

# The Dental Probe

The Maltese Dental Journal



*Jan Carlin*

# Variolink® Esthetic

The esthetic luting composite



## Amazingly simple esthetics

The luting composite for exceptional esthetics and user-friendly processing

- Balanced and concise Effect shade system
- Excellent shade stability due to amine-free composition
- Easy, controlled excess removal

IDEAL FOR  
Tetric® CAD

IDEAL FOR  
IPS e.max®  
CAD/Press

ivoclar  
vivadent®  
passion vision innovation

www.ivoclarvivadent.com

Ivoclar Vivadent AG  
Bendererstr. 2 | 9494 Schaan | Liechtenstein | Tel. +423 235 35 35 | Fax +423 235 33 60

ISSN 2076-6181

DENTAL ASSOCIATION OF MALTA

The Professional Centre,  
Sliema Road, Gzira  
Tel: 21 312888  
Fax: 21 343002  
Email: info@dam.com.mt



# Editorial

By Dr David Muscat

Dear colleagues,

This has been one of the most surreal years I have worked in my career. We have had to take several precautions in our respective practices, and we have survived. We hope that soon the Covid-19 vaccine will be available to all and we will be rid of this pandemic.

We have lost a colleague in early December, Dr Vince Muscat, who was a very nice person and a true softly spoken gentleman. We feature appreciations by Drs David Debono and Maryanne Farrugia. I have managed to produce four issues of the journal this year even though we have hardly had any lectures or conferences at all. This has been done thanks to the co-operation of several colleagues who have helped me with their excellent articles.

I have been the editor for almost fourteen years. I will carry on as editor as long as I have professional articles that are prepared for each edition. Without these, the journal will not exist so I appeal to those who feel they have something to offer to send me articles and case studies of their work for inclusion in the Dental Probe.

Early in 2021 we will have a virtual AGM online as has become the norm. We will advise you closer to the date. Dr Audrey Camilleri has attended the CED online conference on our behalf. Professor Camilleri has written part two of the history of St Apollonia. Dr Cassar Darien has given us an interesting case on how to handle a damaged implant screw.

Dr Diacono reports on an odontogenic fibromyxoma. Dr Daphne Rizzo has also

given us a great article on Occlusion. Dr Ethel Vento Zahra reminds us of when dental students used to spend some time helping others in Albania.

On Friday 27th November 2020 I attended the online Paris Federation of European Competent Authorities and Regulators Assembly and the report is featured in this issue.

We look towards 2021 with a mixture of hope and trepidation but we will always be positive in the face of adversity. The cover picture is from a painting by Jacqui Agius of St John Street Valletta.

Best regards,

David

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

## Appreciation: Dr Vincent Muscat

By Dr David Debono

Dear Vince,

The news of your passing has brought with it a deep sadness to all who had the pleasure of meeting and working with you. Despite your long battle with illness your positivity and love for life and the dental profession never failed to shine through.

Unfortunately this last setback proved insurmountable. You may not have realized the true impact you had on those around you throughout your personal and professional life.

You may have never known how much someone needed that smile you gave them or that genuine kindness and generosity.

Vince, we will all miss you dearly, and we will cherish the innumerable wonderful memories that we have shared.

Have a safe journey dear friend and colleague. 🙏



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.

# Are your patients' dentures truly clean?

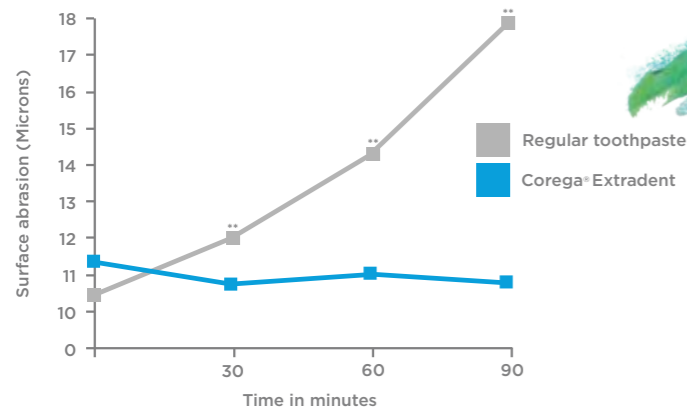
Even visibly clean dentures can have hidden dangers.

The denture surface contains pores in which microorganisms can multiply and thrive.<sup>1</sup> Up to **80%** of patients use toothpaste to clean their dentures.<sup>2,3</sup> As dentures are approximately **10x** softer than enamel,<sup>4</sup> the abrasive nature of toothpaste can create scratches, which may lead to increased microbial colonisation,<sup>5</sup> resulting in gum irritation or denture malodour for your patients. These inadequate cleaning methods can cause the appearance of your specially made and well-fitting dentures to deteriorate and affect your patients' denture wearing experience and satisfaction.

## Corega 3 Minutes denture cleanser – specially designed for dentures

- Corega 3 Minutes cleanser offers patients the **dual benefits** of **mechanical** and **chemical** cleansing\*
- Corega 3 Minutes cleanser is proven to **penetrate the biofilm<sup>+</sup>** and **kill microorganisms** even within hard-to-reach denture surface pores<sup>6</sup>
- Corega 3 Minutes cleanser is **non-abrasive<sup>7</sup>**, unlike toothpaste, and does not create scratches, which can lead to increased microbial colonisation

Brushing with Corega 3 Minutes was associated with significant ( $p < 0.005$ ) reduction in depth of abrasion compared with a regular toothpaste<sup>7</sup>



Examiner blind, randomised three-period crossover study done on 26 subjects simulating brushing for 90 minutes using toothpaste (Crest cavity protection RDA-95) and Corega denture cleanser on an acrylic denture prototype. Surface changes observed at baseline, 30, 60 and 90 minutes. Abrasion was assessed using surface profilometer. \*\*  $p < 0.005$ .

\* When used as directed; <sup>+</sup> *in vitro* single species biofilm after 5 minutes soak

**References:** 1. Glass RT *et al. J Prosthet Dent.* 2010;103(6):384-389; 2. Marchini L *et al. Gerodentol.* 2004;21:226-228; 3. Barbosa L *et al. Gerodentol.* 2008; 25:99-106; 4. GSK Data on File; Literature review, August 2013; 5. Charman KM *et al. Lett Appl Microbiol.* 2009;48(4):472-477; 6. GSK Data on File; Lux R. 2012; 7. GSK Data on File; L2630368. October 2006.



## Offer your patients proven daily protection with Corega 3 Minutes denture cleanser



Help your patients eat, speak and smile with confidence with the Corega denture adhesives and Corega 3 Minutes denture cleansing tablets.

## CLINICAL CASE REPORT

# Dealing With A Stripped Implant Abutment Screw

Dr Daniel Cassar Darien Dds (Ath ) Mjdf Rcs (Uk) Mfds Rcps (Glasgow)

One of the most frustrating complications an implant clinician faces is that of a screw that simply refuses to turn. A simple procedure can instantly turn into a sweat inducing back breaking ordeal for both the patient and the dentist. A common reason for this occurrence is screw head stripping or deformation.

This usually occurs due to the following reasons:

1. Incorrect driver used to engage the screw head
2. Driver not fully engaged in screw head
3. Driver is stripped or damaged
4. Over-torquing abutment screw
5. Fatigue of the abutment screw connection due to multiple torquing attempts
6. Damage to the screw head by means of clinician using a drill to access the prosthetic screw

Damaged abutment screws can present in several ways:

1. Prosthetic crown, abutment and top of the prosthetic screw have detached from the implant and a fractured portion of the abutment screw is inside the implant either loosely connected or torqued in. Gingival over-growth is common over the implant fixture in this situation.
2. Prosthetic screw stripped and torqued in holding in prosthesis (crown and/or abutment).
3. Prosthetic crown is off the abutment, abutment is connected to implant and prosthetic screw is either stripped or fractured.

If the screw is inaccessible due to a soft tissue overgrowth, laser removal of the gingiva can be employed to minimize

bleeding and give access to the broken fragment. An explorer can then be used to determine if the screw is loose.

If loose, the screw can be reversed out with a slow speed round bur, a retrieval fork, a piezo, or an explorer/probe maneuvered counter clockwise.

If the fractured screw is not loose, other techniques are utilized and may involve endodontic ice, an oily lubricant, ultrasonic vibration, screw retrieval kits, slow speed burs in reverse, and finally careful manual drilling of the screw.

### CASE REPORT

A 56 year old patient attended for routine hygiene treatment. The patient had been treated with an implant supported full arch bridges years prior, and had regular uneventful removal of his bridge to facilitate access on multiple occasions.

The corresponding driver was unable to engage one particular screw and on closer examination under magnification deformation of the head was revealed. (Image 1)

A decision was made to fabricate a custom made driver that would fit the deformed head and engage it.

A digital scan was taken of the aperture head and a model printed. (Image 2)

A cast metal technique was then utilised to construct the driver which was then aligned to a ratchet to apply the correct torque force. (Image 3)

The screw was removed uneventfully. (Image 4)

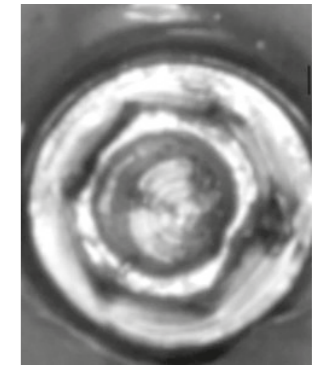


Image 1

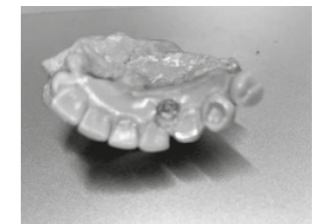


Image 2



Image 3



Image 4

# Dr Vincent Muscat

4/11/55 — 2/12/2020

Dentistry Course 1981 to 1985

An appreciation by Dr Maryanne Farrugia

My colleagues and I attended our dear friend's memorial mass, on Saturday the 5th December 2020 at St Theresa's Sanctuary, B'Kara – Vincent Muscat's home town.

It was packed with red-rimmed relatives and friends, who wished to pay their last respects, in spite of the limiting restrictions imposed by the Covid-19 regulations.

It was an experience that will remain etched in our minds.

Vince joined our dentistry course in 1981, at the age of twenty five, having already obtained his diploma as a laboratory technician, and had worked in the Microbiology Department at St Luke's Hospital for a few years.

He was therefore considered a 'mature' student, and we were pleasantly surprised that this soft-spoken, gentle and considerate new friend, seemed so much wiser and knowledgeable than the rest of us.

He drove a small blue Fiat, which he affectionately called his 'hmara' and regaled us with hilarious anecdotes of a variety of 'praspar' carried out by his street-wise village neighbours!

These stories would often be punctuated with his infectious bursts of laughter, which in turn, would have us all in fits!

His hobbies were varied and he loved spending his leisure time playing guitar, drawing, gardening and even tried his hand at bee-keeping.

As a student, he seemed calm and



easy going except when exams loomed ominously close, and in moments of heightened anxiety he would utter, 'Marelli, Marelli!' when things started to get out of hand!

These two words were promptly picked up by our group, and we would often repeat them, much to Vince's delightful sense of humour, as they helped dissipate our nervousness, making us all collapse with laughter.

His work as a dentist was that of an extremely meticulous and caring professional who would treat his patients with utmost attention to their requirements, and total disregard to increasing profit margins!

He worked at his private dental clinic in Iklin, and spent several

years working assiduously with the elderly at St Vincent de Paul Residence, and also looked after the dental needs of patients at Karin Grech Rehabilitation Centre.

He sometimes visited patients at Corradino Correctional Facility.

From the many tributes that poured in after his death, the main characteristics that described Vince were those of a selfless, heart-warming person whom was always willing to help others.

*'At SVPR he was something of a legend and was loved by all!'*

*'He was a most gentle and humble soul.'*

*'His enigmatic smile won the hearts of his many patients and friends.'*

During the homily, the priest described Vince as a deeply spiritual man, who accepted his eleven year tortuous cancer battle with all the humility and courage of a noble warrior.

His profound faith helped him accept his fate, endure his immense suffering and even transformed it into a journey of redemption, in his continuous search for God and the meaning of life.

We were overwhelmed by the fact that our dear Vince was actually a superior soul, no ordinary colleague of ours, but a man of impeccable morals, whose generous and loving manner was a beacon of light in the lives of those whose lives he touched. There was a Saint in our midst, without us ever being aware of it!

Goodbye and *au revoir* dearest Vince,

May you rest in peace in the arms of your Creator!

'The Merton Prayer' which Vince loved so much is worth reading. 🙏

## THE MERTON PRAYER

*My lord God,  
I have no idea where I am going  
I do not see the road ahead of me  
I cannot know for certain where it will end,  
Nor do I really know myself, and the fact  
That I think I am following your will, does  
not mean  
That I am actually doing so.  
But I believe that the desire to please you  
Does in fact please you.  
And I hope that I will never do anything apart  
From that desire.*

*And I know, that if I do this, you will  
lead me  
By the right road  
Though I may know nothing about it.  
Therefore will I trust you always, though  
I may seem to be lost and in the shadow  
of death.  
I will not fear, for you are ever with me,  
And you will never leave me to face my  
perils alone.*

**Thomas Merton**



# St Apollonia Celebrations II

By George E. Camilleri

In the early post war WWII years the Dental Association was commemorating the anniversary of its Foundation in February 1944 but the archival records do not tell us much about these events. February 9th is St. Apollonia's day and a combined celebration was probably envisaged.

The Times of Malta in 1948 reported that 'to show respect and devotion towards the saint (St. Apollonia) a number of dental surgeons and dentists attended Mass at Hamrun Parish Church where her image stands on one of the side altars'.

No doubt this was mainly due to Anthony Ciappara's prompting. The President, Professor Egidio Lapira, in his 1968 AGM address deplored that the practice had died down of late and all agreed it should be revived. No records are available but it appears that the event remained dormant. Prof. Joseph Mangion, at the 1973 AGM, raised the question of the celebration of St. Apollonia's Feast.

After discussion it was agreed to arrange a dinner party and Dr Pascal Demajo was requested to organise the event. This was appropriate as Pascal Demajo's mother, Mr. Anthony Ciappara's daughter, christian name was Apollonia. In 1974 the feast was not celebrated by the association leading to Mr. A. Ciappara's plea of 1975 as shown in the previous article.

The established format of the programme was followed for the next four years until 1980 when a formal evening dinner was added.

In 1981, Mass was again celebrated at St. Gaetan, Hamrun which has a side altar and titular specially dedicated to St. Apollonia.

The commission of this painting by Anna Forti (1874) is still not clear with two different versions, either by



Figure 1. St. Apollonia by Anna Forti  
Figure 2. Highlight area showing tell-tale forceps.



Figure 3. St. Apollonia 1987. Mistra Village Holiday Complex.

Figure 4. St. Apollonia 1987. Joe Ciappara, son of Mr. Anthony Ciappara who still supported the occasion.



Figure 5. St. Apollonia 1989. Jerma Palace Hotel



Figure 6. St. Apollonia 1990. Jerma Palace Hotel. Klaus Vella Bardon, John Mercieca and Fr. Mario Jaccarini leading the group.



Figure 8. St. Apollonia 1991. Razzet l-Abjad, tal-Balal. Klaus Vella Bardon, Alex Cassar, Alfred Magri Demajo with a satisfied look, Alfred Pace Balzan looking out for new members.



Figure 7. St. Apollonia 1991. Razzet l-Abjad. All eyes on the Likk.

Marquis Felicissimo Apap Bologna or Pascal Demajo proposed. Antony Ciappara had set up a Fratellanza of St. Apollonia at this church. We then proceeded directly to L-Awwista Restaurant at Marsaskala for lunch. The encouraging response from the members prompted the organisers to select different chapels and restaurants each year in varying parts of the Island.

It was now Sliema/ St. Julian's turn with Mass at St. Ignatius' chapel in 1982 and at the Madonna tal-Grazzja chapel, opposite Stella Maris Parish Church for the following two years.

The evening dinner was held at the Galaxy or the Union Club. Staying in the same parts of the island we

returned to the HQ of the Association at the Federation of Professional Bodies in Paceville, St. Julians.

The gap between lunch time and the popular tea was usually filled with a walk in the vicinities.

An added innovation for 1986 event was an interesting talk by Dr. Maurice Agius Vadala on the Great Siege Maps after Mass and lunch at the Mellieha Bay Hotel.

These occasions were now becoming a popular family affair. In 1987 it was the turn of the Mistra Village Holiday Complex, St. Paul's Bay followed by leisurely walk with a repeat the following year and mass at the Capuchin's church in Xemxija.

The south side was now clamouring for attention and we celebrated at the Jerma Palace Hotel, Marsaskala in 1989.

The committee tried to keep everybody happy so that in 1990 the Paradise Bay Hotel at Marfa took us to the north of the island.

In 1991 we gathered in the middle of the island at Ir-Razzett l-Abjad, Tal-Balal, Tony Demajo's country seat, where the main ingredients were home prepared.

Due to the unavoidable absence of our chaplain, Mass was celebrated by Fr. A. Cilia SJ. Lounging in the garden/farm and a game of Bocci rounded off a memorable day. 🍷

# DENTISTRY AND PATIENT SAFETY DURING THE COVID-19 PANDEMIC

Dr Audrey Camilleri, the DAM International liaison Officer attended the online meeting of the council of European Dentists on 20 November 2020.

A significant part of the discussion focused on the Covid 19 pandemic and its impact on dentistry in 2020. The General Meeting adopted the following documents relevant to the profession in the context of current public health.



## INTRODUCTION

The Council of European Dentists (CED) is a European not-for-profit association which represents over 340,000 dentists across Europe. The association was established in 1961 and is now composed of 33 national dental associations from 31 European countries.

A key objective for the CED is contributing to the protection of public health and promoting high standards in dentistry and oral healthcare for European citizens.

European dentists are committed to providing safe and high-quality oral care, as well as to mitigating any healthcare related risks to patients, members of the dental team and dentists themselves.

The dental profession aims to minimise risks and establish an open culture of patient safety, in which practitioners can learn from their own and others' experiences.

## IMPACT OF COVID-19 ON DENTISTRY

The global spread of the SARS-CoV-2 virus and the declaration of the COVID-19 pandemic in March 2020 are resulting in far-reaching implications for all sectors of our societies, including

dentistry. During the early months of the pandemic, European governments introduced a range of containment measures, including local and national lockdowns, stay-at-home orders, quarantines, curfews and travel restrictions.

Across Europe, the provision of oral care was significantly curtailed as most dentists were advised or mandated to provide emergency dental treatments only.

Since then, the majority of dentists were allowed to return to normal provision of care, in some cases gradually and with some adjustments or exceptions; in most European countries this happened between mid-April and mid-May 2020.

The COVID-19 pandemic is having a significant impact on dentistry, beyond the initial temporary suspension of routine care and prevention.

Dentists are required to comply with both existing and new guidelines, and infection control protocols. The result is adjustments to all aspects of their work, from triaging and scheduling patients to the use of additional personal protective equipment.

There is also a requirement for more increased environmental

hygiene and adequate ventilation of dental practice premises.

While increasing evidence seems to be emerging about the safety of providing routine dental care under the conditions of COVID-19 pandemic, as indicated by the negligible numbers of reported cases of infected dentists, the lack of clear recommendations and of scientific research related to dentistry represent long term threats to the profession and more generally to the oral health of Europeans.

During the initial stages of the pandemic the provision of oral care was severely restricted.

Although this was arguably justified under the conditions of uncontrolled spread of the SARS-CoV-2 virus and the insufficient understanding about the manner of its transmission.

It also created the incorrect impression that dentistry is not safe and that most dental treatments should be postponed until the end of the pandemic. Public fears were further fueled by incorrect media interpretation of national and international guidelines.

The most prominent of these were the World Health Organization's (WHO) "Considerations for the

provision of essential oral health services in the context of COVID-19" which were reported by the media as recommending postponing routine oral healthcare in countries with community transition of COVID-19.

The media ignored the second part of the WHO advice which referred to official recommendations at national, sub-national or local level as the basis for the decision to postpone oral healthcare.

Similarly, an indiscriminate approach to aerosol generating medical procedures is also proving detrimental to reestablishing full provision of oral care.

According to the WHO, aerosol generating medical procedures (AGPs) are associated with an increased risk of COVID-19 infection of the medical staff.

Depending on the infection situation, it is recommended to avoid these procedures if possible.

However, the available statistics on the number of infected dentists appear to be significantly lower than in other health professions and indicate that AGPs in dentistry might need to be considered as fundamentally different from AGPs in medicine, contrary to the assumptions made in WHO and European Centre for Disease Prevention and Control (ECDC) reports.

Further research is needed on this issue, but infection control protocols and personal protective equipment routinely used by dentists already before the COVID-19 pandemic are likely to be a contributing factor.

## CED POSITION

- Oral care, including not only urgent and essential dental treatment but also routine care such as oral health check-ups, dental cleanings and prevention, should be considered as essential healthcare and should not be postponed until the COVID-19 pandemic is resolved. Oral health is an integral part of general health

and postponing oral care would have a severe negative impact on general health of our populations.

- Despite the new circumstances created by COVID-19, dentistry remains safe for dental patients, members of the dental team and dentists themselves.

Effective personal protective equipment (PPE) is applied to protect both the dental personnel and the patient, and appropriate disinfectants are used, to strengthen the effectiveness of the protocols followed. Particularly during the initial stages of the pandemic, dentists experienced shortages of PPE accompanied by higher prices; efforts should be made to prevent this situation from repeating.

- The CED believes that regardless of the type and size of practice, whether private, public or university setting, the patient should receive the same standard of safe health care, especially during endemic or pandemic periods.

Actions aimed at improving the safety of the patients and the quality of the care provided, should be taken after considering the various medical conditions under which patients receive treatment.

The risks affecting patients' safety as well as the most appropriate ways of minimizing them, vary depending on the health conditions.

- European Dentists have always been committed to providing up-to-date, safe, high quality oral care, as well as minimizing risks related to oral care.

In this perspective, a continuous upgrading of the level and strengthening the protocols related to patient safety and quality of care are a major concern of the dental profession. This is provided effectively in terms of the costs involved.

Additionally, a large number of dental administrative and therapeutic activities approaches, have been updated and modified, in order to fully meet the required standards, for safe dental services provision.

- To prevent transmission of COVID-19 while still providing a full range of treatments to their patients, dentists are encouraged to follow patient safety and infection prevention clinical protocols, guidelines and recommendations at national, sub-national and local level, which take into account local epidemiological conditions and availability of PPE.

- As scientific developments in the area of combatting the pandemic move forward, the testing of dental practice staff and patients is likely to play an increasing role.

- Whereas the CED acknowledges that it is impossible to eliminate the risk posed by dental aerosols entirely, it is however possible to minimize it by the appropriate use of PPE, high volume suction and rubber dam, as well as with hygiene, disinfection, sterilization and ventilation measures.

- The CED believes that further research on AGPs in dentistry and transmission of COVID-19 is needed.

This is particularly the case in the light of the evolving nature of the science and the need for dental professionals to keep up to date with the best available knowledge.

- The CED would like to stress that in order to provide a safe environment for patients and the dental team, the dental care professionals should not neglect the importance of their own good mental and physical health and self-care while working under the new circumstances and protocols created by the COVID-19 pandemic, which can represent an additional burden on their mental health. ■

# ONDONTOGENIC FIBROMYXOMA OF THE MANDIBLE

A LITERATURE REVIEW AND CASE PRESENTATION

By Diacono Mark

## INTRODUCTION

Odontogenic fibromyxomas are benign but locally aggressive tumours limited to the jaws and facial skeleton. The underlying aetiology is unknown. They normally present as asymptomatic unilocular or multilocular osteolytic lesions favouring the posterior mandible. It is a rare lesion representing 3 – 7% of benign odontogenic tumours. There is disagreement about treatment protocols, some authors favour aggressive surgical excision whereas others recommend a conservative approach.

This article presents a mandibular case, its presentation and management as well as a short literature review.

## CASE PRESENTATION

A 44 year old fit and well male of Japanese origin was referred to the unit due to an asymptomatic swelling in the lower jaw. This was an incidental find by the dental practitioner during routine examination. The patient was unaware of any issues but had located a two year old photograph of himself about to bite into a burger where the swelling is visible intra-orally.

On examination he had an expansile swelling between his lower left premolar teeth, displacing both these teeth to create a 3mm diastema between the two. The displacement of the teeth suggested that the lesion pushed the second premolar root distally. The lesion was firm, painless to touch and occupied the full width of the alveolus, measuring about 2cm by 2cm. The overlying mucosa was normal, there was no bleeding on probing, mobility, loss of sensation or motor

function to lip and teeth were vital. A peri-apical radiograph supplied by the referring clinician showed a 'soap bubble effect' osteolytic lesion lying between the displaced premolar roots.

A pan-oral view showed this single lesion localised to the premolar teeth with its lower border above the inferior alveolar nerve canal. He also had both lower third molars deeply impacted in a mesio-angular fashion, fused bulbous roots that were shadowed midway down the root by a deviated inferior alveolar nerve canal, therefore making these areas unsuitable as bone harvest sites.

A provisional diagnosis of fibromyxoma was made and CT scan confirmed the lesion to be singular and localised as described. A biopsy was performed under local anaesthesia and the diagnosis was confirmed. Treatment options were discussed with the patient and a semi-conservative approach was chosen.

The first surgical treatment was performed under general anaesthesia. A wide flap was raised from the midline on the mandible up to the lateral oblique ridge designed to keep the mucosa over the planned excision attached to the site.

The mental nerve and foramen were identified and a groove was cut buccal to the inferior alveolar nerve canal from the foramen back to the second molar tooth. The inferior alveolar nerve was divided anterior to the foramen and displaced buccally. The resection included a full tooth either side of the lesion and all the bone and soft tissue to below the inferior alveolar canal. The nerve was kept buccal to the body of the mandible.

As the lesion was removed en bloc, the remaining soft tissue was devoid of keratinised mucosa. The operative site was closed in layers and healing was uneventful. Co-Amoxiclav 1G was prescribed twice daily for five days as well as diclofenac sodium and paracetamol.

He was able to feel his lip within a few days. The histology report confirmed the diagnosis and clearance. Healing was uneventful but the resultant defect was significant. A temporary partial acrylic denture was relined with a tissue conditioner and utilized during the healing period.

Following a twelve month healing period, the defect was scanned (CT) and a custom made Yxoss CBR® titanium mesh (ReOss, Germany) was fabricated to help with bone grafting.

Under general anaesthesia, cancellous bone was harvested from the iliac crest and grafted to the left mandible using the Yxoss frame to secure it in place. Healing was again uneventful and three months later, under local anaesthesia, a keratinized free gingival tissue graft was harvested from the palate and grafted to the new alveolar ridge.

Following another healing period of eight weeks, the Yxoss frame was removed and three tissue level Standard Plus SLActive (Institut Straumann AG, Switzerland), regular neck, 12mm long implants were inserted (single stage) and good primary stability achieved. Six weeks later impressions were taken and a composite resin temporary bridge was eventually fitted.

Continues on page 14.

CURAPROX

PERIOPLUS+

CHX – NATURALLY IMPROVED BY CITROX®

As a powerful antibacterial substance extracted from bitter oranges, CITROX® enhances the efficacy of CHX.

IMPROVED COMPLIANCE through a pleasant-tasting solution that ensures unaltered taste sensation.



Distributed by Chemimart Telephone 21492212

SWISS PREMIUM ORAL CARE

Developed by

curaden  
better health for you

# ONDONTOGENIC FIBROMYXOMA OF THE MANDIBLE

Continues from page 12.

Bone was harvested from the iliac crest due to the impacted wisdom teeth. In fact, the lower right wisdom tooth did cause him discomfort and was successfully decoronated at the same time as the bone graft surgery. Despite the enlarged follicle, it was decided to leave the left wisdom in situ until the treatment is complete. The patient has been followed up for two years with no sign of recurrence. There is no rush to replace the long term temporary bridge.



Continues on page 16.

## Looking for a Professional Indemnity Policy or about to renew your policy?

### Speak to MIB!

MIB and the Dentists Association of Malta (DAM) have set up an exclusive scheme for members of this association.

This scheme includes:

- **The most competitive premium available for Professional Indemnity cover in Malta & Gozo.**
- **The widest cover available.**
- **Various Limits of Indemnity to choose from.**
- **Optional extensions to choose from including:**
  - European Jurisdiction
  - Retroactive Cover
  - Botox & Dermal fillers extension
- **Claims support in the event of a claim**

On the other hand *if your policy is already insured* under the scheme, you need to ensure that:

- **Your limit of indemnity is still adequate.**
- **Your cover still reflects your present operation, for example if you are performing Botox and/or Dermal fillers, you would have availed yourself of the relative extension.**

# Professional Indemnity Insurance

In an increasingly litigious environment, medical decisions and actions may be challenged and disputed.

## Are you protected?

### Exclusive scheme for dentists

- Preferential Rates
- Errors & Omissions Cover
- Defence Cost
- Retroactive Cover
- Claims Support Services
- Consultancy on all your Insurance Requirements

### Key Contact

**Tonio Borg**  
Associate Director

T +356 234 33 142  
M +356 794 53 647  
E [tonio\\_borg@mib.com.mt](mailto:tonio_borg@mib.com.mt)

**Mediterranean Insurance Brokers (Malta) Ltd.**  
Zentrum Business Centre, Level 2, Mdina Road, QRM 9010, Malta  
T +356 234 33 234 E [info@mib.com.mt](mailto:info@mib.com.mt)  
[mib.com.mt](http://mib.com.mt)

Mediterranean Insurance Brokers (Malta) Ltd., C3540, is enrolled under the Insurance Distribution Act and is regulated by the MFSA.



# ONDONTOGENIC FIBROMYXOMA OF THE MANDIBLE

Continues from page 12.

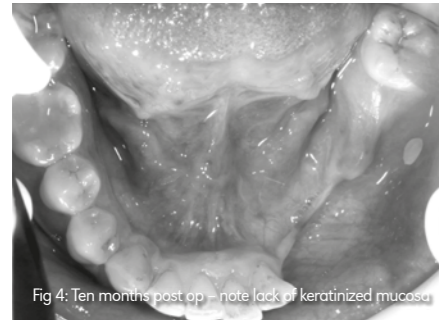


Fig 4: Ten months post op - note lack of keratinized mucosa



Fig 5: Yoss™ Frame supporting autologous bone graft

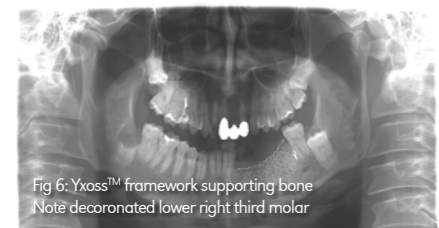


Fig 6: Yoss™ framework supporting bone. Note decoronated lower right third molar



Fig 7: Healed bone graft



Fig 7: Healing Keratinized Gingival Tissue Graft



Fig 8: Healed tissues around implants

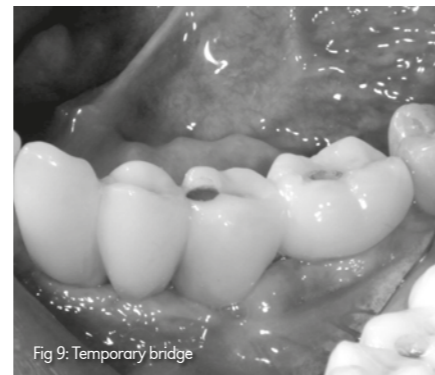


Fig 9: Temporary bridge

Continues on page 19.



## PAYMENT FORM

Please cut out this section and send with a cheque for 50 euro payable to **Dental Association of Malta** for your 2021 DAM membership – the best 50 euro investment ever!

**TO:** \_\_\_\_\_ **NAME:** \_\_\_\_\_

The Treasurer, Dr Noel Manche,  
The Dental Association Of Malta,  
Federation Of Professional Associations,  
Sliema Road,  
Gzira.

**ADDRESS:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## DOUBLE PROTECTION in the dental clinic for greater safety



**0.12% CHLORHEXIDINE  
+ 0.05% CPC**  
Fights oral biofilm

**0.05% CHLORHEXIDINE  
+ 0.05% CPC**  
Active control of oral biofilm

**PERIO-AID**  
CHX + CPC

**DENTAID**  
The Oral Health Experts

### CETILPYRIDINIUM CHLORIDE

**CPC**

**Cetylpyridinium Chloride (CPC)** is a safe and effective daily-use antiseptic with antiplaque action and a substantivity of between 3 and 5 hours. It also has a broad spectrum of action against:<sup>6,7</sup>

- Different types of bacteria
- Fungi
- Some viruses

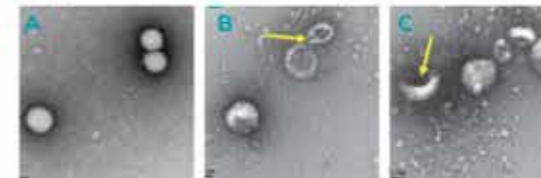
There is scientific evidence, *in vitro* and *in vivo* studies, showing CPC to have a potential virucidal and preventive effect against some viruses.<sup>8-10</sup>

#### Popkin et al. 2017<sup>8</sup>

*In vitro* and *in vivo* study on Influenza virus.

Mechanism of action: CPC alters the lipid membrane of virus with lipid envelope through physicochemical interactions, causing it to rupture, and therefore, causing the **inactivation of the virus**.

Transmission Electron Microscopy (TEM) showing that CPC disrupts the integrity of the viral envelope and the morphology of the flu virus.



Group A: Control (Untreated flu virus)  
Groups B and C: Flu virus treated with 0.005% CPC for 5 minutes

- The viral particles exposed to CPC show an alteration in the envelope (arrows) of the viral units.
  - The presence of a negative stain inside the virions indicates the permeabilisation of the membrane.
  - The number of intact and altered viruses after treatment
- Group A:** 4.5% of viral particles degraded, **Groups B and C:** 86% of viral particles degraded.

#### CONCLUSION:

CPC has shown to have the capability to degrade viruses with a lipid envelope.

#### Mukherjee et al. 2017<sup>9</sup>

Pilot clinical trial carried out on 94 healthy volunteers.

**Aim:** To determine whether the use of orally applied CPC could prevent upper respiratory tract infections caused by viruses such as influenza, rhinovirus and coronavirus.

The frequency and severity of symptoms were assessed based on the diaries of the study participants with upper respiratory tract infections.

Clinical variables such as cough and sore throat were significantly more common and more severe in the placebo group than in the group with the product containing 0.07% CPC.

#### CONCLUSION:

In this study, the CPC proves to have a potential preventive effect against infection by viruses like influenza, rhinovirus and coronavirus.

**CPC**

CPC could help to reduce the oral viral load of some viruses responsible for respiratory infections and the risk of transmission from a carrier to a healthy individual.<sup>11</sup>

6. Higgs S, Slot DE, Beecher CE, Van der Weijden GA. The effect of cetylpyridinium chloride-containing mouth rinses as adjuncts to toothbrushing on plaque and parameters of gingival inflammation: a systematic review. *Int J Dent Hygiene* 6, 2008; 290-303. 7. Eversmith A, Greenman J, Doherty JM, Newcombe RG, Adley M. The substantivity of a number of oral hygiene products determined by the duration of effects on salivary bacteria. *J Periodontol* 1996 Jun;67(6):572-6. 8. Zilka S, Dinesano M, Fujita H, Radkley C, Salata R, et al. Cetylpyridinium chloride (CPC) exhibits potent, rapid activity against influenza viruses *in vitro* and *in vivo*. *Pathogens and Immunity* 2017;2(2):253-69. 9. Mukherjee PK, Espor F, Buchheit K, Arora K, Adhikari I, Ghoshmouh MA, et al. Randomized, double-blind, placebo-controlled clinical trial to assess the safety and effectiveness of a novel dual-action oral topical formulation against upper respiratory infections. *BMC Infect Dis*. 2017 Jan 14;17(1):74. 10. Herrera D, Soriano J, Rokkán S, González M. Is the oral cavity relevant in SARS-CoV-2 pandemic? *published online ahead of print*. 2020 Jun 23; *Clin Oral Investig*. 2020;1-6.

**DENTAID**  
The Oral Health Experts

# ONDONTOGENIC FIBROMYXOMA OF THE MANDIBLE

Continues from page 16.

## DISCUSSION

Odontogenic Fibromyxoma (OFM) is a rare benign tumour that grows slowly within tooth bearing areas of the jaws.

They are thought to be of embryonic mesenchymal origin from cells of the dental papilla, dental follicles or periodontal ligament.<sup>1</sup>

Myxomas were first described by Virchow in 1863,<sup>2</sup> but the term fibromyxoma was coined by Marcove et al in 1964 in an article presenting three non-odontogenic cases.<sup>3</sup> Myxoma of the jaws were first described two decades earlier by Thoma and Goldman.<sup>4</sup>

OFMs represent 0.04 – 0.6% of oral cavity tumours and are more prevalent in the mandible with an incidence of approximately 0.05 cases per million population. The lesion is seen in females more frequently at a ratio of 1.4:1 during the second and third decades of life and 60% are found in the mandible.<sup>5</sup>

Their presentation varies, 92% present as swellings which displace teeth, occasionally with root resorption, localised or with poor margins, 35% of patients report pain or discomfort and altered nerve function is not a feature.<sup>1,6</sup>

The lesion itself may be full of mucous or be a soft greyish white mass.<sup>6</sup> Plain view radiographs show 66% to be multilocular with diffuse radiolucent areas or trabeculated lesions, the so called 'soap bubble' or 'tennis racket' appearance.<sup>6,7</sup> Magnetic Resonance Imaging helps confirm the diagnosis.

Generally, T1-weighted images show a low intensity response whereas T2-weighted show an enhanced image over the lesion, signifying a loss of marrow tissue



Fig 10: Final pan-oral. Note coronectomy (tooth 48 – bone starting to heal over roots) Three equally spaced out implants. New foramen created for Inferior Alveolar Nerve – below 37

and collection of water rich lesion.<sup>7,8</sup> Differential diagnosis should include ameloblastoma, calcifying epithelial odontogenic tumour, odontogenic fibroma, central hemangioma, fibrous dysplasia, aneurysmal bone cyst, central giant cell granuloma, metastatic tumor, well-differentiated liposarcoma, and desmoplastic fibroma.<sup>9</sup> Biopsy confirms diagnosis.

Histologically, the lesions must be differentiated from chondromyxoid fibroma, odontogenic fibroma, desmoplastic fibroma, and myxoid neurofibroma.<sup>10</sup>

Histopathological characteristics of fibromyxoma are the hypocellularity with stellate, spindle-shaped cells set in a loose myxoid extracellular matrix with cells presenting with thin, long cytoplasmic extensions consistent with immature mesenchyma.<sup>6</sup>

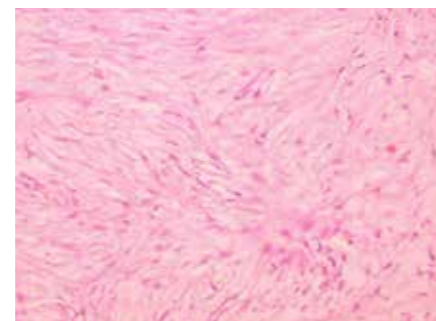


Fig 11: Microscopic appearance.

To confirm the histopathological diagnosis, immunohistochemistry (IHC) is warranted being diffusely positive for vimentin, positive for alpha-smooth muscle actin (SMA), negative for S-100.<sup>11,12</sup>

Hematoxylin and eosin stained tissue showing several spindle shaped cells with long cytoplasmic processes distributed evenly in loose and abundant mucoid tissue.

Magnification 40X – source Martinez.<sup>11</sup> There is disagreement on management of the lesion. In general larger lesions, more than 3cm in diameter, are removed with a clear margin, some authors quoting a 1 – 2 cm clearance margin whereas small lesions may be managed with aggressive curettage.<sup>13</sup>

Given that the lesion does not metastasize or behave more aggressively if recurrence occurs, the advantages of conservative treatment must include lower morbidity, avoiding major reconstructive surgery, reduced hospitalisation, lower risk of facial growth disturbance in children, reduced disfigurement and lower cost of treatment.<sup>1,14</sup>

In a literature review, Meleti et al reported that 26% of reported odontogenic fibromyxomas were

managed by resection with a margin of clearance, the rest by curettage.<sup>1</sup> Recurrence rates are higher for conservative procedures than en-bloc resections probably because the lesions extends within the cancellous bone beyond margins seen on radiographs.<sup>1</sup>

The recurrence rate has been reported to be between 25 – 43% and mainly occurs within the first two years after surgery<sup>6</sup>.

However, Harder followed up 10 cases with significant OFM lesions and reported that patients managed conservatively did better post operatively than patients managed with aggressive en-bloc resection despite recurrences, concluding that aggressive surgery should only be used when the continuity of the jaw is lost.<sup>15</sup>

## CONCLUSION

Odontogenic fibromyxomas are rare, benign, slow growing but locally aggressive tumours of the jaw that present mainly in young adults.

Treatment may be limited to conservative curettage or aggressive resection on bloc. Close follow up is required to catch any recurrence early.

The case presented was that of a small lesion managed by local excision and delayed reconstruction using a CAD/CAM designed mesh frame to support an autogenous bone graft followed by dental implants. Two years have passed since the resection was performed and he remains disease free.

Conflict of interest: The author reports no conflict of interest.

Acknowledgement: The author would like to thank Mr Clarence Pace for assistance harvesting iliac crest bone, Dr Tim Vella Briffa for assisting during surgery and Mr Marco Astrologo for technical work. ■

## REFERENCES

- 1: Meleti, M. et al. Odontogenic myxofibroma: A concise review of the literature with emphasis on the surgical approach. *Medicina Oral Patologia Oral y Cirugia Bucal* 20, e1–e6 (2015).
- 2: Dutz, W. & Stout, A. P. The myxoma in childhood. *Cancer* 14, 629–635 (1961).
- 3: Marcove, R.C., Kambolis, C., Bullough, P.G., and Jaffe, H. L. "Fibromyxoma of bone. A report of 3 cases," *Cancer*, vol. 17, pp. 1209–1213 (1964).
- 4: Thoma KH, Goldman HM. *Odontogenic Tumors: A Classification Based on Observations of the Epithelial, Mesenchymal, and Mixed Varieties.* *Am J Pathol.* May;22(3):433-71 (1946)
- 5: Lahey, E., Woo, S.B. Park, H.K., *Odontogenic Myxoma with Diffuse Calcifications: A Case Report and Review of the Literature.* *Head and Neck Pathology.* 7, 97–102 (2013).
- 6: Dietrich, E. M., Papaemmanouil, S., Koloutsos, G., Antoniadis, H. & Antoniadis, K. *Odontogenic fibromyxoma of the maxilla: A case report and review of the literature.* *Case Reports in Medicine* 2011, (2011).
- 7: Muzio, L. L., Nocini, P., Favia, G., Procaccini, M. & Mignogna, M. D. *Odontogenic myxoma of the jaws A clinical, radiologic, immunohistochemical, and ultrastructural study.* *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 82, 426–433 (1996).
- 8: Sumi, Y., Miyaishi, O., Ito, K. & Ueda, M. *Magnetic resonance imaging of myxoma in the mandible: A case report.* *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 90, 671–676 (2000).
- 9: Joshi, P., Majati, S., Hongal, B. & Agnihotri, N. *Fibromyxomas of the jaw.* *Clinical Cancer Investigation Journal* 4, 737 (2015).
- 10: Alhousami, T., Sabharwal, A., Gupta, S. et al. *Fibromyxoma of the Jaw: Case Report and Review of the Literature.* *Head and Neck Pathol* 12, 44–51 (2018).
- 11: Martinez A. *Odontogenic myxoma / myxofibroma.* *PathologyOutlines.com website.* <http://www.pathologyoutlines.com/topic/mandiblemaxillamyxoma.html>. Accessed November 25th, 2020.
- 12: Poudel, P. et al. *Odontogenic myxofibroma- Report of a rare entity.* *Journal of Pathology of Nepal* 6, 1043–1045 (2016).
- 13: Bahl, S., Raju, G. S. S., Shah, G. & Chandarana, P. *Central odontogenic fibromyxoma of mandible: An aggressive odontogenic pathology.* *BMJ Case Reports* 2016, (2016).
- 14: Boffano, P., Gallesio, C., Barreca, A., Bianchi, F. A., Garzino-Demo, P., & Rocca, F. *Surgical treatment of odontogenic myxoma.* *The Journal of craniofacial surgery*, 22(3), 982–987 (2011).
- 15: Harder, F. *Myxomas of the jaws.* *International Journal of Oral Surgery*, 7(3) 148-155 (1978)

# OCCLUSION IN THE DENTAL PRACTICE



By Dr Daphne Rizzo

Dr Daphne Rizzo qualified at the University of Malta BChD (Malta) in 2015 after five years of undergraduate study. She has recently completed her 3-year MSc in Aesthetic Dentistry via distance learning at Kings College London. Dr Rizzo works in private practice and is also a part-time clinical demonstrator at the University of Malta Teaching Clinic.

How often do you make a record of your patient's occlusal contacts before starting an interventional procedure? How often do you carry out a temporomandibular joint examination for your patients? How often do you make use of facebow records and dental articulators for any of your crown and bridge cases? Do you think that by carrying out any of the above procedures may impact the long-term success of your restorations and/or the quality of life of your patients?

If any of these questions instilled a sense of uncertainty then I suggest you continue reading.

The importance of occlusion, which is highlighted in almost all aspects of dentistry, ranging from a simple occlusal restoration and orthodontics to full mouth rehabilitations, should be common knowledge among us clinicians.

However, even though the provision of such treatments, that have the potential to alter one's occlusion, has become increasingly popular nowadays, good occlusal practice, which encompasses the basis of clinical success, remains neglected among dental practitioners.

## WHAT IS OCCLUSION?

Occlusion is defined as the static relationship between the incising and masticating surfaces of the mandibular and maxillary teeth or their analogues.<sup>1</sup> In a broader context however occlusion, as defined by Mohl et al.,<sup>2</sup> encompasses the whole dynamic biomechanical musculoskeletal

system; the masticatory system. For many, the latter would fall under the definition of gnathology however the fine line present between these two denotations clearly shows a semantic limitation within this field of dentistry.

Delving into the theoretical knowledge of occlusion is beyond the scope of this article. Nonetheless, as clinicians we must have a clear understanding of the components of the masticatory system which includes, but is not exhaustive of, the temporomandibular joints (TMJs), the muscles and supporting tissues, their anatomical structure, the interrelationship to the teeth and their function in both the static and dynamic form. Without which one cannot fully comprehend the cause-effect relationship to an occlusal problem and provide a high standard of care for their patients.<sup>3</sup>

## THE LIMITATIONS

Bearing in mind the significance of this topic, a topic which underlies all dentistry, it is somehow still being overlooked by clinicians. What are the reasons behind this?

## WEAK SCIENTIFIC EVIDENCE

Even after decades of dental research, to this day the subject of occlusion remains one of the most highly debated topics in dentistry.<sup>4</sup> The apparent lack of clear scientific evidence related to this field of dentistry remains a plausible explanation. Many of the available evidence linked to this discipline is based on expert opinions, animal and in-vitro studies.<sup>5,6,7</sup>

One of the reasons for this, can be attributed to the difficulty to effectively measure and control the extensive biomechanical components that make up our masticatory system. Moreover, the ethical challenges that may be faced as well as individual variation further complicates the validity, reliability and reproducibility of the studies, which are fundamental cornerstones for a successful research.<sup>8</sup>

Studies' conclusions are more often based on assumptions from deductive measures rather than from an inductive approach.<sup>9</sup> The study of occlusion in relation to temporomandibular joint disorders (TMJD) is a clear example of this.

To date, no study has successfully reported an association between the role of occlusion in the aetiology of TMJD. In a systematic review, Abduo et al.<sup>10</sup> found no relationship between different lateral schemes such as canine-guidance, group function and bilateral occlusion and the development of TMJD.

Researchers have also continuously reported weak scientific evidence supporting dogmas related to the proper management of TMJD patients, the ideal occlusion and a direct causal relationship of occlusion to fixed prosthodontic complications.<sup>11,12,13</sup>

## THE TEACHING OF OCCLUSION

The complexities involved around the teachings of occlusion and the inconsistencies present in terms of nomenclature and definitions may create more confusion and



Figure 1 (Left): A facebow record will permit the proper mounting of our maxillary study casts on a dental articulator

Figure 2 (Right): Photograph showing mounted study models on a semi-adjustable articulator. This will aid the clinician in diagnosis and treatment planning. It facilitates the replication or reorganisation of the existing occlusion at great precision. In this case the casts were mounted in ICP



instigate clinical misperceptions among the dental profession.<sup>4,6</sup>

Supporting this statement is a survey carried out by O'Carroll et al.<sup>14</sup> which evaluated the undergraduate teaching of occlusion in the United Kingdom and Ireland.

They reported that the topic was not being taught as a stand-alone topic but rather integrated with other study areas without proper coordination amongst the multidisciplinary fields. This approach might have a negative impact upon the students' perception towards occlusion. Furthermore, the inconsistencies found between the dental schools such as the use of articulators and teachings related to TMJDs and occlusal splints could further exacerbate this.<sup>14</sup>

The situation in Malta with respect to the undergraduate curriculum relates to the above where the topic of occlusion is not taught as a stand-alone topic but is carefully integrated with other specialties including restorative, prosthodontics, orthodontics and periodontics. Nonetheless, the need for updated, more consistent and clearly defined guidelines on dental curricula related to the topic of occlusion particularly when it comes to the time allotted within the curriculum, which often does not represent and reflect the importance and weight of this topic, needs to be addressed.<sup>15,16,17</sup>

## THE LOCAL SITUATION

Clinicians should therefore mostly rely on empirical evidence and theory findings. This could explain the level of attention and priority given to this topic both at an academic level, which relates directly to the curriculum aspect, and in a clinical situation where the apparent

lack of occlusal examination being carried out reflects this. The latter was confirmed from the findings of a cross-sectional, questionnaire-based, study carried out in collaboration with King's College London that evaluated the level of occlusal examination being carried out by general dental practitioners practicing in Malta and/or Gozo.

A total of 102 from 184 dental practitioners participated in the study, achieving an overall response rate of 55%. As a general overview of the results found; 54% of respondents personally provide some form of fixed or removable orthodontic treatment for their adult patients presenting at their practice, 90% and 96% of respondents provide single indirect crowns or bridges respectively whereas 70% of respondents carry out full mouth rehabilitations.

Our standard occlusal examinations, as described by Banerji & Mehta,<sup>18</sup> should take note of both the static and dynamic occlusal relationships.<sup>19,20</sup> In this study, we investigated how many of these respondents are formally carrying out the standard occlusal examinations.

When it comes to the static occlusal examinations; which includes recording skeletal relationships, crowding, crossbites and anterior open bites, over 60% of respondents make a record of these occlusal relationships.

However, when we investigated the level of dynamic occlusal examinations being carried out; which includes checking lateral excursive movements and noting any working and non-working side contacts as well as checking centric relation and the slide present (if any) between the intercuspal position (ICP) and the retruded contact position (RCP) we

found that less than 40% of respondents are recording this. Furthermore, less than half of the respondents are carrying out a temporomandibular joint examination for their adult patients.

With respect to fixed prosthodontics, related to crown and bridgework, from the 98 respondents who provide these treatments, only 57% reported that they use a semi-adjustable articulator for any of their crown and bridge cases. Furthermore only 31% of respondents stated that they take facebow records for any of their patients.

In one of the questions we asked the participants whether the topic of occlusion was satisfactorily covered during their undergraduate training.

Most of the respondents, 55%, did not agree that the topic was satisfactorily covered for them with 19% of these strongly disagreeing to the question, 25% remain uncertain about this, whereas the remaining 20% agreed that the topic of occlusion was satisfactorily covered.

Could the above findings be related solely to the educational aspect or is it a combination of neglect from the practitioner's side, especially where certain questionable decisions in the past, (including 'short-cut' techniques which may have been picked up in practice) might have still delivered a good outcome in the 'short-term' without acknowledging possible long-term consequences?<sup>21,22</sup>

Nevertheless, the above findings imply that perhaps a further change in the undergraduate curriculum related to the topic of occlusion must be duly considered.

*Continues on page 22.*

# OCCLUSION IN THE DENTAL PRACTICE

Continues from page 21.

Furthermore, the hours allocated to this topic at an undergraduate level may not be sufficient to provide the extensive knowledge and required competency on occlusion.

Increasing the allotted time may however prove to be a challenge in the undergraduate years especially where there already is an overcrowded curriculum that must be covered in such a limited time.<sup>22,23,24</sup>

Alternatively, consideration for continuing education and professional development courses related to the topic of occlusion might prove to be useful for general dental practitioners to improve their knowledge and skills within this field of dentistry.

## GUIDELINES FOR DENTAL PRACTITIONERS

As vast and 'appalling' as the subject of occlusion may be, there are certain principles which may aid clinicians in achieving a physiological occlusion for their patients especially when considering a reorganisation of the present occlusion such as when undergoing full mouth rehabilitations.<sup>4</sup> However, this section will be covered in more detail in a follow-up.

A physiological occlusion is one that lies in harmony with the masticatory system. Despite the weak scientific evidence present directly linking occlusion as one of the possible causes for restorative and prosthodontic failures as well as for biological complications, the principles for a functionally optimal occlusion as once described by Beyron in 1954,<sup>25,26</sup> have been widely accepted and still stand in clinical practice today.

They act as guidelines for clinicians and should be considered prior to any restorative, prosthodontic and orthodontic intervention.



Figure 3: Pre-operative (left) and post-operative (right) photographs showing the replacement of a failing composite restoration. It is important to mark both static and dynamic occlusal contacts pre-operatively as well as post-operatively, making sure that no iatrogenic changes to the occlusion have occurred



Figure 4: Photograph showing disclusion of posterior teeth on protrusion

These 5 principles of occlusion include:

1. A stable jaw relationship characterised by bilateral contacts in the retrusive closure (that is when in centric relation)<sup>26</sup>
2. Freedom in the retrusive range of occlusal contact, of up to 1mm, to maximum intercuspation (anterior to the retruded, unforced jaw position) to ensure freedom of movement<sup>26</sup>
3. Axial loading should ideally be on posterior teeth and this should provide stable tooth-tooth relationships<sup>26</sup>
4. Smooth gliding pathways in excursive and protrusive movements with shared contacts on the anterior teeth in protrusive movements and group function on the working side and no contact on the non-working side during partial excursion (the first 1-2mm) however variations to this are present<sup>26</sup>
5. Adequate interocclusal distance (freeway space) as a measurement

taken from the resting and occlusal vertical dimension<sup>26</sup>

These principles should not be used as a one-for-all treatment plan but rather tailored according to the individual needs.<sup>4</sup>

## CONCLUSIONS

Those who fail to understand the basic principles of occlusion, may succumb to the preconception that the practice of occlusion is complicated, time consuming and invaluable.

However, once the role of occlusion is grasped, one will understand that without good occlusal practice, our beautiful and somewhat 'costly' restorations will inevitably fail, the dentition and their supporting structures will deteriorate and litigation and negligence claims may arise.

Continues on page 25.

# CLEAR X

## THE RISE OF 4D DYNAMIC ALIGNERS

Pending patents by K LINE EUROPE

### MOBILE APP

For a seamless treatment journey and reliable patient monitoring, the mobile app is a great companion throughout the treatment and even after



### ALIGNER BOOSTER

Boosts the aligner by activating shape-shifting to the next aligner shape in sequence instead of wearing a new aligner

### SMART ALIGNER

Made of unique shape memory polymers capable of retaining 3 different shapes to substitute 3 aligners

## 3 SHAPES | 3 WEEKS | 1 ALIGNER

THE SMARTEST CLEAR ALIGNERS TO DATE



PROUDLY  
MADE IN GERMANY

clearxaligners.com  
info@kline-europe.de  
(+49) 0 211 658 599 44

**Keral**<sup>®</sup>  
Dexketoprofen 25 mg



**Break the pain fast**



# OCCLUSION IN THE DENTAL PRACTICE

Continues from page 22.

The placement of a 'high' restoration today may give way to an interference tomorrow and be the reason for a fractured cusp (even on the contralateral side) in a few years' time if left untreated.

In following a standard parameter of care with our assessments and examinations for all our patients, clinicians may therefore have a good sense of predictability over their clinical outcome with respect to restoration longevity, improved aesthetics (as form follows function), increased productivity by reducing chair-side time and stress associated with occlusal adjustments and most importantly increasing patient comfort and overall quality of life of the individual. ■

## ACKNOWLEDGMENTS

I would like to thank first and foremost the Aesthetic Dentistry MSc course directors at King's College London Dr Subir Banerji<sup>1</sup> and Dr Shamir B Mehta,<sup>2</sup> who gave me the opportunity to form part of this research project but above all who have left an immeasurable impact on my career as a dentist.

I would also like to express my deepest gratitude towards my research project supervisor Dr Nadine Kobty-Hogg for her continuous support and encouragement all throughout and my friends and family for their constant support, encouragement and patience.

<sup>1</sup> Dr Subir Banerji BDS MClinDent (Prosth) PhD MFGDP(UK) FDS RCPS(Glasg) Programme Director MSc Aesthetic Dentistry, King's College London Faculty of Dentistry, Oral & Craniofacial Sciences Associate Professor, Department of Prosthodontics, University of Melbourne Dental School

<sup>2</sup> Dr Shamir B Mehta BDS BSc MClinDent (Prosth) FICD FFGDP(UK) FDS RCPS (Glas) FDS RCS (Eng) Senior Clinical Teacher, Deputy Programme Director MSc in Aesthetic Dentistry, King's College London

## REFERENCES

1. Ferro KJ, Morgano SM, Carl Driscoll CF et al. The Glossary of Prosthodontic Terms Ninth edition. J Prosthet Dent. 2017; 117:e1-e105.
2. Mohl ND. A Textbook of occlusion. Mohl ND, Zarb GA, Carlsson GE, Rugh JD (eds) Quintessence Pub. Co, 1988.
3. Dawson PE. Chapter 1: The concept of complete dentistry. In: Dolan J, Nebel J (eds) Functional Occlusion: From TMJ to Smile Design p. 3-9. St. Louis: Mosby, Elsevier, 2007.
4. Türp JC, Greene CS, Strub JR. Dental occlusion: a critical reflection on past, present and future concepts. J Oral Rehabil. 2008; 35:446-453.
5. Chia-Chun Yuan J, Sukotjo C. Occlusion for implant-supported fixed dental prostheses in partially edentulous patients: a literature review and current concepts. J Periodontal Implant Sci. 2013; 43:51-57.
6. Taylor TD, Wiens J, Carr A. Evidence-based considerations for removable prosthodontic and dental implant occlusion: A literature review. J Prosthet Dent. 2005; 94:555-560.
7. Carlsson GE. Dental occlusion: Modern concepts and their application in implant prosthodontics. Odontology. 2009; 97:8-17.
8. Peck CC. Biomechanics of occlusion - implications for oral rehabilitation. J Oral Rehabil. 2016; 43:205-214.
9. Davies SJ, Gray RMJ, Smith PW. Good occlusal practice in simple restorative dentistry. Br Dent J. 2001; 191:365-381.
10. Abduo J, Tennant M, Mc Geachie J. Lateral occlusion schemes in natural and minimally restored permanent dentition: a systematic review. J Oral Rehabil. 2013; 40:1-15.
11. Pokorny PH, Wiens JP, Litvak H. Occlusion for fixed prosthodontics: A historical perspective of the gnathological influence. J Prosthet Dent. 2008; 99:299-313.
12. Carlsson GE. Some dogmas related to prosthodontics, temporomandibular disorders and occlusion. Acta Odontol Scand. 2010; 68:313-322.
13. Goodacre CJ, Bernal G, Rungcharassaeng K, Kan JYK. Clinical complications in fixed prosthodontics. J Prosthet Dent. 2003; 90:31-41.
14. O'Carroll E, Leung A, Fine PD, Boniface D, Louca C. The teaching of occlusion in undergraduate dental schools in the UK and Ireland. Br Dent J. 2019; 227:512-517.
15. Lee DJ, Wiens JP, Ference J et al. Assessment of Occlusion Curriculum in Predoctoral Dental Education: Report from ACP Task Force on Occlusion Education. J Prosthodont. 2012; 21:578-587.
16. Esposito CJ, Farman AG, Veal SJ. Occlusion in the dental curriculum: 1980-1981. J Prosthet Dent. 1983; 49:419-426.
17. American Dental Association. Dental Education Programs - ADA Health Policy Institute Data Center Report 4: Curriculum. Chicago:ADA Health Policy Institute, 2013.

Continues on page 26.

# OCCLUSION IN THE DENTAL PRACTICE

Continues from page 25.

18. Banerji S, Mehta SB. Clinical Occlusion: Assessment. In: Banerji S, Mehta SB, Ho CK (eds) Practical Procedures in Aesthetic Dentistry. p. 45–50. Oxford: Wiley-Blackwell, 2017.
19. Popescu MR, Dăguci C, Dragomir LP. Occlusal screening as basis for the integration of conjunct gnatho-prosthetic devices. *Curr Health Sci J*. 2010; 36:148–152.
20. Davies SJ, Gray RMJ. The examination and recording of the occlusion: Why and how. *Br Dent J*. 2001; 191:291–302.
21. Welker WA. The dental curriculum : Is it relevant to dental practice ? *J Prosthodont*. 1992; 1:47–50.
22. Clark DM, Oyen OJ, Ph D, Feil P, Ed D. The use of specific dental school-taught restorative techniques by practicing clinicians. *J Dent Educ*. 2001; 65:760–765.
23. Lynch CD, Singhrao H, Addy LD, Gilmour ASM. The teaching of fixed partial dentures in undergraduate dental schools in Ireland and the United Kingdom. *J Oral Rehabil*. 2010; 37:908–915.
24. Haug SP, Brown DT, Goodacre CJ, Cerimele BJ. Recent graduates' and current dental students' evaluation of their prosthodontic curriculum. *J Prosthet Dent*. 1993; 70:361–371.
25. Beyron HL. Characteristics of functionally optimal occlusion and principles of occlusal rehabilitation. *J Am Dent Assoc*. 1954; 48:648–656.
26. Beyron H. Occlusion: point of significance in planning restorative procedures. *J Prosthet Dent*. 1973; 30:641–652.

**SKUDEXA®**  
Tramadol Hydrochloride + Dexketoprofen

NEW Fixed Dose Combination for moderate to severe acute pain!



Multimodal effective analgesia and rapid acute pain relief in one tablet<sup>2,4</sup>

**Therapeutic indications**  
Symptomatic short term treatment of moderate to severe acute pain in adult patients whose pain is considered to require a combination of tramadol and dexketoprofen<sup>1</sup>.

**Posology**  
Adults: the recommended dosage is one tablet. Additional doses can be taken as needed, with a minimum dosing interval of 8 hours<sup>1</sup>.



**PRESCRIBING INFORMATION** (For more detailed information, please refer to the full Summary of Product Characteristics)  
**CLINICAL PARTICULARS** **Therapeutic indications** Symptomatic short term treatment of moderate to severe acute pain in adult patients whose pain is considered to require a combination of tramadol and dexketoprofen. **Posology and method of administration** Adults: The recommended dosage is one tablet (corresponding to 75 mg of tramadol hydrochloride and 25 mg of dexketoprofen). Additional doses can be taken as needed, with a minimum dosing interval of 8 hours. The total daily dose should not exceed three tablets per day (corresponding to 225 mg of tramadol hydrochloride and 75 mg of dexketoprofen). Skudexa is intended for short term use only and the treatment must be strictly limited to the symptomatic period and in any case not more than 5 days. Switching to a single agent analgesic should be considered according to pain intensity and response of the patient. Undesirable effects may be minimized by using the lowest number of doses for the shortest duration necessary to control symptoms (see section 4.6). **Elderly**: In elderly patients the starting recommended dosage is one tablet; additional doses can be taken as needed with the minimum dose interval of 8 hours and not exceeding the total daily dose of 2 tablets (corresponding to 150 mg of tramadol hydrochloride and 50 mg of dexketoprofen). The dosage may be increased to a maximum of 3 daily tablets as recommended for the general population only after good general tolerance has been ascertained. Limited data are available in patients over 75 years, therefore SKUDEXA should be used with caution in these patients (see section 4.4). **Hepatic impairment**: Patients with mild to moderate hepatic dysfunction should start therapy at reduced number of doses (total daily dose 2 tablets Skudexa) and be closely monitored. Skudexa should not be used in patients with severe hepatic dysfunction (see section 4.3). **Renal impairment**: The initial total daily dosage should be reduced to 2 tablets Skudexa in patients with mildly impaired renal function (creatinine clearance 30 - 59 ml / min). Skudexa should not be used in patients with moderate to severe renal dysfunction (creatinine clearance < 30 ml / min) (see section 4.3). **Paediatric population**: The safety and efficacy of Skudexa in children and adolescents have not been established. No data are available. Therefore, Skudexa should not be

used in children and adolescents. **Method of administration** Oral use. Skudexa should be swallowed with a sufficient amount of fluid (e.g. one glass of water). **Concomitant administration with food** delays the absorption rate of the drug (see Section 5.2), for a faster effect the tablets may be taken at least 30 minutes before meals. **Contraindications** The contraindications reported for dexketoprofen and tramadol as single agents should be taken into account. Dexketoprofen must not be administered in the following cases: hypersensitivity to dexketoprofen, to any other NSAID, or to any of the excipients listed in section 6.1; patients in whom substances with a similar action (e.g. cetylalcolic acid, or other NSAIDs) precipitate attacks of asthma, bronchospasms, acute rhinitis, or cause nasal polyps, urticarial or angioneurotic oedema; known photallergic or phototoxic reactions during treatment with ketoprofen or fexofenadine; patients with active peptic ulcer/gastrointestinal haemorrhage or any history of gastrointestinal bleeding ulceration or perforation; patients with history of gastrointestinal bleeding or perforation, related to previous NSAIDs therapy; patients with chronic dyspepsia; patients who have other active bleedings or bleeding disorders; patients with Crohn's disease or ulcerative colitis; patients with a history of bronchial asthma (even if not drug-induced); patients with severe heart failure; patients with moderate to severe renal dysfunction (creatinine clearance < 59 ml/min); patients with severely impaired hepatic function (Child-Pugh C); patients with haemorrhagic diathesis and other coagulation disorders; patients with severe dysthyroidism (caused by vomiting, diarrhoea or insulin fluid intake). **Tramadol** must not be administered in the following cases: hypersensitivity to tramadol or to any of the excipients listed in section 6.1; in acute intoxication with alcohol, hypnotics, anaesthetics, opioids or psychotropic medicinal products; in patients receiving MAO inhibitors, or who have taken them within the last 14 days (see section 4.5); in patients with epilepsy not adequately controlled by treatment (see section 4.4); **Severe respiratory depression** Skudexa is contraindicated during pregnancy and lactation (see section 4.6). **Special warnings and precautions for use** The special warnings and precautions reported for dexketoprofen and tramadol as single agents should be taken into account. (For more detailed information, please refer to the full Summary

of Product Characteristics). **Interactions with other medicinal products and other forms of interaction** No clinical studies have been performed to evaluate the potential impact of drug-drug interactions on safety profile of Skudexa. However, those reported for dexketoprofen and tramadol as single agents should be taken into account. (For more detailed information, please refer to the full Summary of Product Characteristics). **Fertility, pregnancy and lactation** **Pregnancy** No cases of pregnancy occurred during the Skudexa clinical development. The safety profile of Skudexa during pregnancy has not been established in the clinical studies included in this section. Data reported for dexketoprofen and tramadol as single agents should be taken into account. (For more detailed information, please refer to the full Summary of Product Characteristics). **Fertility** As with other NSAIDs, the use of dexketoprofen may impair female fertility and is not recommended in women attempting to conceive. In women who have difficulties conceiving or who are undergoing investigation of infertility, withdrawal of dexketoprofen should be considered. **Effects on ability to drive and use machines** The effects known for the single components of Skudexa apply to the fixed combination. (For more detailed information, please refer to the full Summary of Product Characteristics). **Undesirable effects** The adverse events at least possibly related reported in the clinical trials performed with Skudexa and the adverse reactions reported in dexketoprofen and tramadol tablets 5mg/25mg are tabulated below, classified by system organ class. In clinical studies the most commonly observed adverse reactions were vomiting, nausea and dizziness (2.9%, 2.7% and 1.1% of patients, respectively). (For more detailed information, please refer to the full Summary of Product Characteristics). **Overdose** No cases of overdose have been reported in the clinical studies. Data reported for dexketoprofen and tramadol as single agents should be taken into account. (For more detailed information, please refer to the full Summary of Product Characteristics).

<sup>1</sup>Skudexa. Summary of Product Characteristics. <sup>2</sup>McQuay HJ et al. *Br J Anaesthesia*. 2016; 116:269-276  
<sup>3</sup>Moore RA et al. *BMC Anaesthesiol* 2016;16:9 <sup>4</sup>Moore RA et al. *The Journal of Headache and Pain*. 2015; 16:60



ONLY PRESCRIBED ON A GREEN PRESCRIPTION

## Bleeding Disorders

Becoming aware of the signs and symptoms indicating Bleeding Disorders  
Checklist of Symptoms

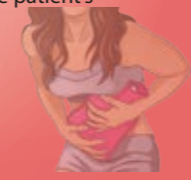
- Easy bruising (the patient or his/her relatives)
- Frequent nose bleeds
- Frequent gum bleeding
- Pain and tiredness
- Abnormal heavy bleeding after surgery, childbirth or miscarriage
- Heavy menstrual period

## BLEEDING DISORDERS



## Period Symptoms suggesting a Bleeding Disorder

- Period lasts more than 7 days
- Frequent bleeding through sanitary protection
- Need to double up on sanitary protection
- Need to change the sanitary protection more than once every other hour
- Limitation in the patient's daily activities due to her period
- Significant impact of the patient's period on her quality of life
- Iron deficiency and anaemia due to the patient's period



# ALL-CERAMIC SINGLE-TOOTH RESTORATIONS FOR TREATING DAMAGED DENTAL ENAMEL

## LONG-TERM RESULTS IN PATIENTS WITH AND WITHOUT AMELOGENESIS IMPERFECTA

By Dr Andrea Klink, Dr Fabian Hüttig, both from Tübingen/Germany, and Dr Martin Groten, Reutlingen/Germany

Teeth that have been affected by extensive wear or a genetic disorder can be successfully restored with adhesively bonded all-ceramic restorations. The following article summarizes the outcomes of a series of complex clinical cases.

Two different groups of patients require the rehabilitation of impaired full dentitions:

1. Patients whose teeth show extensive erosion, abrasion or attrition caused by their diet (e.g. consumption of energy drinks) and/or overuse (e.g. grinding)
2. Patients who have a genetic disorder that affects the tooth structure and the composition of the tooth enamel (e.g. amelogenesis imperfecta, AI) (Figs 1 to 3)

Patients in the first group usually start experiencing problems (e.g. pain and compromised esthetics) in their forties and fifties. The teeth become

shorter and look yellowish; parts of the existing tooth structure become fragile and a loss of vertical dimension occurs. Patients with a genetic enamel defect generally require treatment when they are in their teens.

Today's advanced all-ceramic and adhesive systems allow minimally invasive tooth preparation and they produce durable, functional and esthetic restorations.

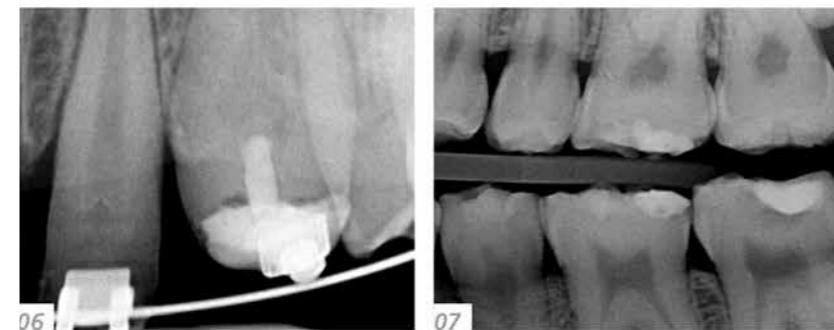
Before treating patients with dental erosion, it is important to obtain their full medical history (e.g. bulimia nervosa or reflux disease) and find out about their eating habits. If possible their general practitioner should also be involved in the treatment. If the



01 to 03 – Three phenotypes of the autosomal dominant inherited amelogenesis imperfecta in the anterior teeth of three sisters



04 and 05 – The posterior teeth of AI patients also show different types of enamel defects. The enamel layer may be missing entirely.



06 and 07 – The entire crown of tooth 23 is missing (Fig. 6). The bitewing radiograph (Fig. 7) shows normally formed dentin; parts of it are bare, while other parts are covered with only a thin layer of enamel.



08 – The panoramic radiograph shows a severe form of AI. None of the teeth show any enamel coverage.



09 – In many cases, the dentin colour deviates considerably from the norm. It is therefore important to select the correct tooth shade for an esthetic outcome of the monolithic crowns.

patient is experiencing functional problems, these should be addressed in a pre-treatment phase.

In patients with a congenital defect of the tooth structure, a thorough clinical and radiological examination is of utmost importance, since in addition to the enamel defects (Figs 4 and 5), these individuals may also suffer from

follicular cysts, abnormal tooth eruption, retained or impacted teeth, an open bite or dental pulp calcification (Figs 6 to 8).

The disorder is furthermore associated with gingival and periodontal disease. This must be taken into consideration in the preliminary treatment of hypomineralized and hypocalcified enamel.

Depending on the severity of the impairment of the enamel formation, an adhesive bond may be much weaker than it would be on healthy enamel.

As a result, the adhesive bond must be generated in the dentin in most cases (Fig. 9).

*Continues on page 30.*



10



11

10 — Grade 3 chipping of an IPS Empress II anterior crown after 16 years. The restoration was repaired by adhesively bonding the fragment in place again.

11 — Classical fracture of a molar crown (in this case Celay silicate ceramic, Vita Zahnfabrik) after 14 years. The crown was completely removed and a new restoration was placed after minimal preparation.



12 — Photo of the restorations placed in the patient shown in Figure 2 after five years of service.

Continues from page 29.

At present, no guidelines or scientific reports of an evidence-based protocol are available for the treatment of patients with AI.

In a long-term study conducted at the Tübingen University Hospital, we identified the type of complications which could arise with adhesively placed all-ceramic single-tooth restorations in the mentioned patient groups.

#### DATA BASE AND EXAMINATIONS

For our study, we selected patients who regularly attended the recall appointments and who had been treated as follows:

Single-tooth restorations (crowns, partial crowns) made of silicate (Si) or lithium disilicate ceramic (LiDi) had been placed with an adhesive composite.

Table 1 (QR code on page 7) contains a list of the materials used. The patients had lost a maximum of four teeth. The missing teeth were replaced with not more than a three-unit all-ceramic bridge or a single-tooth implant with an all-ceramic crown.

The patients whose vertical dimension of occlusion had to be opened by more than 4 mm were

given an occlusal appliance which they had to wear 24/7 for at least four months before the treatment.

The rapid developments in the field of all-ceramic materials continue to open up new treatment modalities. Initially, however, feldspathic and leucite-reinforced silicate ceramics were copy-milled to produce esthetic single crowns, which could be used in posterior teeth and were placed with the adhesive technique.

*IPS Empress® II of the first generation of LiDi ceramics reduced the fracture risk due to improved mechanical properties. It was followed by the optimized IPS e.max® Press.*

A clinical check-up program was initiated in order to monitor the quality of the treatment results.

Therefore, the tooth status, periodontal probing depth and papillary bleeding index as well as the quality of all the restorations were annually assessed and classified according to the Ryge criteria.

Irreparable fractures, tooth loss and deep probing depths were classified as “absolute failures”. If the quality of a restoration was deemed to be compromised, but a new restoration was not justified, it was classified as a “relative failure” (e.g. chipping, cracking of the ceramic).

#### PATIENTS, OBSERVATIONS AND RESULTS

The study involved 17 patients between the ages of 12 and 69 (at the time of the restoration placement) and a total of 450 restorations (Table 1 – QR code on page 7).

Nine of the patients suffered from some form of AI. The patients were observed over a period of maximum 17 years. During this time, the following complications occurred in 44 restorations (10 %) in 11 patients (65 %):

- Eleven of the 44 restorations were classified as “absolute failures”, which translates to an overall survival rate of 99.8 % after three years and 91.4 % after ten years. No significant differences were noted between patients with or without AI.
- Thirty-three of the “relative failures” were caused by chipping (25). It is interesting to note that 11 of the “chip-offs” were recorded in one patient alone. Despite the observed complications, the success rate was 95.7 % after three years and 81.4 % after ten years. A statistically relevant difference was noted between patients with and without AI.

The success rate of patients with AI was significantly higher.

#### DISCUSSION

The long-term performance of the different materials shown in Table 1 and 2 (QR code on page 7) was assessed on the basis of adhesively bonded single-tooth restorations.

During an observation period of ten years, we found that fractures of single-tooth silicate ceramic restorations were spread over the entire length of time (Figs 10 and 11), whereas lithium disilicate crown failures tended to occur towards the end of it.

These results are comparable to those in the literature. Nevertheless, it must be noted that even though the number of restorations involved in our study was high, the number of patients was relatively low.

Consequently, our findings are limited in terms of their validity. However, they do allow us to identify certain trends.

Molar restorations fractured most frequently: after about five years of service and primarily in patients whose vertical dimension had not been opened.

The type of material used may have been responsible for the fractures or the restorations may have been too thin. We were surprised by the fact that the patients with

AI had fewer complications than the patients without AI.

We had assumed that their restorations would not perform as well due to the “unfavourable” conditions for the adhesive bond. Age may have played a role in this finding, since the patients with AI were about 24 years younger on average compared with the other subjects.

In addition, the results of the AI patients showed that adhesive all-ceramic restorations do not cause any endodontic problems.

Therefore, they can be classified as a long-term treatment option. Nonetheless, the teeth of patients with AI require circumferential preparation to prevent any weak areas such as cement lines and to restore the function and anatomy of the teeth.

#### SUMMARY

Adhesively cemented all-ceramic single-tooth restorations achieve excellent clinical results irrespective of the initial situation (Fig. 12). However, patients with a history of functional problems are expected to have a higher rate of technical complications.

Overall, it is likely that about two in one hundred crowns

every year will show some sort of complication after five to ten years of service and that primarily restorations in molars will fracture.

Therefore, we recommend at least one check-up per year in order to treat any complications as early as possible and therefore minimize the risk of failure.

#### ANNOTATION

The present results were previously published in the following article: Klink A, Groten M, Huettig F; Complete rehabilitation of compromised full dentitions with adhesively bonded all-ceramic single-tooth restorations: Long-term outcome in patients with and without amelogenesis imperfecta. J Dent. 2018 Mar;70:51-58. doi: 10.1016/j.jdent.2017.12.011. Epub 2017 Dec 21. ■



# THE GENERAL ASSEMBLY OF FEDCAR

27/11/2020 PARIS

PRESENTATION BY DR CEDRIC GROLLEAU

Written up by Dr David Muscat

Member of The Medical Council of Malta

## THE PHASING OUT OF AMALGAM

The Minamata convention on Mercury(2013) is an internationally legally binding treaty that aims to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds.

The convention addresses mercury-added products, including dental amalgam and proposed nine measures to phase down amalgam.

There is an EU action plan 'towards a zero pollution', an ambition to improve the quality of air, water and soil.

Emissions in the air need to be reduced (crematoria and whole life cycle).

There is still a mercury presence in the water despite the use of high level retention dental amalgam separators.

The EU commissions report on the reviews required under article 19(1) of regulations 2017/852 on the use of mercury in dental amalgam products was concluded on 17 August 2020. Ref COM(2020) 378 Final.

Dental amalgam represents the largest mercury use in the EU.

The current EU regulations already prohibits its use as from 1 July 2018 for the treatment of deciduous teeth and for vulnerable members of the population (children under 15 years old and pregnant and breastfeeding women).

The conclusions of the study are that

1. The phasing out is feasible economically and technically by 2030.
2. The progressive substitution of dental amalgam with mercury free materials is currently occurring without policy intervention as patients and dentists prefer mercury free materials.

However, without legislative action, significant amounts of dental amalgam are still expected to be used in the coming years. There will be no EU legislation without an impact assessment.

In 2021, there will be updating of former studies carried out on alternative materials (2013) and BPA (2015).

Reviews conclude that the release of Bisphenol A from certain dental materials was associated with only negligible health risks and exposure to BPA is within the Tolerable Daily Intake (COM2020).

There is a need to update former studies as there is a general lack of scientific evidence in relation to the use of alternative materials and substance behaviour. There are still concerns in relation to the presence of nano particles and Bisphenol A (BPA).

The 2020 study concluded that due to the lack of comprehensive scientific evidence, the potential direct and indirect impacts of mercury free materials remain uncertain.

Dental representative organisations have also expressed a concern about the lack of information as well as the safety profile and biocompatibility of certain materials which contain nanoparticles and BPA.

There is a legislative proposal for 2022 with regards to consensus on the objective given the former debates and the EU Action Plan 'Towards Zero pollution' ambitions and patient readiness. Negotiations will take place between 2022 and 2030, taking the safety of materials into account.

## THE LATEST EU DEVELOPMENTS ON PROFESSIONAL REGULATION BY DR CEDRIC GROLLEAU

### PARTIAL ACCESS

With regards to the regulated profession of a dental surgeon, the other regulated profession does not exist in the hosting member state.

There is a huge difference in the duration of training.

The procedures of the dentist can be secluded and exercised separately from another profession but to the extent that it does not jeopardise patient safety.

This relies on the national context.

There is no 'fits for all' solution but a case by case basis and it vetted by an ad hoc national committee.

Continues on page 34.

Maintenance

Treatment

CPC

CPC

CHX  
0.12%

FLUORIDE

XYLITOL

ALPANTHA

PROVITAMIN B5 + B3



**KIN** B<sub>5</sub>

DAILY CARE OF GUMS & TEETH

**KIN** Gingival Complex

THE ULTIMATE INNOVATION  
IN GINGIVAL CARE



Distributed by:  
**Prohealth**

# THE GENERAL ASSEMBLY OF FEDCAR

Continues from page 32.

In the European Court Attorney General 1 June 2017 case C-125/16 para 17 . stated

'my reading of the article is therefore that as far as dental practitioners are concerned, there can only be full access to the activities by nature of the harmonisation of the conditions of training organised by directive 2015/36 (19) and the automatic recognition that follows and from which the dental practitioner benefits under the directive.

## PROFESSIONAL ADVERTISING VALIDATION

In view of the importance of the relationship of trust which must prevail between a health professional and his/her patient the protection of the dignity of the regulated profession is capable of justifying a restriction on the freedom to provide services of advertising (para 66).

## RED LINE

In that regard the court has held in particular that the extensive use of advertising or the selection of aggressive promotional messages may undermine the protection or the health and dignity of the health professions.

It is up to the member state to deduce evidence of the appropriateness and necessity of a measure they adopt in derogation (para 101).

## STRENGTHENING OF THE INTERNAL MARKET

Amendment 274 (tabled by Mrs Gebhardt).

Urges the commission to adopt a quantitative and qualitative evaluation method, encompassing in particular the general interest objectives and the quality of the service provided.

The objective is a better understanding of the link between professional regulation and quality of services.

The study will consist of focusing on health professions and business service professions. And the final report will be concluded in one year.

## BREXIT

The date is 31 December 2020. There are 3 weeks of translation, legal checking, discussion and ratification of 1400 pages of documents.

With regards to health what concerns us is the decision on the Mutual recognition of qualifications.

## THE EU COMMISSIONS LATEST VIEWS ON THE PROPORTIONALITY TEST DIRECTIVE AND ON PROFESSIONAL QUALIFICATIONS DIRECTIVE BY BERNARD ZAGLMAYER POLICY OFFICER EU.

## LANGUAGE

There have been many complaints regarding language requirements. Article 53 of the directive states that the applicant can prove by a different way that he has competence in the language and does not need to take a test. But the competent authority can require a test if the documents are not provided.

Language controls have to be undertaken after you recognise the degree.

The directive does not allow for language checking before recognition because of deadlines as this could go on for a long time.

## PARTIAL ACCESS

There are many different combinations the 27 member states and the way professionals are regulated differs. One needs to look at each case.

## CROSS BORDER SERVICE PROVISION

Member states are not allowed to ask for article 5 and article 7 of the directive as this will result in additional costs and is time consuming.

Article 6a case law is related and does not allow for supplemental registration of service providers.

Re conditions for an aptitude test- there is a one month rule in which it has to be assessed or else a compensation measure has to be applied.

## DOCUMENT REQUIREMENTS

One cannot request originals. One cannot ask for proof of language with a specific test

The document is authenticated by one specific body or type of body in the home member state

## IMPLEMENTATION REPORT

## LEGAL BASIS ARTICLE 60(I)PQD

The ECTS points system is used a lot. ECTS points however contain self study periods but the EU is more concerned in the involvement of training institutions rather than what the professional does at home. One has to specify that 5 years AND 5000 hours count. The ECTS POINTS are in addition to this.

Annex 5 is updated every year with 1st May being the cut off date. IMI is notified.

Comments on this by Dr Maria Cristina Menzanas of ADEE were that competences are complex.

There is currently an Erasmus project to check how the formation of the dentist is carried out.

Continues on page 36.

# SENSITIVITY & GUM PROBLEMS CAN CO-EXIST<sup>1,2</sup>



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

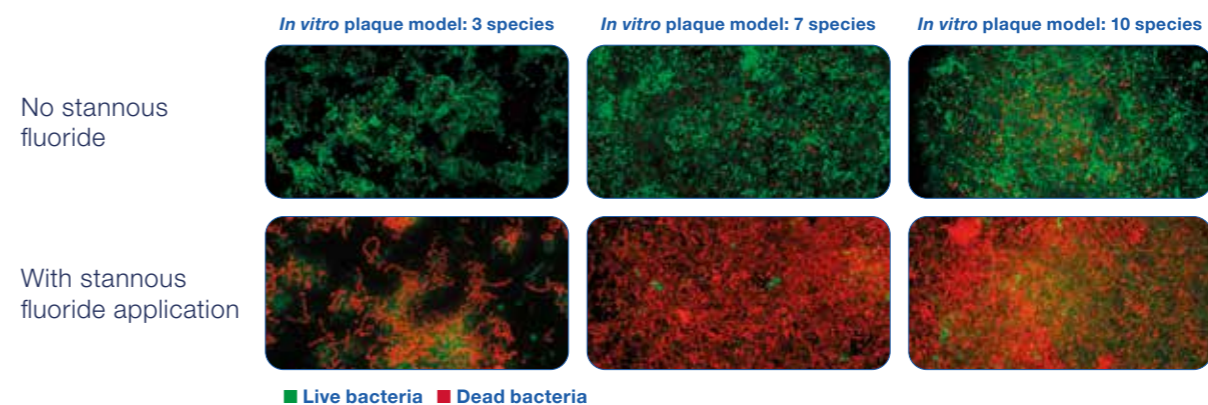
## NOW YOUR PATIENTS CAN PRIORITISE BOTH CONDITIONS AT ONCE

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<sup>6\*</sup> and has an antimicrobial action.<sup>6-8\*</sup>



## SENSODYNE SENSITIVITY & GUM PROMOTES GUM HEALTH THROUGH EFFECTIVE PLAQUE CONTROL<sup>6</sup>



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.<sup>6,9</sup>

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

\*with twice daily brushing

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.idjrs.com/uploads/38/1770\\_pdf.pdf](https://www.idjrs.com/uploads/38/1770_pdf.pdf)

Trade marks are owned by or licensed to the GSK group of companies. CHMLT/CHSENSO/0017/19.

# THE GENERAL ASSEMBLY OF FEDCAR

Continues from page 34.

The number of hours does not mean that the student is sufficiently trained but the importance is how many hours the student has spent with the patient and this is the pertinent point, a dentist unlike a doctor has to practise on patients whilst a student.

The number of clinical hours contact time has to be shared. The minimum training subjects are also out of date as are certain specialities. There are now other subjects that appear in the minimum requirements. The ADEE is using Haptic technology.

IT skills have to be specific so that there is a compared value between member states.

## IT SKILLS

IT skills also need to be addressed and the students need to be able to administer patient data. There are also apps between a professional and patients regarding consultations. There is also the technology in terms of treatment. One needs to see how one is to include knowledge and skill in this modern technology.

## COVID 19 IMPLICATIONS

Member states could stop the dental training this year if they had fulfilled the minimum requirements of their course if this is usually in excess of the minimum. The President of the Students Association of Europe said that some dental students in fact suffered from depression due to this.

## ANNEX 5 DENTAL SPECIALIST IN PERIODONTOLOGY

Article 35 requires two fifths of member states to create a new specialisation but only 10 states supported it so it is short of the 11 states required so this will not happen in the near future.

## PROPORTIONALITY TEST DIRECTIVE

Many member states have not replied and they are being served infringement procedures, and have been sent a letter of formal notice.

## MOVING UPSTREAM 2019 PRESENTATION BY DR HANNAH PUGH CLINICAL FELLOW AND HEAD OF UPSTREAM REGULATION GDC

The GDC undertook a project on the preparedness of dental graduates in Great Britain. 98 per cent of graduates do Foundation or vocational Training. They are ranked and allocated an area.

This is not a mandatory position. There is a difference in the expectations of new dentist's skills between supervisors and trainees. The conclusion was that there needs to be more clinical experience at undergraduate level. At university they do not experience real world settings.

There is a need for a support network. Dentists seem to be practising defensively.

The findings of the GDC were that

1. There is the need of an increase in the breadth and depth of clinical experience.
2. A need for an increase in outreach placements
3. Clarify expectations at the point of registration
4. Ensure that there is adequate clinical and pastoral support during the first year or years of practice.
5. Is there a need for a pre registration year?
6. One needs to further define a 'safe beginner'.
7. One needs to revise learning outcomes with stakeholders
8. Covid 19 caused a disruption of dental services and this caused more challenges in the preparedness of UK graduates.

## PROMOTING PROFESSIONALISM -RESEARCH BY THE ADEEO HEALTH EDU ON THE FUTURE OF DENTAL EDUCATION IN EUROPE BY PROFESSOR TUBERT JEANNIN PROJECT CO ORDINATOR ADEE

The dentist must show empathy, compassion, politeness and friendliness. The principle of professionalism must be used as a basis for raising the professional standards when one sets requirements.

The education of the dental health workforce is a public health issue. Dental Education is a determinant of Oral Healthcare. This is influenced by students professionalism. Domains are professionalism, safe and effective dental practice, patient centred care. The Covid 19 crisis has allowed a new vision of things.

The practical aspects of aerosols as well as the fact that dental chairs are in open spaces. In most EU countries 92 per cent of dental schools closed. 50 % closed completely. 70% only provided emergency care. Covid 19 has allowed us a holistic vision of health and oral health and provides a better understanding of the reality of oral health and professional education in Europe.

Objectives are a common and shared understanding. Intellectual outputs are in progress. There is a scoping view, a position paper is written. This is followed by a questionnaire survey brought up to date, after that there is a defined glossary of terms and an online interactive hub, a report and a fact sheet. This is followed by mapping. The information is then made available online to the public.

## DANIEL FAULKNER REGISTRAR AND CEO ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO

He emphasised that the participation of lay persons in Council and committees enhances the work of such entities. ■



**Aura**  
The World's Smartest Air Management Platform



**01**  
Real-time Indoor & Outdoor Air Quality Monitoring

**02**  
Heidy—Your Personal Air Quality Assistance

**03**  
Cutting Edge Disinfection & Purification Technology

**04**  
Smart Insights & High-Risk Scenario Prediction

## Results of COVID-19 Coronavirus-focused Clinical Trial now published



# SMILE FOR ALBANIA

By Dr Ethel Vento Zahra

Smile For Albania, a student society of the University of Malta, provided humanitarian dental care for students at Preca College and children from state schools in Korce, Albania, between 1994 and 2010.

The dental team was made up of staff and students from the University's Department of Dental Surgery with Dr Charles Galea and Dean Emeritus Professor John M. Portelli, heading the society.

The dental clinic used to operate for 10 hours a day with staff and students working in shifts and providing free dental treatment to the children. The members of MUSEUM in Korce, who were Maltese and used to run Preca College, where the clinic was located, used to kindly share their home and provide the dental team with lodging.

Smile for Albania used to procure dental equipment and materials thanks to donations and an annual jumble sale, organized with the full participation of dental students in all the five years of the course.

Albania is a beautiful country and we saw a lot of change over the years. I personally took part in five such trips, including what turned out to be the last one.

The travelling overland in Prof's Land Rover for two and a half days each way used to be grueling, but soon forgotten once the satisfaction of helping others less fortunate kicked in. These were tremendous learning experiences for me, and taught me to be very grateful for what we generally take for granted, including basic housing.

In retrospect they possibly also inspired me to further my studies in public health. These experiences gifted me with friendships and bonds together with memories that will last forever. 🇲🇹



IPS **e.max**®

**ZirCAD MT Multi**  
The most esthetic high-strength,  
multi-translucent<sup>1</sup> zirconia

All ceramic,  
all you need.

<sup>1</sup> Composed of different material classes

[www.ivoclarvivadent.com](http://www.ivoclarvivadent.com)

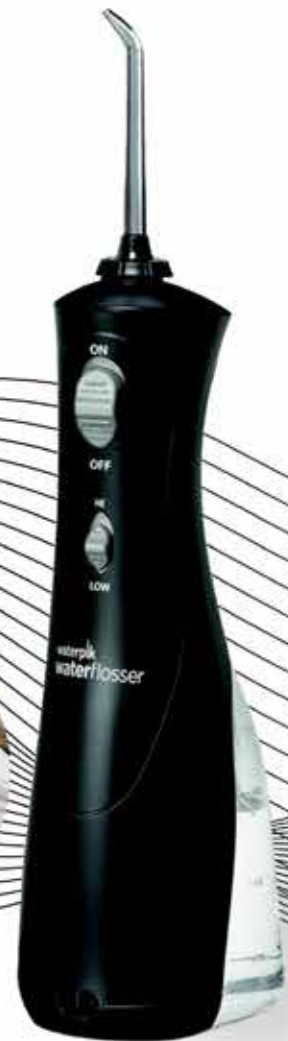
Ivoclar Vivadent AG  
Bendererstr. 2 | 9494 Schaan | Liechtenstein | Tel. +423 235 35 35 | Fax +423 235 33 60

ivoclar  
vivadent®  
passion vision innovation

# waterpik®

The Easy and More Effective Way to Floss™

#1 RECOMMENDED WATER FLOSSER BY  
DENTAL PROFESSIONALS



Waterpik® Water Flosser Earns the American Dental Association Seal of Acceptance

First product in its class to earn the ADA Seal



Waterpik® Oral Health is represented officially in MALTA & GOZO  
by PAGE TECHNOLOGY LTD

Address 77, P. Indri Vella Street, Pembroke, PBK 1311, Malta

Call +356 27355564 / Email info@page.com.mt / Learn More www.waterpik.com