, as well as an antifungal treatment to temporarily seal the root before extensive root canal treatment could take place.





FIGURES 1A *and* **1B:** *Extirpation of UL6 as an emergency appointment*

FIGURE 1C: *Tooth prior to composite build-up to permit rubber dam placement*

Arfan Rashid describes a challenging case in which he provided root canal treatment as well as restorative treatment for a nervous patient

Root canal treatment and nervous patients

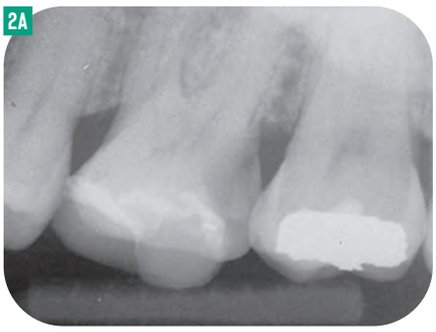


FIGURE 2A: *Preoperative X-ray*

FIGURE 2B: *Preoperative, UL6*

FIGURE 2C: *Composite build up to allow rubber dam placement and endodontic treatment to commence*

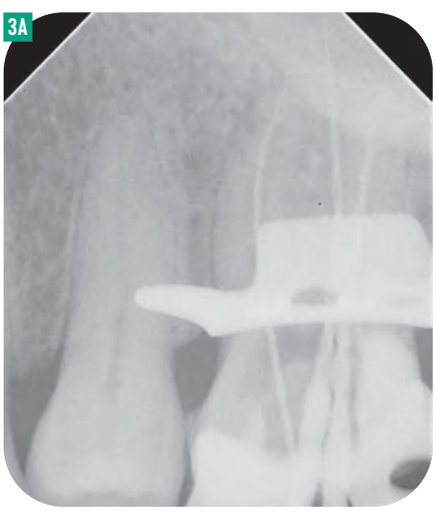


FIGURE 3A: *Working length radiograph*

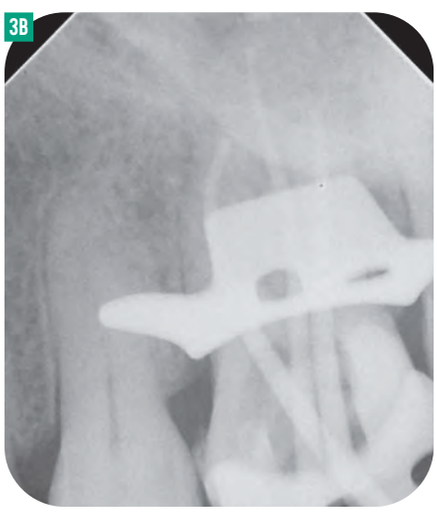


FIGURE 3B: *Master cone radiograph*

FIGURE 3C: *Cleaned and dried canals prior to obturation*

At this appointment, the tooth was built up using Brilliant Everglow composite to allow the application of a rubber dam in future appointments (Figures 2a to 2c).

TREATMENT PLANNING FOLLOWING EMERGENCY TREATMENT

The patient returned the following day for a full consultation. She was in pain, and still had some swelling, which was quite difficult to manage. She was prescribed amoxicillin and metronidazole, an antibiotic and anti-protozoal medication, which can be highly effective in the treatment of dental abscesses.

The patient disclosed that she had not undertaken a routine medical check in some years and, as the patient was 59 years old, she was referred for a systemic health assessment to rule out any underlying conditions, like diabetes or cardiovascular disease.

She was then treated in three appointments to reduce her swelling and complete the root canal treatment. The Hyflex OGSF system from Coltene was the instrument of choice in this case. The Opener (red) and Shaper (yellow) files were of particular use in accessing, cleaning and shaping the canals, irrigating between every file (Figures 3a to 3c).

Photo-assisted laser irrigation, and disinfection with the use of a diode laser were also used in this case.

RESTORATIVE TREATMENT

The tooth was restored with a fibre post, and the use of Everglow composite from Coltene. The patient received a ceramic crown, which

FIGURE 4A: *Caries, UL7*

FIGURE 4B: *Prepared cavity UL7 to be restored with composite*

FIGURE 4C: *UL7 restored with composite*

FIGURE 5A: *Preoperative, before crown preparation*

FIGURE 5B: *Occlusal view of final crown preparation*

FIGURE 5C: *Occlusal clearance of crown preparation*

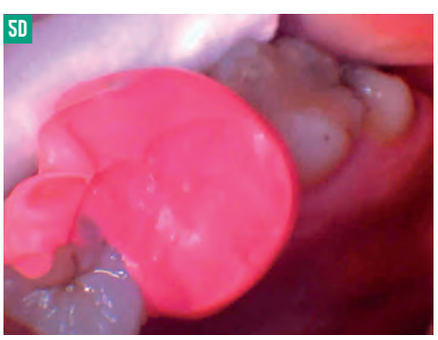


FIGURE 5D: *Antagonist bite registration for Cerec crown fabrication*

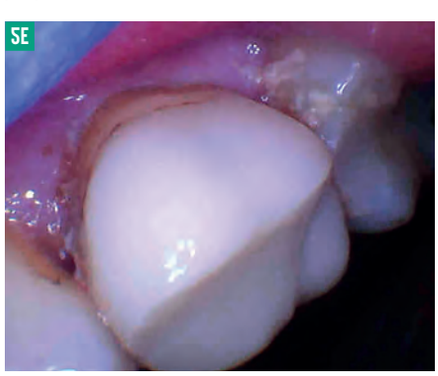


FIGURE 5E: *Buccal view of crown*

FIGURE 5F: *Lateral occlusal view of final crown*

FIGURE 5G: *Occlusal view of crown*

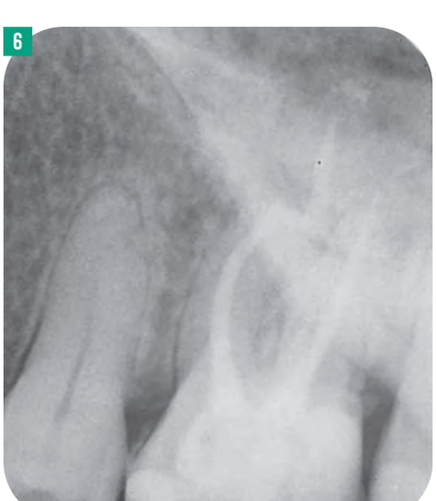


FIGURE 6: *Final X-ray*

was fabricated chairside using Brilliant Crios, a reinforced composite (Figures 5a to 5g).

Some additional decay was present in the patient's UL7, and this was treated and subsequently filled with Brilliant Everglow composite (Figures 4a to 4c).

TREATMENT OUTCOME

After treatment, the swelling was finally controlled, the crown was successfully placed, and the tooth remains asymptomatic. The patient and I are both very happy with the outcome.

DISCUSSION

The patient's infection and decay were extensive, and some clinicians might have considered the tooth to be untreatable.

Immediately removing the tooth from the bite was instrumental in preventing the tooth from breaking.

As there was so little tooth left, building the tooth up gradually immediately after emergency treatment enabled us to use a rubber dam, and maximised the viability and restorability of the patient's tooth. This meant the patient didn't have to undergo implant treatment.

One of the benefits to the patient of using Brilliant Crios was that she didn't have to wait long for her restorative treatment, so the risk of tooth fracture was further reduced.

The Cerec CAD/CAM milled crowns fit very precisely, and the clinician is completely in control of the manufacturing process as well as the chairside workflow.

I have been impressed by Brilliant Crios – they are highly polishable, don't need to be etched like dental ceramics and are much easier to use chairside.

Furthermore, I have been experiencing the benefits of Hyflex nickel titanium files for more than five years. Over this time, I have found them to be very efficient.

Since utilising the OGSF system, I have experienced very few breakages during treatments. They navigate around curved canals, and are flexible, which makes them more durable. I recommend them for their strength and cutting efficiency.

I have also been using Brilliant Everglow composite for a very long time. The shade of the tooth shines through very well. It's highly aesthetic and there is very little postoperative sensitivity, so there is far less call to replace or repair them. CD

PRODUCTS USED

Brilliant Crios, Brilliant Everglow, Hyflex OGSF Coltene

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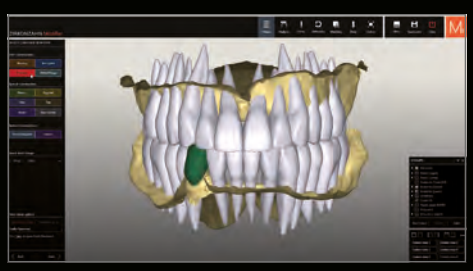

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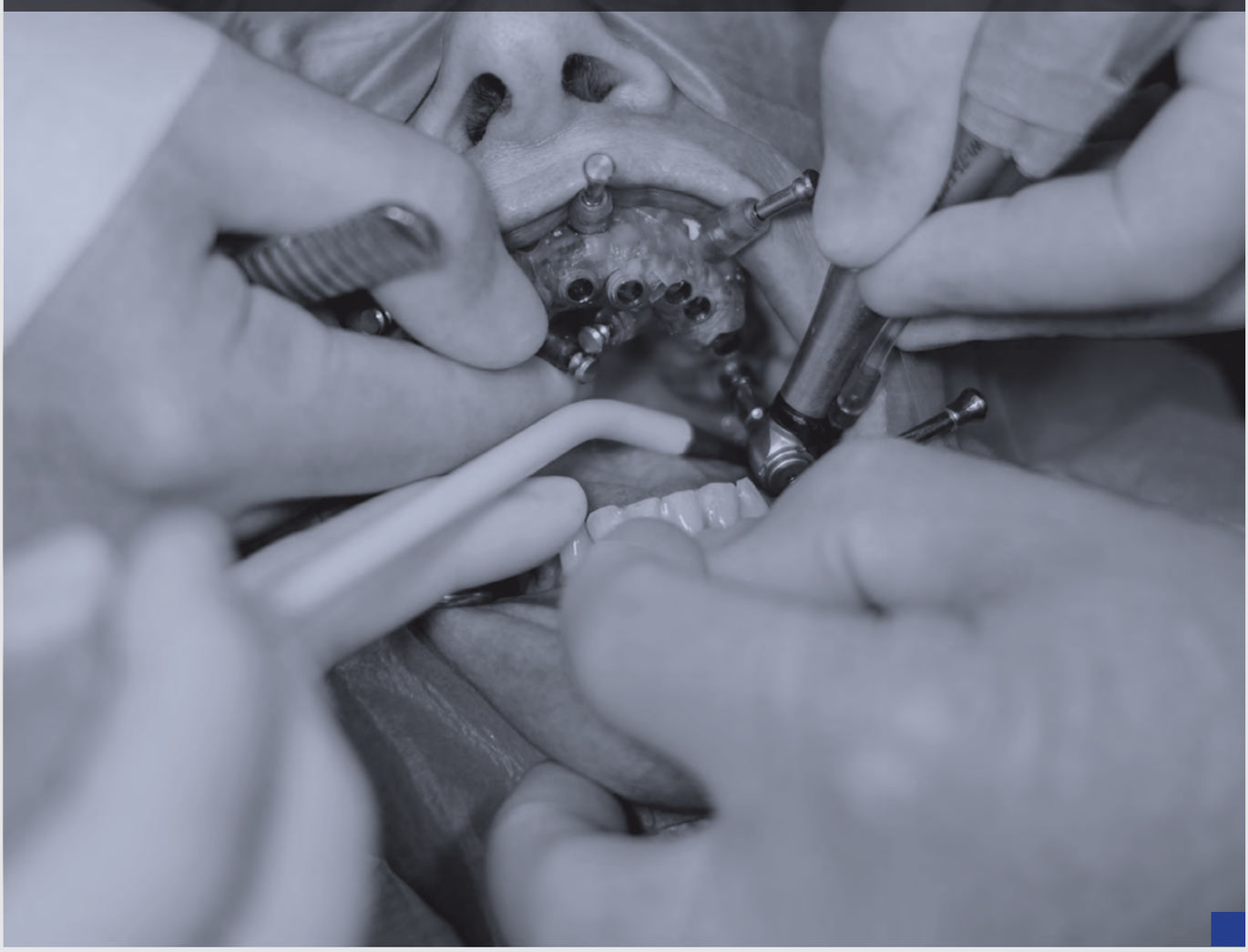

INUS SNYMAN
BCHD PDD
PGDIPDENT
PGDIPDENT MCHD
FCD(SA) OMP
Inus is in private practice in Stellenbosch, South Africa.

VLADIMIR S TODOROVIC
PHD
Vladimir is a research associate at the School of Dental Medicine, University of Belgrade, Serbia and is in private practice in Serbia.

STEPHAN A VAN ZYL
BENG
Stephan is a project engineer at Steuler Linings in Germany.

ANDRE W VAN ZYL
MCHD
Andre is in private practice in South Africa.

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: Implant dentistry

Educational aims and objectives: To discuss the concept of platform switching in implant dentistry.

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

When two components are connected and the connection is with a cone-in-cone connection, it implies that one component will be of a smaller diameter at the point of connection. Over the past 15 years, cone-in-cone connection (Morse-taper) implants have become the norm for abutment attachment to implants. This off-set in size difference of the implant abutment versus the implant diameter is called platform switching (Figure 1).

Before Morse-taper implant connections became the norm, it was most often platform matched abutment connections where the abutment was the same diameter as the implant (Figure 2).

It was, however, known that reducing the abutment diameter in relation to the implant diameter had benefits for the maintenance of bone levels. The idea was that the implant-abutment connection, which allowed for bacterial ingrowth, was moved further away from contact with the coronal bone around the implant neck by this horizontal off-set.

Although this original platform switching was used with success, it was still possible for contamination of the implant-abutment to harm the bone due to the presence of a micro-gap allowing bacterial ingrowth.

Figure 3 shows the Xive implant system (Dentsply Sirona), which has one abutment connection for the 3.8, 4.5 and 5.5mm diameter implants. Using the 3.8mm abutment (yellow line) on the 4.5 or 5.5mm implant will increase the platform switching with the increase in implant diameter.

Figure 4 shows a clinical case restored with the 3.8mm abutment on the 3.8mm implant with a slight platform switching, and the 3.8mm abutment on the 4.5mm implant with a more pronounced platform switching. This preserved bone more than a platform matched configuration.

Today, it is accepted that a secure connection in the form of a Morse-taper, which does not allow bacterial ingrowth, is an essential part of the platform switching concept to protect the coronal bone and support the soft tissue around the implant neck.

One should also take care when platform switching a butt-joint implant that the stability of the abutment connection is reduced further by narrowing the abutment, allowing for a more pronounced 'rocking' motion during function. This may lead to more damage to surrounding bone from increased leaking of endotoxins during this movement.

In addition, if such a butt-joint platform switched connection is then placed sub-crestal in bone, as Morse-taper implants are recommended to be placed, it may cause extensive bone loss as the abutment-implant interface is still contaminated.

Another aspect of platform switching that should be considered is the extent of the platform switching. The bigger this dimension, the thinner the abutment diameter will be and the thicker the wall of the implant. This will provide more strength to the implant long term as a small platform switch (thin wall implant) may fracture if overloaded.

The diameter of the abutment is, however, of importance to prevent abutment fracture under load, so one should keep this in mind when deciding on the extent of platform switching (Figure 5). This is, of course, even more import when a single implant is used to support a cantilever two-unit bridge, which will increase the loading on the abutment.

The golden principle would be to place the strongest implant for the specific site, while still leaving a 2mm bone margin around the implant for long-term stability.

Figure 6 shows regular and narrow diameter implants from the same system. The regular diameter implant has the same diameter abutment as the narrow diameter implant, but more platform switching (0.80mm versus 0.35mm) and a stronger wall thickness.

It would, therefore, be better to place the regular diameter implant, if the bone volume and 3D spacing allows for it, to ensure long-term stability and prevent fractures in high occlusal forces.

In this clinical practice masterclass in implant dentistry, Inus Snyman, Vladimir Todorovic, Stephan van Zyl and Andre van Zyl discuss the concept of platform switching

Platform switching

FIGURE 1: *A 3D CT image on the left showing a cone-in-cone connection with the horizontal off-set of platform switching and on the right a cross section of the same implant. The abutment will always be of a smaller diameter in such a connection*

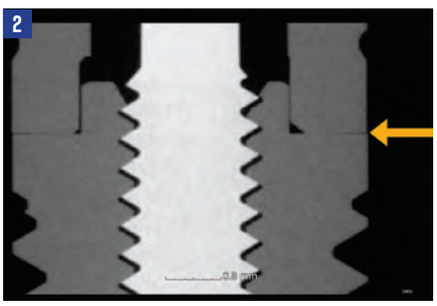

FIGURE 2: *A platform matched abutment connection, with the arrow indicating the abutment-implant connection (abutment is the upper part)*

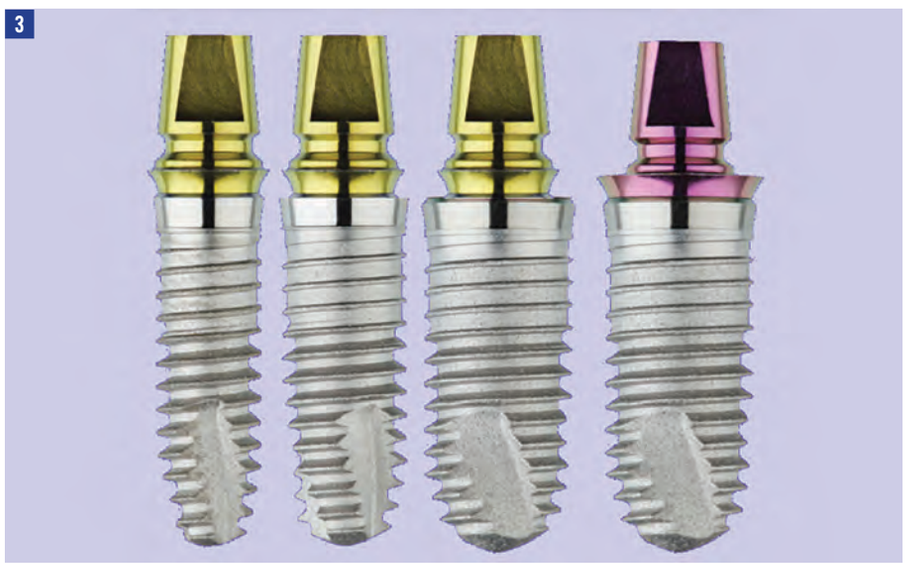

FIGURE 3: *The Xive system (Dentsply Sirona) demonstrating the platform concept by using the 3.8mm abutment (yellow) on the 3.8, 4.5 and 5.5mm implants, while on the extreme right the 5.5mm diameter implant has the 5.5mm abutment (purple)*

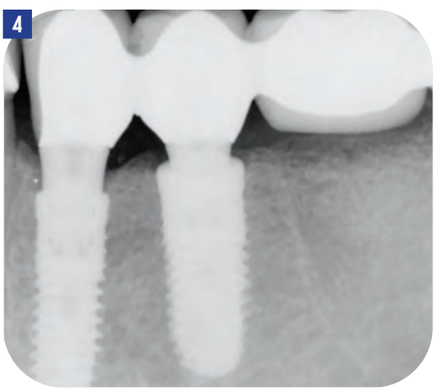

FIGURE 4: *The LL4 and LL5 implants have identical abutments, with a more pronounced platform switching on the LL5 implant due to the wider diameter. Note the subcrestal placement and bone stability at two years post placement of bridge. This can only be done with a system where the abutment connection dimension is identical between different diameters*

BENEFITS OF PLATFORM SWITCHING

The presence, stability and maintenance of crestal bone levels at the level of the implant shoulder is of critical importance to ensure long-term implant success and survival.

Platform switching is a concept based on the use of an abutment having a smaller diameter than the implant platform that creates a horizontal step, shifting the implant-abutment connection towards the central axis of the implant and providing space for biological width formation.

It is an innovative feature for preserving the peri-implant bone. Platform switching was introduced by Gardner (Fuda et al, 2023; Gardner, 2005).

Previous studies on platform switching reported that implants with this concept did not minimise crestal bone loss compared with non-platform switched implants (Romanos and Javed, 2014).

However, more recent systematic reviews with meta-analysis indicate positive peri-implant bone preservation for implants restored with platform switching (Santiago et al, 2020).

Although platform switching is an important concept to ensure the stability of tissue around an implant, three-dimensional implant positioning, the width of the alveolar ridge and control of micromotion at the implant-abutment interface are additional factors that influence crestal bone levels (Romanos and Javed, 2014).

Studies that evaluated crestal bone resorption around implants with platform-matched and platform switched interfaces demonstrated that the platform switch concept reduces tribo-corrosion products released from dental implants, which may minimise adverse tissue reactions leading to peri-implant bone loss (Alrabeah, Knowles and Petridis, 2016).

The design of the transmucosal component, even on platform switched implants, can lead to crestal bone loss. Flat and wide emergence profiles (greater than or equal to 45° angulation with implant long axis) should be avoided and the aim should be to create a narrow emergence profile (Figure 7) (Souza et al, 2018).

In addition to this, implants with a concave abutment and narrow emergence profile will allow for thicker soft tissue around the implant and therefore more of a protective barrier against bacteria (Caram et al, 2014).

Further studies confirmed that the crestal bone loss around implants with platform switching was significantly less (five- to six-fold) compared to bone-level implants without platform switching (butt-joint connections) (Cochran et al, 2009).

DISCUSSION

Bone and soft tissue stability around implants has been considered as one of the most crucial factors that influence long-term success in

FIGURE 5: *Comparison of two regular platform implant systems, with the implant on the left showing a wider abutment diameter, with slightly less platform switching than the implant on the right, which has a smaller diameter abutment. One could argue that the wider abutment diameter will be stronger and more suitable where occlusal forces are expected to be higher but that would be anecdotal without controlled studies*

implant therapy. However, an inevitable non-infectious bone remodelling process occurs within the first year of implant functional loading. This process has a multifactorial aetiology and may be affected by various iatrogenic factors.

Platform switching concept represents an engineering achievement in implant dentistry, designed particularly to have a beneficial impact on peri-implant tissues, mainly the preservation of crestal bone around implants. However, due to a heterogeneity in the available studies designs the evidence supporting this should be evaluated with caution (Fu and Wang, 2020; Strietzel, Neumann and Hertel, 2015).

It is well known that peri-implant diseases are triggered by bacterial plaque accumulation at the level of implant-abutment connection. We also know from the literature that two-piece implants present a micro-gap of 1 to 49µm at this level. After an early colonisation of these spaces, a bacterial reservoir may be formed and contaminate the implant surroundings and interfere with peri-implant tissue health (Sasada and Cochran, 2017).

The risk is even higher in patients with a history of periodontitis, as the same bacterial species have a role in per-implantitis.

The cone-in-cone connection with platform switching dominates in contemporary implant-abutment connection designs. The internal taper design creates a high propensity for parallelism between the two structures within the joint space, providing a significant amount of frictional lock on the implant-abutment system (Mencio et al, 2016).

This seal between implant and abutment is important especially during mastication, as the loading forces on the prosthetic components may induce a micro-movement or bending of implant-abutment connection. This can result in micro-gap enlargement and a well-known 'pump effect', leading to the leaking of endotoxins between implant/abutment connection and surrounding tissues.

The platform switching approach may shift the micromotion between the implant and abutment away from the bone, reducing its negative effect.

Additionally, it was observed that the level of mismatch between implant platform and abutment correlates with marginal bone loss. In other words, by increasing the horizontal distance between implant-abutment connection and the bone, the anti-bone-resorptive effect of the platform switching may be increased.

The role of the connective tissue zone in protecting the peri-implant bone is well documented.

Platform switching implants facilitate the formation of a connective tissue ring over the implant shoulder, providing better protection of the surrounding bone, reducing the bone modelling in an apical direction.

In recent years, a subcrestal implant position has become the dominant clinical strategy.

Depending on conditions, the implant shoulder is usually buried 1 to 2mm below the bone margin.

One meta-analysis confirmed that platform-switched implants placed sub-crestal exhibit less marginal bone change than implants placed equicrestal (Valles et al, 2018).

It is, however, important to note that placing implants subcrestal requires a conical connection with platform switching that is stable and can be trusted to seal against bacterial contamination.

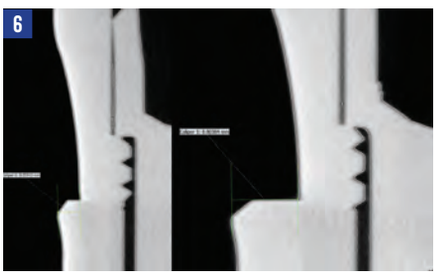

FIGURE 6: *Implant on the left is a narrow diameter with identical abutment dimensions as the regular diameter implant on the right (same system), but with thinner wall thickness and less platform switching*

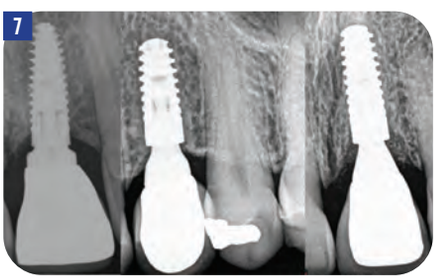

FIGURE 7: *Implant on the left shows an abutment emergence that is too aggressive, with resultant bone loss. In the middle and right, identical implants are shown with middle implant showing a wider abutment emergence than on the righ, which has a straight, almost concave emergence. The more space that is created for soft tissue and bone, the more stable the long-term situation will be. Platform switching is identical for the middle and right implants, but the emergence profile on the right allows for more soft tissue and bone fill*

CONCLUSION

The concept of platform switching has shifted the paradigm in implant dentistry. More and more implant manufacturers are accepting this principle and introducing it in their production lines. Also, many research papers confirm the potential benefits of platform switch toward peri-implant tissue health.

It should be clear from the above that platform switching by itself is not the only factor in ensuring peri-implant tissue stability. It has been shown that the stability and tightness of the connection is of paramount importance (Weng et al, 2008).

Each clinician should be aware of all the factors influencing tissue stability and choose a system that will fulfil the requirements for long-term tissue stability. CD

Acknowledgement
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REFERENCES

Alrabeah GO, Knowles JC, Petridis H (2016) The effect of platform switching on the levels of metal ion release from different implant-abutment couples. *Int J Oral Sci* 8(2): 117-25

Caram SJ, Huynh-Ba G, Schoolfield JD, Jones AA, Cochran DL, Belser UC (2014) Biologic width around different implant-abutment interface configurations. A radiographic evaluation of the effect of horizontal offset and concave abutment profile in the canine mandible. *Int J Oral Maxillofac Implants* 29(5): 1114-22

Cochran DL, Bosshardt DD, Grize L, Higginbottom FL, Jones AA, Jung RE, et al (2009) Bone response to loaded implants with non-matching implant-abutment diameters in the canine mandible. *J Periodontol* 80(4): 609-17

Fu JH, Wang HL (2020) Breaking the wave of peri-implantitis. *Periodontol 2000* 84(1): 145-60

Fuda S, Martins B, Castro FC, Heboyan A, Gehrke SA, Fernandes JCH, et al (2023) Marginal bone level and clinical parameter analysis comparing external hexagon and morse taper implants: a systematic review and meta-analysis. *Diagnostics (Basel)* 13(9)

Gardner DM (2005) Platform switching as a means to achieving implant esthetics. *N Y State Dent J* 71(3): 34-7

Mencio F, Papi P, Di Carlo S, Pompa G (2016) Salivary bacterial leakage into implant-abutment connections: preliminary results of an in vitro study. *Eur Rev Med Pharmacol Sci* 20(12): 2476-83

Romanos GE, Javed F (2014) Platform switching minimises crestal bone loss around dental implants: truth or myth? *J Oral Rehabil* 41(9): 700-8

Santiago JF, Lemos CAA, de Luna Gomes JM, Verri FR, Moraes SLD, Pellizzer EP (2020) Quality assessment of systematic reviews on platform-switching vs platform-matched implants: an overview. *J Oral Implantol* 46(2): 153-62

Sasada Y, Cochran DL (2017) Implant-abutment connections: a review of biologic consequences and peri-implantitis implications. *Int J Oral Maxillofac Implants* 32(6): 1296-307

Souza AB, Alshihri A, Kammerer PW, Araujo MG, Gallucci GO (2018) Histological and micro-CT analysis of peri-implant soft and hard tissue healing on implants with different healing abutments configurations. *Clin Oral Implants Res* 29(10): 1007-15

Strietzel FP, Neumann K, Hertel M (2015) Impact of platform switching on marginal peri-implant bone-level changes. A systematic review and meta-analysis. *Clin Oral Implants Res* 26(3): 342-58

Valles C, Rodriguez-Ciurana X, Clementini M, Baglivo M, Paniagua B, Nart J (2018) Influence of subcrestal implant placement compared with equicrestal position on the peri-implant hard and soft tissues around platform-switched implants: a systematic review and meta-analysis. *Clin Oral Investig* 22(2): 555-70

Weng D, Nagata MJ, Bell M, Bosco AF, de Melo LG, Richter EJ (2008) Influence of microgap location and configuration on the periimplant bone morphology in submerged implants. An experimental study in dogs. *Clin Oral Implants Res* 19(11): 1141-7

Delivering implant stability

Duncan Park presents an implant case that achieves both primary stability and an excellent emergence profile on a molar implant restoration

The fundamental goal of implant treatment is to improve function of the dentition, but it is also important to deliver aesthetics. As a relatively new treatment modality, more comprehensive research is needed in the field regarding patient priorities. However, evidence so far demonstrates patient demand for both functional and aesthetic outcomes from dental treatment, especially with regards to implant dentistry as a more expensive elective procedure (Yao et al, 2014).

The clinician's focus is often on achieving primary stability and facilitating osseointegration, with a conical connection implant shown to deliver high stability and successful clinical outcomes (Semper-Hogg et al, 2013).

It is just as essential to optimise soft tissue outcomes. This necessitates the development of a good emergence profile around the implant site, utilising the temporary restoration to encourage effective soft tissue adaptation (Sanda, Sato and Baba, 2018). Consideration must be given to both hard and soft tissue management whether restoring a tooth or teeth in the anterior or posterior region of the mouth. The following case presentation demonstrates the achievement of excellent hard and tissue outcomes using a new implant system with proven protocols.

CASE PRESENTATION

A 38-year-old male patient presented at the practice. He was medically fit and well, although he did admit to drinking approximately 13 units of alcohol a week. He was a regular patient of the practice and had a well-maintained mouth. He had been advised of a problem with the LR6, despite it not causing the patient any pain.

A comprehensive assessment was conducted, revealing the LR6 to be root filled. The tooth was fractured with limited residual tooth structure remaining. It was deemed unrestorable and therefore indicated for extraction.

Treatment options were discussed with the patient in detail, including:

- No treatment
- Extraction of the LR6 alone
- Extraction alongside restoration with either a bridge or an implant-retained crown.

The patient expressed a preference for a fixed solution and was keen to proceed with an implant.

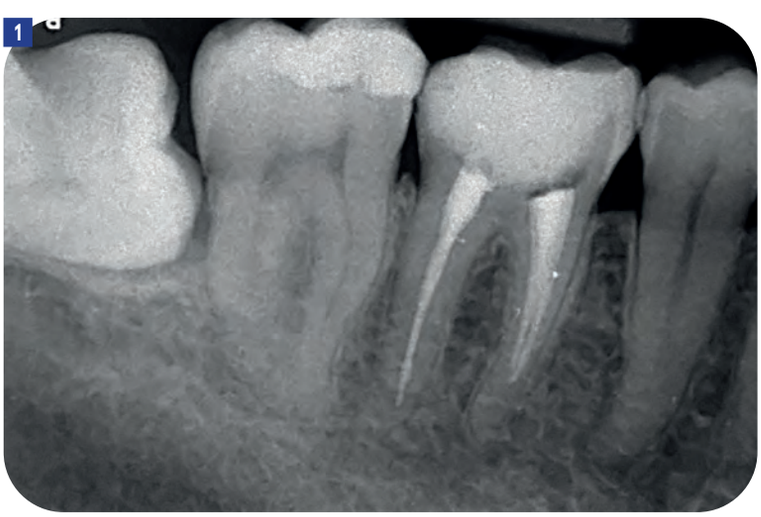


FIGURE 1: *Pre-extraction radiograph*

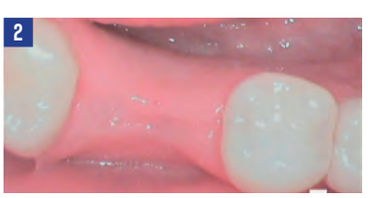
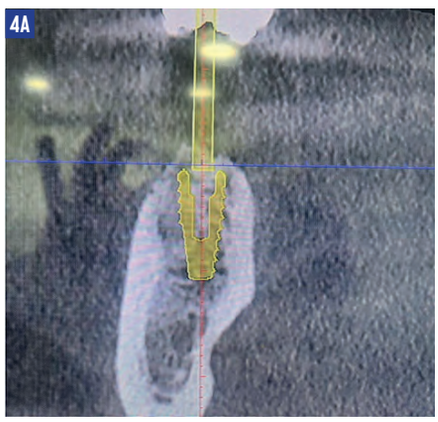


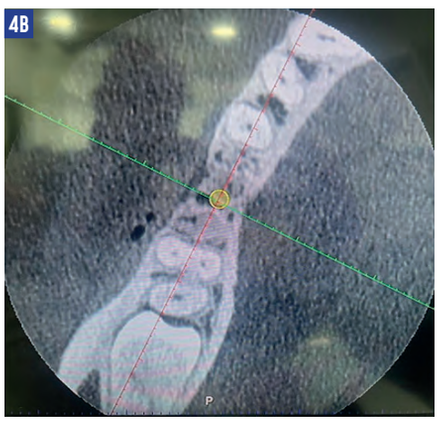
FIGURE 2: *Healed extraction site at the LR6*

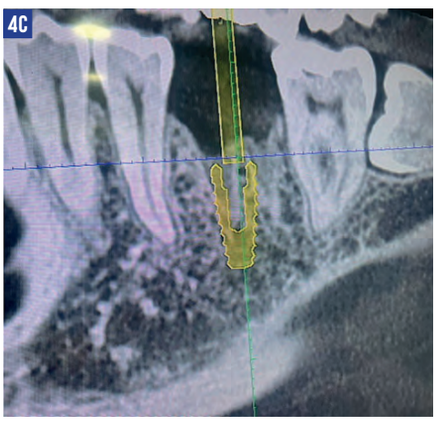
FIGURE 3: *Preoperative LR6 region*

DR DUNCAN PARK

Duncan is the principal of Green Square Dental & Implant Centre in Yorkshire. Since qualifying in 2003, he has completed a certificate in dental implants followed by a master's degree in 2010. He now mentors on the implant master's programme at ICE postgraduate dental institute and Hospital in Salford, Manchester.







FIGURES 4A *to* **4C:** *Digital planning of implant placement*

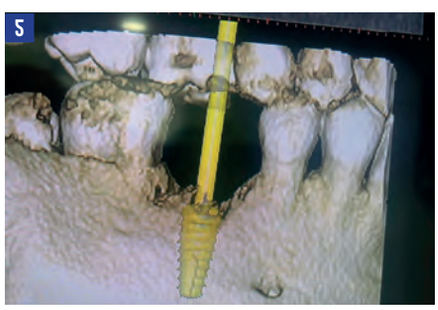


FIGURE 5: *CT scan showing sightly narrow crestal bone*

FIGURE 6: *Implant positioning checked*

FIGURE 7: *Radiographic check of implant position*

FIGURE 8: *Implant placed and torqued to 50Ncm*

FIGURE 9: *Implant placed*

FIGURE 10: *Post implant placement and closure*

All of the benefits, limitations and potential risks were then explored, with particular attention given to the patient's history of dental restoration.

The impact of excellent oral hygiene was also emphasised and the patient made to understand all his responsibilities in managing the long-term success of implant treatment.

Treatment commenced with the sectioning and removal of the LR6

To remove the tooth as safely and atraumatically as possible, it would need to be sectioned first. This would be performed as the initial phase of treatment and the site would be left to heal.

A delayed placement approach was chosen in this case, partly to allow adequate bone formation at the surgical site, and partly due to the patient's lifestyle choices.

Ideally, the implant would be placed around 12 weeks after the extraction.

The literature shows a lower risk of early implant failure when employing a delayed placement technique (Cosyn et al, 2019).

Treatment commenced with the sectioning and removal of the LR6.

The patient returned to the dental practice approximately five months later for implant placement – the delay was due to his limited time availability.

Although this was longer than planned, in this situation, it didn't result in any further bone loss, but did mean there was more healing in the socket at the time of placement.

A preoperative CT scan was taken. This revealed a slightly narrow ridge measuring 8mm.

The crestal ridge was about 4mm wide, while at 2mm subcrestal a width of 8mm was identified.

This required the implant to be placed slightly subcrestally and deeper in comparison to the adjacent teeth in order to obtain primary stability and avoid the need for augmentation procedures.

SURGICAL TREATMENT PROVISION

On the day of surgery, the patient was given 3g of amoxicillin and a one-minute Corsodyl mouth rinse immediately preoperatively.

A flap was raised and a small alveoloplasty was performed to flatten and widen the ridge. The osteotomy was prepared to 10.5mm.

A radiograph was taken to confirm positioning of the implant. The drilling sequence followed the standard protocol set out by Biohorizons Camlog. A 4.6mm x 10.5mm Tapered Pro Conical implant was placed, achieving excellent primary stability at a torque of approximately 50Ncm.

The implant choice was driven by the volume and width of bone available in this case, as well as the proximity of the implant to the ID nerve. The design and material of the implant as a titanium alloy (Ti-6AL-4V ELI) means it affords the strength required to ensure implant stability even when used in a smaller diameter, should the case demand it.

The new conical connection also optimises soft tissue healing and aesthetics by creating an excellent emergence profile. Torqued to 50Ncm, high primary stability was achieved as anticipated.

A healing abutment was placed and the flap was closed tension-free using PTFE sutures. The patient was given standard postoperative instructions, which included avoiding chewing on the LR6 and eating soft foods for a few weeks while the site healed.

REVIEW

The patient returned to the practice two weeks later for removal of the sutures. Healing had been uneventful and everything was proceeding as expected.

At 12-weeks postoperative, the healing abutment was removed and replaced with a wider alternative to further facilitate soft tissue stability and aesthetics, and an impression was taken for the final crown.

It was noted that the soft tissue had adapted and matured very nicely around the healing abutment, with no bleeding around the emergence profile.

The soft tissue had adapted and matured very nicely around the healing abutment

A full contour zirconia crown bonded to titanium was fabricated and screw-retained in the mouth. The patient was delighted with the outcome.

REFLECTIONS

This treatment delivered a good clinical result for the patient. Upon reflection, the only aspect I would do differently would be to use a wider healing abutment immediately post-surgery, though this did not seem to affect the result in this case.

With regards to the system used, the Tapered Pro Conical implant was a good choice because it achieves excellent stability in a range of situations.

It is comparable to the Biohorizons Camlog Tapered Pro implant both in terms of design, which affords primary stability, and of simplicity to place, but builds further on the design of the previous generation of products. The connection is based on the proven Conelog design, which has been available for over 13 years (Semper-Hogg et al, 2013).

The emergence profile lends itself to create a very nice curvature of the gingiva, improving the soft tissue adaptation for exceptional aesthetics and cleansability. CD

11

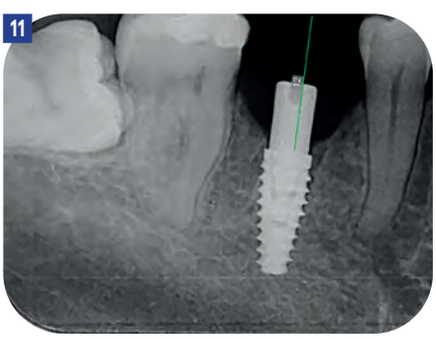


FIGURE 11: *Post implant placement radiograph*

12

FIGURE 12: *Radiograph taken post temporary crown fitting*

13

FIGURE 13: *Intraoral photograph at 12 weeks postoperative*

14

FIGURE 14: *Implant exposed at 12 weeks postoperative*

REFERENCES

Cosyn J, De Lat L, Seyssens L, Doornewaard R, Deschepper E, Vervaeke S (2019) The effectiveness of immediate implant placement for single tooth replacement compared to delayed implant placement: A systematic review and meta-analysis. *J Clin Periodontol* 46 Suppl 21:224-241

Sanda M, Sato D, Baba K (2018) Optimization of emergence profile of implant prosthesis: a literature review. *Scientific Dental Journal* 2(1): 31-37

Semper-Hogg W, Kraft S, Stiller S, Mehrhof J, Nelson K (2013) Analytical and experimental position stability of the abutment in different dental implant systems with a conical implant-abutment connection. *Clin Oral Investig* 17(3): 1017-23

Yao J, Tang H, Gao XL, McGrath C, Mattheos N (2014) Patients' expectations to dental implant: a systematic review of the literature. *Health Qual Life Outcomes* 12: 153

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TRYCARE SHARES DETAILS OF ITS UPCOMING COURSES IN ASSOCIATION WITH DR GIRISH BHARADWAJ FROM QUEST EDUCATION

ON A QUEST FOR GOOD SURGICAL COURSES?

Trycare, in association with Dr Girish Bharadwaj from Quest Education, are delivering a wide range of surgical courses in Edinburgh this year, including their flagship implantology course, which is designed for anyone looking to learn how to place implants or hone their existing skills and knowledge.

All the Quest courses have learning and development at the heart of their ethos, but understand that learning needs to be fun and rewarding professionally too.

Feedback from previous course delegates highlights Girish's very knowledgeable, engaging and informative approach, plus the opportunity to ask questions at any time and not to leave without being certain about the answer.

IMPLANTOLOGY COURSE — STARTS SEPTEMBER 2025

The Quest Implantology Course is a three-part modular course, with each module lasting two days. It teaches delegates everything they need to know to start implementing simple implant treatment plans plus 39 hours of CPD!

Royal College of Surgeons of Edinburgh accredited and presented by Girish Bharadwaj, the course gives delegates a thorough basic knowledge of implantology including an overall perspective with an evidence-based approach; necessary surgical and restorative skills to implement simple treatment plans; an understanding of the challenges involved in the surgical and prosthetic phases of treatment; and an understanding of when to refer based upon their skill levels.

Completion of the course will enable participants to diagnose and carry out implant treatment planning; carry out initial risk assessment and consent the patient appropriately; insert and restore implants under supervision in a simulated environment; identify the complexity of individual cases and place implants in simple cases under supervision; and know when to refer for additional support and guidance.

Held in Edinburgh, the course fee is £7,500. To help enhance teamwork, one nurse or hygienist can attend Module 2 free of charge. Additional nurses can attend for £125 each.

IMPLANT SUPPORTED OVERDENTURE COURSE — 7 NOVEMBER

This one-day course is designed to deliver the principles and practice of placing and restoring implants to enable implant supported overdentures.

The aim of this course is to help delegates understand the limitations of conventional denture design, learn how implant supported dentures can overcome some of these limitations and gain insight into the technique and concepts involved in removable implant supported dentures.

It offers 6.5 hours of enhanced CPD (outcomes A and C), for just £595. Early Bird before 30 August is £495.

SINGLE TOOTH IMMEDIATE LOADING COURSE — 5 DECEMBER

This one-day course is designed to deliver the principles and practice of placing and restoring implants using an immediate loading protocol.

The aim of this course is to help delegates understand the indications and contraindications for immediate loading in a single tooth scenario, compare the pros and cons with the conventional protocol, and assess feasibility of this protocol.

It offers 6.5 hours of enhanced CPD (outcomes A and C), for just £595. Early bird before 30 September is £495. CD

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EDUARDO ANITUA
DDS MD PHD
Eduardo is in private practice at Eduardo Anitua Institute in Spain. He is also the director of the University Institute of Regenerative Medicine and Oral Implantology of the University of the Basque Country, and scientific director of BTI Biotechnology Institute. He is the president of the Eduardo Anitua Foundation for Biomedical Research.

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: Oral Health

Educational aims and objectives: To present a case of a patient with advanced periodontal disease, where step-by-step minimally invasive techniques were used to achieve a predictable and long-lasting rehabilitation.

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

Periodontal disease is an oral pathology with a high prevalence worldwide, and some authors consider it the most common chronic infection in adults (Misch and Perel, 2017; Renvert and Quirynen, 2018; Donos and Calciolari, 2020).

Implant rehabilitation in patients with advanced periodontal disease represents a significant clinical challenge due to progressive bone loss and the alteration of dental supporting tissue – factors that affect the primary stability and long-term success of implants (Misch and Perel, 2017; Renvert and Quirynen, 2018).

Traditionally, these patients have been considered high-risk for implant dentistry, given the negative influence of advanced periodontitis on osseointegration and the increased risk of developing peri-implantitis in the future (Donos and Calciolari, 2020).

The use of dental implants in patients with periodontal disease has become a widely accepted practice in dentistry. In many cases, implants coexist with teeth still affected by periodontal disease. Additionally, implants may be placed in areas where teeth were previously lost due to disease progression or even in sites where a previous implant failed because of peri-implantitis.

The relationship between periodontal disease and peri-implantitis has been debated for decades. However, recent studies have shown a higher predisposition to peri-implantitis in patients with a history of periodontal disease, highlighting the importance of careful planning and rigorous maintenance in these cases (Wadia, 2021).

MINIMALLY INVASIVE IMPLANT DENTISTRY

In this context, minimally invasive implant dentistry has emerged as an effective therapeutic alternative, reducing surgical morbidity and improving treatment predictability in patients with a periodontal history (Esposito et al, 2019).

FIGURES 1 and **2:** *Initial presentation, with several splinted teeth*

FIGURES 3 and **4:** *Lateral images show the flaring of several teeth despite being splinted with composite*

Eduardo Anitua discusses a minimally invasive approach to treating patients with advanced periodontitis with dental implants

Periodontitis and implant dentistry

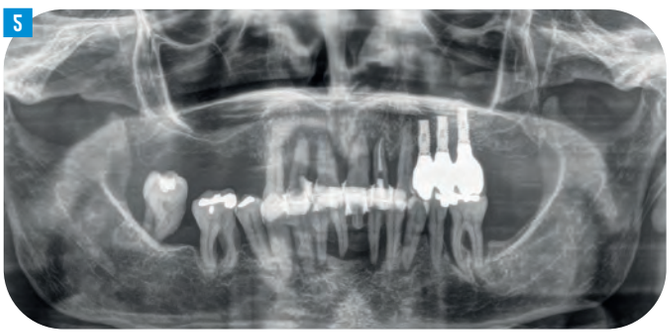
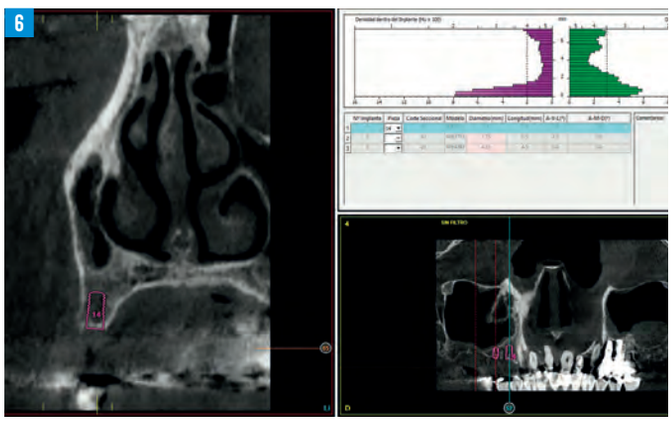
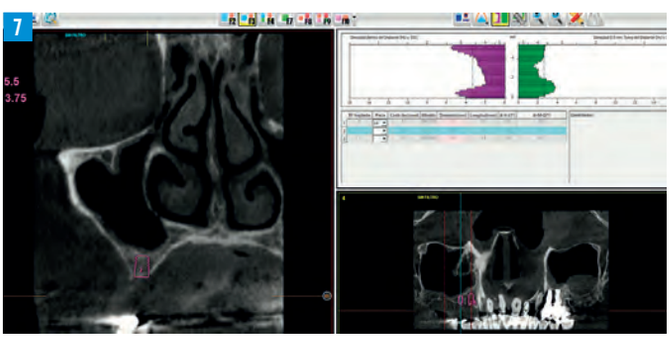
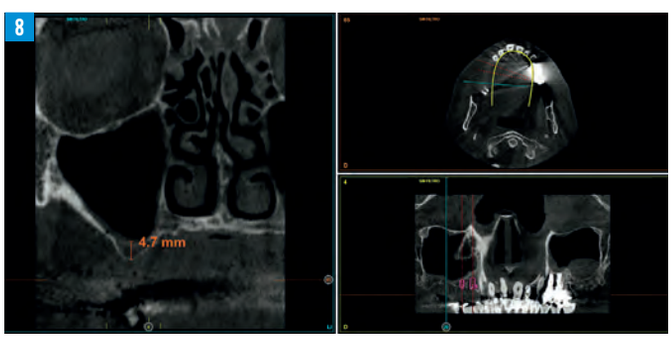
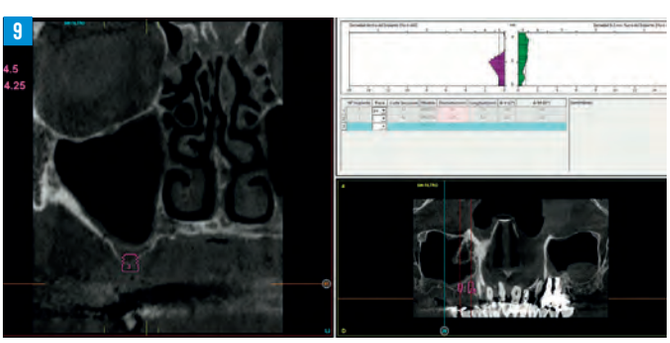


FIGURE 5: *Initial radiograph, showing well-maintained loaded implants in the second quadrant and generalised horizontal bone loss compromising multiple teeth*









FIGURES 6 *to* **9:** *Cone beam diagnostic images of the second quadrant, showing predominantly vertical bone atrophy and implant planning with lengths ranging from 4.5mm to 7.5mm and narrow platforms*

FIGURE 10: *Radiograph taken after the extractions and placement of the implants in the first quadrant*

Within this approach, several strategies have been developed to minimise the need for complex regenerative procedures, shorten treatment time, and improve peri-implant bone stability.

Among these techniques are the placement of short and extra-short implants, narrow and reduced-diameter implants, split-crest or ridge expansion procedures, immediate loading techniques, and the use of bioactive implant surfaces designed to optimise osseointegration in compromised bone (Thoma et al, 2022; Schwarz et al, 2021).

Patients with advanced periodontitis often present with unfavourable bone anatomy, characterised by severe horizontal and vertical resorptions, which limit the availability of bone for the direct placement of conventional implants without the use of auxiliary volume-recovery techniques (Alvarez-Camino, Valmaseda-Castellón and Gay-Escoda, 2020).

In such cases, guided bone regeneration (GBR) and autologous bone grafts have traditionally been the techniques of choice to increase bone volume before implant placement. However, these interventions present significant limitations, such as the need for prolonged healing periods, the risk of graft resorption, and morbidity associated with harvesting autologous grafts (Urban et al, 2019).

As an alternative to regenerative procedures, the use of shorter and narrower implants – or a combination of both – has proven to be an effective strategy in patients with advanced periodontitis, with success rates comparable to conventional implants when employed under appropriate biomechanical criteria (Monje et al, 2013).

The evolution in implant design has enhanced their primary stability and occlusal load distribution, favouring their use in clinical cases with significant bone deficiencies (Antiua, Escuer and Alkhraisat, 2022; Bidra et al, 2018).

The management of patients with a periodontal history also requires detailed prosthetic planning to avoid biomechanical overload and reduce the long-term risk of peri-implantitis. It has been observed that screw-

FIGURES 11 and **12:** *Completion of the first surgical phase (extraction of teeth with poor prognosis, socket regeneration with PRGF-Endoret, and placement of tooth-supported provisional prostheses)*

retained prosthetic structures combined with transepithelial abutments can facilitate peri-implant health maintenance and reduce biofilm accumulation compared to cement-retained restorations (Bidra et al, 2018).

We present the case of a patient with advanced periodontal disease, where step-by-step minimally invasive techniques were used to achieve a predictable and long-lasting rehabilitation.

CLINICAL CASE

A 67-year-old female patient came to the clinic due to advanced periodontal disease, accompanied by pain and mobility in several teeth, seeking restorative treatment.

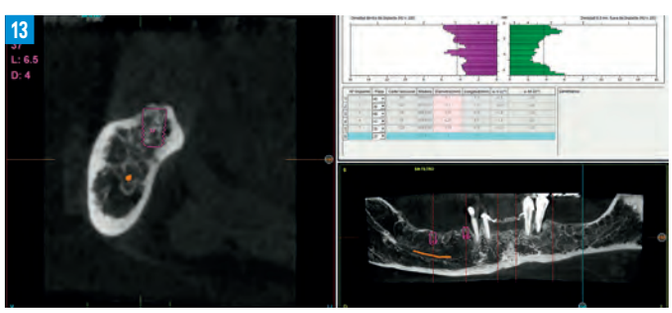
During the initial evaluation, a series of photographs were taken that show the severity of the condition, revealing characteristic signs of disease progression such as root exposure, loss of attachment, and flaring of multiple teeth (Figures 1 to 4).

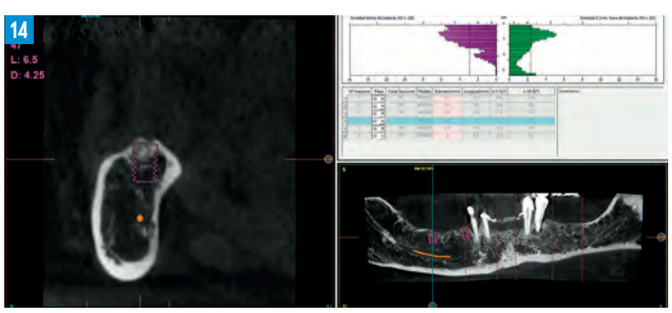
In the initial radiograph, we can also observe a generalised horizontal bone loss, with several teeth showing virtually no attachment to the bony socket, making extraction necessary. In the second quadrant, we can also see loaded implants that are in good condition, with no associated bone loss (Figure 5).

A first phase is carried out in which the teeth with the poorest prognosis are extracted, preserving the two upper canines, the lower canines, and the mandibular first premolars. These teeth will serve to support a provisional tooth-supported prosthesis during the healing period following the extractions.

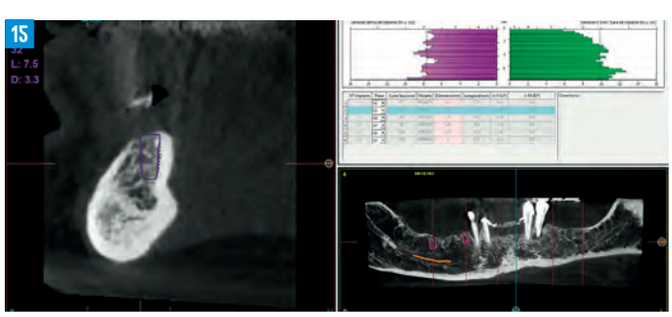
In this initial approach, implants are also placed in the first quadrant, where no extractions are performed.

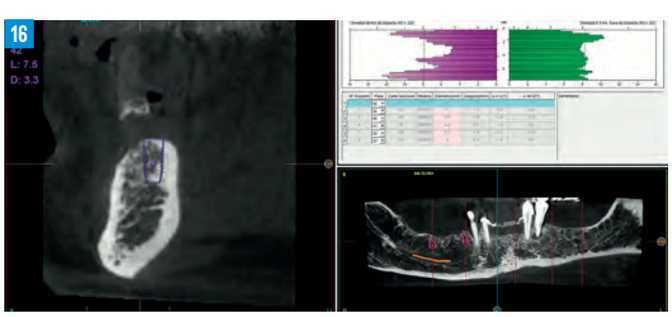
In this area, the diagnostic CBCT scan reveals predominantly vertical bone atrophy, with some zones also showing horizontal atrophy. Therefore, short and narrow implants are planned (Figures 6 to 10).



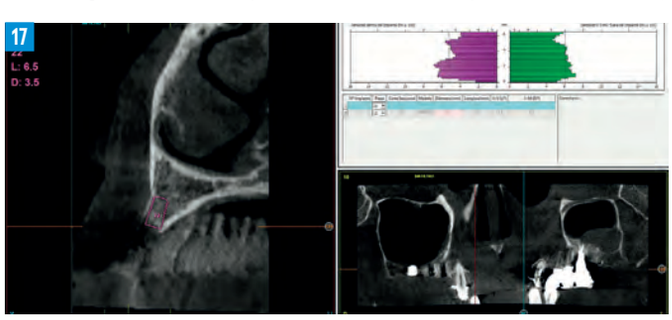


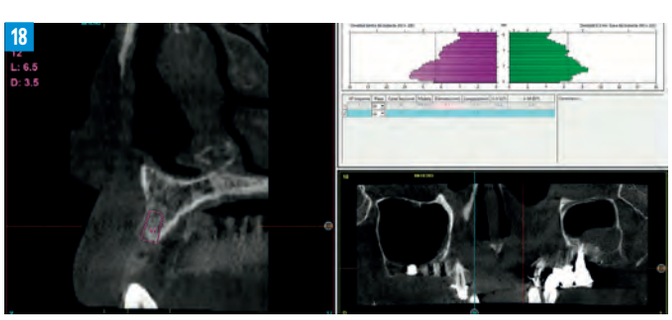
FIGURES 13 and **14:** *Detail of two cross-sectional views of the posterior mandibular regions, showing the planned short and narrow implants*





FIGURES 15 and **16:** *Implant planning images of the anterior region, showing high bone density. Placing wider implants in this area would result in greater bone compression and increased procedural morbidity*





FIGURES 17 and **18:** *Implant planning images showing the positioning of the implants to be placed in the premaxillary region*

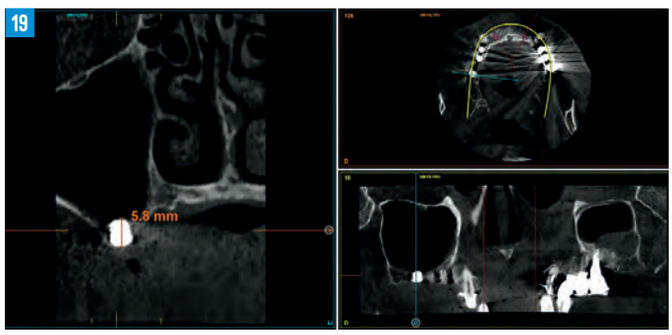


FIGURE 19: *Follow-up cross-sectional image of one of the implants placed in the posterior maxillary region, showing a transalveolar sinus lift*

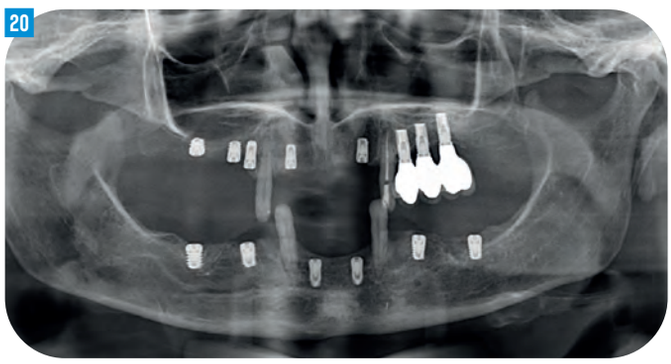


FIGURE 20: *Final radiograph following the insertion of the upper and lower implants during the second surgical phase*

FIGURES 21 *to* **24:** *The progressive loading prostheses in place*

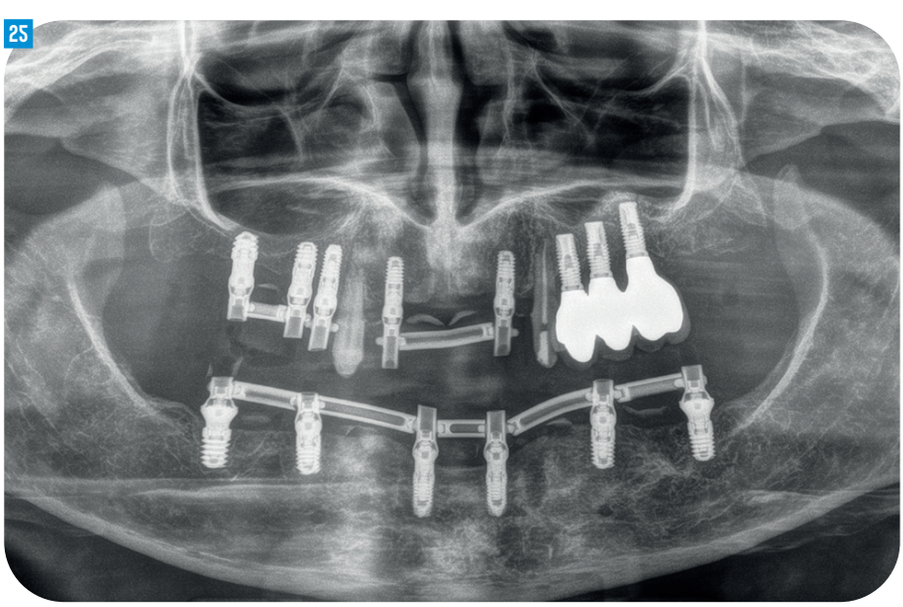


FIGURE 25: *Radiograph after the placement of the progressive loading prosthesis, fabricated using articulated bars and screw-retained via multiple transepithelial abutments, along with the extraction of the lower canines*

first premolars. These implants are placed two months after the placement of the progressive loading prosthesis (Figures 26 and 27).

The patient remains under periodontal monitoring and maintenance for one year following the placement of the final progressive loading prosthesis, which began three months after the insertion of the lower implants in the premolar region.

At this stage, the evaluation process for the fabrication of the definitive prosthesis is initiated.

After a detailed analysis of the periodontal condition of the upper canines, it is decided to extract them to optimise the final prosthetic outcome, as they present grade II mobility and cause discomfort during lateral movements.

The canines are subsequently extracted, and a diagnostic wax-up is created to fine-tune the patient's aesthetic and functional parameters, ensuring a comprehensive and predictable rehabilitation with the definitive prosthesis.

With the new implant distribution, it is now possible to fabricate a three-section prosthesis for both the upper and lower jaws (Figure 28).

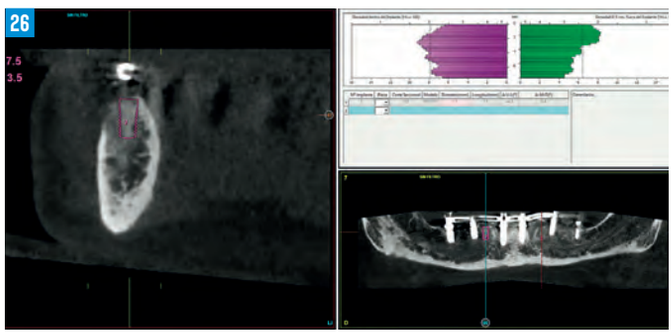
The patient continues to attend regular follow-ups at the clinic, with complete treatment stability maintained.

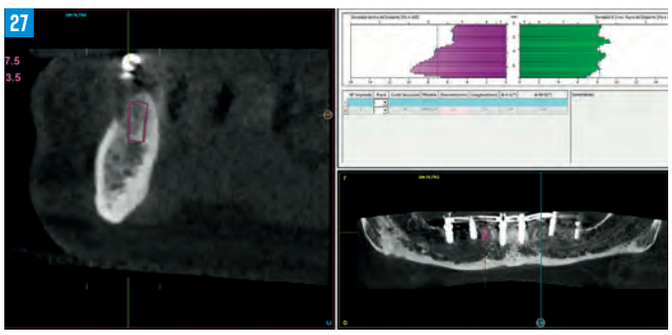
A significant difference can be seen in the five-year follow-up images (Figures 29 to 32).

DISCUSSION

Treating patients with chronic periodontitis, as illustrated in the clinical case detailed in this article, presents a considerable clinical challenge – especially due to the advanced age of many of these individuals and their high aesthetic expectations.

These cases are often characterised by generalised bone resorption, which complicates rehabilitative planning from the outset, frequently involving both vertical and horizontal atrophies (Smith et al, 2017; Karoussis et al, 2003).





FIGURES 26 *and* **27:** *Cone beam diagnostic cross-sections of the implants to be placed in the lower premolar region*

All extraction sites are regenerated exclusively with PRGF-Endoret, and a provisional prosthesis is placed over the remaining teeth, which are minimally prepared (Figures 11 and 12).

Three months after the extractions, the sockets are fully regenerated, allowing us to begin planning the dental implants.

In the mandible, short and narrow implants are planned for the posterior regions, while reduced-diameter implants with a 3.0mm platform are planned for the anterior zone, where the bone presents high cortical density.

Placing wider implants in this area would require more aggressive drilling and greater compression on the bone bed, which could compromise subsequent osseointegration (Figures 13 to 16).

In the upper jaw, in the anterior region, short and narrow implants are also placed in the premaxillary area. Additionally, the correct integration of the implants placed in the first quadrant during the initial surgical phase can be observed (Figures 17 to 20).

After three months, we proceed with the placement of progressive loading prostheses for both the upper and lower arches. These are screw-retained prostheses fabricated in resin using Multi-Im transepithelial abutments and articulated bars.

This approach allows for a prosthesis that can be fabricated in a short time and easily modified later according to the needs during the progressive loading period (Figures 21 to 25).

At this stage, the decision is made to extract the lower canines due to grade II mobility. The extraction of the lower canines results in a total of six mandibular implants, making it unfeasible to design a three-part prosthesis that would accommodate mandibular flexion during masticatory movements. Therefore, to achieve better biomechanical distribution, we decide to place two additional implants at the level of the

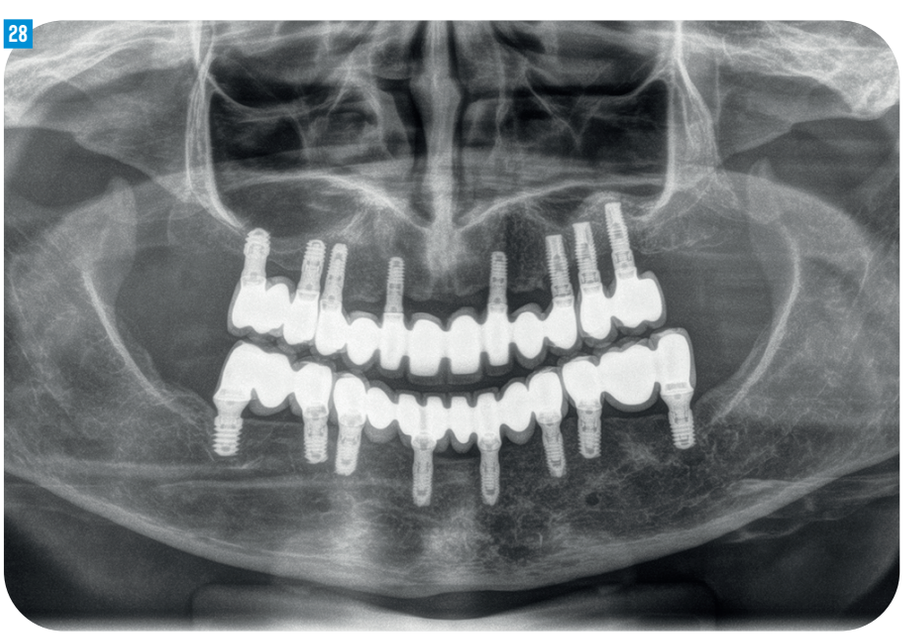


FIGURE 28: *Panoramic radiograph of the completed final rehabilitation, divided into three sections in both the mandible and the maxilla*

One of the first critical aspects to address is the extraction of non-restorable teeth and the preservation of post-extraction bone volume.

Alveolar regeneration plays a key role in these scenarios, as it provides a more favourable bone base for future implant-based rehabilitation (Hazan-Molina et al, 2012; Kim and Sung, 2012).

In this context, the use of PRGF-Endoret has proven to be a valuable tool, promoting optimal socket healing after extraction. Among its benefits are reduced postoperative inflammation, faster epithelialisation, increased gingival thickness, and improved bone regeneration in terms of quality and density – while avoiding potential infections and sequestra associated with other materials.

Since it is an autologous technique with antibacterial potential, its application is highly safe, predictable and complication-free, making it a reliable therapeutic option (Anitua et al, 2004; Anitua, 1999; Anitua and Orive, 2010; Anitua et al, 2015; Anitua and Pino, 2020).

IMPLANT PLACEMENT

Following socket regeneration and soft tissue healing, the replacement of missing teeth with dental implants becomes the next essential step.

In patients with significant bone defects due to periodontal disease, the availability of remaining bone tissue is often limited, making it difficult to place implants under ideal conditions. To overcome these limitations, minimally invasive strategies – such as the use of short and narrow implants – have proven effective even in cases of advanced bone loss (Prots et al, 2021; Vianna et al, 2018).

Both short and reduced-diameter implants have shown survival rates comparable to those of conventional implants, establishing themselves as effective alternatives in complex clinical scenarios, such as these cases of mixed atrophy caused by the progression of periodontal disease.

These solutions offer a less invasive approach and reduce the need for additional bone regeneration procedures, thus optimising the

FIGURES 29 to **31:** *Five-year follow-up, showing successful restoration of aesthetics and function. Proper maintenance through regular check-ups has prevented associated bone loss and peri-implantitis. Additionally, the well-designed screw-retained prosthesis with transepithelial abutments – shifting the critical interface to the gingival level – proves especially beneficial in patients with periodontal disease, as demonstrated in this case*

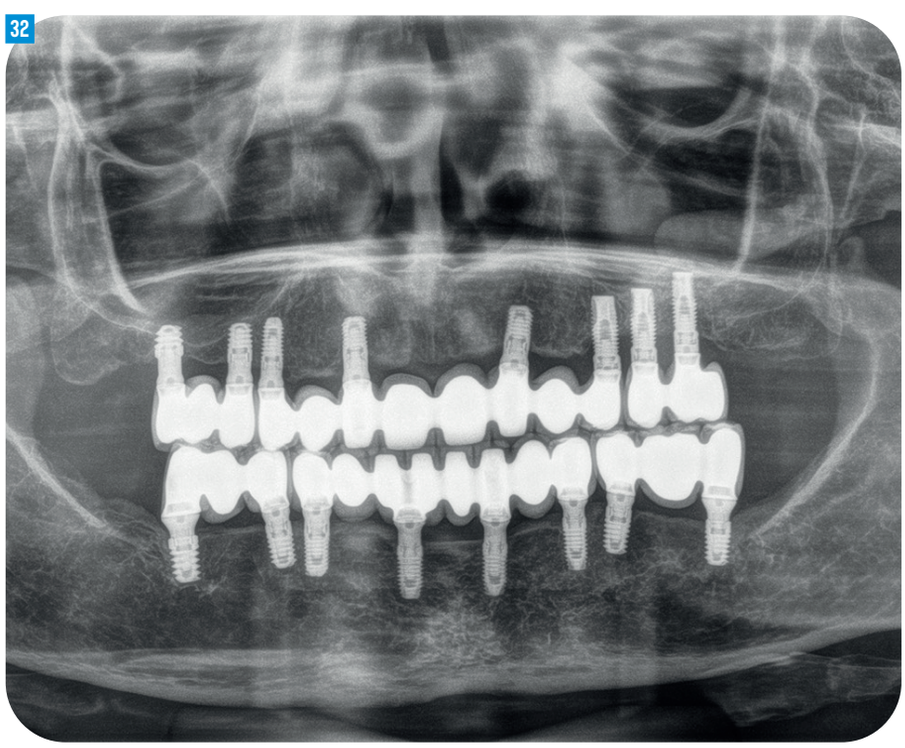


FIGURE 32: *Final radiograph at five years of follow-up, showing no associated bone loss around any of the implants*

long-term prognosis of the treatment (Altaib et al, 2019; Bitaraf et al, 2019; Klein, Schiegnitz and Al-Nawas, 2014; Alshiddi, 2023).

Scientific literature has shown that patients with severe periodontitis can benefit from implant-based rehabilitation, even when some teeth affected by the disease are preserved in the arch (Clark and Levin, 2019; Slots, 2017).

Several studies support this possibility, provided that an adequate maintenance protocol is implemented and periodontal health is strictly controlled.

Preserving these teeth for as long as possible allows for the use of them as support for provisional prostheses – as in this patient's case – and helps retain proprioception while designing a new occlusal scheme during the adaptation and implant rehabilitation process. In some cases, these teeth can be maintained; in others, as in this clinical case, they are eventually extracted.

The success of treatment in patients with chronic periodontitis depends greatly on a combination of meticulous oral hygiene, rigorous professional follow-up, and management of modifiable risk factors that influence the progression of the disease.

Among these, smoking, the quality of individual oral hygiene, and the presence of systemic conditions such as diabetes stand out.

Proper control of these factors can improve the prognosis of both the remaining teeth and the dental implants (Amerio et al, 2020; Johnson, 2017; Bascones-Martínez, González-Febles and Sanz-Esporrín, 2014; Herring and Shah, 2006; Craddock, 2010; Berman and Berman, 1969).

When the patient is committed and adheres to maintenance protocols, the prognosis of implant rehabilitation significantly improves.

CONCLUSION

The combination of dental preservation and implant rehabilitation in patients with advanced periodontitis can yield successful long-term outcomes, provided that proper periodontal control is ensured.

The stability of both the remaining teeth and the implants largely depends on rigorous professional maintenance and the patient's active commitment to their daily care. CD

REFERENCES

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PRODUCTS USED

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Non-surgical regeneration

Devan Raindi presents a clinical case study involving non-surgical periodontal regeneration in the medically compromised patient

A 63-year-old male patient was referred by his general dental practitioner (GDP) for specialist periodontist assessment and treatment in the West Midlands.

The patient presented with concerns focused on gingival swelling, bleeding gums and mobile teeth. He had been made aware that there were multiple teeth with an extremely guarded prognosis and his main aim for treatment was to retain as many teeth as possible.

The patient had previously lost teeth due to periodontitis, and tooth replacement options were being considered by the GDP, albeit the patient was aware the periodontal health needed to improve before more definitive options could be considered.

Of note, his medical history included hypertension, controlled with multiple medications including the calcium channel blocker, amlodipine. The patient was also on IV bisphosphonates (zoledronic acid) for osteoporosis, for which he has infusions once a year. The patient was a never smoker and drank alcohol within normal limits.

CLINICAL EXAMINATION

The patient presented with a heavily restored dentition, with loss of posterior support and generalised marginal inflammation (Figures 1a and 1b).

A full periodontal chart was completed, revealing generalised 5-14mm pocketing with grade three mobility of the LL3. The bleeding score was calculated at 81% and plaque score at 50%. A chairside HbA1c screen revealed HbA1c at 5.1% (32.2mmol/mol).

FIGURES 1A *and* **1B:** *Baseline clinical photographs demonstrating generalised marginal inflammation and gingival swelling around the UR3 and LL3 regions*

FIGURES 2A *and* **2B:** *Clinical photographs following initial non-surgical therapy demonstrating significant improvements in marginal inflammation and reduction in swelling around the UR3 and LL3*

Radiographic examination revealed generalised 20-80% bone loss with an intrabony defect affecting the LL3 and approaching the apex.

The following periodontal diagnosis was made:

- Generalised periodontitis stage IV grade C (BSP classification) – unstable. Risk factors: genetics, medication (calcium channel blocker).

INITIAL TREATMENT PLAN

An initial periodontal treatment plan was formulated to include tailored oral hygiene instruction alongside supragingival professional mechanical plaque removal (PMPR).

This was followed by subgingival PMPR over two separate sessions (right side followed by left side), including the prescription of systemic antibiotics (azithromycin 500mg once daily for three days).

At three months a reassessment was completed, including a periodontal chart. The patient demonstrated an excellent initial response with pocket depths ranging from 2-5mm, albeit a 12mm pocket remained around the LL3 (Figures 2a and 2b).

DR DEVAN RAINDI

Devan is a specialist periodontist, based in three specialist referral dental practices across London and the West Midlands. Devan qualified from the University of Birmingham, receiving the prestigious Carlton Gold Medal for most outstanding student, as well multiple other awards. Following posts in hospital and general practice, he embarked upon the four-year specialist training programme at King's College London, Guy's Dental Hospital, graduating with a master's in clinical dentistry with distinction.

FIGURE 3: *Immediate postoperative appearance of LL3 following MINST approach and application of Emdogain*

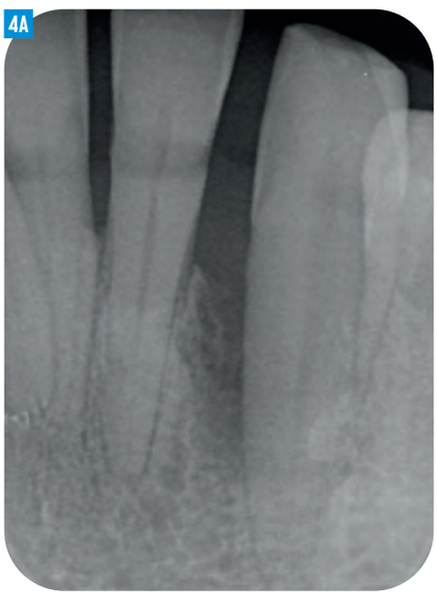

FIGURE 4A: *Preoperative periapical radiograph demonstrating a significant intrabony defect on the LL3*

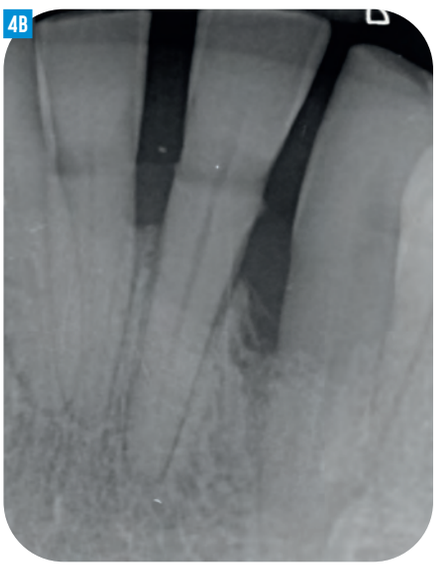

FIGURE 4B: *Postoperative radiograph at nine months demonstrates radiographic evidence of bony infill and reduction in the depth of the defect*

TREATMENT OPTIONS

The presence of residual pockets presents a possible range of treatment options that are generally classified into:

1. Repeated non-surgical therapy
2. Surgical therapy (via access flap, resective or regenerative approaches)
3. Palliative periodontal therapy of the site with ongoing supportive periodontal therapy (SPT).

While the decision for treatment is ultimately down to the patient, it is the responsibility of the treating clinician to ensure the patient has all the necessary information required to come to an informed decision.

Following a detailed discussion, in particular around the risks of medication-related osteonecrosis of the jaw, surgery around the LL3 was considered too high risk and the patient opted for a second round of localised non-surgical therapy to see if further reductions in pocket depth could be achieved. While the literature is still exploring the potential use of biologics as an adjunct to non-surgical therapy, the patient wished to try to maximise outcomes from non-surgical therapy and therefore consented to the additional use of amelogenins.

THERAPY WITH ADJUNCTIVE AMELOGENINS

Localised subgingival PMPR was completed in line with the principles of minimally invasive non-surgical therapy (MINST). Local anaesthetic containing adrenaline was administered via infiltration around the LL3. A thin ultrasonic tip (PS Tip, EMS) was used to instrument the root surface subgingivally, alongside the use of mini-curettes (Mini-Gracey, LM Dental), taking care to avoid soft tissue trauma and avoiding excessive apical force, which would lead to bone contact. All treatment was carried out under magnification (x3.5 Omnioptics, Orascoptic).

Following mechanical instrumentation of the site, the area was prepared to receive the amelogenins (Emdogain, Straumann). This involved initial application of a 24% EDTA root conditioning agent (Pref Gel, Straumann) for two minutes into the periodontal pocket, followed by irrigation with sterile saline. Superfloss (Oral-B) was used for moisture control prior to application of Emdogain, ensuring initial contact to the root surface before any blood. Prior to patient discharge, haemostasis was achieved, ensuring a stable blood clot was present with no active bleeding from the treated site, via use of a wetted gauze to provide marginal tissue closure of the pocket (Figure 3). Systemic antibiotics were not provided following therapy.

Reassessment was completed at six months, with an interim SPT appointment at three months by a dental hygienist adhering to the guided biofilm therapy (GBT) protocol, albeit avoiding subgingival instrumentation of the LL3 site as ongoing healing took place. At six months, pocket depths around the LL3 had reduced to 4mm with no further recession recorded, signifying clinical attachment gain had been achieved. A periapical radiograph taken at reassessment demonstrated significant bony infill of the site (Figure 4b).

FUTURE CARE

The patient is now enrolled in three-monthly SPT with the dental hygienist, following the protocols of GBT. Annual reassessment with the specialist periodontist is planned, including radiographic follow-up of osseous healing around the LL3. Restoration of the posterior edentulous ridge is now being planned with the GDP.

DISCUSSION

The use of amelogenins is well documented within the surgical periodontal regenerative literature. However, the evidence base and indication for its use non-surgically is still debated with conflicting conclusions.

Studies are emerging, however, demonstrating superior composite regenerative outcomes (pocket closure with clinical attachment gain), which could focus their use on cases where aesthetics are also of importance or where surgery is not possible/denied by the patient.

Irrespective of the decision to prescribe adjuncts (either systemic or local) in the non-surgical phase of periodontal therapy, it is of fundamental importance that high quality mechanical removal of the aetiological agent (biofilm) is performed by both patient and professional in an atraumatic manner to optimise wound healing.

This case highlights a possible use for amelogenins as an adjunct to non-surgical therapy in a medically compromised patient where surgical therapy was contraindicated. CD

Find out more about the guided biofilm therapy protocol and its applications at www.ems-dental.com.

PRODUCTS USED

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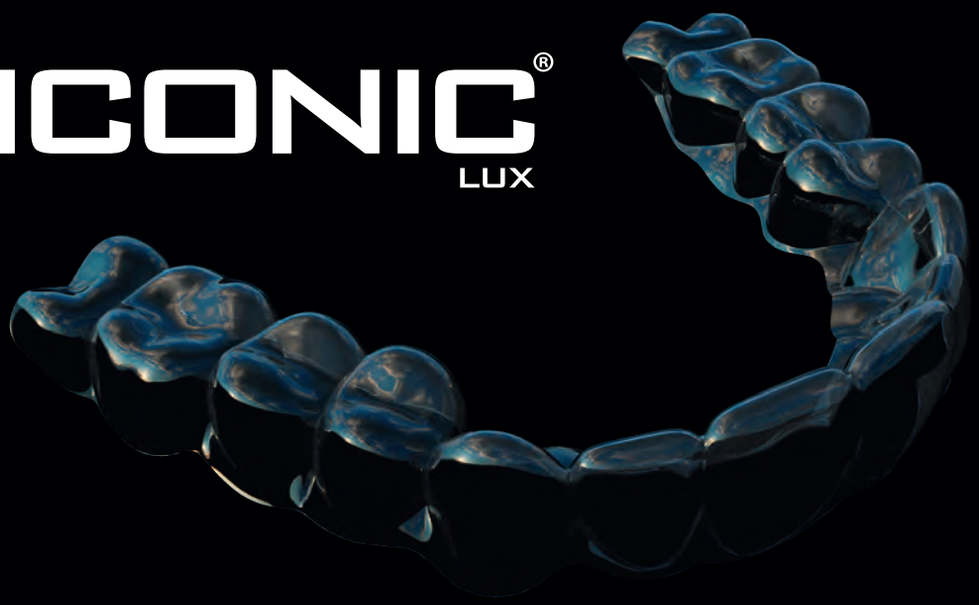

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ORTHODONTICS

Prioritising effective hygiene management is necessary not only to prevent problems in the mouth, such as plaque build-up, tooth decay, and gum disease that threaten to compromise the treatment result but also to help ensure a patient's overall health – Safa Al-Naher, p73

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SAFA AL-NAHER
Safa is the director and principal at Serene By Dr Safa in London's Knightsbridge. A graduate of King's College London Dental School (2011), she has completed extensive postgraduate training in orthodontics, facial aesthetics, and cosmetic dentistry. She holds an MSc in restorative and aesthetic dentistry and two postgraduate qualifications in the field. As an Advanced Facial Aesthetics trainer, she teaches ethical and safe practices to medical professionals.

ENHANCED CPD

CPD hours: one

GDC development outcome: C

Topic: Orthodontics

Educational aims and objectives: To discuss maintaining oral microbiome integrity during clear aligner therapy.

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

Safa Al-Naher examines methods for achieving precise smile alignment while ensuring optimal oral health

Aligner therapy and oral microbiome integrity

When starting aligner therapy, patients typically prioritise obtaining a straighter smile. However, we must also help them recognise that the oral microbiome's health is vital throughout the process.

The oral microbiome is best described as the collection of microorganisms that live in the mouth. These include friendly and harmful bacteria, fungi, viruses and protozoa. The mouth is a unique environment as it is warm and moist and provides ample nutrients for these microorganisms.

Scientists have found that the oral microbiome can influence health and/or contribute to disease. It plays a role in many critical functions of the body, such as digestion of food and nutrition, generation of energy, immune system, control of fat storage and metabolic regulation, processing and detoxification of environmental chemicals, barrier function of the skin and soft tissues, balancing inflammation and prevention of disease (Kilian et al, 2016).

Therefore, prioritising effective hygiene management is necessary not only to prevent problems in the mouth, such as plaque build-up, tooth decay, and gum disease that threaten to compromise the treatment result but also to help ensure a patient's overall health.

ALIGNER THERAPY AND ORAL HYGIENE

While clear aligners offer an effective and discreet solution for correcting dental misalignment, they also present challenges for some patients in maintaining optimal oral hygiene (Figure 1).

Invisalign is among the most popular treatments we provide at Serene By Dr Safa. Any comprehensive smile transformation must meet strict standards of both aesthetics and functionality while prioritising our patients' long-term dental health. It is, therefore, essential to clearly communicate potential risks associated with poor hygiene practices, which can jeopardise the treatment outcome.

A personalised approach is crucial to effectively conveying these important messages, ensuring that each patient understands the significance of maintaining optimal oral care throughout the process.

Orthodontics is not just about aesthetics; it's also a health issue. Crowded teeth make cleaning difficult, even if the misalignment seems minor, leading to localised problems like plaque build-up and staining.

Many of the patients attending the practice are knowledgeable; they recognise when their bite is misaligned and understand its impact on oral health. They are aware of how this affects their ability to clean their teeth properly, which can, for example, cause one tooth to appear darker than the others. So, they are seeking Invisalign treatment for both aesthetic and practical reasons.

There is also a strong psychological aspect – when people feel better about their teeth, they tend to take better care of them.

PREVENTING BIOFILM INFECTION

Evidence increasingly supports clear aligner therapy as beneficial for maintaining oral hygiene and dental and periodontal health. A recent study highlights promising results in controlling plaque levels, improving gingival health and reducing the prevalence of white spot lesions (Rouzi et al, 2023).

However, wearing clear aligners for extended periods can also influence the balance of the oral microbiome. By covering the teeth for long durations, aligners create an environment where bacteria can thrive – particularly if proper oral hygiene is not consistently maintained. The study notes: 'Clear aligners form a completely enclosed environment on crowns. As a result, if patients


FIGURES 1 *and* **2:** *Aligner wear can increase plaque retention, staining and therefore the risk of gingivitis*


FIGURES 3A *and* **3B:** *Crowded teeth make cleaning more difficult. Even the most minor misalignments are worth correcting*

do not regularly clean their aligners, the environment of the inner surface of aligners may have a negative impact on enamel health. Patients must use a multistep cleaning and disinfection technique that combines mechanical and chemical methods in order to keep aligners bright and clean and prevent biofilm infection' (Rouzi et al, 2023).

While Invisalign aligners are removable, giving patients an advantage in maintaining hygiene, we should remain mindful of supporting our patients' oral health habits. Protecting the oral microbiome during aligner treatment is essential.

Saliva is critical in providing optimal conditions for the oral microbiome. It balances the pH in the mouth, provides enzymes and contains antimicrobials to fight disease. When aligners are worn, saliva circulation may be reduced, potentially increasing the risk of plaque accumulation, dental caries and periodontal disease.

Therefore, the onus is on us as dental professionals to educate patients about the relationship between diet, pH fluctuations and bacterial colonisation to prevent common disease processes.

We must encourage good habits. This includes explaining to our patients that aligners introduce a foreign object into their mouths, which requires extra conscientious care.

Attachments on aligners can trap bacteria and food particles, increasing the necessity for meticulous cleaning (Figure 2).

Utilising air polishing or creating spaces for flossing can also be beneficial, and a thorough night-time cleaning routine is crucial.

REMOTE MONITORING

Since active periodontal disease can significantly hinder tooth movement and overall treatment success, we are now harnessing new technology to help prioritise early detection and prevention.

My clinic uses an AI-driven remote monitoring system to track and analyse tooth movement and oral health in real-time. Various systems are available, some utilising smartphone-based monitoring, while others operate through a dedicated app. This technology facilitates personalised care by offering early detection of potential dental issues. Patients can scan their teeth regularly and conduct weekly check-ins, improving the accuracy of remote care and treatment planning.

With remote tracking, patients can monitor their tooth movement and receive instant alerts if any issues arise. This technology also allows for continuous periodontal monitoring, enabling early detection and prompt intervention if signs of inflammation or disease appear.

Maintaining optimal oral hygiene can be challenging within patients' daily routines. We recommend the Vitis Orthodontic Clear Aligner Pack at the start of treatment, to help patients maintain optimal oral hygiene at home.

This comprehensive hygiene kit simplifies at-home care for individuals undergoing aligner therapy. It includes specialised products – toothbrush, toothpaste, mouthwash, aligner cleaning tablets, Chewies, disclosing tablets, and a brace bath – that are tailored for aligner wear and maintenance, and designed to minimise plaque build-up, reduce the risk of periodontal disease and prevent other complications. This toolkit supports patients at home, encourages good hygiene habits, and fosters a healthy environment for tooth movement.

EDUCATION AND ADVICE

Education is the cornerstone of patient compliance and treatment efficacy across all dental procedures.

Aligner therapy presents specific challenges in maintaining oral hygiene, requiring a precise balance. Some patients struggle with thorough cleaning due to time constraints, while others risk enamel wear through overbrushing. Given these variations, tailored guidance is essential to ensure optimal outcomes.

Patient health remains my foremost priority, and I want them to feel confident that this is always my primary focus.

I am here to provide the best possible dental experience, the tools and knowledge to support them throughout their journey while optimising their wellbeing. I hope they understand that my advice comes from a good place. CD

SAFA'S TOP TIPS FOR PATIENTS

For patients undergoing clear aligner therapy, Safa recommends the following:

- Remove aligners before eating or drinking anything except cold water. Brush your teeth after meals before refitting aligners, or rinse your mouth with water if brushing isn't possible. You can drink water with aligners, but remove them for all other beverages to prevent staining and decay
- Use Chewies to ensure proper fit after putting in aligners (eg, after eating or brushing). Chew on a Chewie for at least 30 minutes daily to enhance tooth movement and treatment efficiency
- Brush aligners inside and out at the same time as brushing your teeth
- Use the ultrasonic bath and cleaning tablets from your homecare kit
- Clean aligners with cold or warm water – never hot, as heat can warp them.

REFERENCES

Kilian M, Chapple IL, Hannig M, Marsh PD, Meuric V, Pedersen AM, Tonetti MS, Wade WG, Zaura E (2016) The oral microbiome – an update for oral healthcare professionals. *Br Dent J* 221(10): 657-666

Rouzi M, Zhang X, Jiang Q, Long H, Lai W, Li X (2023) Impact of clear aligners on oral health and oral microbiome during orthodontic treatment. *Int Dent J* 73(5): 603-611

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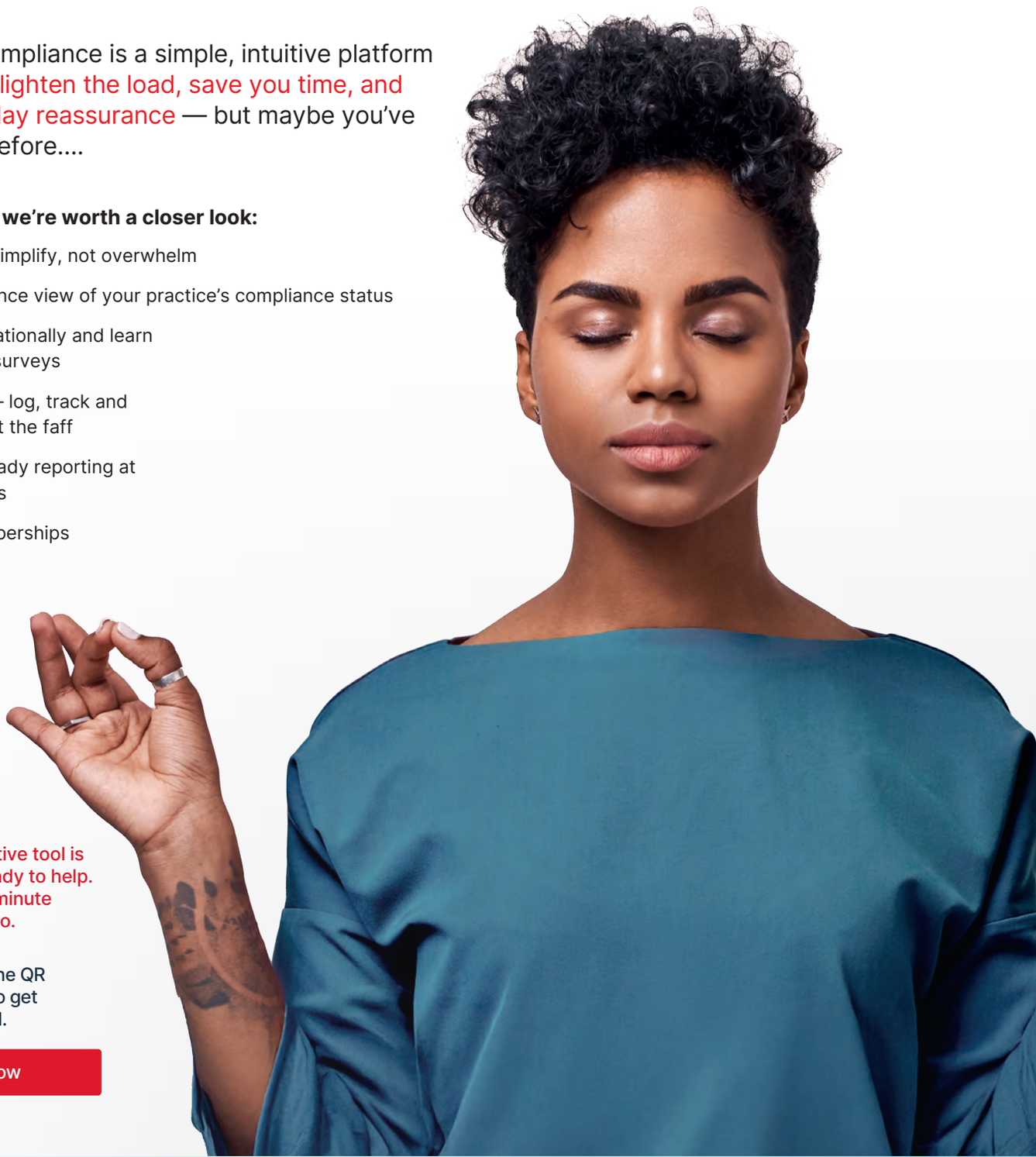

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Early orthodontic intervention

Marissa Bell discusses early orthodontic intervention and explains why clear aligner treatment designed specifically to correct developing malocclusions in primary or deciduous teeth is her treatment of choice for younger patients

For UK trained orthodontists, the doctrine has always been that we should wait until the child has all their permanent teeth before starting comprehensive orthodontic treatment – Invisalign First has changed that. It was such an exciting innovation, and I wanted to add it to my treatment portfolio. It allows me to practise every aspect of tooth movement in the mixed dentition for children from approximately seven years of age.

The prerequisite, from a clinical perspective, is to have erupted permanent first molars (recommended minimum 4mm tentative crown height), at least any two incisors that are at least two thirds erupted and at least two primary (C, D or E) or unerupted permanent teeth (3, 4 or 5) per quadrant in at least three quadrants.

CLINICAL CASE

I began offering Invisalign First aligners in 2019. I was already comfortable treating an anterior crossbite in young children with a traditional orthodontic appliance, so this was an obvious case for me to start using Invisalign First.

My first patient was an eight-year-old girl with an anterior crossbite complicated by gingival recession and poor aesthetics.

Her parents were desperate not to wait, so I decided to offer Invisalign First to address multiple aspects of the malocclusion in addition to my main objective of eliminating the anterior crossbite.

The treatment experience and final result exceeded my expectations: it was quite a striking difference to what would have been achieved if I had chosen to use a traditional appliance.

I was impressed by how the case tracked so easily and how the young patient adhered to the wear time recommendations.

Interceptive treatment for children not only aims to treat the presenting clinical aspects of the malocclusion, but it also helps to minimise long-term negative effects by promoting favourable developmental dental and occlusal changes. As a result, it commonly leads to the second course of orthodontic treatment being more straightforward.

FIGURES 1 *to* **3:** *Initial situation*

ADAPTING TREATMENT PROTOCOLS FOR INVISALIGN FIRST

If you're used to working with the Invisalign system, the treatment protocols for Invisalign First are a very simple adaptation to make.

I had been carrying out Invisalign treatment on teen and adult patients for two and half years prior to starting Invisalign First. One adaptation I needed to make to my treatment protocols was to plan for more attachments in the mixed dentition due to the short clinical crown height of the deciduous teeth to ensure sufficient retention.

To reinforce how I approached treating children with Invisalign First, I attended a number of Align educational webinars, lectures and workshops. My learning is always evolving and growing.

DR MARISSA BELL
BDS MFDS MCLINDENT MORTH
Marissa is a specialist orthodontist and partner at Angle House. She qualified in dentistry in 2002 from the University of Sheffield and returned there to complete her orthodontic training in 2009. Marissa is a clinical speaker and mentor for Align Technology and is a member of the Invisalign UKI Clinical Advisory Board. She is also a key opinion leader for Philips Oral Healthcare.

4

FIGURE 4: *Intraoral scan*

ORTHODONTIC TREATMENT FOR YOUNG CHILDREN: KEY BENEFITS

For a patient with an increased overjet, early treatment significantly reduces the risk of trauma as well as improving their dental and facial aesthetics.

For cases of anterior crossbite, treating early eliminates the potential of enamel wear to the permanent incisors and prevents the exacerbation of any pre-existing gingival recession or ideally will lead to reversing the recession.

5

6

7

FIGURES 5 *to* **7:** *Final result*

Either way, we are improving the patient's long-term gingival health.

Early treatment can also be carried out in cases of crowding or poor aesthetics where either the parent, young patient or both simply do not want to wait until they are older to start treatment.

Providing interceptive treatment can boost a young child's confidence and take away stress and anxiety to both the patient and parents.

There is a demand for early treatment. Not all patients and parents will accept waiting until starting at 12 or 13 years old and with Invisalign First there is an appliance at our disposal to provide this.

COMPLIANCE ISSUES

In my experience, young children comply well with Invisalign treatment. My patients who are 10 years or younger have excellent compliance. In fact, they are probably the best cohort of patients to wear aligners as they just get on with it! I feel this is due to children being so adaptable and resilient at that age.

The treatment time also tends to be short, roughly six to eight months, and 90% of my Invisalign First cases have just one set of aligners, which makes it more palatable for patients.

USING CLINICAL JUDGEMENT FOR PROVIDING EARLY TREATMENT: ADVICE TO CLINICIANS

For fellow orthodontists who might be cautious about treating children at such an early age, I would say, firstly, we must always assess each young patient individually and weigh up the risks versus benefits to providing early treatment to their unique malocclusion.

If they then decide to proceed with Invisalign First, they need to apply their orthodontic knowledge into the Invisalign system to achieve predictable and stable results. They must keep in mind that at this initial stage of treatment we are making relatively minor tooth movements, nothing overly complex.

We are not striving for perfection with interceptive treatment, simply an improvement, primarily in terms of function and health, but also with aesthetics.

We need to keep in mind that the patient will undergo a second course of treatment. Therefore, we have to be sensible and take a patient-centred approach as to when is the right time to end interceptive treatment with Invisalign First and resist the temptation of additional aligners.

Of course, Invisalign First is not suitable for every patient. There may be cases with moderate or severe crowding in the mixed dentition where the orthodontist feels that extractions will be definite.

We do not need to jump in and treat every young child we see interceptively. We need to use our clinical judgement of when monitoring growth is key.

Out of the young children I assess, I treat approximately around 20% of those with Invisalign First.

Previously, my advice to the majority of parents of young patients would have been to simply watch and wait before embarking on comprehensive orthodontic treatment in the permanent dentition.

However, now approximately one third of those patients are able to be offered interceptive treatment with Invisalign First. It can tackle a range of malocclusions, and the digital planning makes the execution simple and straight forward.

I've found Invisalign First to offer a fresh approach to achieving successful interceptive treatment. CD

OMNICHROMA SET FOR CONTINUED SUCCESS
Tokuyama Dental

Exclusively available from Trycare, Tokuyama Dental's groundbreaking Omnichroma filling materials have once again received the prestigious Top Product Award from the Dental Advisor trade journal at the beginning of 2025.

This honour emphasises the outstanding quality and innovative strength of the Japanese manufacturer. Thus, the Omnichroma family, with its three viscosities, continues to be at the centre of state-of-the-art restorative dentistry. Praise by the Dental Advisor's independent reviewers included: 'Omnichroma is an absolute game changer in dentistry.'

Particular emphasis was placed on its outstanding colour-matching properties, which make the shade selection process redundant, its ease of use and its natural aesthetic results. Omnichroma Flow was praised as the perfect addition due to its versatility for all cavities.

In addition, Tokuyama's Bond Force II, a self-etching single-component adhesive, and Shield Force Plus, a dentine sealing material, have once again been honoured as Preferred Products. These accolades underscore the exceptional quality and added value of the Japanese manufacturer's comprehensive product range.

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NEW WEBINAR ON DIGITAL FULL DENTURES
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In addition to the on-site courses held at the Education Center Brunico (Italy), Zirkonzahn offers a broad range of online webinars covering various dental and dental technical subjects. A new webinar for dental technicians and dentists has recently been announced, dealing with the digital process for creating full dentures.

The webinar provides insights into Florence Totalprox Denture System, the company's innovative workflow for producing full dentures, including the digital processes involved, the resin materials used and specific bonding techniques.

Webinar programme:

- Explanation of possible solutions for different initial situations (patient without prostheses/patient with existing prostheses)
- Workflow demonstration in the Zirkonzahn.modifier software, with innovative tooth set-up concepts and automatic generation of the gingival portion, as well as presentation of the new M6 Teleskoper Blank Changer milling unit, for an automated, serial production of restorations
- Description of new resin materials for the production of dentures (Abro Basic Multistratum and Denture Gingiva Basic) and of an innovative bonding method with Polibond based on the principle of cold welding.

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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.

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The masterclass will take place on 4 July 2025 at the Eastman Dental Hospital Education Centre in London.

britishendodonticsociety.org.uk/events/38/vital_pulp_therapy_masterclass
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INNOVATIVE PERSPECTIVES AND SOLUTIONS
Biohorizons Camlog

The Tapered Pro Conical implant was officially launched by Biohorizons Camlog with a masterclass from Dr Robert Stanley – engineer turned dentist.

Unafraid to buck trends and question the status quo, Dr Stanley shared a wealth of thought-provoking ideas and insights into their real-life application. With a talent for simplifying complex mathematical formulas and advanced engineering principles, he delivered an easy-to-digest two-day programme packed full of detail and innovation.

Key takeaways included the importance of 'longevity levelling' to ensure flat bone and cleanable implant-retained prosthetics; guided surgery for accuracy and repeatability; and excellent implant design for stability and strength. On this note, he eloquently introduced the Tapered Pro Conical implant, featuring grade 23 titanium, reverse buttress thread, deep conical connection and Laser-Lok surface treatment to deliver high primary stability, exceptional aesthetics and ease of placement for an efficient professional workflow.

Biohorizons thanks Dr Stanley for making the trip to share his perspectives and diverse expertise!

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GENERAL DENTISTRY
CD/JUNE/JULY/WELSH/PAGE 14

1. **What was the main reason the patient opted for a composite restoration over a ceramic alternative?**
- ☐ a. Ceramic restorations were not available at the practice
- ☐ b. Composite restorations are more aesthetically pleasing
- ☐ c. The patient wanted to avoid excessive tooth reduction
- ☐ d. The fracture was too severe for a ceramic option

2. **What type of fracture was observed on the UL1?**
- ☐ a. Complicated horizontal fracture involving the pulp
- ☐ b. Non-complicated oblique fracture involving enamel and dentine
- ☐ c. Root fracture extending to the apex
- ☐ d. Cusp fracture limited to enamel

3. **Which composite material was used for the enamel layer in this restoration?**
- ☐ a. Clearfil Majesty Flow
- ☐ b. Estelite Asteria
- ☐ c. Estelite Sigma Quick
- ☐ d. Everex Flow

4. **What was the primary purpose of prescribing an Essix night guard for this patient?**
- ☐ a. To assist with sleep apnoea management
- ☐ b. To prevent enamel erosion from acidic foods
- ☐ c. To protect restorations from traumatic occlusion
- ☐ d. To help retain orthodontic tooth movement

AESTHETIC DENTISTRY
CD/JUNE/JULY/BALAJI/PAGE 26

1. **What clinical issue led to the decision to place implants at UR3 and UR4 instead of a conventional bridge?**
- ☐ a. The patient had allergies to bridge materials
- ☐ b. There was insufficient vertical space for a bridge
- ☐ c. There was insufficient hard and soft tissue, requiring grafting
- ☐ d. The patient declined bridgework for financial reasons

2. **What grafting technique was used to enhance soft tissue volume during implant placement in the upper right quadrant?**
- ☐ a. Free gingival graft
- ☐ b. Acellular dermal matrix graft
- ☐ c. Connective tissue graft from the palate
- ☐ d. Synthetic collagen matrix

3. **What was the purpose of the provisional bridge placed after initial healing?**
- ☐ a. To immediately improve speech
- ☐ b. To temporarily restore occlusion
- ☐ c. To test implant stability
- ☐ d. To encourage soft tissue contour

4. **What was one of the key clinical challenges in this case, particularly with respect to aesthetics**
- ☐ a. Limited bone availability in the lower jaw
- ☐ b. Mismatched implant sizes
- ☐ c. Achieving symmetry between implant-supported restorations and natural teeth
- ☐ d. Managing shade matching between the crowns and natural teeth

DIGITAL DENTISTRY
CD/JUNE/JULY/HARRIS/PAGE 33

1. **What is identified as one of the key barriers to the implementation of 3D printing in dental practices?**
- ☐ a. Lack of suitable printing materials
- ☐ b. Limited patient demand
- ☐ c. Lack of familiarity among the dental team
- ☐ d. High failure rates of 3D printed restorations

2. **Which of the following is a clinical benefit of using 3D printing for orthodontic treatment?**
- ☐ a. Aligners made this way are less likely to need replacement
- ☐ b. Printed aligners treat malocclusion more quickly
- ☐ c. Lost or broken aligners can be reprinted without hassle or major cost
- ☐ d. Printed aligners can replace fixed appliances completely

3. **In the clinical case described, how long did it take to design, print and glaze the final crowns?**
- ☐ a. Under 30 minutes
- ☐ b. Approximately one hour
- ☐ c. About two and a half hours
- ☐ d. Four hours

4. **What was the main factor enabling a full multi-unit smile makeover in a single appointment?**
- ☐ a. Use of CAD/CAM milling exclusively
- ☐ b. Referral to a laboratory specialising in same-day dentistry
- ☐ c. Integration of 3D printing into the digital workflow
- ☐ d. Use of pre-made crowns matched to patient shade

ENDODONTICS
CD/JUNE/JULY/RASHID/PAGE 40

1. **What was the primary reason that doing nothing was not a viable treatment option for the patient?**
- ☐ a. The patient strongly preferred a cosmetic solution
- ☐ b. The infection posed a risk to the patient's health
- ☐ c. The tooth could be easily restored without intervention
- ☐ d. It would delay the implant placement unnecessarily

2. **Which instrument system was used for root canal treatment in this case?**
- ☐ a. Protaper Gold
- ☐ b. Waveone Gold
- ☐ c. Hyflex OGSF
- ☐ d. Edgeendo X7

3. **Why was Brilliant Crios selected for the patient's final restoration?**
- ☐ a. It has a metallic core for additional strength
- ☐ b. It is pre-etched and requires no bonding agents
- ☐ c. It allows same-day crown fabrication chairside
- ☐ d. It is primarily used for temporary restorations

4. **What was the purpose of building the tooth up immediately after the emergency treatment?**
- ☐ a. To restore the patient's bite permanently
- ☐ b. To avoid referral for implant surgery
- ☐ c. To facilitate rubber dam application and improve restorability
- ☐ d. To eliminate the need for any further treatment

IMPLANT DENTISTRY CD/JUNE/JULY/SNYMAN/PAGE 48

1. **What is the main benefit of the platform switching concept in implant dentistry?**
- ☐ a. It reduces micromotion at the apex of the implant
- ☐ b. It creates space for better screw retention
- ☐ c. It shifts the implant-abutment junction away from crestal bone to preserve bone levels
- ☐ d. It allows wider abutments to be used with narrow implants

2. **What risk is associated with using a narrow abutment on a butt-joint implant platform switched and placed subcrestally?**
- ☐ a. The abutment may loosen due to lack of osseointegration
- ☐ b. It can lead to extensive bone loss due to bacterial contamination
- ☐ c. It makes prosthesis fabrication more time-consuming
- ☐ d. It causes excessive tissue thickening around the abutment

3. **According to the article, what implant feature contributes most to preventing bacterial contamination at the implant-abutment interface?**
- ☐ a. Butt-joint connection
- ☐ b. Flat emergence profile
- ☐ c. Morse-taper (cone-in-cone) connection
- ☐ d. Subgingival cement margins

4. **What is a potential mechanical risk of using an excessively narrow abutment in a platform-switched design, especially under high occlusal loads?**
- ☐ a. Implant micromotion
- ☐ b. Gingival overgrowth
- ☐ c. Abutment fracture
- ☐ d. Loss of keratinized tissue

ORAL HEALTH CD/JUNE/JULY/ANITUA/PAGE 61

1. **Why are patients with advanced periodontal disease traditionally considered high-risk candidates for implant therapy?**
- ☐ a. They are more likely to have poor oral hygiene habits
- ☐ b. The condition negatively impacts osseointegration and increases the risk of peri-implantitis
- ☐ c. Bone grafting is always unsuccessful in these patients
- ☐ d. Their age makes surgery unpredictable

2. **According to studies, what increases a patient's predisposition to developing peri-implantitis?**
- ☐ a. History of sinus grafting procedures
- ☐ b. Use of immediate loading implants
- ☐ c. History of periodontal disease
- ☐ d. Presence of zirconia-based restorations

3. **What is one reason short and narrow implants are used in the anterior mandible of patients with advanced periodontitis?**
- ☐ a. They allow for screwless prosthetic attachment
- ☐ b. They require minimal surgical training
- ☐ c. Wider implants would require more aggressive drilling and bone compression
- ☐ d. They are cheaper than other implants

4. **What was the purpose of preserving certain teeth during the initial treatment phase in the clinical case?**
- ☐ a. To avoid the cost of immediate implant placement
- ☐ b. To allow orthodontic movement during implant osseointegration
- ☐ c. To support a provisional prosthesis during healing
- ☐ d. To maintain masticatory function permanently

ORTHODONTICS CD/JUNE/JULY/AL-NAHER/PAGE 73

1. **What is one of the key reasons the oral microbiome should be prioritised during aligner therapy?**
- ☐ a. It affects only oral health, not systemic health
- ☐ b. It helps prevent allergies during treatment
- ☐ c. It supports digestion, immune regulation and disease prevention
- ☐ d. It accelerates the straightening effect of aligners

2. **According to the author, what risk is associated with wearing clear aligners for long durations without adequate cleaning?**
- ☐ a. Loss of enamel due to acid erosion from aligners
- ☐ b. Biofilm infection from enclosed bacterial growth
- ☐ c. Tooth fractures caused by excessive pressure
- ☐ d. Misalignment from improper wear patterns

3. **Why is saliva important in maintaining a healthy oral microbiome during aligner treatment?**
- ☐ a. It dissolves the aligner material if worn too long
- ☐ b. It enhances the whitening properties of toothpaste
- ☐ c. It neutralises pH and contains disease-fighting enzymes
- ☐ d. It increases aligner fit through lubrication

4. **What is one benefit of using AI-driven remote monitoring systems in aligner therapy?**
- ☐ a. Reduces the need for all oral hygiene practices
- ☐ b. Allows real-time tracking and early detection of periodontal issues
- ☐ c. Replaces all in-person dental appointments
- ☐ d. Automatically adjusts the aligners for better fit

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