

# CREATING A FIRM FOUNDATION

## GrandTEC – A new, resin-impregnated glass fibre strip

*(article continued from the previous page)*

### Case 2: Closure of a gap in the premolar region



Fig. 1



Fig. 4



Fig. 2



Fig. 5



Fig. 3



Fig. 6

#### Case 2: Closure of a gap in the premolar region

Fig. 1: An existing gap in region 14.

Fig. 2: Preparation of the teeth adjoining the gap: existing fillings as well as carious defects are removed and the teeth prepared using the acid-etch bonding technique.

Fig. 3: GrandTEC is positioned in an arch shape in the gap ...

Fig. 4 and 5: ... and composite is inserted in a "V" shape and shaped.

Fig. 6: Aesthetically and functionally perfect restoration – made in the practice in less than one hour.

Clinical photographs by Drs. Henk Alting, Groningen (the Netherlands)

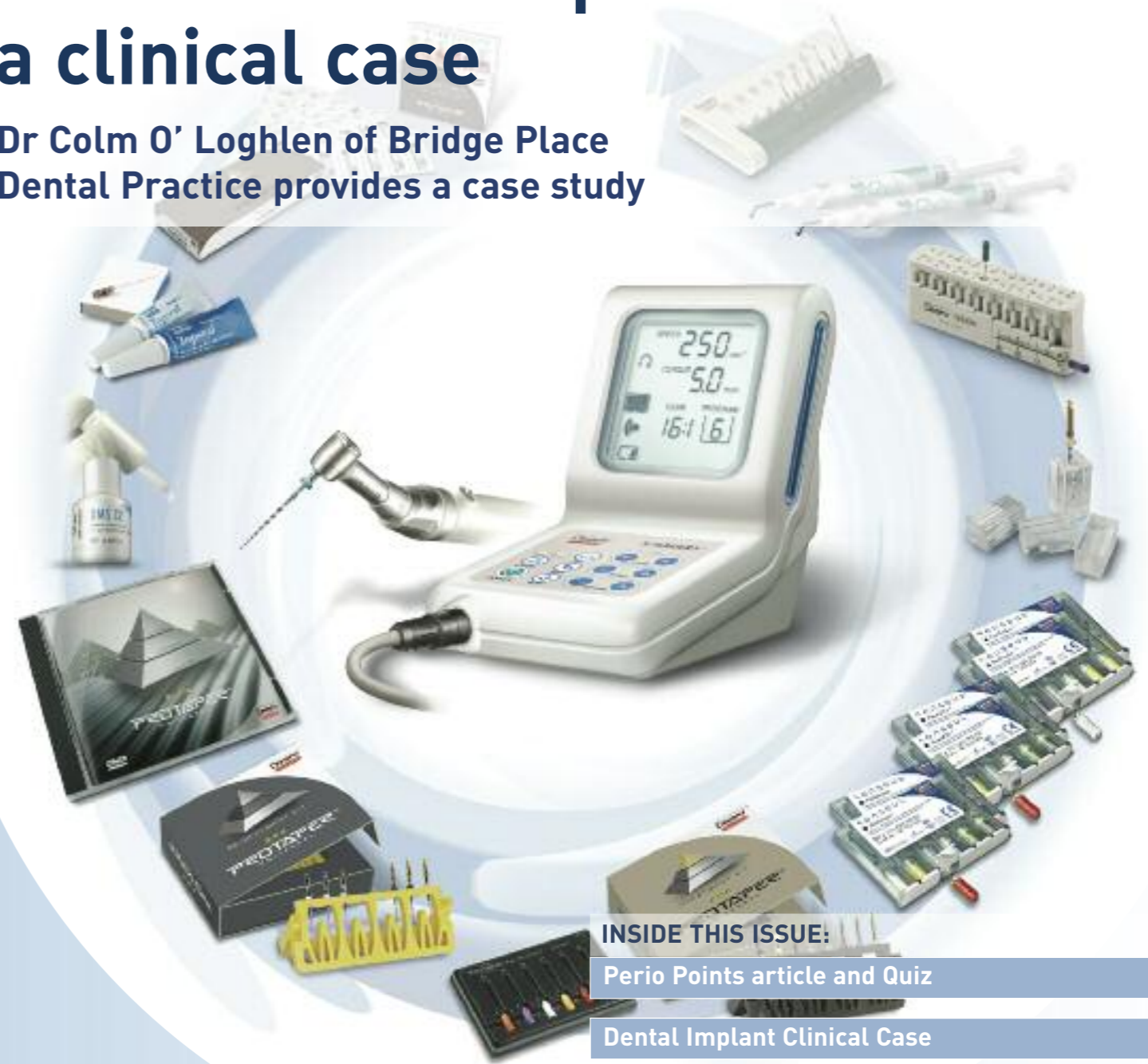
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Issue 1: 2011

## Neoss Dental Implant: a clinical case

Dr Colm O' Loughlen of Bridge Place Dental Practice provides a case study



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# PERIO POINTS ARTICLE

First correct entry to the quiz wins a TePe Communicator for his/her practice!



Article kindly provided by Elaine Tilling of Molar Ltd.

Keeping up to date with every aspect of our professional domain is hard work. However, some gentle reading over familiar and not so familiar territory can be an effective and not unpleasant way of winning a prize for the practice – So come on.. have a read and take the evaluation test... you know you want to! **The first person to return 5 correct answers to ProMed will win a TePe communicator for the practice.**

Periodontitis remains the most common cause of tooth loss despite improvements in oral hygiene (So, no change there, then!) Severe periodontitis affects approximately 10-15% of the population affected, with mild periodontitis<sup>1</sup> now also an acknowledged risk factor in other systemic disease including cardiovascular disease, strokes and Type II diabetes, and in the low birth weight of infants<sup>2</sup>.

Ongoing research has established that the hosts' inflammatory response to periodontitis is a significant factor in the development of the disease. Initiated by an inflammatory response to periodontopathic bacteria, periodontitis' severity is determined by both bacterial virulence and host susceptibility. It is the host susceptibility that is

creating the biggest wave of new thinking in Periodontitis. Currently, the term 'risk factors' is being used to begin to define and help us predict who is more likely to go on to lose teeth as a result of periodontal breakdown. This group of highly susceptible patients will not benefit from routine scaling and polishing<sup>3</sup>. The task for the dental care professional is to identify the patients at risk and, if they are unable to care for the patient themselves, to refer them appropriately. But don't worry everyone; plaque still remains the primary aetiological factor in periodontal breakdown, its just that its effect on the periodontal tissues can be modulated by other factors such as:

**Genetic Factors (Michaelowicz 1991)**

**Secondary Environmental Risk Factors (Snoad 2005)**

**Age (Armitage 1999)**

The effects of genetic factors and age are not new concepts but the secondary environmental factors are certainly a new way of helping us to determine a patients relative risk. These factors can modify existing susceptibility to periodontal disease

**Factors include:**

- \*Smoking (smoking cessation should be the first part of periodontal therapy – Palmer 2005<sup>4</sup>)
- \*Type I and Type II diabetes (particularly when inadequately controlled)
- \*Physical or mental impairment leading to poor plaque control
- \*Impaired immune response
- \*Psychosocial factors
- \*Presence of putative periodontal pathogens in periodontal pockets

A system designed to assist Primary Dental Care Clinicians in the decision making process for periodontal care plans using the secondary environmental risk factors is described by Snoad 2005<sup>5</sup>. This paper describes a practical system for identifying the patients that are likely to be the most susceptible to tooth loss through periodontal disease and gives a simple guide for appropriate and timely referral.

**Existing Screening Systems**

Periodontal screening examinations at appropriate intervals are mandatory for the profession as part of the assessment of a patient's risk from disease<sup>6</sup>. The Basic Periodontal Examination (BPE)<sup>7</sup>, used in conjunction with a patient's existing radiographs give a greater specificity of the interdental bone loss but, like all such assessments, in isolation, only gives us a 'snapshot' of the patients' periodontal status in that moment in time. When used in junction with the secondary environmental risk factors, we can begin to build a more accurate assessment of the patients' relative risk and plan and treat accordingly.

**Oral Hygiene Advice**

Well, the good news here is the introduction of interdental brushes. Patients not only like them, they use them as well! Patients that can floss should floss but the vast majority of sites in perio patients' mouth's are more easily and effectively cleaned with interdental brushes. Ensuring that the correct sized brush for the site is used along with the correct angle and technique, will aid both the effectiveness and durability of the brush. The brush head should fit snugly in the site but if the ridges of

the brush head can be felt then it is too large and may cause trauma. A gentle agitation will disrupt and dislodge plaque and deposits. Patients with active perio sites should be encouraged to rinse the brush between each site.



Photograph Courtesy of Dr Philip Wonder

Access to recommended brushes is key to compliance and therefore whatever you recommend should be easy for the patient to obtain between appointments unless an adequate supply is purchased from the practice. Mail order companies supplying directly to patients is a good option here or make sure that the oral hygiene aids that you recommend are available from retail outlets. An obvious statement perhaps but compliance will be adversely affected if patients have problems obtaining the right products.

The use of antimicrobials as an adjunct to conventional oral hygiene and clinical maintenance procedures remains an option for unresponsive cases but clearly should not be used as a first line treatment.

Antibacterial agents in oral hygiene products have varying degrees of effectiveness but when used in conjunction with an effective oral hygiene regimen can enhance treatment outcomes. As a growing number of our patients become 'experts' in finding new products to miraculously meet their oral hygiene needs there is a need for a concerted effort on our part to ensure that we keep up with current trends in product development – I can feel another article coming on!

Article references can be found overleaf, along with the Perio Points Quiz!



# PERIO POINTS QUIZ

**First correct entry to the quiz wins a TePe Communicator for his/her practice!**

Please post your quiz entries **with your quiz answers, name and practice address clearly marked** to "Promed Perio Competition, Promed, Tulligmore, Killorglin, Co Kerry."  
**First entry received with 5 correct answers wins the prize!**

## QUIZ QUESTIONS:

What % of the population are affected by severe periodontitis?

- a) 5-10%
- b) 10-15%
- c) 15-20%

According to Palmer 2005, what precedence does smoking cessation have in periodontal therapy?

- a) After initial periodontal charting and OHI
- b) Should be the first part of periodontal therapy
- c) As a secondary environmental risk factor it should be addressed at the end of the initial treatment

When are the use of antimicrobials indicated?

- a) Used as a first line treatment for periodontal disease
- b) As an adjunct to routine periodontal treatment
- c) For unresponsive cases as an adjunct to conventional oral hygiene and clinical maintenance

When recommending interdental brushes what do you need to ensure to increase efficacy and durability of the brushes?

- a) That you select the correct size of brush, angle and cleaning technique.

- b) That the patient likes the colour of the brush and will therefore use it
- c) That you ensure that the patient can purchase the recommended brushes easily

**Patients with active periodontal disease should be encouraged to rinse their interdental brush:**

- a) Between each quadrant
- b) Twice a day
- c) After cleaning each site

## References:

1 Preshaw Pm, Seymour RA, Heasman PA (2004) Current concepts in periodontal pathogenesis. Dent Update 31 (10) 570-578

2 Van Dyke TE, Sheilesh D (2005) Risk factors for Peridontitis. J Int Acad Periodontal 7 (1):3-7

3 Bierne P, ForgieA, Worthington HV & Clarkson JE (2005) Routine scale and polish for periodontal health in adults. The Cochrane Database of Systematic Reviews 2005, Issue 1 Art. N.: CD004625

4 Palmer RM. Should quit smoking interventions be the first part of initial periodontal therapy? J Clin Perio 2005; 32:867-868

5 Snoad RJ. Description of a System designed to assist Primary Dental Care Clinicians in decision-making with regard to Specialist Periodontal Referrals and Report of Two Clinical Audits us the System. Primary Dental Care 2005: 12(4):135-141

6 National Health Service; National Institute of Clinical Excellence guideline: Dental recall: recall interval between routine dental examinations. NICE 2004 (Oct) www.nice.org.uk/CG019NICEguideline

7 British Society for Periodontology. Periodontology in General Practice in the United Kingdom , A First Policy Statement. Br Soc Periodon May 1986

Name \_\_\_\_\_

Practice Name \_\_\_\_\_

Practice Address \_\_\_\_\_

Phone Number \_\_\_\_\_ email: \_\_\_\_\_

Quiz Answers, please circle correct answers:

Question 1. A. B. C. Question 2. A. B. C. Question 3. A. B. C. Question 4. A. B. C. Question 5. A. B. C.

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# DENTAL IMPLANT CASE STUDY

Dr Colm O' Loughlen BDS (NUI) MSc (U Lond)

**BIOGRAPHY:**

Dr. Colm O'Loughlen qualified from University College Cork Dental School in 2002. Following that, he worked in private practice in the U.K. Colm was awarded an MSc. by the Eastman Dental School in London. He returned to Ireland, establishing Bridge Place Dental Practice in Tralee, Co. Kerry. Colm has a particular interest in minimally invasive techniques, especially adhesive dentistry and dental implants.

This 31 year old male smoker presented to my office not having seen a dentist for many years. A number of teeth were unrestorable and once extracted, the patient elected to have some of them replaced using dental implants.

The patient's primary concern was cosmetic but loss of the posterior teeth on the upper left had also caused a functional problem. The patient did not want to wear a denture. Minimal invasion to his already damaged dentition was important and so any form of full coverage restoration was ruled out. I would not have been comfortable providing a long span bridge on the upper left and the patient preferred the likely longevity of an implant restoration compared to an adhesive bridge anteriorly. Cost was also a concern and so the patient elected to have a metal rather than ceramic abutment for the anterior crown, accepting that a little greyness in the gingival margin was likely. While not absolutely contra-indicated in smokers, the treatment plan did not include any augmentation procedure for the anterior implant and the patient accepted that the gingival contour would be different to that of the contra-lateral tooth.

I used a 3.5mm wide by 13mm long fixture to replace the upper right lateral incisor. This was a challenging location as the space was quite narrow. Neoss implants are available in a wide range of sizes but have the advantage that all bar the narrowest use a standard prosthetic attachment size. This simplifies stock control for the practice. Even in this narrow space, the components allow for maintenance of correct spacing for papilla

regeneration. On this occasion adequate primary stability was achieved and a temporary abutment and crown were fitted according to immediate loading protocols. This also facilitated gingival contouring from an early stage.

At the 3 month review appointment the implant was ready for restoration. An open tray implant level impression technique using polyether was chosen for accuracy. A prefabricated aesthetic abutment and precious bonded crown were used to restore the fixture. This can be a cost effective solution provided implant angulation permits it.

This patient also elected to place two implants in the upper left quadrant. These would be used to retain a fixed three unit bridge. Taking account of local anatomy I placed a 5mm wide by 9mm long fixture in the first molar area and a 4.5mm wide by 11mm long fixture in the first premolar area. The poorer quality bone of the posterior maxilla prevented immediate loading in this instance. A healing time of approximately six months was required before restoration. An open tray polyether impression technique was selected again. Accurate initial placement of fixtures then permitted the use of prefabricated abutments with minimal adjustment. These supported a cement retained bridge. All restorations were fabricated on mounted casts using a semi-adjustable Denar articulator.

The implants were tested with the Ostell implant stability meter throughout treatment. Studies have shown it to provide a reliable indication of osseointegration. Factors such as primary stability, radiographic and clinical appearance and bone type

are all critical in determining duration of healing and timing of restorations. Nevertheless this device is a convenient way to empirically monitor the implant's stability over time. This can be noted in the patient's records and is a valuable communication tool.

The appearance of the upper left peg lateral incisor and both central incisors were enhanced with composite in keeping with the patient's wishes for minimally invasive dentistry.

Patients today are looking for aesthetics, comfort, function and longevity. Dental implant supported prostheses are superior to dentures and full coverage bridgework in these areas and patients are increasingly unwilling to tolerate adverse effects on the natural dentition.

Aside from the initial surgical stage, this treatment modality is minimally invasive as no tooth preparation is required. Consequently I believe that implants should always be mentioned as an option when discussing tooth replacement.



Pre-op occlusal Maxillary



Pre-op anterior



Post-op immediate temporary crown



Bridge Lateral View



Post Op Maxillary



periapical radiograph restored implant upper right 2



Permanent Crown Lateral Incisor



Permanent Crown Lateral Incisor Close Up

Article and photos printed by kind permission of Dr Colm O' Loughlen

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# CREATING A FIRM FOUNDATION

## GrandTEC – A new, resin-impregnated glass fibre strip

Article kindly provided by dentist Klaus Peter Hoffmann, Cuxhaven (Germany)  
Clinical photographs provided by Dr. Walter Denner, Nuremberg and Drs. Henk Alting, Groningen (the Netherlands)



In some indications, modern bonding agents and composites do not have sufficient adhesive strength to ensure the stability of restorations over the long term, for example when splinting teeth for temporary primary interlocking following orthodontic treatment or during periodontal treatment. A reliable material is also required in trauma therapy or for closing gaps in teeth as a basis for restorations with composite. The following contribution illustrates different fields of application for metal-free, minimally invasive techniques using the material GrandTEC (VOCO) as an example.

By dentist Klaus Peter Hoffmann, Cuxhaven (Germany)

The material GrandTEC is a glass fibre strip consisting of multiple, densely packed, parallel running glass fibres that are also impregnated with a light-curing resin. The material described here increases the fracture resistance of composites, thereby considerably extending their range of applications:

- Splinting and securing natural teeth after orthodontic treatment, in cases of periodontitis and after damage to a tooth;

- Semipermanent and permanent restorations of gaps in the teeth using an extracted, natural tooth;
- Temporary treatment of gaps using an artificial tooth (for example while an implant is healing);
- Reinforcement of a long-span temporary bridge.

The material is flexible and can be shaped and adapted to the desired shape with the same instruments that are used in the composite adhesive technique. The other materials required for treatment using the glass fibre strip are available in every dental practice: phosphoric acid for conditioning the dental hard tissue, a light or dual-curing adhesive as a bonding agent, a light-curing flowable composite and a malleable composite suitable for the indication, as well as a LED or halogen blue-light lamp for photopolymerisation.

During polymerisation the glass fibres coalesce with the composite. A flowable composite is used in this process as the initial layer. The time-consuming and error-prone process of wetting the

## Case 1: Use of an extracted tooth in an immediate restoration



Fig. 1



Fig. 4



Fig. 2



Fig. 5



Fig. 3



Fig. 6

glass fibre strips with a bonding agent can be dispensed with because the glass fibre strip has already been impregnated with a resin. The masticatory forces arising are distributed evenly over the restoration by the intensive chemical coalescence of glass fibres and composite, thereby increasing the flexural strength and fracture resistance of the restoration. Modern adhesive bonding techniques and GrandTEC therefore complement each other perfectly resulting in an innovative concept for stable restorations.

**The following series of pictures shows how and when the material can be applied using two case studies as examples.**

**Case 1 Clinical photographs by Dr. Walter Denner, Nuremberg.**

### Case 1: Use of an extracted tooth in an immediate restoration

Fig. 1: Tooth 31 cannot be saved following a root fracture.

Fig. 2: A composite impression was prepared before the extraction of 31.

Fig. 3: The gap after extraction.

Fig. 4: The subgingival parts of the extracted tooth have been removed.

Fig. 5: Tooth 31 is repositioned in the mouth with the help of the silicone impression and inserted using GrandTEC.

Fig. 6: Completion of the insertion of the restoration 45 minutes after the extraction.

*(article is continued overleaf)*