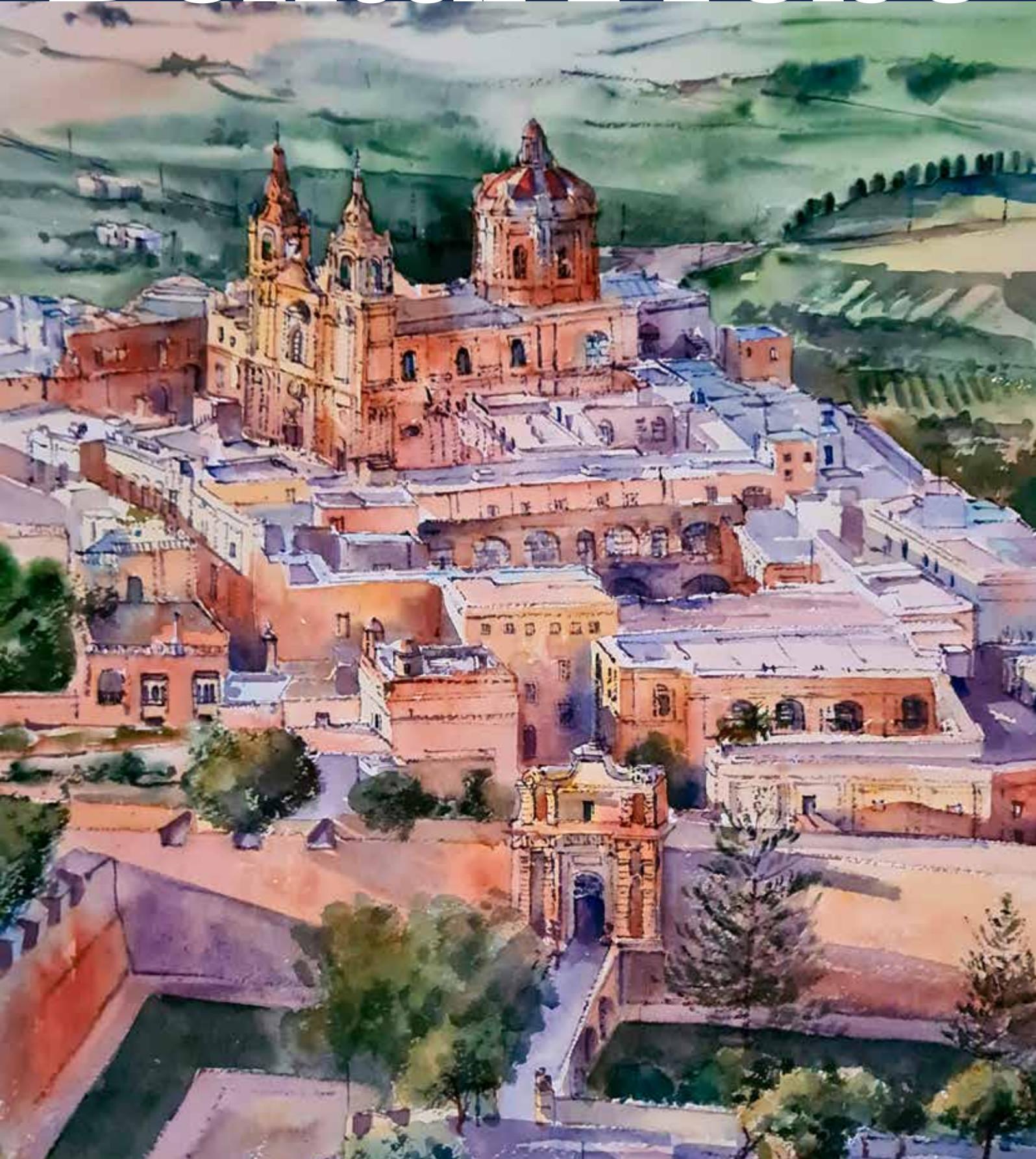


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Editorial

ISSN 2076-6181

DENTAL ASSOCIATION OF MALTA

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By Dr David Muscat

Dear colleagues,

As we approach the end of 2021, we should all have received our Covid booster vaccines.

At the time of writing this editorial the DAM had organised the following events:

Tuesday 23 November 2021
'Dental indications For Hyperbaric Oxygen.' By Dr Kurt Magri MD (Melit) MSc (Melit)MRCP (UK) BScMedScHons (Underwater Medicine)(Stell). CCST Baromedicine (Melit) LRSM ALCM Consultant Physician (Diving and Hyperbaric Medicine Mater Dei Hospital) at Palazzo Castelletti Rabat.

Dr Magri is an active researcher and lecturer collaborating regularly with the University of Malta and has published scientific papers in scientific journals.

He has a special interest in the pathophysiology of decompression sickness and the search for novel treatments for severe decompression sickness.

The lecture covers what is HBO Hyperbaric Oxygen, the facilities available in Malta and Gozo; the use of HBO in the prophylaxis and treatment of osteoradionecrosis of the mandible and other bones; the use of HBO in the treatment of bisphosphonate – related osteonecrosis of the jaw (BRONJ) and how to refer a patient for HBO.

Wednesday 2 February 2022
Update on Treatment of Traumatized incisors in Children by Dr Audrey Camilleri.

We have not been able to organise a Christmas Party this year due to Covid restrictions but we have booked the Casino

Maltese for Friday 2 December 2022 in advance for next year.

The Dental Association room at the Federation Gzira will soon be completely refurbished.

The picture on the front cover is 'The Silent City' by the artist Jacqui Agius.

This issue includes an article by Dr Rebecca Gabriele, who writes about periodontology as well as a case study by Dr Lara Camilleri who recently graduated MDs (Melit) with distinction.

Happy Christmas to all!

Best regards,

David

Dr David Muscat B.D.S. (LON)
Editor / Secretary, P.R.O. D.A.M.



New storage cupboards and parquet flooring at the Dental Association of Malta room at the Federation building in Gzira.

Advertisers are responsible for the claims they make in their ads and the opinion of the advertisers and editors of articles in the issue are not necessarily the opinion of the DAM.

Paying the Periodontal Price

A QUICK REVIEW OF THE EFP/AAP CLASSIFICATION AND INTRODUCTION TO THE EFP S3 LEVEL CLINICAL PRACTICE GUIDELINE



By Dr Rebecca Gabriele

B.Ch.D degree at the University of Malta in 2017.
Affiliate at Royal College of Physicians & Surgeons of Glasgow.
Reading for an Msc in Clinical Periodontics at Ulster University Birmingham.

A BRIEF OVERVIEW OF THE EFP/AAP CLASSIFICATION

The 2017 classification scheme encompassed a multi-dimensional staging and grading system with a focus on clinical attachment loss. It incorporated a novel classification for peri-implant diseases and conditions alongside a re-arrangement of various conditions of periodontitis. (Ahmed Zaki, A., 2020)

The introduction of the new classification was met with some resistance. A number of general dental practitioners remarked that it did not reflect routine periodontal examination. Many did not document clinical attachment loss but rather pocket probing depths following a BPE.

These issues of implementation into practice led to the publication of a revised version by the British Society of Periodontology (BSP) in 2018, where a flowchart for guidance also included radiographic bone loss and sites of loss.

Unlike its predecessor, Armitage 1999, the new classification defined and recognized periodontal health. (BSP, 2018) Acknowledging and defining a state of periodontal health establishes a periodontal diagnosis for every patient.

In addition it also allows a point of comparison should the patient develop periodontal disease in

Classification of Evidence – GRADE approach	
Class	Study Types
1	“Good” Randomized Control Trials (RCTs), Meta-Analysis (MA) of homogenous RCTs
2	“Weak” RCTs or prospective cohort studies, Class 2 MA
3	Retrospective cohort study, case control study, Class 3 MA
4	Case series
5	Case report, expert opinion

Table 1: The classification of evidence used to formulate recommendations vs suggestions using GRADE (Frantsve-Hawley et al., 2000; Association of Scientific Medical Societies in Germany and the Grading of Recommendations Assessment, Development and Evaluation)

the future. Furthermore, it also reflected the multifactorial nature of periodontal disease by including evidence-based risk factors.

It is imperative to note that although the classification may have changed, the management is still the same. This comprises of bleeding on probing (BOP) and periodontal pocket depth (PPD) examinations on patients who have been identified as having periodontal disease whether it is stable, in remission or currently unstable. (Ower P., 2019)

WHAT IS THE EFP S3 LEVEL CLINICAL PRACTICE GUIDELINE (CPG)?

The S3 Level Clinical Practice Guideline provides a collection of evidence and consensus-based recommendations to treat periodontitis from stages I, II and III. The guidelines use a stepwise approach reflecting the

stages of disease and incremental interventions. The S3 CPG mirror the 2017 classification as they describe treatment based on disease severity and extent, and give consideration to the degree of complexity and individual risk.

The recommendations cover various interventions aimed at different targets of care such as;

- Behavioral changes, supragingival biofilm, gingival inflammation and risk factor control;
- Supra- and sub-gingival instrumentation with and without adjunctive therapies;
- Different types of periodontal surgical interventions; and
- The necessary supportive periodontal care in a long term plan. (Sanz M, et al., 2020)

The strength of the recommendations within the guideline mirror the

quality of evidence. Consensus based recommendations were reached by various dental professionals from different disciplines and the evidence used was rooted in a collection of systematic reviews.

The evidence was classified using a GRADE approach as shown below from a Class I to Class V, with the higher quality evidence given a Class I classification.

Class I evidence gave rise to robust recommendations within the guideline. In contrast, lower quality evidence was used to give suggestions or open recommendations within the S3 CPG. The quality of evidence reflected the relevance of outcomes and consistency of study results, the directness regarding applicability of the evidence to the target population, the balance of benefit vs harm, and the precision of effect regarding confidence intervals.

STEPS OF CARE WITHIN THE S3 CPG

The S3 treatment guidelines where simplified into a “stairway of care” using the acronym PRICE (Public health, Risk, Intervention, Checkpoint, Exit).

Step 1 of treatment encompasses an essential phase of effective

periodontal therapy; there is a periodontal price to pay if due importance is not given! If Step 1 is done right, it gives the biggest improvement in oral healthcare gain and in periodontal healthcare gain.

Steps 2 through 4 depend upon an effective execution of step 1. The phase has two components; the educational component and Professional mechanical plaque removal (PMPR). (Sanz, M. et al., 2020)

The first step comprises of taking a good patient history, an oral health assessment and identifying any risk factors. It is through this assessment that one can give tailored advice and assist in behavior change. The end goal is to improve oral hygiene, reduce levels of dental plaque biofilm and the levels of subsequent inflammation. Tailored advice comprises of risk factor control, oral hygiene instruction, supragingival PMPR and adjusting any plaque retentive factors. (Sanz, M. et al., 2020)

Step 2 re-enforces the messages and advice given to the patient during Step 1, alongside the introduction of sub gingival calculus removal. Therapy at this stage also includes early intervention relative to systemic risk factors.

Step 3 is essentially a review phase where one can re-plan care for those sites which did not respond as planned to treatment with non-surgical or surgical care.

Step 4 describes the “exit” of active disease where there is the provision of lifelong care and supportive periodontal care. The S3 CPG covers recommendations for Steps 1 to 3 of care. Stage 4 recommendation guidelines are currently in development.

In view of its importance, a discussion of Step 1 rationale and a comprehensive explanation of its relevant recommendations within the S3 CPG will follow.

STEP 1 GUIDELINES RATIONALE: UNDERSTANDING PERIODONTITIS

Clinical health is characterized by low plaque biofilm, low biomass, a health promoting biofilm and a high immune inflammatory response which is proportionate to the biofilm.

The periodontium is in a state of symbiosis where the inflammation that is taking place as a form of immune surveillance.

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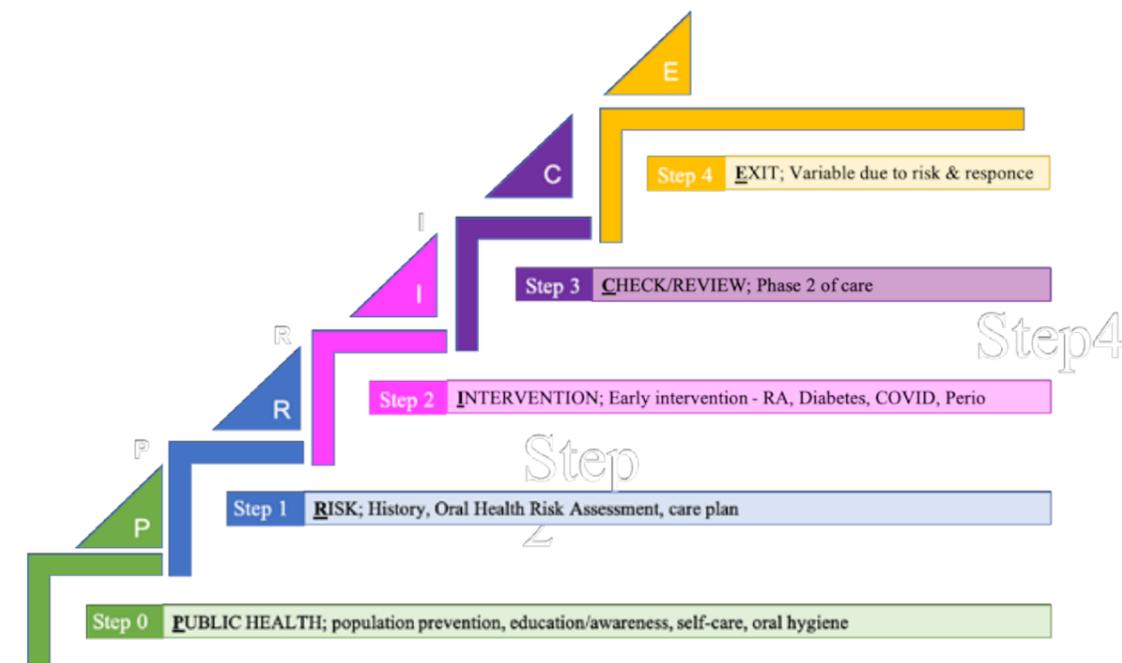


Figure 1: Stairway of care within the S3 CPG framework. Courtesy of Prof. Ian L.C. Chapple, 2021.

SENSITIVITY & GUM PROBLEMS CAN CO-EXIST^{1,2}



Gum recession is a leading cause of dentine exposure³, which can cause dentine hypersensitivity. Research shows that 44% of patients with dentine hypersensitivity changed their tooth brushing technique to avoid the affected areas,⁴ which may result in poor plaque control, a reason for continued dentine tubule exposure.³ In fact 50% of people prone to sensitivity also report concerns about their gum health.⁵

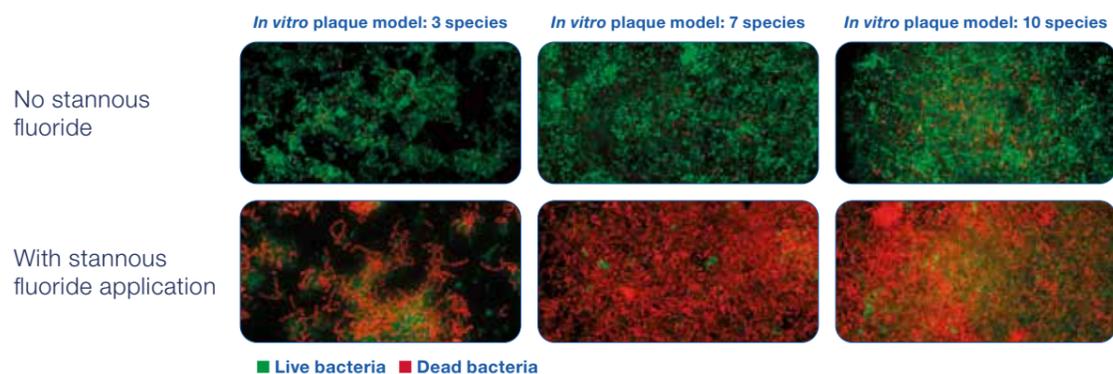
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New Sensodyne Sensitivity & Gum is designed for patients with sensitive teeth & gum problems to aid compliance. Formulated with stannous fluoride, this daily specialist toothpaste has a dual action formula.

Sensodyne Sensitivity & Gum occludes exposed dentine tubules^{6*} and has an antimicrobial action.^{6-8*}



SENSODYNE SENSITIVITY & GUM PROMOTES GUM HEALTH THROUGH EFFECTIVE PLAQUE CONTROL⁶



Significant loss of viability of in vitro plaque when treated with 0.454% stannous fluoride toothpaste. Confocal Laser Scanning Microscopy (CLSM) images of in vitro plaque models with 3 (left), 7 (centre) or 10 (right) dental plaque bacterial species. The protocol and bacteria species used followed a model previously described in Malcolm et al. (2016) and Stephen et al. (2016). Samples treated with slurry of 16% w/v toothpaste for 3 minutes. Control represents untreated in vitro plaque models of 3, 7 or 10 bacterial species, respectively.

Aerobic and anaerobic bacteria, found in early and mature plaque, are affected by the antimicrobial action of stannous fluoride.^{6,9}

Recommend Sensodyne Sensitivity & Gum: A daily specialist dual action toothpaste

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References: 1. Addy M. Int Dent J 2002; 52: 367-375. 2. Bartlett DW et al. J Dent 2013; 41: 1007-1013. 3. Jacobsen P et al. Journal of Contemporary Dental Practice 2001; 2(1): 1-8. 4. GSK data on file, Clinical study report RH02026. 5. GSK data on file, Ipsos 2014. 6. GSK data on file, March 2018. 7. Tinanoff N. J Clin Dent 1995; 6: 37-40. 8. Bellamy PG et al. J Clin Dent 2012; 26: 71-75. 9. Altayyar I et al. Emer Life Sci Res 2015; 1(1): 8-12. Available at https://www.idjnr.com/uploads/38/1770_pdf.pdf

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Paying the Periodontal Price

A QUICK REVIEW OF THE EFP/AAP CLASSIFICATION AND INTRODUCTION TO THE EFP S3 LEVEL CLINICAL PRACTICE GUIDELINE

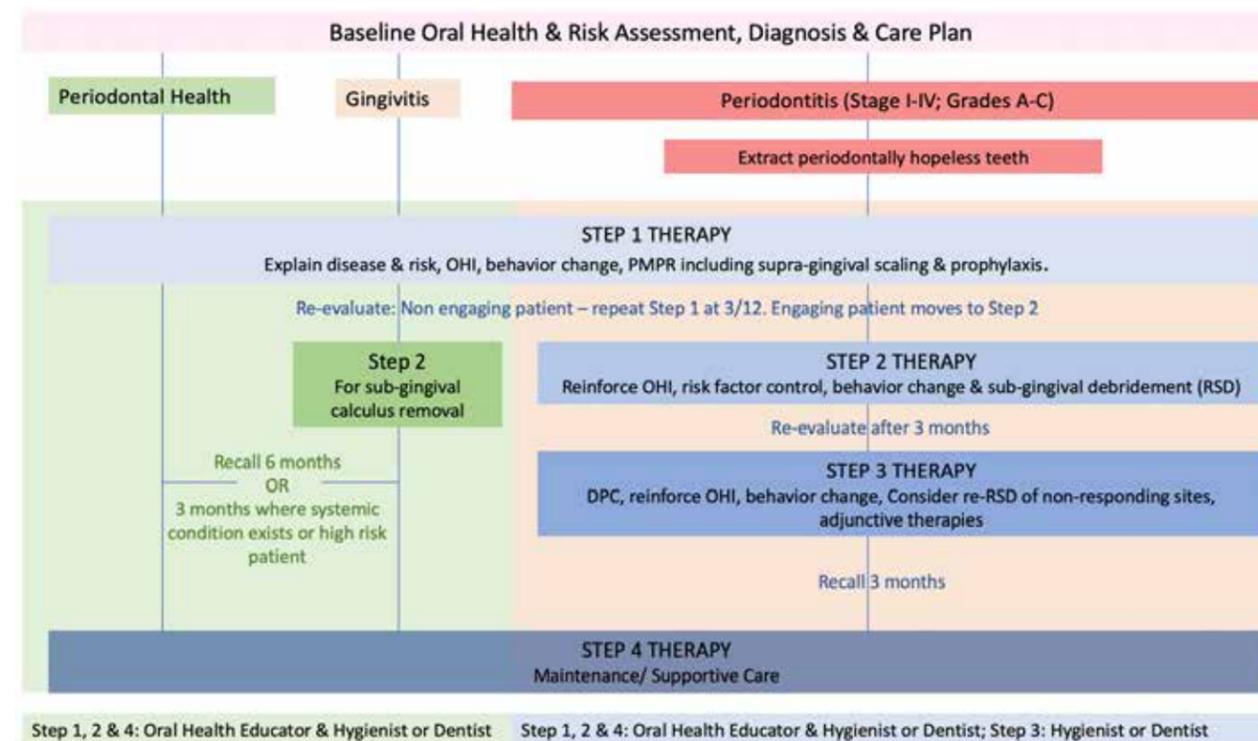


Figure 2: Stairway of Care according to diagnosis with recommended SPT intervals. Courtesy of Prof. Ian L C Chapple, 2021; EFP PerioSessions.

Continues from page 5.

When the biofilm increases in biomass, pathogenic bacteria emerge within the biofilm; ie. incipient dysbiosis. In health the inflammatory host response to this emergence remains proportionate. When this occurs with an underlying chronic inflammation present, the inflammation stops resolving; ie. gingivitis. Thus, it can be agreed that if gingivitis is identified and well managed it is reversible and clinical health may be restored. (Meyle J & Chapple I; 2000)

In periodontitis the patient has a high biomass; a state of Frank dysbiosis. Here the host inflammatory response is disproportionate, and in the majority of cases it is an exaggerated response. There is a failure of resolution of the inflammation due to its chronic nature. The exaggerated response produces a variety of

inflammatory mediators, MMPs and oxidative stress mediators. These in turn give rise to the damage of connective tissue and bone which is typical in periodontitis. (Meyle J & Chapple I; 2000)

Especially in the presence of other risk factors, when gingivitis progresses to periodontitis, the situation becomes irreversible in the terms of attachment and bone loss.

Through effective periodontal therapy some bone regeneration can be achieved but lifelong support and care needs to be provided. This describes the paradigm that emerges from the new 2017 classification workshop; "once a periodontitis patient, always a periodontitis patient". Since we are now able to diagnose a state of health, a periodontitis patient will fluctuate in states of active or stable periodontal conditions, and thus allow planning for a long-term therapy.

STEP 1 GUIDELINES RATIONALE: UNDERSTANDING RISK

The transition from clinical health through to gingivitis then periodontitis can be described as a linear continuum, but in reality, periodontitis is a multifactorial complex disease. Rothman K.J, 2002 was the first to describe causality in complex diseases in a contemporary way. It is understanding the disease in this point of view that highlights the importance of individual risk assessment and effective behavior change as part of the first step of treatment (Step 1 of PRICE).

The study describes the disease as a casual pie, with each pie representing the individual patient. The sufficient cause "A" is present in all patients, and this describes the necessary pre-requisite to develop periodontitis; ie. the plaque biofilm.

Continues on page 8.

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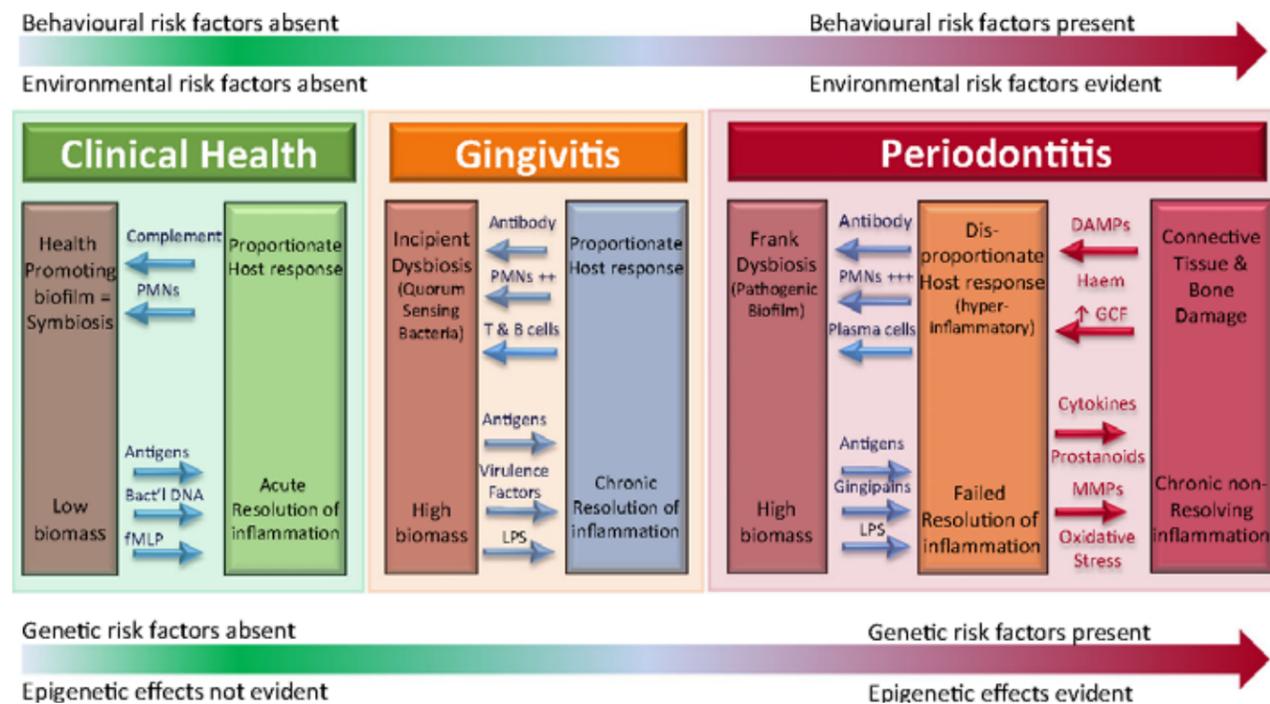


Figure 3: Contemporary model of host-microbe interactions in the pathogenesis of periodontitis (Meyle J & Chapple I; 2000)

Continues from page 7.

However, on its own it is insufficient to cause the disease, other component risk factors need to be present to “fill up the pie” and cause the disease in the individual.

As one can see from the figure above, these component risk factors vary in type and amount in each individual. This highlights the importance of a tailored risk factor assessment as part of the initial treatment planning. Six key component risk factors have been identified; genetics, age, nutrition, smoking, diabetes and stress.

One can come to the conclusion that the individual patient needs a personalized plan to account for the multifactorial nature of the disease sequelae. Genetic predisposition does not always translate into clinical disease and through effective behavior change

one can reduce the likelihood of genetic translation of periodontitis. Risk factor control interventions in patients in periodontitis therapy is recommended with grade A supporting literature from Ramseier et al., 2020. (Evidence based recommendation 4.17)

Multi-level risk assessment during the stairway of care enables the practitioner to gain a comprehensive perspective of the patient. The educational phase of Step 1 tackles risk factor control/behavior change, plaque control and local plaque retentive factors. These concepts cover “mouth level” and “tooth level” risks.

As one progresses throughout the steps of treatment the patient’s individual anatomy and tooth level factors can be taken into consideration.

Following a detailed periodontal chart, one gains site level knowledge termed as “site level” risk factors.

Thus, our risk assessment of the patient becomes more appropriate as more knowledge is gained about the patient as an individual. (Chapple, L & Yonel, Z; 2018)

STEP 1 GUIDELINES RATIONALE; UNDERSTANDING RISK FACTOR CONTROL & IMPLEMENTING BEHAVIOUR CHANGE

There are two phases of prevention that one incorporates into the periodontal treatment stairway of PRICE. Primary prevention involves the prevention of the inflammatory process from destroying the periodontal attachment (ie. Treating gingivitis).

In step 4 one then needs to consider secondary prevention as part of the supportive plan. This encompasses preventing the recurrence of gingival inflammation which may lead to additional attachment loss in successfully treated periodontitis.

Patient risk is a key third dimension to prevention and selecting the most appropriate treatment modality. (Chapple, L & Yonel, Z; 2018) Different patients with the same diagnosis, receiving the same treatment in response to their diagnosis, will achieve different outcomes if their inherent risk is not taken into account when treatment planning.

Different patients may share the same diagnosis, but a high risk patient with the same diagnosis may require more vigorous treatment or more frequent recall.

Rosling et al., 2001 evaluated disease progression in patients with different levels of risk/susceptibility. The study also challenged the WHO definition of success; rather than looking to retain a state of 20 teeth till the end of life, the study focused on the rate of tooth loss.

The study was also comprehensive since it discussed a supportive periodontal therapy (SPT) regime over a 12 year span. SPT recall for patients with “average” susceptibility was carried out at 12 month intervals, whilst those with a higher susceptibility were seen 3-4 times a year. Further investigations included radiographs to assess bone loss.

1 in every 3 patients within the average susceptibility group would lose a tooth in those 12 years. On the other hand, the higher risk group would lose 2 teeth in the same time interval.

One can appreciate that even though tooth loss was present in both groups, losing only 2 teeth for the higher risk patient can still be considered a success. These findings further highlight that with the appropriate SPT tailored to the individual’s risk one can maintain teeth, bone and attachment levels in the long term.

Hence, the S3 guidelines give strong recommendations regards SPT recall intervals of 3 to a maximum of 12 months. The interval chosen is tailored accordingly to the patient’s risk profile and periodontal condition after the active phase of treatment.

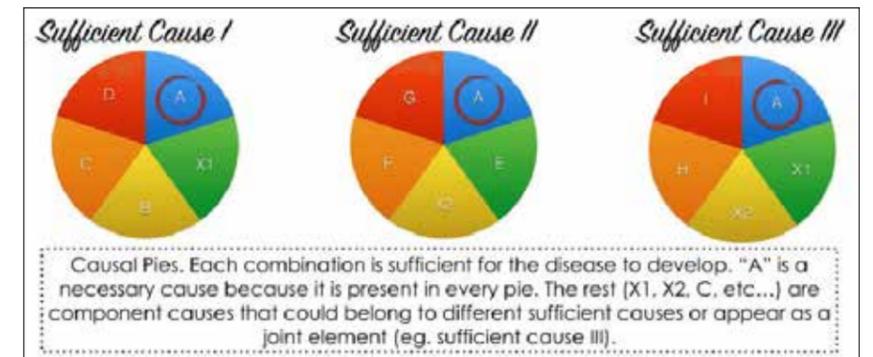


Figure 4: Sufficient vs Necessary Cause Theory for Complex Diseases (Rothman KJ; 2002)

Further supporting literature in addition to Rosling et al., 2001 include; Polak et al., 2020; Ramseier et al., 2019; Sanz et al., 2015 Trombelli et al., 2020 and Trombelli et al., 2015. (Expert consensus based recommendation 4.1)

It is also imperative to remember that the patient’s risk can change throughout life. It is not a static factor to only be considered in the first stages of treatment. The dynamic risk needs to be assessed at the SPT appointments and accommodated for across time. One cannot achieve long term success without SPT, these appointments can recognize sub optimal oral hygiene and re-instruction can be carried out accordingly.

In fact, repeated individually tailored instructions in mechanical oral hygiene, including interdental cleaning is a grade A recommendation. There is unanimous consensus that this advice allows control of inflammation

and prevents further damage in periodontal maintenance in stable patients. Supporting literature; Slot, Valkenburg & van der Weijden, 2020. (Expert consensus-based recommendation 4.3)

Key risk factors to note during Step 1 include Smoking and Diabetes; their control and behavior changes give the patient a greater oral health gain. Smoking translates into a dose effect relationship with attachment loss. (Tonetti et al., 2015)

Diabetes shows a pathobiological connection, especially in those with uncontrolled hyperglycaemia, resulting in further attachment loss.

Personalized biofeedback, risk communication with goal setting and self monitoring is essential in these groups of patients. Last but not least, one can also utilize the LANG & Tonetti risk assessment tool as a periodontal risk assessor.

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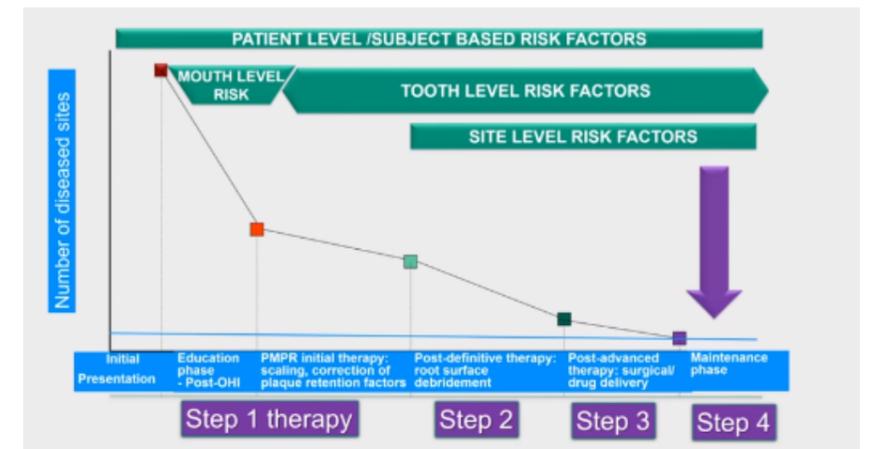


Figure 5: How Effective is each stage of therapy & multi-level risk assessment. (Chapple I.L.C, 2020)

Paying the Periodontal Price

A QUICK REVIEW OF THE EFP/AAP CLASSIFICATION AND INTRODUCTION TO THE EFP S3 LEVEL CLINICAL PRACTICE GUIDELINE

Continues from page 9.

STEP 1 GUIDELINES: FURTHER RECOMMENDATIONS

From the above discussion, it is quite clear that behavior management according to risk is key to treatment planning in Step 1 of PRICE. However, the SP3 CPG also gives recommendations regarding the Oral Hygiene Instructions necessary in the education component of Step 1.

The recommendation regards the choice of toothbrush (manual vs electric) is that the advice should take into account of the patient's need and bio-manual preferences. One also needs to take into account that the cost of intervention is manageable for the patient. (Slot et al., 2020)

This concept is also true for the choice and design of interdental brush. (Expert consensus- based recommendation 4.4) The use of a powered toothbrush as an alternative to manual tooth brushing for periodontal maintenance patients is an open grade 0 recommendation. (Slot et al., 2020)

When anatomically possible, toothbrushing should be supplemented by interdental brushes. (Evidence based Grade A- recommendation 4.6) Flossing should not be the first choice for interdental cleaning, especially in periodontal maintenance patients. (Evidence based recommendation 4.7)

Flossing has an open recommendation because the evidence in periodontitis patients is not strong. Nonetheless, flossing may be used in tight contacts

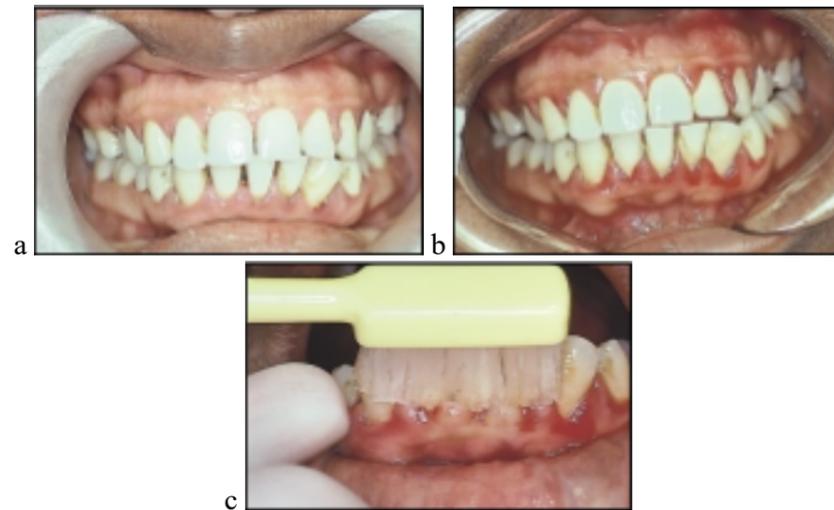


Figure 6. (a) The patient on presentation and (b) the result of 6 weeks of self-administered plaque control, without instrumentation, including (c) use of the Bass method of toothbrushing. (Ower P, 2003)

where interdental brushes cannot be engaged. (Slot et al., 2020)

The basis of the management of gingival inflammation is self-performed mechanical removal of biofilm. However, adjunctive measures, including antiseptics, may be considered as part of a personalized treatment approach. (Figuro et al., 2020; Expert consensus-based recommendation 4.10)

A study by Figuro et al., 2020 compares different types of mouth rinses and dentifrices alongside various active agents such as antiseptic agents, essential oils and stannous fluoride with 6 monthly follow up. Results regarding chemical biofilm control came through as grade b data and thus outcomes can be taken as suggestions.

An antiseptic dentrifice formulation can be used adjunctively for the control of gingival inflammation and in periodontitis patients during periodontal maintenance. It is suggested to use products containing

chlorhexadine, triclosan-copolymer (now taken off the market for environmental reasons) and stannous fluoride-sodium hexametaphosphate.

Furthermore, in an antiseptic mouth rinse formulation products containing chlorhexadine, essential oils and cetylpyridium chloride can be suggested for the same reasons. Additional supporting literature for both suggestions include Escríbano et al., 2016; Figuro et al., 2019; Serrano et al., 2015. (Evidence based recommendation 4.13)

IN CONCLUSION

Periodontitis is highly prevalent and thus a major public health problem. It may lead to tooth loss and disability which negatively affects chewing function and aesthetics. The disease can also be a source of social inequality, significantly affecting the patient's quality of life. (Tonetti et al., 2017).

In view of this it is imperative to identify and provide support to the periodontal patient.

As discussed, the periodontal patient needs a comprehensive approach, not solely focusing on the dental problems they may face.

They require an individual perspective embracing all their accompanying behaviors, attitudes to health and inherent risk factors.

The application of the S3 Level Clinical Practice Guideline allows the practitioner to provide a homogeneous and evidence-based approach to the management of Stage I–III periodontitis; using the 2017 classification to diagnose and the S3 CPG to apply in everyday clinical practice! ■

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PYOGENIC GRANULOMA IN A MIDDLE-AGED MAN WITH POOR ORAL HYGIENE

University of Malta

Oral Medicine, Surgery, Pathology and Radiology Case Report

Author: Dr Lara Camilleri M.Ds

Supervisor: Dr Nicholas Busuttil Dougall B.Ch.D., MFDS. RCS. (Edin), M.Sc. Oral Implantology (Fran), FICOI

ABBREVIATIONS USED

CGCG	Central Giant Cell Granuloma
CHX	Chlorhexidine
LCH	Lobular Capillary Hemangioma
Non-LCH	Non-Lobular Capillary Hemangioma
OH	Oral Hygiene
OPG	Orthopantomogram
PA	Periapical
PG	Pyogenic Granuloma
PGCG	Peripheral Giant Cell Granuloma
POF	Peripheral Ossifying Fibroma

ABSTRACT

Pyogenic granuloma (PG) is a common benign vascular lesion of the skin and mucous membranes. Intra orally, it presents as an inflammatory hyperplasia in response to plaque, calculus, foreign bodies, hormones and certain medications and preferentially affects the gingiva. Although it can occur in all age groups and both genders, oral PG shows a female predilection especially in young adults and pregnant women. The preferred treatment is an excisional biopsy and recurrence is infrequent (1).

In this report, a male in the 6th decade of life presented to the University of Malta Teaching Clinic with a bright red mass in his maxillary buccal gingiva in the left premolar region. The patient's medical history included hypertension and a cerebrovascular accident two years prior. Of relevant drug history, the patient was on clopidogrel and amlodipine. The patient had very poor oral hygiene (OH) and in the absence of cup-shaped alveolar bone resorption usually associated with peripheral giant cell granulomas (PGCGs), a preliminary diagnosis of PG was made. Following rigorous OH instructions, a root surface debridement and a 0.2% chlorhexidine mouthwash protocol, an excisional biopsy was performed and the histopathologic report confirmed the diagnosis of PG. The biopsy also resulted in the complete removal of the lesion and the patient did not require any further surgical intervention, however was closely monitored for supportive periodontal therapy. His OH improved significantly and no recurrence of the lesion was observed at subsequent visits.

KEYWORDS

Pyogenic granuloma, inflammatory hyperplasia, oral hygiene, amlodipine

INTRODUCTION

PG is a relatively common, non-neoplastic vascular lesion that occurs in the mouth or skin (2, 3). Intra-orally, this inflammatory hyperplasia is thought to develop in response to a number of possible aetiological agents including local irritants, trauma, hormonal changes and certain medications (1).

The purpose of this report is to discuss the aetiology, clinical and pathologic features, differential diagnoses and treatment modalities of PG. It also highlights the possible role of amlodipine in conjunction with poor OH that may have led to the development of a PG in the attached gingiva of a middle-aged man.

CASE PRESENTATION

Presenting complaint

A 62-year-old male reported to the University of Malta Teaching Clinic at Mater Dei Hospital, complaining of a lump in his upper left buccal gingiva.

History of presenting complaint

- Noticed lump- upper left buccal quadrant 6 months ago.
- Initially small and asymptomatic in nature but grew considerably in size and bled occasionally on minor trauma.

MEDICAL HISTORY AND DRUG HISTORY (TABLE 1)

Table 1. Medical and Drug History		
Condition	Medication	Dose
Cerebrovascular accident (2 years ago)	Clopidogrel	75mg OD
Hypertension	Amlodipine	5mg BD
Hypertension	Valsartan	160mg BD
Hypertension	Bendroflumethiazide	2.5mg OD

No known drug allergies were reported.

SOCIAL HISTORY

- Retired
- Non-smoker, Non-drinker
- Irregular attendance to the dental clinic

EXTRA-ORAL EXAMINATION

- No abnormalities detected at rest

Figure 1 (right): Extra-oral photograph of the patient upon smiling



INTRA-ORAL EXAMINATION (TABLE 2)

Table 2. Intra-Oral Examination	
Clinical findings (Fig 3,4)	
Features pertaining to the lesion	<ul style="list-style-type: none"> • Type and shape: Solitary pedunculated lobulated nodule • Site: Buccal gingiva of tooth 24 • Size: Approximately 10mm by 10mm • Colour and Surface Texture: Reddish-pink with a smooth surface • Border: Well-demarcated • Consistency: Non-tender, soft and compressible on palpation
General condition of the mouth	<ul style="list-style-type: none"> • Abundant plaque and calculus deposits • Generalised inflamed gingiva • Toothwear of anterior dentition and overeruption of posterior dentition • Grade 1 mobility on tooth 13 and grade 3 mobility on tooth 24

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Figure 2 (above): Intra-oral frontal photograph

Figure 3 (right): Intra-oral photograph highlighting the pedunculated nature of the lesion

RADIOGRAPHIC ASSESSMENT (TABLE 3)

Table 3. Radiographic Reports

Imaging modality	Radiographic findings
OPG (Fig. 4)	<ul style="list-style-type: none"> • Several missing teeth • Generalised horizontal bone loss • Abundant supra gingival and sub gingival calculus deposits especially in the upper left quadrant and lower anteriors • Advanced tooth wear of maxillary anterior dentition • Supra eruption of unopposed maxillary molars
PA of Upper Left Premolar Region (Fig. 5)	<ul style="list-style-type: none"> • Widening of periodontal ligament (PDL) on tooth 24 • Horizontal and vertical bone loss around tooth 24 extending to the apical third of the root • Calculus deposits visible on the distal aspect of the root • No signs of bone involvement pertaining to the lesion



Figure 5: PA of the upper left quadrant taken on 05/10/2020

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DIFFERENTIAL DIAGNOSIS

- Pyogenic granuloma
- Peripheral giant cell granuloma (PGCG)
- Peripheral ossifying fibroma (POF)
- Hemangioma
- Kaposi's sarcoma
- Angiosarcoma
- Metastases of malignant tumour
- Non-Hodgkins lymphoma

TREATMENT PLAN

- OH Instructions
- 0.2% Chlorhexidine (CHX) mouthwash and toothpaste
- Periodontal assessment and full mouth root surface debridement
- Excisional biopsy of lump and extraction of tooth 24
- Review of surgery and histopathology report
- Reassessment of periodontal condition
- Restorative and prosthodontic treatment

TREATMENT

Due to the pedunculated nature of the lesion, an excisional biopsy was

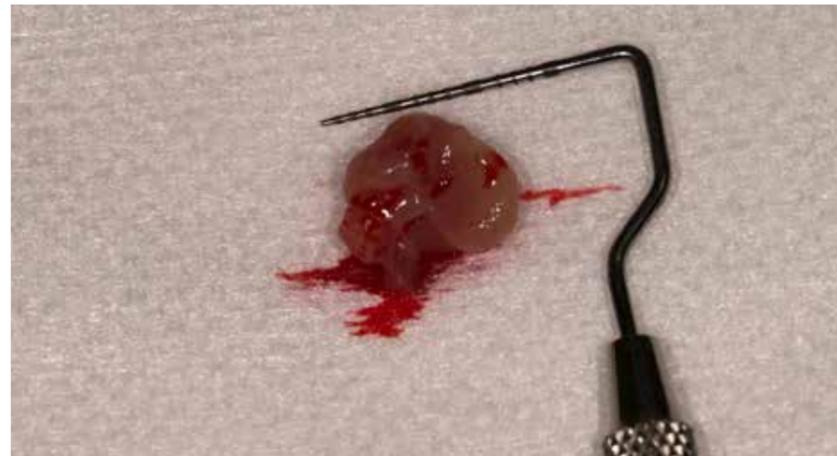


Figure 6: The excised specimen measuring approx. 10mm x10mm - Dated 03/11/2020 - Dr. Nicholas Busuttill Dougall

deemed to be the most appropriate surgical intervention (4). Having gross horizontal and vertical bone loss, grade 3 mobility and being in close proximity of the lesion, tooth 24 had a very poor prognosis. Hence, it was decided that it should be extracted concurrently with the biopsy. This was communicated to the patient who consented for the proposed treatment plan.

Prior to the surgery, the patient was given rigorous OH instructions, including the use of interdental brushes and prescribed 0.2% CHX mouthwash prior to initiation of periodontal therapy.

Treatment commenced with a root surface debridement. Two weeks later, tooth 24 was extracted and a surgical excision of the lump was carried out. The sample was sent for histopathological analysis in 10% formalin (Fig. 6).

The surgical field was curetted to prevent recurrence of the lesion. Haemostasis was achieved using collagen sponges, and vertical mattress sutures. An emergency contact number was provided to the patient in case of prolonged bleeding.

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OUTCOME AND FOLLOW-UP

A week later, the patient was seen for a review and removal of sutures. The wound appeared to be healing uneventfully, and with the exception of plaque on the sutures, the patient's OH had improved significantly (Fig. 7). The patient continued to be seen for further periodontal treatment during which his OH was closely monitored.

At the four month periodontal recall, the patient exhibited good OH and his gingiva were devoid of signs of inflammation (Fig. 9). No recurrence was observed. The patient refused proposed restorative treatment.



Figure 7: Intra-oral buccal photograph 1-week post-op prior to removal of sutures - Dated: 10/11/2020



Figure 8: Intra-oral frontal photograph at periodontal reassessment - Dated: 03/03/2021

Continues on page 20.

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DEFINITIVE DIAGNOSIS

- Pyogenic granuloma

HISTOPATHOLOGY REPORT

Microscopic and macroscopic examinations were described as follows (Table 4):

Table 4. Histopathology Findings (Date reported 23/11/2020)	
Macroscopic examination	Pedunculated mucosal polyp measuring 10mm x 10mm x4mm
Microscopic examination	<ul style="list-style-type: none"> • Polypoid mucosal lesion composed of fibrous connective tissue and granulation tissue covered by extensively ulcerated acanthotic stratified squamous epithelium (Fig.10) • Ulcerated region covered by thick fibrino-purulent slough (Fig.10) • Mixed inflammatory cell infiltrate, rich in plasma cells, present in the corium (Fig.10) • No atypical features of note

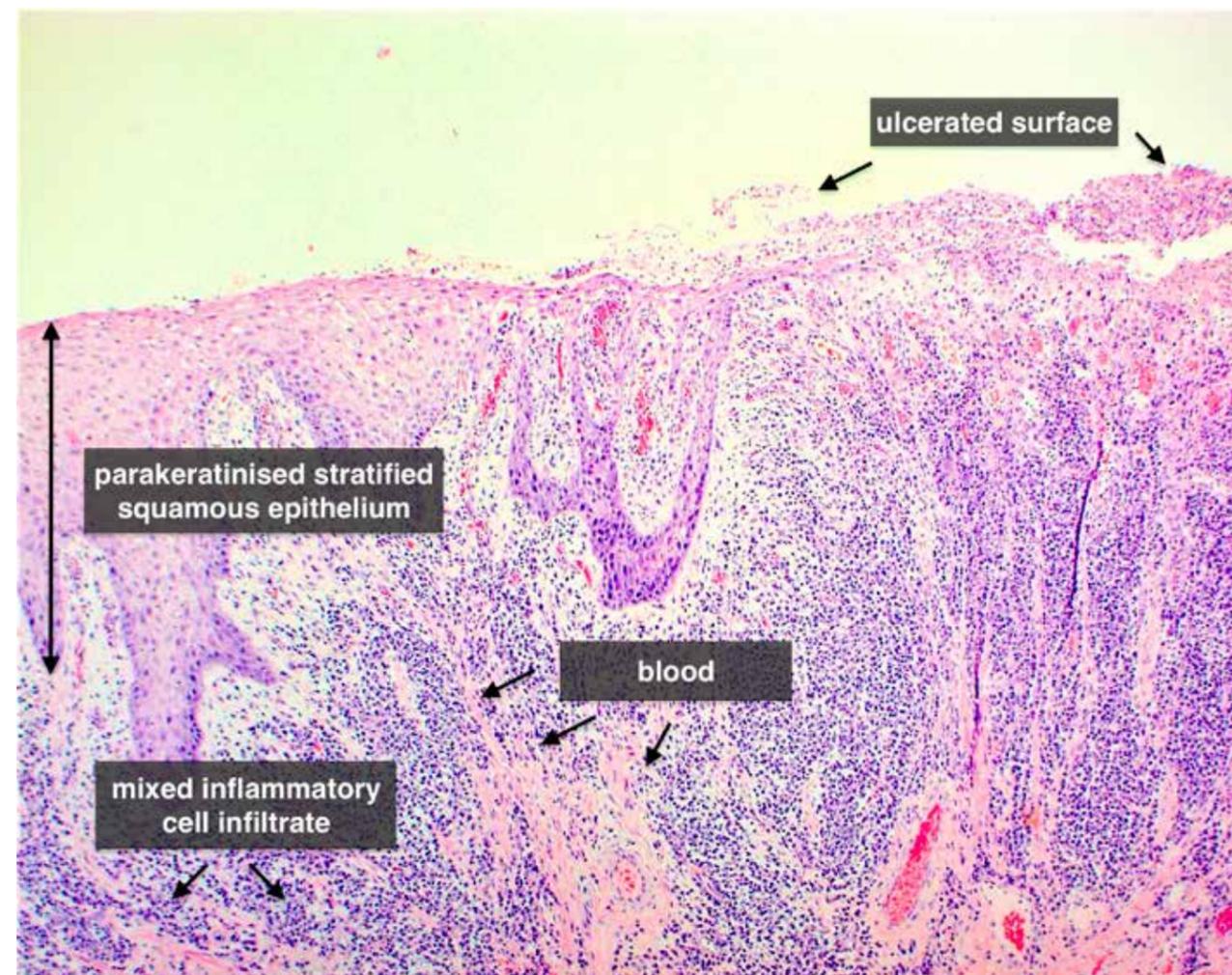


Figure 9: Low power view showing inflamed loose immature connective tissue with prominent vascularity covered by parakeratinised stratified squamous epithelium that is ulcerated over half of the surface. H&E stain. Original magnification x100. Dr. Alexandra Betts - Date of specimen: 03/11/2020

DISCUSSION

PG is a common, benign vascular lesion that occurs on the skin and mucous membranes (2). The cutaneous counterparts are thought to occur in response to minor injury, hormonal fluctuations, foreign bodies and viral infections.

They occur in all age groups, however show a peak incidence in the first decade of life and do not show any gender predilection (2).

Oral PG represents an inflammatory hyperplasia of connective tissue in response to a local irritant, hormonal changes, trauma or certain medications (3, 4). The irritating factors typically include plaque, calculus, restorative overhangs or foreign bodies.

Less common aetiological factors include injury to or exfoliation of primary dentition, eruption of permanent dentition and toothbrushing trauma (1). PG affects patients of a wide age range extending from the first to the ninth decade, however a peak is reported in the second decade in females.

This female predilection (1:1.5) is believed to be directly related to hormonal fluctuations (4, 5). On the other hand, when occurring in middle aged individuals, an equal gender predilection is noted (1).

PG presents as pedunculated or sessile, soft or less commonly firm reddish mass and is predominantly found in the gingiva. Less common sites include the tongue, lips and buccal mucosa, accounting for 10% of oral PGs combined (3).

Amongst gingival sites, PG is more common in the maxilla than mandible and favour anterior buccal mucosa (6). Being vascular in nature, PG is predisposed to considerable bleeding on minor trauma and can have superficial ulcerations (1, 7).

The fact that the patient is a male and in the 6th decade age group, should make him less predisposed to PG. From the possible aetiological factors, the patient had very poor

OH and generalised calculus. The literature strongly correlates plaque and calculus with the development of PG and suggests that supportive periodontal therapy is a critical part of the treatment plan (4).

The PG was found in the anterior maxilla on the buccal gingiva, which corresponds to the most common clinical site presentation of this lesion (1).

A search in the literature found no direct correlation between any particular medication and PGs. There are however, known correlations between drug-induced gingival enlargement and calcium channel blockers (including amlodipine), immunosuppressants (cyclosporine A) and anticonvulsants (phenytoin) (8).

The literature also reports at least four patients on cyclosporines that were diagnosed with a PG. This immunosuppressant is believed to contribute to the formation of PG due to an exaggerated proliferative response of the connective tissues (9, 10). An additional report also explored the possible involvement of amlodipine in the formation of a PG in a child.

The patient was treated by a dose reduction of amlodipine which resulted in complete resolution of the lesion within three months (11). In our case report, the patient is being medicated using 5mg of amlodipine twice daily to control his hypertension. Although the patient's extremely poor OH was the likely primary aetiological agent, the role of amlodipine should be explored in case of recurrence despite improvement in OH.

Regardless of a strong clinical suspicion of PG, radiographic investigation is part of the standard protocol in the clinical assessment of such lesions as it excludes bone involvement that can be suggestive of PGCG or a more sinister diagnosis (12).

In our case, an OPG was required to assess the patient's dentition and associated structures due to his irregular previous dental attendance,

poor general condition of the mouth and no prior radiographs available. A PA was also taken to confirm that there was no bone involvement related to the lesion and ascertained the poor prognosis of tooth 24.

The most likely differential diagnosis for PG is usually PGCG. PGCG is exclusively a gingival lesion and is usually bluish or purple as opposed to bright red. PGCG is also more likely to cause bone resorption although this feature is not always noted (1).

Bone resorption is evident in central giant cell granuloma (CGCG), and thus the possibility of a CGCG with peripheral involvement due to cortical plate perforation cannot be excluded. However, in PGCG the radiologic changes tend to include cup-shaped resorption of nearby alveolar bone whilst in CGCG one would expect to see the central radiolucency extending towards the surface (13).

The diagnosis of PGCG can only be ascertained histologically in the presence of multinucleated giant cells (1). In this report, no multinucleated giant cells were visible histologically and the horizontal and vertical bone loss noted radiographically correlated to the periodontal condition of the patient.

Long standing PGs that may be firmer in texture can also be confused with POF although these tend to be lighter in colour and limited in size (1). POF represent a focal reactive overgrowth and the literature reports a possibility that POFs are initially PGs which eventually mature and calcify forming POFs.

The aetiological factors and epidemiology are identical, however POFs occur exclusively in the gingiva (1, 14). Like PG, the surface epithelium can be smooth or ulcerated. Radiographically POFs show flecks of calcifications that form in response to chronic irritation of the lesion. However, these might not be apparent in the early stages thus leading to a misdiagnosis of PG.

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In addition, immature POFs are softer and less fibrotic and have a tendency to bleed which further adds to the confusion between these two lesions. The histological picture is also nearly identical, with the exception of calcifications resembling trabecular bone in the case of POF.

Finally, unlike in PG, tooth displacement, interdental bone loss and delayed eruption of permanent dentition are possible in POF (14). The main differences between PG, PGCG and POF have been summarised in Table 5.

Hemangiomas would be excluded histologically, in which contrary to PGs one would expect to find endothelial cell proliferation in the absence of an acute inflammatory cell infiltrate. They would also appear redder due to their more vascular nature and should be approached very carefully if a biopsy is to be carried out. Rarer possible differentials would include Kaposi's sarcoma, Angiosarcoma, metastases of malignant tumour or Non-Hodgkins lymphoma (1, 6).

A biopsy of a suspected PG is mandatory in order to ascertain the diagnosis and rule out a more aggressive lesion meriting

a wider excision or further medical intervention (12).

Histologically, two variants of PG have been described - lobular capillary hemangioma (LCH) type or non-lobular capillary hemangioma (non-LCH) type. Hyperplastic capillaries arranged in lobular aggregates are noted in the LCH type, typically found in cutaneous PGs (1, 9).

Meanwhile, mucosal counterparts might only show focal lobular patterns if any at all and are hence referred to as the non-LCH type. In the latter, one would expect to find highly vascular proliferations as was noted in this report (1, 6).

The surface of these lesions can either be intact or ulcerated and non-keratinised or parakeratotic stratified squamous epithelium. When ulcerated, the surface is typically replaced by a thick fibrino-purulent slough, as in this report.

Towards the ulcerated surface, a mixed inflammatory cell infiltrate prevalent in neutrophils and lymphocytes usually predominate the histological picture whilst chronic inflammatory cells would be visible below (1, 5). The histopathology report (Table 4) in this case indicated a polypoid mucosal lesion composed of fibrous connective tissue and

granulation tissue. The specimen also indicated a mixed inflammatory cell infiltrate rich in plasma cells (Fig. 9).

The treatment of PGs is variable, depending on the size of the lesion. When still small, the lesion could regress upon removal of causative factors. In such cases, frequent reviews following conservative treatment are advised (1).

This approach is favoured in pregnant women, where improvement in OH and removal of plaque and calculus should prevent the need for immediate intervention. Parturition typically results in regression of the lesion thus rendering surgical intervention unnecessary (1).

The mainstay treatment for larger PGs is surgical excision extending deeply to the periosteum with concurrent curettage of any underlying connective tissue. If irritants or foreign bodies are present, these should also be removed during the surgery (6). Alternative treatment modalities include the use of lasers, cryosurgery, intra lesion steroids and sclerotherapy (1).

In our case, the lesion measured 10mm and also comprised mostly of keratinised mucosa.

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Table 5. Main differences between PG, PGCG and POF

	PG	PGCG	POF
Site	Gingiva, tongue, lips, buccal mucosa	Exclusively on gingiva	Exclusively on gingiva
Colour	Bright red	Bluish/ purple	Pink to red
Radiographic Appearance	No cup-shaped resorption of alveolar bone or calcifications	Possible cup-shaped resorption of alveolar bone	Flecks of calcifications, possible interdental bone resorption, tooth displacement
Histology	No multinucleated giant cells or calcifications	Multi nucleated giant cells	Calcifications resembling trabecular bone



Break the pain fast



PYOGENIC GRANULOMA IN A MIDDLE-AGED MAN WITH POOR ORAL HYGIENE

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It was therefore decided by the clinical team that it was past a stage where one would expect it to resolve merely by removing the irritating factors.

Due to the pedunculated nature of the lesion, a surgical excision was deemed to be the most appropriate intervention and significant morbidity was not expected to result from the procedure. Located in the maxillary premolar region, access to this lesion was not hampered by anatomical constraints.

The complete removal of the lesion not only confirms the clinical diagnosis but also prevents the necessity of a second surgical procedure, and also results in an immediate cosmetic improvement (15). Plaque and calculus were eliminated through a root surface debridement prior to the surgical excision.

The literature shows that after conservative surgical excisions, a recurrence rate of up to 16% has been reported. This is believed to be the result of either an incomplete excision, the presence of remaining or new irritants or traumatization of the area (6).

Since the primary aetiological factor in PGs is suspected to be abundant plaque and calculus deposits, emphasis is to be placed on meticulous OH, both for the purposes of prevention of similar lesions and also for the general improvement of the patient's oral health (4).

In this case, the patient was seen for supportive periodontal treatment to ensure compliance with OH instructions given and assess periodontal healing.

CONCLUSION

Despite the benign nature of PGs, a clear understanding of their aetiology is crucial in order to aid their prevention and recurrence. Since PGs are reactionary in nature, the removal of the causative agent is of paramount importance in their management.

Their high prevalence merits that every clinician is well aware of identification, diagnosis and management protocols of these lesions. The plausible role of amlodipine explored in this report is a reminder of the importance of a detailed medical history for the complete and accurate management of any dental patient (1).

A review of the literature shows that more research is needed on the correlation between medication and PG.

NOTES ON PATIENT'S CONSENT

The patient described in this report presented voluntarily at the University of Malta Teaching Clinic at Mater Dei Hospital. He completed the standard consent form required by all patients attending at the teaching clinic prior to being seen.

In addition, he also consented verbally and in writing for the proposed treatment plan and allowed his clinical photographs and radiographs to be used for the purpose of this report.

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UPDATES FOLLOWING COUNCIL OF EUROPEAN DENTISTS MEETING IN BRUSSELS

NOVEMBER 2021



By Audrey Camilleri
International Liaison Officer,
Dental Association of Malta



On 19 November 2021 I represented Dental Association of Malta at the Council of European Dentists Meeting together with representatives of the Council of European Dentists (CED) Member, Affiliate Member and Observer associations. We met in Brussels, Belgium, under the chairmanship of President Dr. Marco Landi.

RESULTS OF CED ELECTIONS

During the plenary session, the CED members were invited to vote for a new President and four new Board Directors. Dr Freddie Sloth-Lisbjerg (Denmark) was elected as President. Dr Anna Lella (Poland), Dr Robin Foyle (Ireland) and Dr Henner Bunke (Germany) were elected as Directors for the term 2021-2024 and Dr Ioannis Tzoutzas (Greece) was elected as Director for the term 2021-2022.

They join the current CED Directors Dr Doniphan Hammer (France), Dr Paulo Melo (Portugal) and Dr Henk Donker (the Netherlands). The new CED Board assumed its powers on 20 November.

CED STATEMENT ON DENTAL TOURISM AND CROSS-BORDER HEALTHCARE

CED members adopted the Statement on dental tourism and cross-border healthcare. The document sets out CED's position regarding dental tourism in the context of the Directive 2011/24/EU on patients' rights in cross-border healthcare and assesses how the Directive's objective to facilitate access to safe and high-quality cross-border healthcare in another Member State has been met.

Dental tourism, which prior to the COVID-19 pandemic was a major growth area, is a significant concern as regards the provision of dental care and treatment and may impact patient safety.

UPDATED CED RESOLUTION ON CONTINUING PROFESSIONAL DEVELOPMENT OF DENTISTS

CED members unanimously adopted the updated CED Resolution on Continuing Professional Development (CPD). The document aims at providing a timely update of the CPD status quo in Europe, outlining the latest topics of interest in dentistry, such as antimicrobial resistance, digital skills and public health threats.

DENTAL TOURISM AND CROSS BORDER HEALTHCARE

In view of recent situation with non EU dentists examining patients in Malta and subsequently they go to Turkey to

get extensive dental treatment done. The problem arises when these patients return to Malta and Dentists registered in Malta have to face the failures and complications that may arise.

This CED Statement below is relevant to this situation:

Directive 2011/24/EU on patients' rights in cross-border healthcare¹ ("Cross-border Healthcare Directive"), among others, sets out the conditions under which a patient may travel to another EU country to receive medical care and then receive reimbursement from his home country.

It covers healthcare costs, as well as the prescription and delivery of medications and medical devices.

The Cross-border Healthcare Directive provides that if patients are entitled to public health services in their home country, they may choose to access those services in another Member State of the European Union and be repaid the cost if they meet the requirements.

The patients are eligible to be repaid the cost of the public healthcare treatment in their home country, or the cost of their treatment abroad, if that is less.

Reimbursement does not include other costs such as travel.

The CED supports the provisions of the Cross-border Healthcare Directive for extended cooperation between Member States, as receiving dental treatment in another Member State is justifiable and beneficial in many circumstances, for instance in border areas, or in cases when patients temporarily or permanently live in another Member State.

However, financial reasons can lead patients to seek treatment abroad for treatment such as complex oral rehabilitations, surgery and cosmetic dentistry which are not covered by most health-care plans.

As in most EU countries patients pay for their own dental care (partly or fully), there has been an increase in patient flows to countries with lower-cost dental care over the last decade or so, which has been encouraged

in some cases by packages that include treatments and tourism.

In such circumstances, the tendency to travel to receive extensive, but rapid treatment (dental tourism), may seriously threaten patients' safety. With dental tourism, there is usually very little pre- and post-treatment care, preventive and supportive care which are essential for quality oral healthcare.

In dentistry, although there has been much publicity given to dental patients travelling abroad, a relatively small number seek healthcare in another Member State.

Their decision is not normally solely based on medical necessity, lack of availability of treatment in their home country or the search for higher quality in another country. Rather the decision is made in relation to the extent of the patient's own financial contribution to the treatment, which may depend on the inclusion and availability of certain treatments within the patient's social security or insurance system.

This makes patient mobility in the area of dental care somewhat different to mobility in other areas of healthcare.

AGGRESSIVE ADVERTISING AND DENTAL TOURISM

Many dental tourism clinics, including corporate dentistry clinics, entice patients by offering a compelling comprehensive package that includes dental care plus a vacation, flights, lodging, and airport transfers, all at affordable rates, making dental tourism an opportunity that patients might regard as an attractive opportunity.

Such offers might incentivize patients to seek unnecessary treatments and may even lead to overtreatment. Misleading commercial offers should be avoided by providing clear and detailed information on the costs of the treatment and extra-costs of the treatment "packages".

Aggressive advertising, often involving marketing experts, and misrepresentation in dental tourism raise some serious issues related to getting proper consent for treatment.

Such actions increase the risk of the public being misled. They may damage the dental profession's reputation and can put a strain on the professional relationship between dentists and their patients.

On the issue of advertising of healthcare services, the CED believes that there is a need for clear rules, in whichever form they might appear at the national level, that follow ethical guidelines and are applied to all those stakeholders advertising dental treatments. Patient safety concerns and the maintenance of the relationship of trust between the dentist and the patient must be the at the core of these rules².

PATIENT SAFETY AND RESPONSIBILITY IN DENTAL TOURISM

Although this happens quite rarely, some treatments do not go as planned, leaving upset patients and apprehensive dentists in a difficult situation.

Whereas these patients might save money on the initial treatment, if they subsequently experience complications such as infections, nerve damage, or failed restorations, they might face even higher expenses in the form of complex remedial treatments.

If a patient visits a dental practice in their home country with a failed treatment received abroad, it puts clinicians in a dilemma both ethically and legally, in terms of any remedial work that might be required. This is due to the same liability questions that dentists might face, if they were to accept restoring the patient's dental health and would later fail.

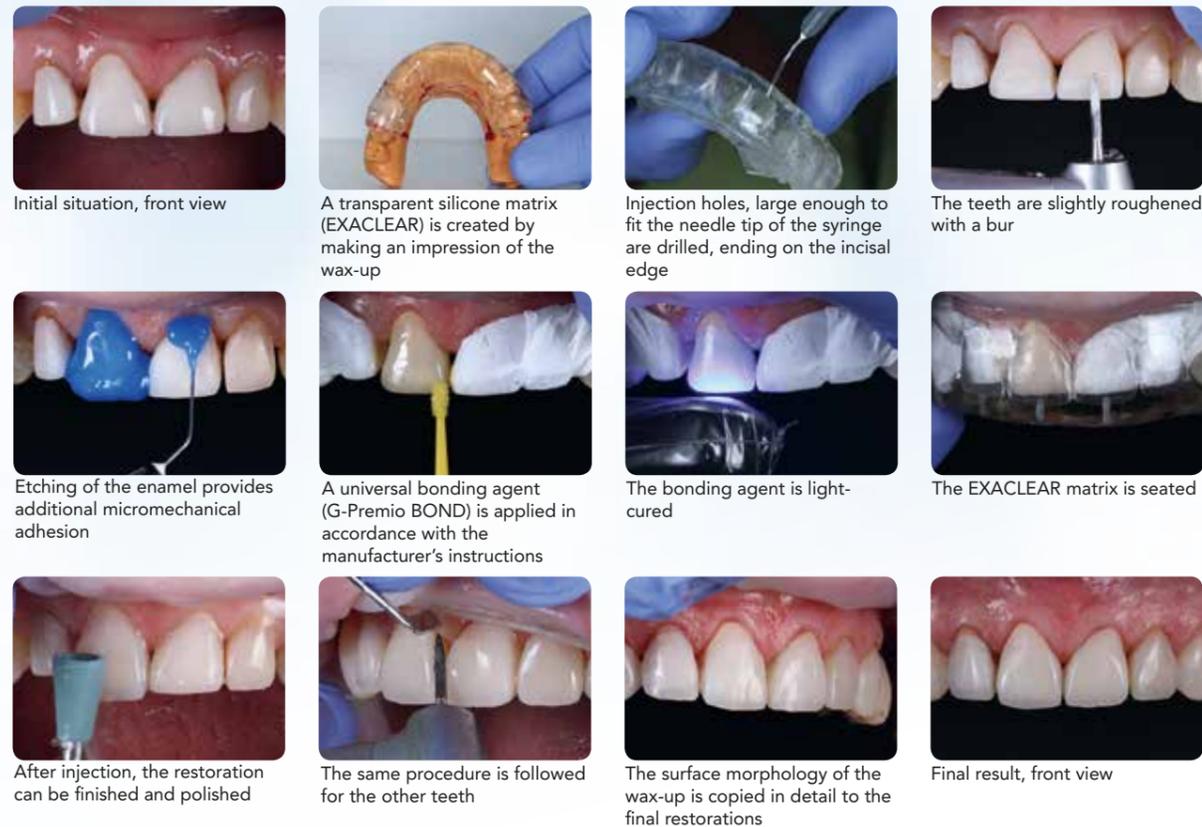
The CED is primarily concerned about the safety of patients, including an adequate treatment plan, and the continuity of care offered to them. In this regard, the CED fears that the commercial drivers that are the foundation of some of the business model in corporate dentistry may, in fact, be detrimental to the health and well-being of patients³.

Continues on page 28.

Transform the way you work!



Injection moulding is a contemporary technique in dentistry, which enables to reproduce a detailed morphology in a quick way. For this technique, a transparent matrix is used (**EXACLEAR**), through which the composite can be cured without leaving an oxygen inhibition layer. With the minimally invasive cavity preparation, the resultant space needs to be filled with a composite with a more flowable consistency. World-leading technologies have enabled GC to define a new benchmark in composite: **G-ænial Universal Injectable**, an injectable composite offering exceptional strength, polishability and aesthetics, also ideally suited for this technique. It's a new paradigm in thinking that a composite with a more flowable consistency is actually your strongest option!



Initial situation, front view

A transparent silicone matrix (EXACLEAR) is created by making an impression of the wax-up

Injection holes, large enough to fit the needle tip of the syringe are drilled, ending on the incisal edge

The teeth are slightly roughened with a bur

Etching of the enamel provides additional micromechanical adhesion

A universal bonding agent (G-Premio BOND) is applied in accordance with the manufacturer's instructions

The bonding agent is light-cured

The EXACLEAR matrix is seated

After injection, the restoration can be finished and polished

The same procedure is followed for the other teeth

The surface morphology of the wax-up is copied in detail to the final restorations

Final result, front view

Courtesy of Dr. Z Baktai, Hungary



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UPDATES FOLLOWING COUNCIL OF EUROPEAN DENTISTS MEETING IN BRUSSELS NOVEMBER 2021

Continues from page 27.

The CED believes that patients considering dental tourism treatments abroad must be informed that quality treatment depends on properly planned care with scope for post-treatment care.

CONTINUITY OF CARE AND DENTAL TOURISM

The CED emphasises the importance of continuity of care and of a strong dentist-patient relationship. Dental treatment often requires a series of visits to the dentist to properly plan and carry out the treatment, and to provide post-treatment care. Where patients spend only a short time in

the care of the dentist – as is often the case where patients receive care abroad – the overall quality of the health treatment is difficult to ensure.

CED POSITION

In the light of the above, the CED believes that the quality and safety of healthcare services in relation to dental tourism can best be ensured by:

- Establishing clear rules, in whichever form they might appear at the national level, that follow ethical guidelines and are applied to all those advertising dental services
- Providing patients with clear information in cases of commercially driven dental tourism;

- Ensuring continuity of care and a strong dentist-patient relationship;
- Ensuring the appropriate number of visits, including for pre- and post-treatment care, as well as adequate follow-up care of the patient;
- Making sure that national authorities do not encourage patients to seek care abroad, where this is driven only by economic reasons;
- Providing detailed and separate information regarding the costs of the treatment and the extra costs included in the “combined offer” or “package”, e.g., accommodation, travel, etc.

What you need to know about antibiotics

Antibiotics are medicines used to treat bacterial infections in humans and animals. Different diseases require specific antibiotics.

Antibiotics are only effective in treating bacterial infections. Antibiotics do not work for viral infections (such as flu or colds). Incorrect and overuse of antibiotics is increasingly making bacteria resistant to antibiotics. When this happens, treatment of an infection by antibiotics is not always successful.

At least 700,000 people die each year due to drug-resistant diseases. When we need antibiotics, we need them to work.

WHY HAS MY DENTIST NOT PRESCRIBED ANTIBIOTICS?

Antibiotics do not cure toothache. Your dentist will usually suggest clinical treatment to solve your dental problem rather than give you antibiotics. This will work more swiftly to reduce your pain.

There are rare dental infections that require urgent hospital treatment. Contact your dentist or doctor immediately if you have a fever and/or a rapidly increasing swelling.

IF YOU ARE PRESCRIBED ANTIBIOTICS

- Do take your antibiotics exactly according to your dentist's prescription. The right doses for the right length of time.
- Do not skip doses. If you forget to take your antibiotics, it has negative effects on your recovery.
- Do not share antibiotics prescribed for you with others.
- Please return partially used packs to your pharmacist. Do not dispose of partially used packs with your household waste.
- Do not keep antibiotics to cure other illness

Produced by: CED/ERO Joint Workforce on AMR

HYPERBARIC MEDICINE IN MALTA AND GOZO

SALIENT INFORMATION FOR THE DENTIST

By Dr Kurt Magri

Hyperbaric and Diving Medicine Physician

Acting Consultant, Hyperbaric Unit – Mater Dei Hospital



Dr Busuttill Dougall introducing Dr Kurt Magri, the speaker

Hyperbaric medicine (also known as Baromedicine) involves the use of hyperbaric oxygen (HBO) for evidence-based indications. HBO involves breathing 100% oxygen at a pressure greater than atmospheric pressure, usually at pressures ranging from 2.4ATA to 3ATA (atmospheres absolute) for the vast majority of indications. This utilizes a hyperbaric chamber

as a medical device which delivers HBO. Both Mater Dei Hospital and Gozo General Hospital run centres for hyperbaric medicine, managed by specialists in hyperbaric medicine.

MODE OF ACTION

HBO results in markedly elevated tissue oxygen tensions due to the ability to dissolve large

amounts of oxygen in the blood serum (the blood's solution).

As per Henry's law, the higher the partial pressure of gas, the higher the amount of gas that can be dissolved in solution.

Hence, when breathing oxygen at higher pressures, much larger amounts of oxygen are

dissolved in the blood serum. This results in a multitude of physiological effects, namely:

- Production of reactive oxygen species (ROS) and enhanced white blood cell function.
- Improved neovascularization.
- Improved fibroplasia.
- Improved post-ischemic tissue survival.
- Bactericidal and bacteriostatic properties.
- Enhanced osteogenesis.

INDICATIONS FOR HBO (DENTISTRY)

1. Prevention of osteoradionecrosis following dental extraction.
2. Osteoradionecrosis (mandible and other bones).
3. Chronic refractory osteomyelitis

OTHER INDICATIONS FOR HBO

Emergency:

Decompression sickness, arterial gas embolism, carbon monoxide poisoning, necrotizing soft tissue infections.

Urgent:

Idiopathic sudden sensorineural hearing loss, diabetic foot ulcers, ischaemic ulcers, failing grafts and musculocutaneous flaps, radiation cystitis, radiation proctitis/colitis.

Full list of indications approved by the European Committee of Hyperbaric Medicine available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6147240/> Table 2.

FULL REFERENCE

Mathieu D, Marroni A, Kot J. Tenth European Consensus Conference on Hyperbaric Medicine: recommendations for accepted and non-accepted clinical indications and practice of hyperbaric oxygen treatment. Diving



Dinner at Palazzo Castelletti after the lecture

Hyperb Med. 2017 Mar;47(1):24-32. doi: 10.28920/dhm47.1.24-32. Erratum in: Diving Hyperb Med. 2017 Jun;47(2):131-132. PMID: 28357821; PMCID: PMC6147240.

CONTRAINDICATIONS TO HBO

Absolute contraindications:

- Untreated pneumothorax.
- Acute severe bronchospasm.
- Intraocular gas.
- Other rare, gas-filled structures that might develop gas trapping: pneumatoceles, laryngocoele, oesophageal diverticulum.

There are several relative

contraindications which require case by case consideration depending on the urgency of HBO. In most cases, HBO is still delivered safely.

Relative contraindications in dentistry:

- Cavities.
- Incomplete or cracked root fillings.
- Periapical cysts.
- Devitalized pulp.
- Oroenteric fistulas.

Other relative contraindications include pregnancy, decompensated congestive heart failure, epilepsy, chronic obstructive pulmonary disease and recent pneumothorax. ■

THE CLEAR CORRECT ALIGNER EVENT BY STRAUMANN – BART ENTERPRISES

At the Marriott Hotel, Balluta Bay St Julian's
Wednesday 6 October 2021 – By Dr David Muscat

The event was attended by over 30 dentists. The presentation was by live streaming by Dr Daniel Neves from Brazil who could not attend personally due to Covid19 restrictions.

Dr Daniel Neves is a graduate from Northwestern University in Chicago Illinois. He is a global speaker and a Key Opinion Leader of the Straumann Group and co founder of the 'PUSH Dental Learning and Development' which is a company dedicated to the sharing of knowledge as well as an innovative educational concept development.

Dr Neves presented several cases he has treated and explained the Clear Correct clinical value. Clear Correct devotes its resources to education rather than marketing.

A great dinner was held after the presentation.

The company was founded by Dr Willis Pumphrey to make aligners for his own patients and has been operational for the past 15 years.

Clear Correct is attractive and accessible and is backed by the Straumann Group. There is an easy process of scanning and submission The dentist receives a 3D treatment set up reviewing each treatment step.



The dentist does not pay for anything until he /she approves it. One may pay per aligner or choose unlimited for all the aligners and retainers one needs for five years. There are live workshops, e courses and online articles provided.

Clear Quartz – a third generation, tri layer aligner material is used. This is flexible, strong, comfortable, stain resistant, tear resistant clear and provides great tooth adaptation.

Clear Correct features a smooth unscalloped trim line which extends past the gingival margin. The retainers are more retentive and reduces the need for attachments.

The Clear Pilot 2.0 refers to the case planning and evaluation programme, This is multiview. It provides an occlusal heat map to monitor the depth of occlusal contacts in detail at each treatment step. It is optimised also for mobile viewing. This is in addition to having all the photos, Radiographs and prescriptions all in one place.

One may view all the history and add new comments on the platform. There is a tooth movement chart and a millimetre grid. One may superimpose so as to compare any step to the starting position of the teeth. There is also a shareable link option for the patient. Any major scanners on the market can be used in conjunction with this system. 📱



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VITAMIN B12 DEFICIENCY AND ORAL AND CLINICAL SIGNS AND IMPLICATIONS

By Dr David Muscat

Vitamin B12, Cobalamin is a water soluble vitamin found in animal products, milk products, fish, meat, eggs, milk, clams.

It has an essential role in the production of Red blood cells and DNA and the proper function of the nervous system.

Vitamin B deficiency may be found in the following categories of patients:

- A. Diabetic patients on metformin.
- B. Patients on long term antacids for heartburn
- C. The elderly
- D. Patients who have had surgery to remove part of the bowel that absorbs vitamin B12 so they become deficient.

Low levels of B12 cause folate levels to also drop .

If only folate levels are corrected the vitamin B12 deficiency may be masked.

Symptoms of vitamin B12 deficiency include:

- Pale skin
- Weakness and fatigue
- Sensation of pins and needles- paresthesia, due to nerve damage(vitamin B12 is important in contributing to the metabolic pathway that produces myelin .
- Changes to mobility and balance
- Glossitis: a red painful swollen tongue is an early symptom.

Glossitis may also affect eating and speaking. There may also be pins and needles in the tongue as well as an itchy sensation in the mouth.

- Mouth ulcers
- Breathlessness and dizziness, due to anaemia. Lack of red blood cells which are needed to get oxygen into the cells
- Disturbed vision -nerve damage to optic nerve(reversible with vitamin B12)
- Mood changes -depression and dementia due to high levels of homocysteine by low levels of B12 cause damage to brain and interferes with signals to and from the brain causing mood changes.
- High Temperature 🌡️

HELP YOUR PATIENTS ON THEIR JOURNEY TO OPTIMAL GUM HEALTH FOR IMPROVED ORAL CARE

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greater reduction in bleeding gums*1

C1 ESTERASE INHIBITOR DEFICIENCY

By Dr David Muscat

Acquired Angioedema due to deficiency of C1 esterase inhibitor, abbreviated C1INH AAE, is a rare syndrome of recurrent episodes of angioedema without urticaria which is associated with B cell lymphoproliferative disorders.

This is due to excessive production of bradykinin. This is a vasodilator which causes swelling of the larynx, threatening the airway. There is smooth muscle relaxation in the walls of blood vessels. The swelling is not amenable to antihistamines or corticosteroids. C1 inhibitor is an acute phase reactant and a serpin (serum protease

inhibitor). Serpins inhibit the steps in the lectin complement pathway as well as kinin producing pathways.

An episode of hereditary angioedema may be triggered by stress, dental treatment, oestrogen containing contraceptives, menstruation, surgery trauma.

For mild to moderate episodes- no hospital admission. Tranexamic acid . Exclude other causes of abdominal pain. For severe episodes- Hospital admission. IV C1 esterase concentrate administered. May need endotracheal intubation. Traumatic procedures such as dental

treatment must be carefully planned. A prophylactic agent may be used prior to procedures. Consult with an immunologist. Use of Danazol (first choice prophylactic agent).

For high risk -emergency use C1 esterase inhibitor concentrate one hour prior to the procedure. Use GA with endotracheal intubation for oropharyngeal procedures due to the risk of precipitating laryngeal oedema.

Some report the use of IM adrenaline to treat upper airway angioedema but C1 esterase inhibitor is the treatment of choice. 🌡️



*Compared to a regular toothpaste following a professional clean and 24 weeks' twice-daily brushing.

Reference: 1. Data on file, GSK, RH02434, January 2015.

PM-MT-PAD-20-00007

BLOODBORNE PATHOGENS BEYOND OUR SHORES

By Dr Cristina Micallef, Public Health Physician

Transmission

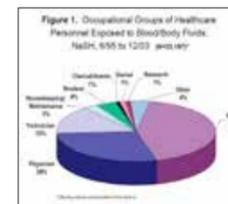
- ▶ Bloodborne pathogens include viruses, parasites, bacteria that are transmitted through the bloodstream.
- ▶ The most common are the viruses that cause Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV).
- ▶ Healthcare workers (HCWs) can become infected with bloodborne pathogens through bodily fluids of an infected person entering through a wound of a HCW.

Bloodborne Pathogens

There are various bloodborne pathogens by which HCWs can get infected through their workplace.

- ▶ HIV
- ▶ Hepatitis B, D and C
- ▶ HTLV-1
- ▶ Viral Haemorrhagic Fevers: eg: Ebola, Marburg,
- ▶ CJD
- ▶ Malaria

Risk of Exposure



The figure on above shows percent of occupational groups of healthcare workers exposed to blood or body fluids, with nurses (44%), physicians (28%), and technicians (15%) accounting for most of the incidents. Source: CDC (2008)

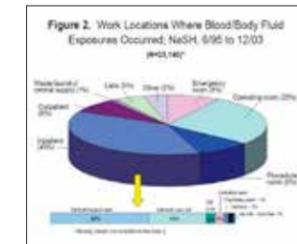


Figure 2 above shows healthcare work locations where exposures occurred, with inpatient facilities, such as the medical or surgical ward (20%) and intensive care unit (13%), and operating rooms (25%) accounting for the majority of exposure sites. Source: CDC 2008

Prevalence in the European Union (ECDC)

% Prevalence in EU/EEA in HCWs:

- ▶ HBV 0.6-2.2%
- ▶ HCV 0.8 - 1.7% (in some countries even up to 6.4%)

A study published by ECDC in August 2019, shows that there has been a decrease in Hepatitis B infections due to Hep B vaccination and universal precautions.

EU Legislation (Sharps Injury)

- ▶ Directive 2010/32/EU : which puts into action the Framework Agreement on Prevention from Sharp Injuries in the Hospital and Healthcare Sector which has been signed by the European Hospital and Healthcare Employers' Association and the European Public Services Union
- ▶ The objective is to protect HCWs as much as possible from bloodborne infections from the workplace.

Legislation USA

- ▶ Legislation regarding protection from bloodborne pathogens on the workplace.
 - ▶ Title 29 of the Code of Federal Regulations at 29 CFR 1910.1030

- ▶ Canada: Guideline on the Prevention of Transmission of Bloodborne Viruses from Infected Healthcare Workers in Healthcare Settings (June 2019)
- ▶ Australia: National Code of Practice for the Control of Work Related Exposure to Hepatitis and HIV (blood borne) Viruses (NOHSC: 2010)
- ▶ WHO: In 2003 issued an Aide Memoire for a strategy to protect healthcare workers from infection with bloodborne pathogens
 - ▶ WHO Best Practices for Injections and Related Procedures Toolkit

Other countries

Prevalence in USA (CDC)

- ▶ HIV:
 - ▶ CDC has 57 documented cases, 140 possible cases in HCW from 1981 to 2006.
 - ▶ Most cases were in Lab technicians and nurses.
- ▶ HBV:
 - ▶ A 95% decrease from 1981, whereby 17,000 infections estimated in 1983 down to 400 in 2001.
 - ▶ The decrease was as a result of universal Hepatitis B vaccination, universal precautions, including devices with Sharp Injury Protection
- ▶ HCV:
 - ▶ 2 - 4% of the annual cases reported in USA to CDC are in HCWs infected during their work.

Conclusion:

1. Hepatitis B vaccination
2. Universal precautions
 - ▶ SOP in place
3. Use of Sharp Injury Protection Devices: Safer Medical devices

References

- ▶ <https://osha.europa.eu/en/tools-and-publications/publications/reports/current-and-emerging-occupational-safety-and-health-osh-issues-in-the-healthcare-sector-including-home-and-community-care>
- ▶ https://www.who.int/occupational_health/activities/1am_hcw.pdf
- ▶ <https://www.eurobiosafetynetwork.eu/eu-osha-publishes-guidance-on-risk-assessment-and-needlestick-injuries/>
- ▶ <https://www.cdc.gov/niosh/topics/bbp/safer/>

Handwashing knowledge and practices among Dentists and Dental Specialists

Quintessence International Journal May 2012

In a study by Oscar G. Veja DDS, Charles Janus DDS MSMS, Daniel M Laskin DDS MS it was found that there is a general lack of knowledge regarding the most effective methods of handwashing.

Fewer than half the respondents in a survey knew that hands must be washed prior to patient contact and before putting on gloves to prevent contamination from doctor to patient, and that hands must be washed after patient contact and removal of gloves. There seems to be more concern about self contamination than about the patient being contaminated.

94% answered correctly that soap and water is best when there is visible dirt. 2% said chlorhexidine. 1% said iodine based agents. 1% said alcohol based agents.

However, in the absence of dirt 23% answered correctly that alcohol based agents are most effective at killing bacteria. 40% answered soap and water. 19% answered chlorhexidine and 12% answered iodine based agents.



THE SAFETY OF INCREASING VERTICAL DIMENSION OF OCCLUSION – A SYSTEMATIC REVIEW

Quintessence Dental Journal May 2012

In a study by Jaafar Abduo BDS D Clint Dent, it was found that a permanent increase of the Vertical dimension of occlusion is a safe and predictable procedure up to 5mm, without detrimental consequences. Signs and symptoms were self limiting and resolved within two weeks. Increasing the VDO with a fixed restoration is preferable as

it enhances patient function, acceptance and adaptation and allows for aesthetic evaluation.

Removable splints provoke more signs and symptoms and an acrylic removable splint evokes more signs and symptoms than a metal splint. Further studies are required. 📄

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IPS e.max Scientific Report Vol. 03/2001 – 2017
Picture courtesy of Dr. Lucio A. Quevedo Hernández / Ramón A. Sánchez Hernández, Mexico



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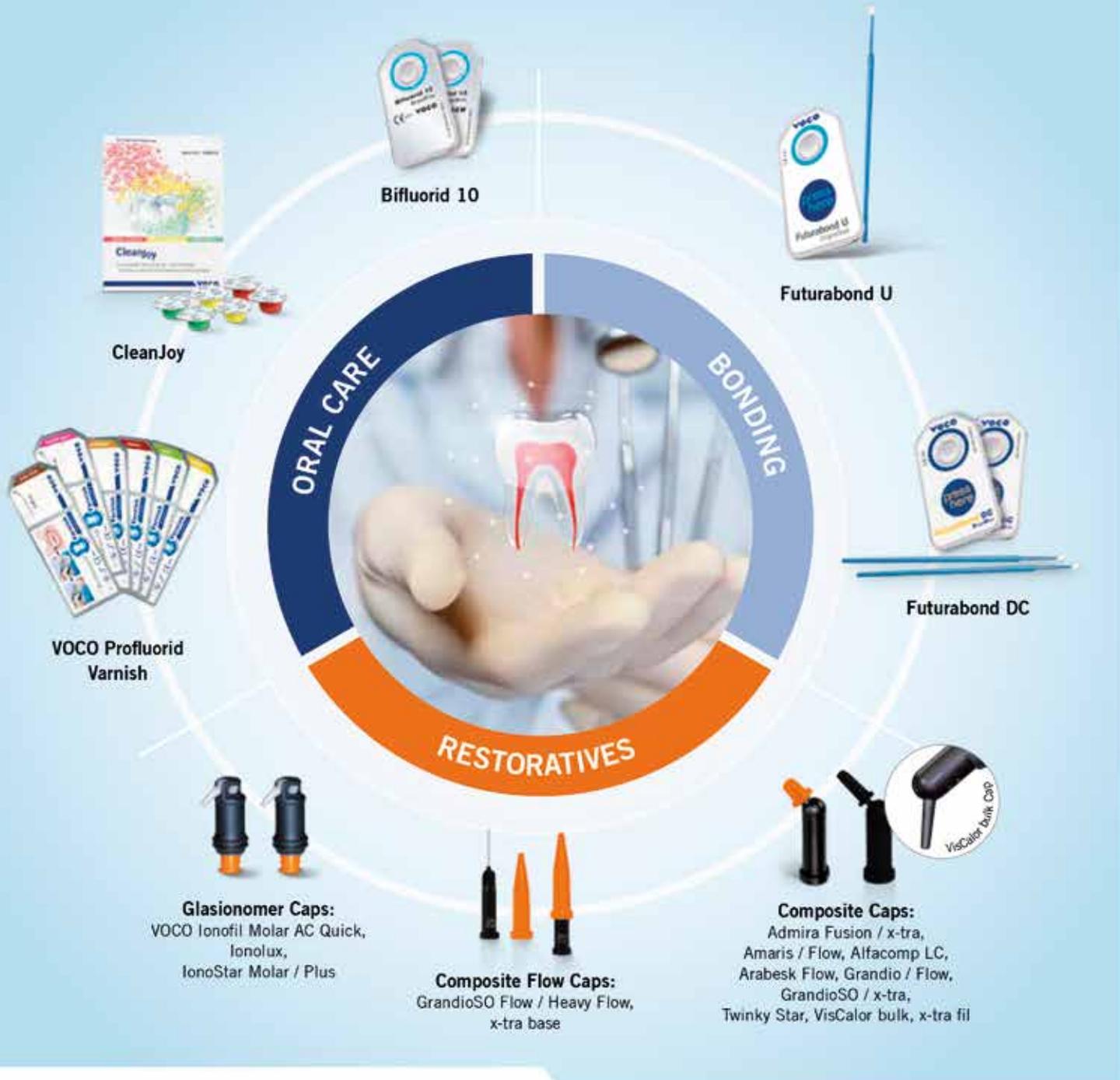


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