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Prof. Dr Norbert Gutknecht

ISLD President and Scientific Chairman



Welcome to the European Capital of Culture

Dear friends and colleagues,

It is a great honour and a pleasure for me to invite you to our ISLD Congress in Plovdiv, Bulgaria, for an unforgettable experience of technology and culture going hand in hand to create an outstanding event. I am also very happy about the decision for DGL to join ISLD by executing their annual congress together with the ISLD in Plovdiv.

Plovdiv, established 4,000 years ago and, therefore, being the oldest city in Europe, celebrates this year its appointment as European Capital of Culture. There will be an array of attractive events all year around where people from all over Europe and other parts of the world will come to Plovdiv to enjoy participating in the celebrations and experiencing art works by many international artists. Against this backdrop, Plovdiv, the European Capital of Culture 2019, was a natural choice and unanimously selected as the best site to hold the 17th World Laser Congress of ISLD.

The International Society for Laser Dentistry (ISLD) was established in Japan in 1988. Thirty years later, the ISLD celebrated its Pearl Anniversary during the Laser Dentistry World Congress held in Aachen, Germany. The congress was a great success and more than 540 participants from 43 countries enjoyed a high level of scientific presentations, warm hospitality and a friendly atmosphere. It was, indeed, an unforgettable event and an ideal time for staging the revival of our prestigious Dental Laser Society.

Myself and many other colleagues representing numerous national dental laser societies were determined to

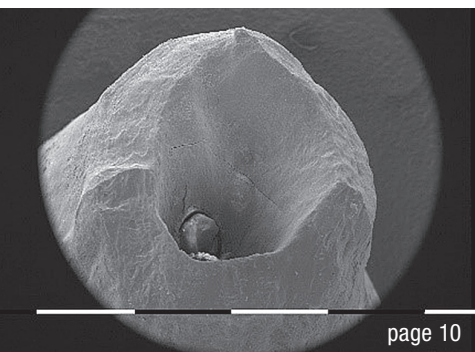
place ISLD as an outstanding scientific organisation in laser dentistry.

We feel very much encouraged to see more and more new membership applications. Colleagues from all over the world are eager to join ISLD and the number of national laser societies that choose to be part of our organisation is constantly growing. I believe that all of us, dental laser users worldwide, would like to see a bright future for Laser Dentistry. Your participation in our upcoming ISLD Congress, which will take place in Plovdiv, Bulgaria, 6–8 June 2019 is essential in strengthening ISLD and its main goal to enrich the knowledge of its members and to promote professional excellence in the use of lasers through science research and education.

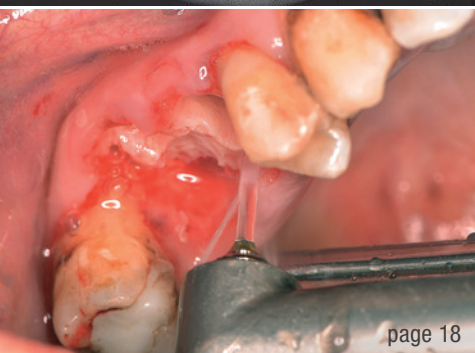
Prof. Georgi Tomov, our organising Chairman and his team, together with the Bulgarian Society for Laser Dentistry are already in full action and look forward to hosting us in their attractive city. I also look forward to seeing you joining us in a great celebration of science and art under the umbrella of ISLD, the leading World Laser Dentistry Organisation in beautiful Plovdiv. Welcome to Plovdiv in 2019.

Yours,

Prof. Dr Norbert Gutknecht



page 10

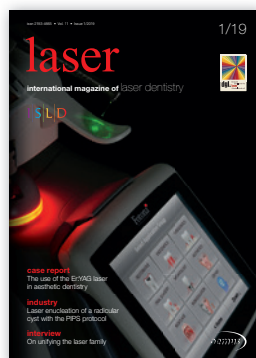


page 18



page 26

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editorial

- Welcome** to the European **Capital of Culture** 03
Prof. Dr Norbert Gutknecht

case report

- Amalgam tattoo removal** with diode laser 06
Dr Maziar Mir, Prof. Norbert Gutknecht, Dr Masoud Mojahedi,
Dr Jan Tunér, Prof. Ramin Mosharraf, Sevda Noori & Dr Masoud Shabani

- Apicectomy** of an endodontically compromised **central incisor** 10
Drs Georgi T. Tomov & Mutlu S. Turkkan

- The use of the **Er:YAG** laser in **aesthetic dentistry** 14
Prof. Roly Kornblit

industry

- Laser enucleation of a **radicular cyst** with the **PIPS protocol** 18
Dr Betül Göfteci

- A simple **design improvement** of Waterlase iPlus® 22
Peter Hünnebeck, Dr Sophia Hünnebeck, Dr Roland Ventura

practice management

- Successful **communication** in your **daily practice** 24
Dr Anna Maria Yiannikos

interview

- On unifying the **laser family** 26

events

- Ceramic implants**—Game changer in **implant dentistry** 30
Prophylaxis **works** and offers **future potential** 32
Plovdiv to become European **Capital of Laser Dentistry** 33

news

- manufacturer **news** 36
news 38

about the publisher

- imprint 42

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Amalgam tattoo removal with diode laser

Dr Maziar Mir, Prof. Norbert Gutknecht, Dr Masoud Mojahedi, Germany; Dr Jan Tunér, Sweden; Prof. Ramin Mosharraf, Sevda Noori & Dr Masoud Shabani, Iran

Introduction

An amalgam tattoo belongs to the group of common pigmented lesions in the oral cavity. Such tattoos are created through emergence of amalgam particles into the damaged oral mucosa during placement of amalgam fillings or a discolouring of the soft tissue close to the amalgam filling over time. Clinically, amalgam tattoos appear as bluish-black or bluish-grey lesions on the oral mucosa, most commonly on the gingival surfaces, alveolar mucosa and buccal mucosa. The incidence of amalgam tattoos has been reported as up to 8 per cent of samples surveyed.^{1,2}

The clinical appearance of the lesion and the presence of radiopaque amalgam fragments in radiographs are enough to diagnose an amalgam tattoo. If no metallic fragments can be identified in a radiograph, a biopsy of the lesion is recommended to rule out melanocytic neoplasia. Unless for aesthetic reasons, treatment of an amalgam tattoo is not necessary.^{3,4} Owing to the severity of melanoma, clinicians must differentiate between benign lesions and serious lesions, most notably melanoma. Based on the pigment origin, a bluish-black or bluish-grey pigmented lesion may be classified as an endogenous or exogenous pigmented lesion. Based on the involved areas, such lesions are further differentiated into localised and diffuse pigmentations.

Localised bluish-black or bluish-grey pigmented lesions include:

1. pigmentation due to metals like amalgam, graphite, lead (in the oral cavity, amalgam tattoos usually occur near restorations);
2. melanotic macule (small in size, mostly occurs on lips, due to increase in melanin synthesis);
3. naevus (increased proliferation of melanocytes, usually innate/congenital);
4. malignant melanoma (dark, irregular borders, asymmetrical and rapid in growth); and
5. post-inflammatory pigmentation due to healing of lesions such as lichen planus, pemphigus and pemphigoid disease.

Diffuse pigmentations include:

1. physiological pigmentation (present from birth);
2. smoker's melanosis (due to history of smoking);
3. endocrine disorders like Addison's disease/Cushing's syndrome (based on systemic signs and symptoms);
4. HIV-associated melanosis (based on ELISA test for HIV); and
5. pigmentations associated with syndromes, such as McCune–Albright and Peutz–Jeghers (requires general examination for other associated features).

All of the above-mentioned lesions have to be considered in differential diagnosis when considering the treatment of such darkly pigmented areas in the oral cavity.⁵

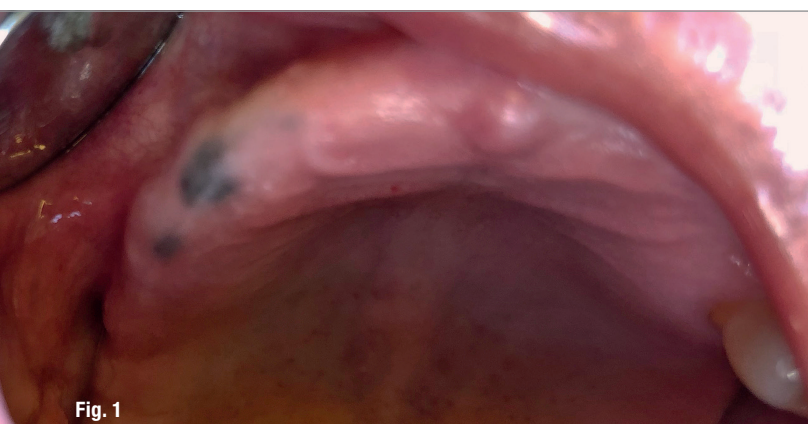


Fig. 1: Clinical appearance of the amalgam tattoo at the alveolar ridge.

Fig. 2: Radiograph showing some amalgam particles at the lesion site.

Once amalgam tattoo diagnosis has been confirmed, treatment may be performed with a dental laser, surgical blade or placement of subepithelial connective tissue.^{6,7}

Case presentation

A 60-year-old female patient with a dark pigment at the edentulous alveolar ridge was referred for treatment of the lesion as a pre-prosthetic preparation procedure.

Medical history

The patient's medical history showed no systemic medical problems, no allergic reaction, no medications or recreational drugs and no history of past surgical procedures; thus, the patient did not need to be referred for medical consultation.

Dental history

Oral and maxillofacial examination of the patient revealed no temporomandibular

joint disorder or myofascial disturbances, and no functional or parafunctional habits, but poor oral hygiene and a fully edentulous maxilla.

Clinical findings

The clinical examination showed a dark pigmentation on the maxillary alveolar ridge that was firm and well demarcated and caused no pain (Fig. 1).

Radiographic examination

Radiographic examination revealed the appearance of radiopaque particles at the area of the dark pigmentation (Fig. 2).

Diagnosis

An amalgam tattoo lesion was thus diagnosed and removal by diode laser was decided on.

Amalgam tattoo removal with diode laser

After the patient had completed the consent form, the operation area was anaes-

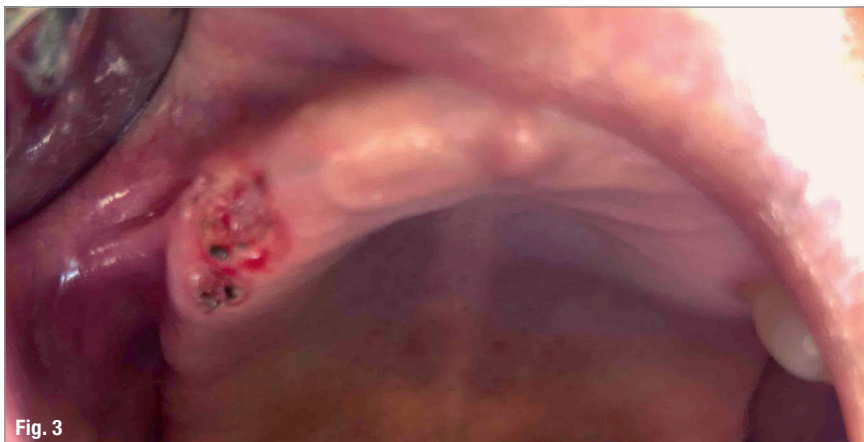


Fig. 3

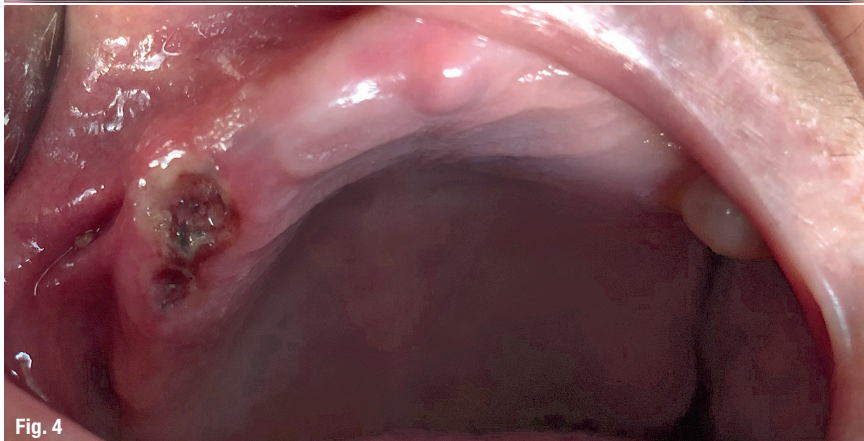


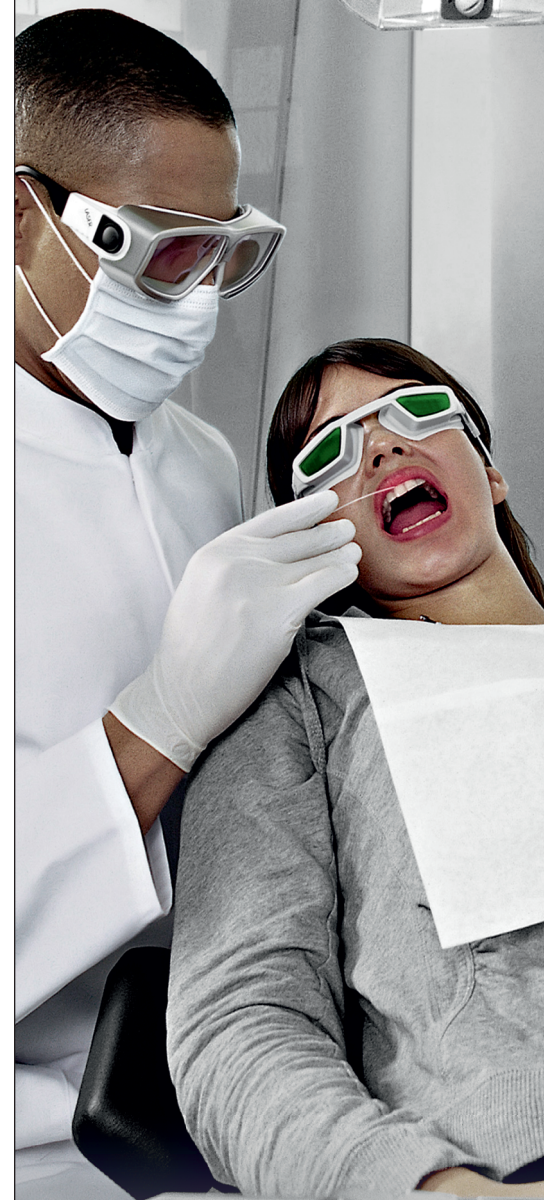
Fig. 4

Fig. 3: Situation immediately after amalgam tattoo removal. **Fig. 4:** Follow-up examination one day after amalgam tattoo removal.

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Fig. 5



Fig. 6

Fig. 5: Situation at the one-week follow-up. **Fig. 6:** One month after amalgam tattoo removal.

thetised through infiltration with 2 % lidocaine (1:80,000 adrenaline; 1.8ml; Darou Pakhsh Pharmaceutical).

In the next step, the controlled area was defined and laser warning signs were properly displayed to secure the operating room. After the eye protection of the patient, the patient's guardian and the assistant had been checked, the patient information (examination sheet and radiograph, consent form, etc.) was reviewed.

Mouth rinsing was done with a 0.2 % chlorhexidine oral rinse (Shahre Daru Laboratories) for about one minute. Subsequently, the amalgam tattoo was removed with a high-power diode laser (Gigaa Laser). The laser parameters applied for the amalgam tattoo removal were as follows: wavelength of 980 nm, power of 1.5W, fibre of 400µ, initiated fibre, continuous wave and contact mode. The laser settings were registered in the patient documents.

Post-procedural education

The patient was advised on keeping the area clean, avoiding food and liquids that might have caused pain or irritation of the sensitive tissue, and taking over-the-counter analgesics as needed.

Final result

Excellent amalgam tattoo removal treatment was achieved with no bleeding, carbonisation or char. The patient did not experience any discomfort and was satisfied. The amalgam particles were removed after the soft-tissue removal (Fig. 3).

Follow-up

The first visit after treatment was scheduled for one day after the procedure (Fig. 4). The healing process was found to be as expected, with healing progressing well and without any swelling or pain. The next visit was planned for one week later (Fig. 5). Finally, at the one-

month follow-up, a successful treatment could be clinically observed (Fig. 6).

Discussion

Diode lasers are used extensively in many dental practices.⁸ Laser-tissue interaction with high-power diode lasers is based on photothermal effects.⁹ Q-switched alexandrite (755 nm), diode (980 nm) and Er,Cr:YSGG (2,780 nm) lasers have been used for amalgam removal.¹⁰⁻¹²

In comparison with conventional excisional biopsy procedures (scalpel and suturing), laser-assisted amalgam tattoo removal can be performed very quickly, with no bleeding, little or no pain, less or no oedema, and a reduced or no need for analgesics. Owing to the closeness of the lesion to the alveolar bone and the prevention of heat transfer to the alveolar bone, this procedure is traditionally classified as an advanced laser procedure.

Conclusion

The application of a diode laser according to the laser protocol used in this case example proved to be a successful treatment choice for amalgam tattoo removal.

contact

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DENTAL

Apicectomy of an endodontically compromised central incisor

Drs Georgi T. Tomov & Mutlu S. Turkkan, Bulgaria

The following article presents a case of Er:YAG laser-assisted surgical removal of a fractured endodontic instrument from the periapical region of a maxillary central incisor.

Introduction

Fracture of endodontic instruments in the root canal is one of the most troublesome incidents in endodontic therapy. It is reported that the prevalence of fractured instruments is between 0.5 and 5.0 per cent.¹ Endodontic instruments rarely separate beyond the apical foramen. The fractured segment is a foreign object and might cause inflammation.¹ Moreover, patients often regard the fractured segment as a broken needle and suffer psychologically. Thus, an attempt to remove these objects through surgery is often necessary.¹

Apicectomy is an alternative approach to surgical endodontic therapy. It entails removing periapical inflammatory tissue, followed by apical resection and retrograde filling of the root canal. Such procedures are performed using a trans-osseous approach. The success rate of the apicectomy procedure is above 91 per cent.² Moreover, new techniques are being introduced constantly, with many including the use of Er:YAG lasers.^{3,4}

It is important to recall the principles of endodontic surgery that dictate treatment. The prime considerations may be summarised as follows:⁴

- A thorough appreciation of the surgical anatomy is of primary importance in order to carry out a well-performed procedure. An adequate radiographic investigation must precede the surgery in order to properly assess the lesion and the associated anatomical structures.⁴
- The preferred mucoperiosteal access is through a semilunar incision, which must always be positioned above the lesion and never through the lesion itself.⁴
- The surgeon needs to have both experience and a good surgical technique.⁴
- Associated granulation tissue or more organised periapical pathology must be thoroughly removed.⁴
- The root apex must undergo appropriate resection in order to eradicate the apical tip and any accessory root canals in this region. Wherever possible, the resection level should be coincident with the buccal or labial alveolar bone level.⁴
- It is considered appropriate that a retrograde root canal filling should be performed routinely during apical surgery. The purpose of the retrograde filling is to seal the exposed root canal and prevent leakage of pathogens into the periapical area. Isolation of the root area is vital during this procedure and will enhance a successful outcome.⁴

New techniques, materials and technologies can be used to increase the already high success rate of periapical surgery. Treatment with an Er:YAG laser is considered an alternative that bears many advantages.³⁻⁶

Using the Er:YAG laser in apicectomy surgery

Features of Er:YAG laser-assisted surgery with specific regard to apicectomy procedures are:⁴

- The Er:YAG laser has a wavelength of 2,940nm. The prime chromophore of this laser wavelength is water, which makes it appropriate for ablating both hard and soft oral tissue.
- The Er:YAG laser can perform incisions for flap lifting, such as a crestal incision, an intrasulcular or vertical releasing incision, or semilunar incision. The laser produces a wet incision (there is some bleeding).

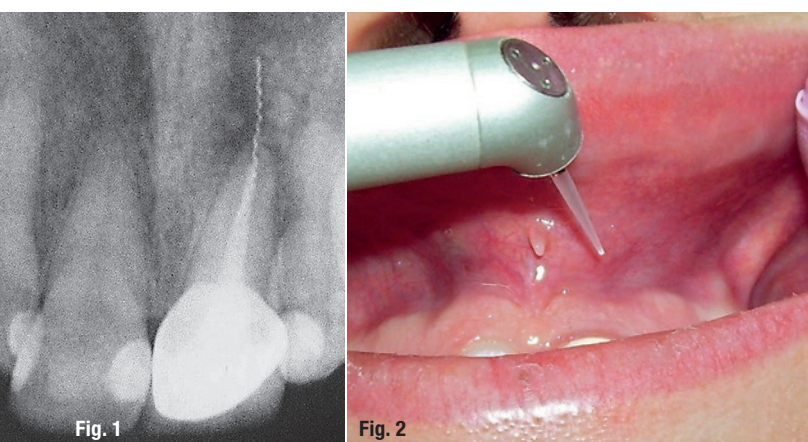


Fig. 1: Irretrievable separated instrument in the root canal. The separated instrument only required surgical intervention because the tooth was symptomatic. At presentation: a radiolucent area near the separated instrument at the apex of tooth #21. **Fig. 2:** Semilunar incision with the Er:YAG laser (in contact mode).

- Ablation of granulation tissue after raising a flap is efficient with the Er:YAG laser, posing a lower risk of overheating the bone.
- Lasing directly on the bone achieves detoxification of the infected site. Studies have shown that Er:YAG laser energy effects on bone cause bacterial reduction.
- The Er:YAG laser can be used for ablation of alveolar bone tissue—remodelling, shaping and ablation of necrotic bone.
- The Er:YAG laser can be used for root apex resection in contact mode and for preparation of the apex cavity for retrograde filling.
- Although studies into the use of the Er:YAG laser in clinical bone surgery procedures have reported inconclusive subjective advantages in terms of time required, postoperative pain levels or ease of access, histological investigations have demonstrated better levels of early healing of the bone with the laser compared with the surgical bur and piezoelectric surgery.

This article presents a case in which an Er:YAG laser was used successfully to remove an endodontic instrument fractured beyond the apical foramen.

Case report

A 28-year-old female patient came to the practice complaining about periodic episodes of pain associated with the maxillary right central incisor. The patient's general medical history was uneventful and she was not taking any medication. Upon examination, the tooth had been restored with a porcelain-fused-to-metal crown. Her general level of oral health was good, owing to adequate oral hygiene. In addition, the periodontal condition was good, with no pocketing or bleeding on probing. Periapical radiographic examination showed a fractured instrument (lentulo) beyond the root canal and a radiolucent area around the apical portion of the root canal (Fig. 1). A diagnosis of periapical granuloma due to failure of the orthograde root filling complicated by a fractured instrument beyond the apical foramen was made, and treatment indicated surgical curettage of the area and apicectomy.

Treatment protocol

A fibreless laser system with an operating wavelength of 2,940nm (LiteTouch, Light Instruments) was employed for this procedure, following the protocol described by Dr A. Reyhanian.⁴ Treatment alternatives included the use of a conventional scalpel, curettes and rotary instruments.

The laser operating parameters employed for the various surgical stages were as follows:

- Releasing incision of the flap: contact mode, 200mJ, 35Hz; 0.4 × 17.0mm tip.
- Bone removal to expand the entrance to the apex: non-contact mode, 300mJ, 35Hz; 1.3 × 19.0mm tip.

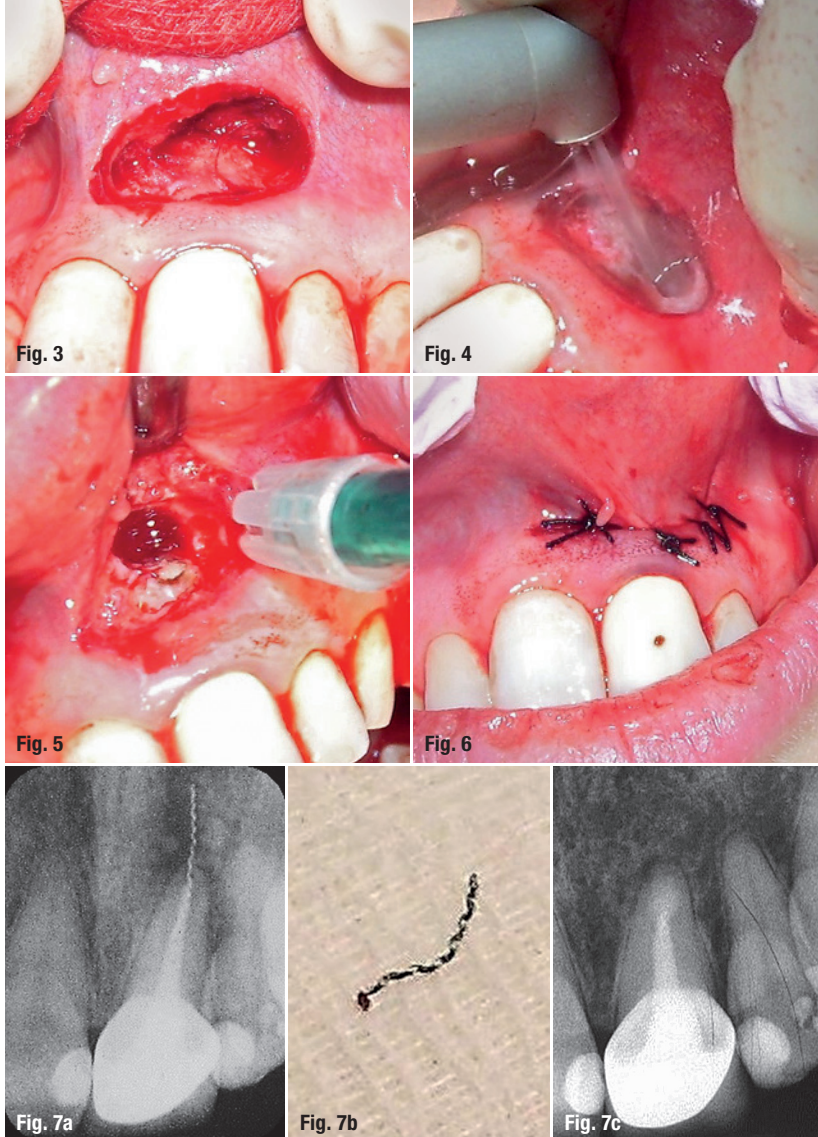
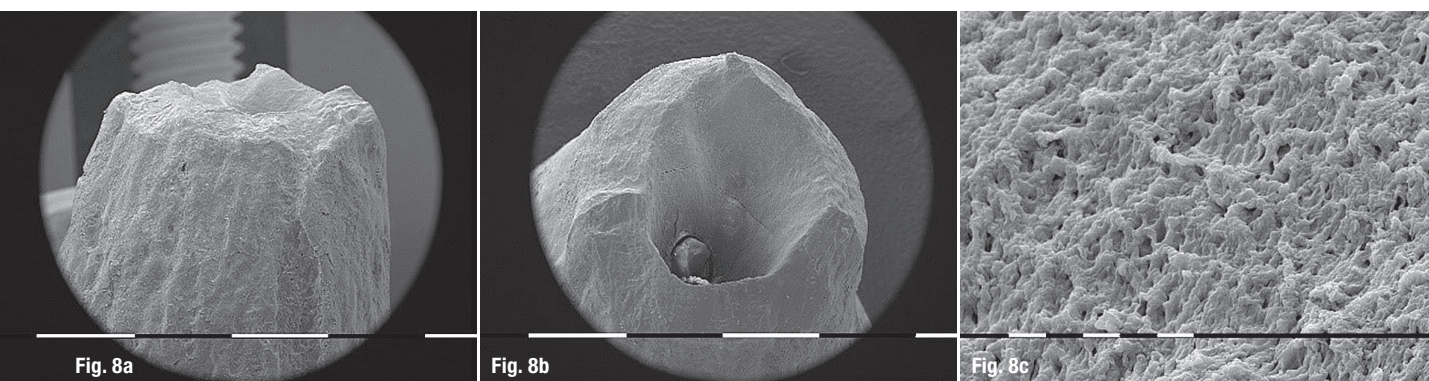


Fig. 3: Raising the flap. **Fig. 4:** Expanding the entrance to the lesion with the Er:YAG laser in non-contact mode. After removal of the compact bone, the fractured instrument was exposed and could be removed easily. The next step was granulation tissue removal and bone cavity disinfection. **Fig. 5:** Using the Er:YAG laser to cut the apex and to prepare the apex cavity for retrograde filling (in non-contact mode). **Fig. 6:** Primary closure. **Figs. 7a–c:** The radiograph before treatment (**a**). The removed separated instrument (**b**). The radiograph after one year revealed a completely healed bone defect with no signs of bone resorption (**c**).

- Ablation of granulation tissue: non-contact mode, 400mJ, 15–20Hz; 1.3 × 19.0mm tip.
- Resection of the root apex: non-contact mode, 400mJ, 20Hz; 0.8 × 14.0mm tip.
- Retrograde cavity preparation: non-contact mode, 400mJ, 20Hz; 0.8 × 14.0mm tip.

A semilunar incision was made after administering infiltrative anaesthesia. The incision extended from a point approximate to the distal area of the maxillary right lateral incisor to the distal area of the maxillary left central incisor (Fig. 2) and the flap was elevated (Fig. 3). A small fenestration of the labial bone was performed and surrounding bone was ablated in order to expand the entrance to the defect. After the removal of the compact bone, the fractured instrument was exposed and removed easily. A large quantity of granulation tissue was ablated using non-contact mode (Fig. 4).



Figs. 8a–c: SEM evaluation at different magnifications showing a root apex resected with an Er:YAG laser (**a**), a prepared retrograde cavity (**b**) and root dentine inside the cavity with absence of a smear layer and of cracks (**c**).

After removal of the fractured instrument, the root apex was sectioned. The Er:YAG laser energy produced a smooth, clean resection without visible signs of thermal damage. At the same power setting, the cavity of the apex was prepared for retrograde filling. Finally, the bone defect was shaped and remodelled. The retrograde cavity was sealed with mineral trioxide aggregate (MTA, Fig. 5). MTA has been recommended for root end filling during endodontic therapy and presents advantages such as easy placement, a hydrophilic nature, a lack of toxicity and low solubility. The flap was sutured with a 3/0 silk thread, with careful attention to good primary closure (Fig. 6). The patient was prescribed amoxicillin (500mg/8hours) for seven days and ibuprofen (600mg/8hours) for three days. After seven days, the patient was recalled to have the sutures removed. The swelling had resolved and healing was progressing well. After six weeks, the soft tissue had completely healed without complications. The radiographic examination after one year revealed a completely healed bone defect with no signs of resorption. The prognosis was considered excellent (Fig. 7).

Discussion

This case report has described the use of an Er:YAG laser for apicectomy, emphasising the advantages of this laser wavelength in performing an apicectomy versus conventional methods. The use of the Er:YAG 2,940nm laser has been shown to be effective in the surgical ablation of tooth tissue and bone.^{3,4} Advantages of this modality over conventional rotary instrumentation may include precision, bacterial decontamination, less collateral damage, and tactile stimulation.^{3,4} In addition, although studies have been equivocal, the use of this laser in surgical procedures may result in less fatigue of the surgeon and greater patient acceptance.^{3,4,6} What has been demonstrated is an enhanced early healing response in bone tissue and a lesser level of postoperative complications.⁶

In addition to these clinical observations, we have studied the apical surface characteristics and presence of den-

tal cracks in extracted single-rooted human incisors, resected 3.5mm from the root apex using the Er:YAG laser, a stainless-steel bur and a diamond-coated ultrasonic tip, respectively, by scanning electron microscopy (SEM, Fig. 8). The SEM images showed that the stainless-steel bur produced significantly smoother resected root surfaces than did the diamond-coated tip and Er:YAG laser. There was no statistically significant difference between the Er:YAG and diamond-coated tip groups. However, the analysis of scores obtained for the cut quality according to the Kruskal–Wallis test revealed no significant differences among the groups. More importantly, in our study, Er:YAG-treated teeth had no cracks after the apical resection, unlike the other two groups. Photomicrographs of the Er:YAG laser group revealed exposed dentinal tubules after resection in contrast with the stainless-steel bur group (a heavy smear layer) and the diamond-coated ultrasonic tip group (a thin smear layer). To sum up, it can be stated that the Er:YAG laser produced better apical root surfaces than did the diamond-coated ultrasonic tip or stainless-steel bur. Within the limitations of this *in vitro* study, we can also conclude that the diamond-coated tip provoked a larger number of cracks compared with the Er:YAG laser.

Conclusion

The outcome of this clinical case indicates that the use of the Er:YAG laser should be considered an alternative, suitable and useful method for performing an apicectomy. It has been shown to be effective and safe.

contact

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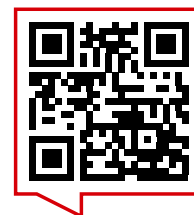


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The use of the Er:YAG laser in aesthetic dentistry

Prof. Roly Kornblit, Italy

Introduction

The attractiveness of a face depends on a variety of different features and arrangements, with the eyes and smile being among the most important contributing factors. Nowadays, aesthetics plays a significant role in modern dentistry. Several features, such as colour, shape, position and length of the teeth, must be considered when it comes to assessing whether a smile is harmonious. Not only the teeth but the gingiva too play a role in an aesthetically harmonious smile. The colour of the gingivae, the smile line and the amount of gingival exposure are some of the features of the gingivae that have to be taken into consideration.

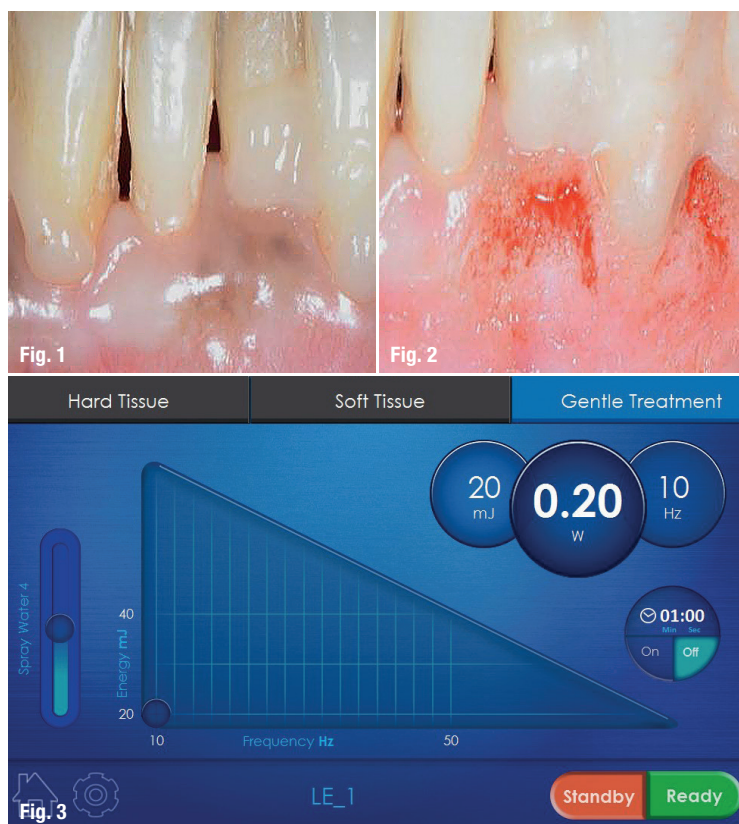


Fig. 1: Gingival melanin hyperpigmentation. **Fig. 2:** The gingiva immediately after melanin hyperpigmentation removal using the LiteTouch Er:YAG laser (Light Instruments). **Fig. 3:** The Gentle Treatment mode of the LiteTouch Er:YAG laser using low energy for the reduction of periodontal pathogens.

An aesthetic smile can be divided into white aesthetics and red aesthetics. White aesthetics concern the improvement of the colour, position, shape, size and alignment of the teeth, and red aesthetics the improvement of the gingival colour, the amount of gingival exposure and the smile line. The Er:YAG laser, applied to hard and soft tissue, as the energy is absorbed by water and hydroxyapatite, can be used for the treatment and improvement of the white and the red aesthetics of a smile.

Red aesthetics

Correction of gingival smile line

The gingival smile line is a specific dentolabial configuration characterised by the exposure of the maxillary anterior gingiva during a full smile. There are some factors associated with the gingival smile line, such as the clinical crown heights of the incisors. Gingival line correction can be performed using an Er:YAG laser in a minimally invasive microsurgery. The procedure begins by ablating small surfaces using tips of small diameters (0.2–0.6 mm), followed by shaping the marginal gingiva with tips of larger diameters (1.0–1.3 mm). The surgery can be carried out without any thermal damage to the teeth or the periodontal tissue, also owing to the cooling effect of the air–water spray. The gingivoplasty can be performed in contact or at a distance, ablating the tissue layer by layer, not by tearing it, but by sculpting it. It is important to maintain the gingival biological width of 3 mm around the treated teeth.

Treatment of oral hyperpigmentation

Gingival hyperpigmentation is due to the excessive presence of melanin in certain regions of the gingival tissue. Macrophages in connective tissue engulf melanin pigments in individuals with very high amounts of melanin pigment.

Under topical anaesthesia, using an Er:YAG laser in gentle treatment mode (low energy), it is possible to modify the gingival colour by removing the gingival hyperpigmentation through a peeling of the epithelial layer of the pigmented gingiva, just into the connective tissue (Figs. 1 & 2). The procedure can be carried out with or without an air–water spray. Using an air–water spray has some advantages, such as better visibility of the treated area and the possibility of treatment under topical anaes-

thetia. In such cases, coagulation has to be obtained after the melanin tissue ablation owing to the slight bleeding.

The use of an Er:YAG laser in this treatment is beneficial because of the low penetration depth and the air–water spray cooling effect. Indeed, the procedure can be carried out without any damage to the bone and the surrounding tissue, and without inflammation or postoperative pain or discomfort.

Improvement of the colour of the gingivae

The aesthetic colour of healthy gingivae is pink. Red and swollen gingivae are considered symptoms of periodontitis or peri-implantitis. The aetiology of periodontitis and peri-implantitis is a consortium of bacteria that are well organised in a biofilm participating in the initiation and the progression of the disease. After the mechanical therapy of scaling and root planing, which does not completely eliminate periodontal pathogens, as bacteria can persist in the radicular cementum and dentinal tubules, or migrate from reservoirs within the mouth to periodontal sites, a reduction in the level of periodontal pathogens can be achieved with an Er:YAG laser using the gentle treatment mode to control inflammation, which will lead to an improvement in both the gingival colour and the swelling (Fig. 3).

White aesthetics

Replacement of resin composites

Today, resin composites are mainly used as restorative materials in aesthetic dentistry, having the advantage of being available in different shades and opacities in order to mimic the optical properties of natural dental structures. One of the advantages in the use of resin composites is that there is no need to sacrifice healthy tooth tissue in order to create mechanical retention features (undercuts). As a result, there is an increase in the fracture resistance of the restored tooth. The concepts of extension for prevention, resistance and retention have given way to minimally invasive dentistry and minimally invasive preparation for composite restorations. The application of the Er:YAG laser for cavity preparation for composite resin restoration adheres to all the minimally invasive dentistry concepts.

One of the main clinical disadvantages of composites is their technical sensitivity and contraction, which can cause marginal staining, colour changes, secondary caries or microleakage, necessitating replacement of the composite restoration. The Er:YAG laser can be used for replacing composite resin restorations in a minimally invasive way. The replacement preparation is performed without any damage to the tooth structure, ensuring maximum conservation of dental tissue (Figs. 4–6).

Secondary caries around aesthetic composite

The Er:YAG laser can ablate secondary carious tissue around aesthetic composite restorations in a very precise



Fig. 4



Fig. 5



Fig. 6

Fig. 4: Teeth #11 and 21 with composite fillers that had changed colour and, therefore, had to be replaced. **Fig. 5:** The removal of the composite material with the LiteTouch Er:YAG laser using a tip of 1.3 mm in diameter and energy of 150 mJ and 20 Hz. **Fig. 6:** Teeth #11 and 21 after bleaching and composite replacement.

manner. Using small tips of 0.6–0.8 mm in diameter, the Er:YAG laser ablates just the carious tissue, maintaining the integrity of the restoration. The non-contact mode and the transparent colour of the tips, made of sapphire, make it possible to see what is occurring during the ablation.

Secondary carious tissue around laminate veneers

Porcelain laminate veneers are widely accepted as the treatment of choice for non-invasively restoring the aesthetics and function of anterior teeth. Poor oral hygiene and a lack of flossing, in particular, can cause secondary caries in the proximal areas of the dental crown. The Er:YAG laser can ablate secondary carious tissue around or next to veneers in a very precise manner, conserving the integrity of the restoration. Since the laser ablates selectively and does not vibrate, there are no consequent microcracks or other damage to the veneers (Figs. 8–10). As gingival retraction may occur around the veneer over time, secondary caries can arise at the dental crown collar, just under the veneer. In such cases, the Er:YAG laser can also ablate secondary carious tissue around veneers precisely, conserving the integrity of the veneers.

Veneer debonding

Veneer removal is usually performed using a rotary instrument. In this manner, however, the veneer removal is relatively time-consuming, the veneer is damaged and the underlying tooth structure can also be easily traumatised or damaged. The most common reason for removal of a veneer is caries around its margins, requiring

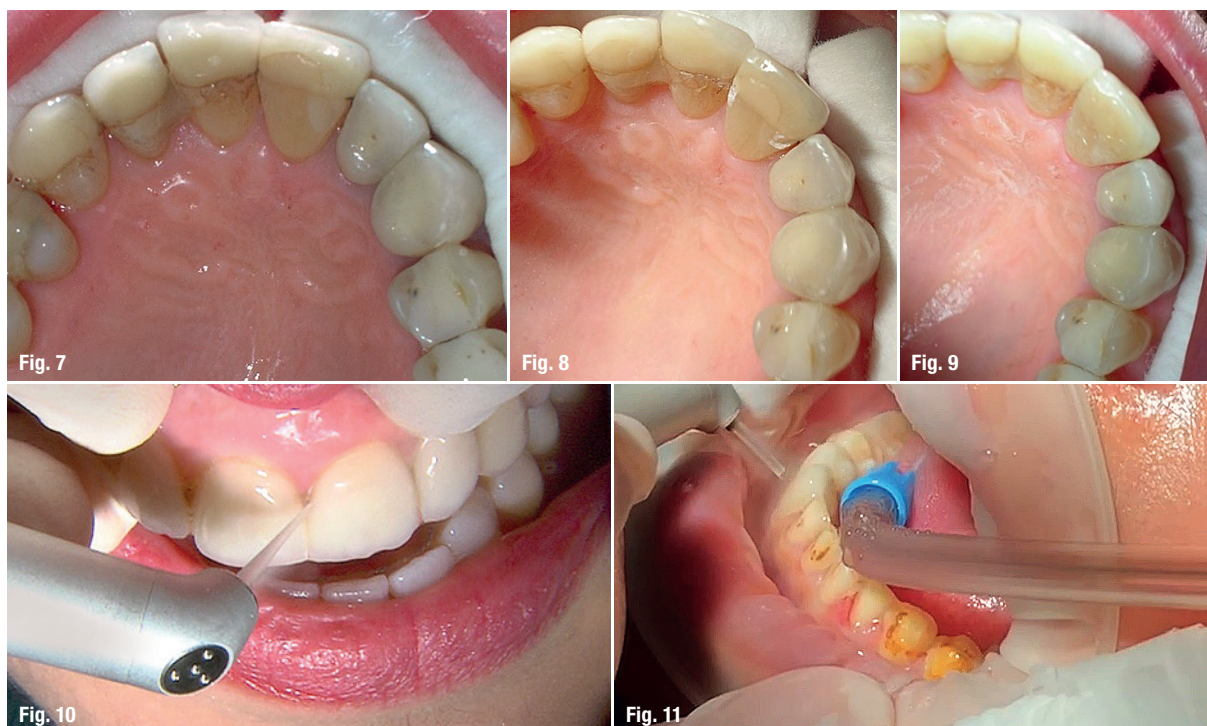


Fig. 7: Mesial and distal caries around the veneer of tooth #21. **Fig. 8:** The cavities after caries removal with the LiteTouch Er:YAG laser. **Fig. 9:** The case after composite reconstruction. **Fig. 10:** Removal of mesial secondary caries around the veneer of tooth #21 with the LiteTouch Er:YAG laser using a tip of 0.4 mm in diameter and energy of 200 mJ and 20 Hz. **Fig. 11:** Debonding of eight veneers with the LiteTouch Er:YAG laser using a tip of 1.3 mm in diameter at a distance of 4 to 5 mm from the veneer surface and energy of 100 mJ and 20 Hz.

an extended tooth preparation. Another reason for the removal of a veneer may be the patient's dissatisfaction with the final result.

The Er:YAG laser can be used for veneer debonding by degrading the cement without damaging the veneer or overheating the pulp. The laser irradiation is not absorbed by the materials of the porcelain veneer, but is transmitted through the veneer and absorbed by the organic components and H₂O/OH groups in the resin cement. When enough cement has been ablated, the veneer slides off the tooth surface. In this way, veneers can be removed without damaging any tooth structure or the porcelain itself and the veneers can be reused (Fig. 11). Er:YAG laser energy can also successfully be used to efficiently debond all-ceramic full-contour crowns from natural teeth without damage to the underlying tooth structure.

Tooth whitening

In order to accelerate the whitening process in a dental office, different types of energy (heat) can be used, such as halogen, LED or plasma arc. The advantage is the ability of the light source to heat the peroxide, thereby increasing the rate of decomposition of oxygen and accelerating the release of free radicals with higher kinetic energy, thus, enhancing the rupture of stain-containing molecules. The Er:YAG laser wavelength has its absorption peak in water; thus, the Er:YAG laser energy is highly

absorbed in bleaching gels, preventing energy penetration (heat) into the tooth's hard tissue or pulp. In this manner, the energy of the Er:YAG laser heats up the gel without compromising the safety of the tooth and the pulp.

Conclusion

The use of Er:YAG laser in aesthetic dentistry has gained increasing importance in recent years. Er:YAG laser applications for aesthetic oral treatments, such as correction of the gingival smile line, gingival melanin depigmentation, replacement of resin composites, minimally invasive cavity preparation in anterior teeth, and veneer debonding, seem to be effective and reliable. The clinical cases shown in this article prove that these treatments can be performed safely and effectively by means of the Er:YAG laser, resulting in better healing and a significant improvement in aesthetics.

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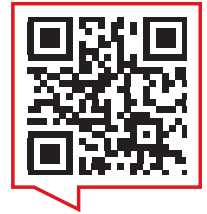
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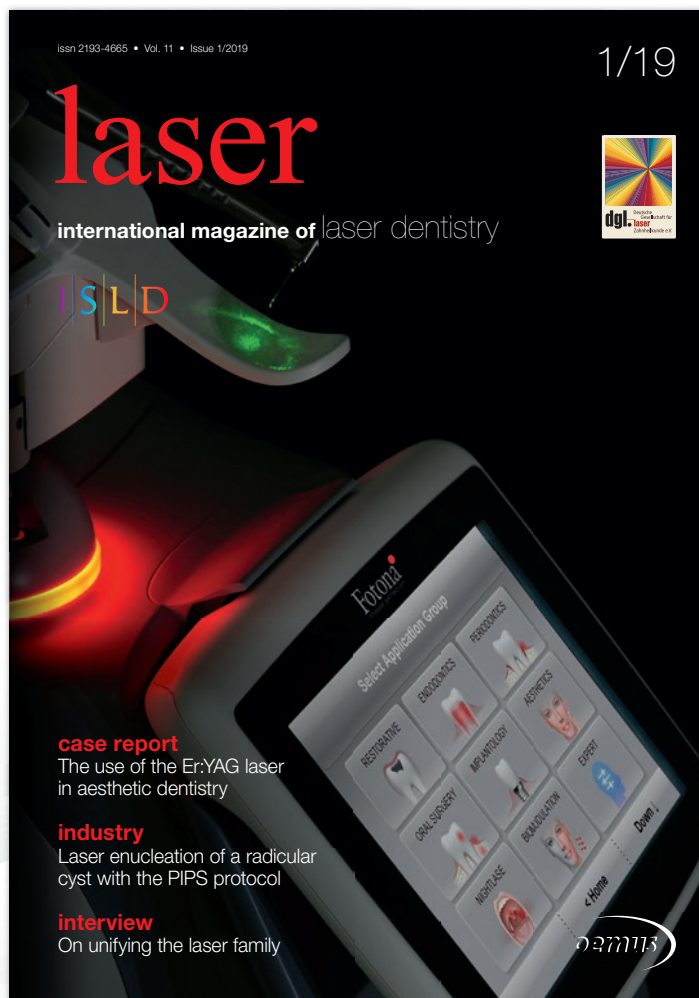
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Laser enucleation of a radicular cyst with the PIPS protocol

Dr Betül Göfteci, Turkey

Introduction

The most frequent odontogenic cyst in tooth-bearing areas is the radicular cyst, also called a periapical cyst.^{1,2} It arises from epithelial cell rests of Malassez in the periodontal ligament as a result of inflammation.^{3,4} Radicular cysts may be seen with irreversible pulpitis, root fracture, periodontal disease and apical periodontitis, and with or without fistulae. The diagnosis is usually made on the basis of anamnesis, clinical investigation and a radiograph or cone beam computed tomography (CBCT) scan.⁵ Enucleation is defined as the complete removal of the cyst by separating the cystic lining from the inner bony surface. Although small cystic lesions frequently heal with endodontic therapy only, larger lesions may need additional treatment. Untreated cysts may expand, causing local tissue destruction and deformities.

The treatment of choice depends on the size and location of the lesion, the bone integrity of the cystic wall and the cyst's proximity to vital structures. Cysts are usually enucleated and removed and the cavity allowed to fill with blood to form a clot.^{1,2} The aim of enucleation of a cyst is to remove all of the cystic tissue, disinfect the area and finally allow the bone tissue to fill the cavity with new bone. The location of the cyst could make these clinical steps difficult to achieve. In addition, the ability to successfully remove the smear layer and bacteria continue to be a challenge in intrabony infections.^{3,4}

The use of the Er:YAG laser is promising for reduced risk of recurrence and improved healing, depending on the ability to disinfect the surgical area and remove the smear layer. Therefore, the aim of using the Er:YAG laser in this study was to achieve atraumatic cleansing of the extraction sockets and cystic cavity, as well as disinfection of the area and removal of the smear layer, during the cyst enucleation for better and faster healing.

Materials and methods

Medical and dental history

A 38-year-old white male presented for dental treatment. He suffered from diabetes, which was under medical control, however. He reported no allergies. The patient

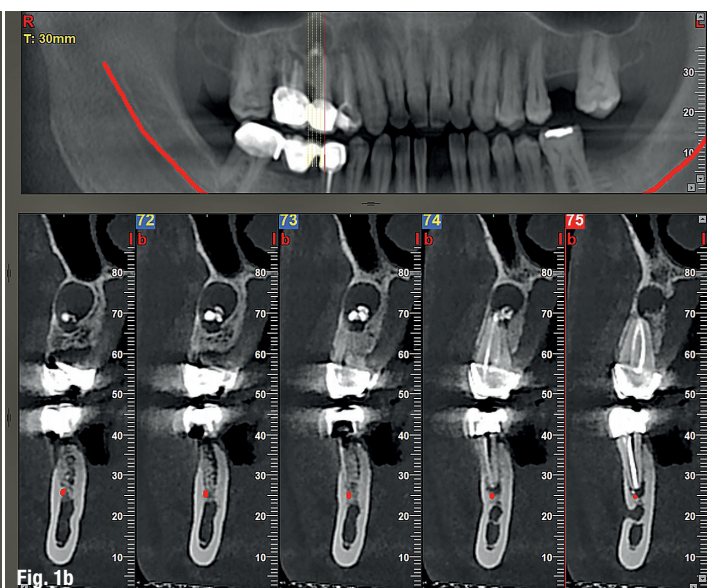
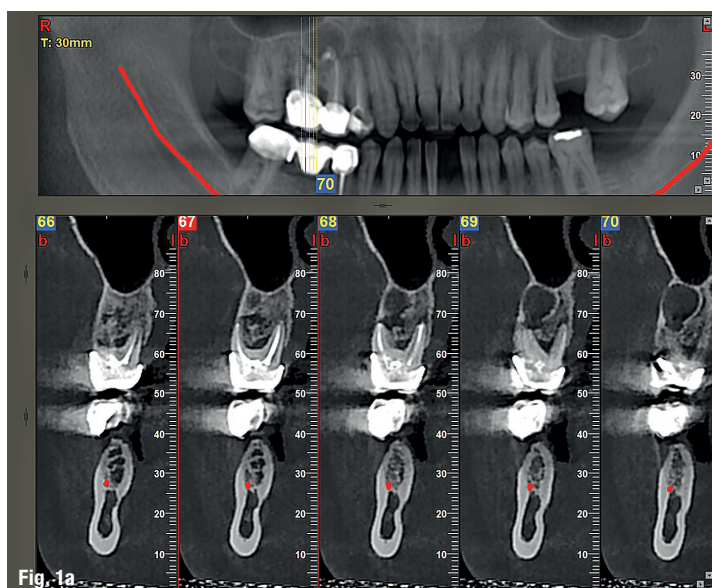
complained of a fractured maxillary right molar. Radiographic (CBCT) examination was performed. The radiograph confirmed that teeth #15 and 16 had previously undergone root canal therapy. The patient was diagnosed with a radicular cyst at teeth #15 and 16 below the maxillary sinus (Figs. 1a & b). The treatment plan included extraction of the teeth, enucleation of the cyst without perforating the maxillary sinus, and follow-up treatment.

Treatment

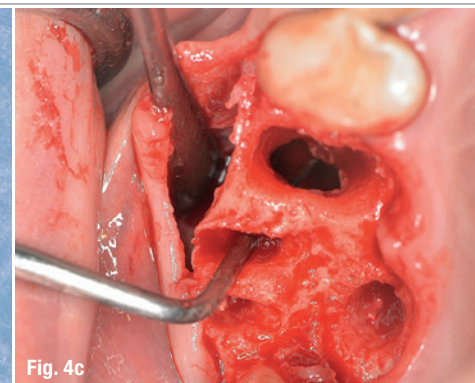
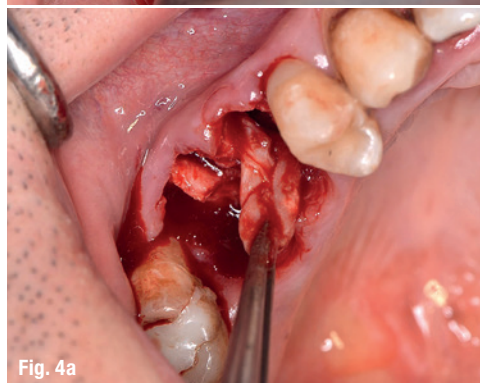
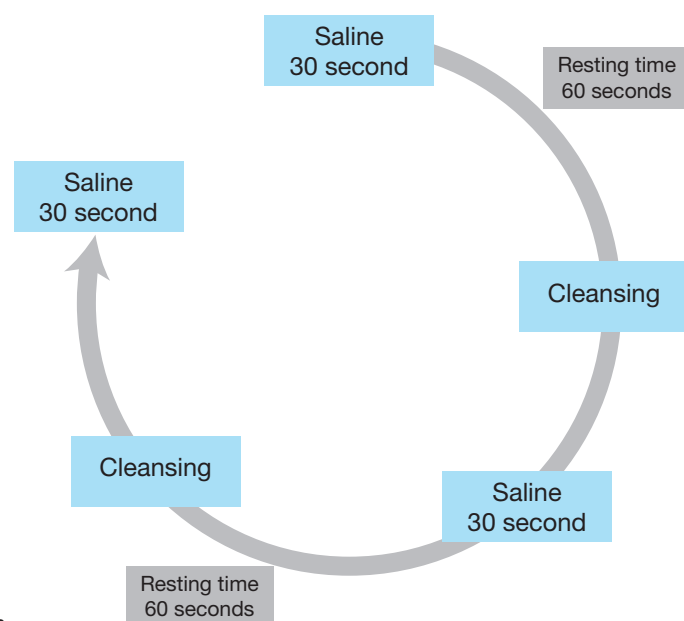
It was planned to follow the extraction of the teeth by irradiation with an Er:YAG laser for removal of granulation tissue in the extraction sockets and enucleation of the cyst. A collagen barrier membrane would be used thereafter to aid healing of the cystic cavity. After extraction, an Er:YAG laser with a wavelength of 2,940 nm (LightWalker, Fotona) was used to irradiate the extraction sockets. First, removal of granulation tissue was performed with a cylindrical tip, using the following parameters: 150 mJ per pulse, 20 Hz, short pulse duration, water spray setting 6 and air spray setting 3 (Fig. 2). A modified PIPS (photon-induced photoacoustic streaming) irrigation protocol was then performed for enhanced removal of residual cystic tissue (Fig. 3a). A quartz PIPS fibre tip of 9 mm in length and 600 µm in diameter was used. The tip, as received from the manufacturer, was tapered and had 3 mm of the polyamide sheath stripped back from its end.⁶ The following laser operating parameters were used: 40 mJ per pulse, 15 Hz and 50 µs pulse duration (super-short pulse). The coaxial water spray feature of the handpiece was set to "off". The tip was placed into the extraction socket and used under constant saline irrigation (Fig. 3b). The cyst was enucleated (Figs. 4a–c) and the cystic cavity was checked for residual granulation tissue. Augmentation of the cystic cavity was performed using a collagen barrier membrane and the cavity was subsequently sutured (Figs. 5a–d). After the procedure, a postoperative analgesic and antibiotics were prescribed, and the patient was instructed on continuing care at home.

Results

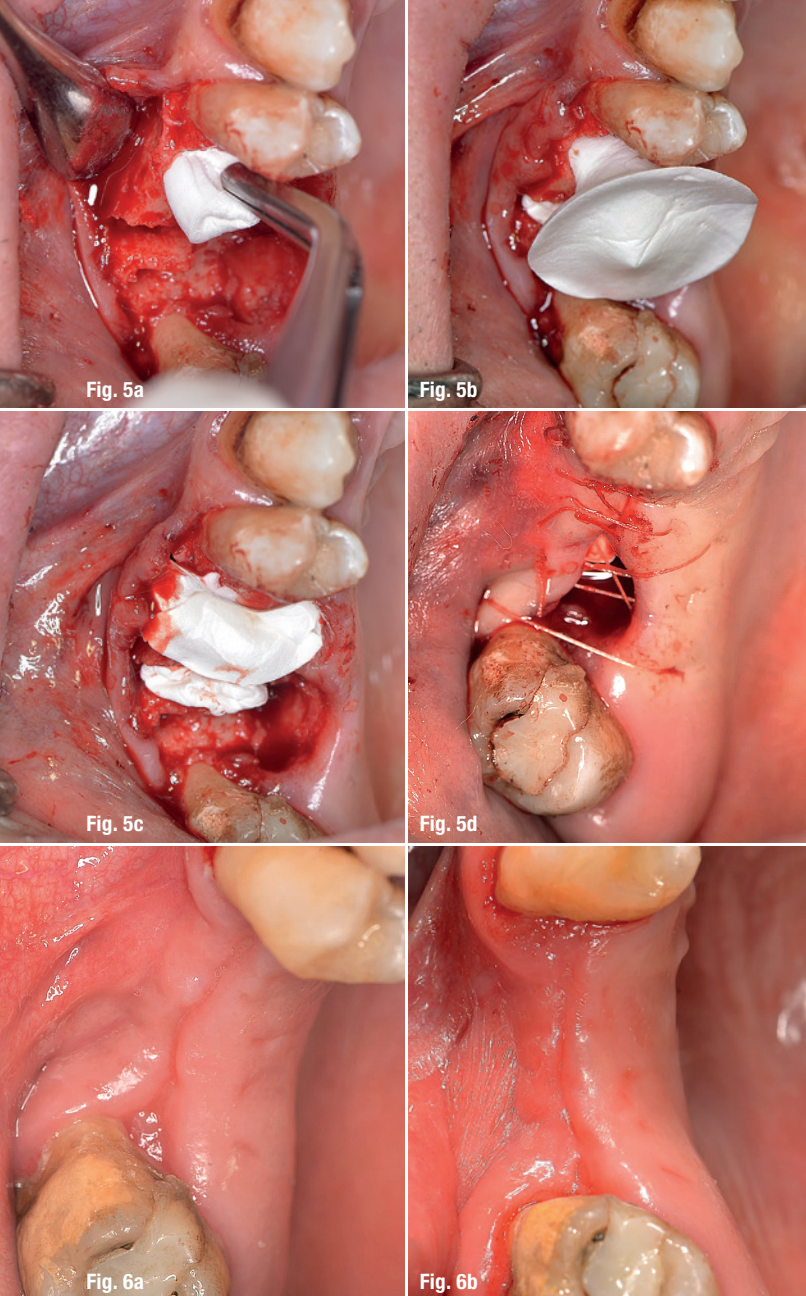
No complications arose during or immediately after the laser-assisted surgical treatment. Follow-up visits were scheduled at one week, three months and nine months postoperatively. At the first follow-up, the healing process



PIPS irrigation protocol for surgery



Figs. 1a & b: Radiographic (CBCT) examination revealed a radicular cyst at teeth #16 (a) and 15 (b). **Fig. 2:** Removal of granulation tissue from the extraction socket. **Figs. 3a & b:** Modified PIPS irrigation protocol for cyst enucleation from a deep extraction socket (a). Thirty seconds of PIPS irrigation with saline was followed by a 60-second resting phase and degranulation until successful cyst enucleation was achieved (b). The procedure can be repeated if necessary. **Figs. 4a–c:** The cyst was successfully enucleated (a & b) from the cystic cavity (c).



Figs. 5a–d: Cystic cavity augmentation was performed using a collagen barrier membrane (a–c) and sutured (d). **Figs. 6a & b:** At the three- (a) and nine-month follow-ups (b), the soft tissue had healed nicely.

appeared uneventful. At the three- and nine-month follow-ups, good complete soft-tissue healing had occurred (Figs. 6a & b). Control radiographs were taken. At the three-month follow-up, hard-tissue healing was progressing naturally (Figs. 7a & b). At the nine-month follow-up, the hard-tissue healing was complete (Figs. 8a & b). The patient was then referred for further dental treatment needs, including implant therapy, and monitoring through follow-up appointments was planned.

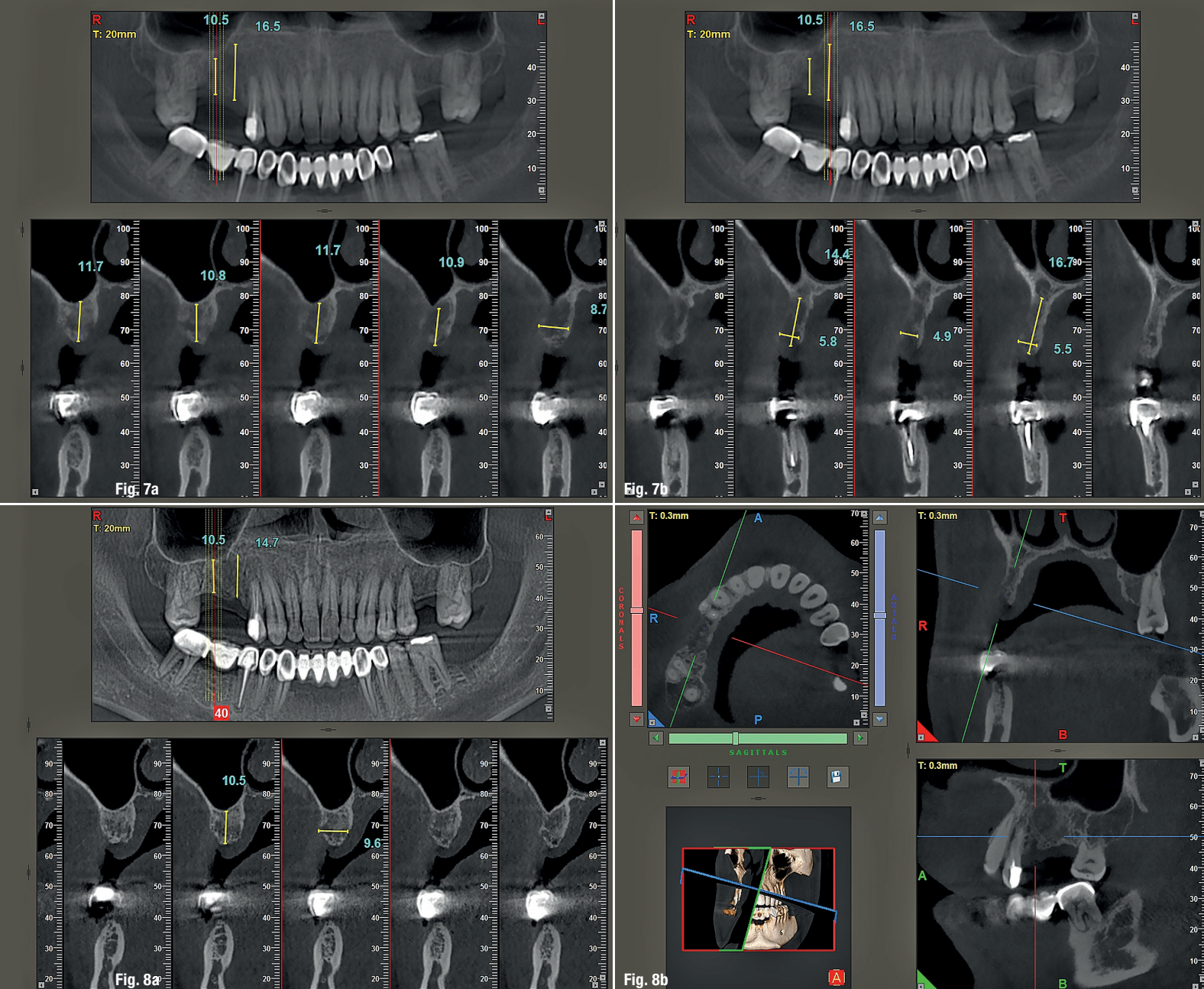
Discussion

The adequate treatment of cysts is still a matter of much discussion. Various treatment options have been suggested, depending on the size and location of the cyst. While for large lesions, endodontic treatment is followed by surgical enucleation, some authors have proposed non-surgical management of small lesions. In this case,

however, tooth extraction was decided on owing to the enlargement of the cyst, old root canal fillings and a fractured tooth. When cysts are large, they tend to expand the surrounding bone. In many cysts, there is a tendency for the epithelium to separate from the underlying cyst wall.⁷ Histopathologically, they typically show a thin, friable wall, which is often difficult to enucleate from the bone in one piece, and have small satellite cysts within the fibrous wall. In this case, the cyst was enucleated from the bone in one piece.

Cysts tend to recur after treatment.⁸ The goals of treatment should include the elimination of the potential for recurrence while also minimising the surgical morbidity. There is no consensus on adequate and appropriate treatment for this lesion. Recurrence can occur for several reasons. The first is incomplete removal of the original cyst's lining. The second is the growth of new cysts from small satellite cysts of odontogenic epithelial rests left behind after the surgical treatment. The third is the development of an unrelated cyst in an adjacent region of the jaws, and this is misinterpreted as a recurrence. It is believed that the two most common reasons for recurrence are incomplete cyst removal and new primary cyst formation.⁹ The majority of recurrence cases occur within the first five years after the treatment. Many attempts have been made to reduce the high recurrence rate by improved surgical techniques. The aim of using the Er:YAG laser in this study was to achieve cleansing of the extraction sockets and cystic cavity, as well as smear layer removal, during the cyst enucleation for healing and no recurrence. It is important to remember that microbes initially cause the lesion and continue to maintain the immune response and, thus, the apical periodontitis. The time that is required for healing in these cases ranges from eight to 14 months. Follow-up on the process of healing should be done every six months for a duration of at least four years.

In this specific case, it had been decided on the use of a PIPS tip and a modified PIPS protocol for enhanced removal of residual cystic tissue and the smear layer from the surrounding bone. The PIPS protocol has previously been used for enhanced root canal therapy.⁶ Cleaning and disinfection of the root canal system are some of the most important goals in endodontic therapy. Conventional endodontic treatment is not fully effective owing to microbial colonisation of dentine of the root canal walls in premolars and molars.^{10–13} The PIPS technique uses low energy levels and short microsecond pulse rates (50µs) to generate high peak power. Each pulse interacts with the water molecules, creating successive shock waves that lead to the formation of a powerful streaming fluid and facilitate 3D movement of the irrigation solution.⁶ Using the Er:YAG laser with sub-ablative parameters (average power of 0.3W and 20mJ at 15Hz) has proven to be an effective irrigant agitation technique and an



Figs. 7a & b: The CBCT scan of teeth #15 (a) and 16 (b) after three months revealed natural hard-tissue healing. **Figs. 8a & b:** The CBCT scan at the nine-month follow-up revealed that hard-tissue healing was complete.

effective technique for removing the smear layer in endodontic treatment.^{6,14} When the laser was activated in a limited volume of fluid, the high absorption of the Er:YAG wavelength in water and the short pulse duration (50µs) that was used resulted in a photoacoustic phenomenon in the extraction sockets. The resulting cavitation was expected to effectively remove the smear layer and residual tissue tags and potentially decrease the bacterial load within the bone tubules, as previously observed in hard tissue. In this case, by using lower sub-ablative energy, combined with a short pulse duration, and restricting the placement of the fibre tip to within the coronal portion of the extraction sockets, undesired thermal effects on the tissue were also avoided.⁶

Conclusion

This case report presents successful surgical management and healing of a large cyst with an Er:YAG laser

using a modified PIPS protocol. Easy-to-select operating modes and an advanced laser beam delivery system enhanced the precision and performance of the laser treatment for optimal clinical efficacy.

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A simple design improvement of Waterlase iPlus[®]

Results in improved usability

Peter Hünnebeck, Dr Sophia Hünnebeck, Germany & Dr Roland Ventura, Ireland

Introduction

The Waterlase iPlus (Biolase) is a convenient and multi-purpose dental laser system including a handpiece which is connected to the laser by a fibre delivery system. The delivery system is raised by a telescopic fibre support arm attached to the laser body, which gives the dentist a defined range of motion. Used on a daily basis in den-

tal treatment procedures, the presence of a laser system can reduce the workspace that is available to the dental staff due to its close proximity to the dentist. This is why the regular water and air multifunctional injection tools have to be moved out of the dentist's reach. At present, the Waterlase iPlus can provide the simultaneous use of laser, air, or water. Yet, neither air nor water can be used independently. In case only water or air is required during

Fig. 1: This multifunctional injection system providing air and water spray was added under recognition of the German law for medical products. The parts of the system containing water can be cleaned and disinfected.

Fig. 1



treatment, the laser system has to be moved first, before the air or water multifunction handpieces can be brought to the dentist. Naturally, this change of equipment requires time and attention from the staff, and can disrupt an otherwise efficient flow of the treatment procedure.

Modification of the Waterlase iPlus

In an attempt to modify the Waterlase iPlus in order to provide an additional source of water and air, we searched for suitable components that met some important criteria: they had to be readily available from German medical suppliers, they needed to be capable of providing both water and air, they needed to be easily attachable to the Waterlase iPlus using existing attachments. In addition, they had to be powered by the same unit without requiring an additional, external power source. Based on that approach, we have designed and acquired a custom-made unit from a German dental company (Gigadent Deutsche Dental GmbH, Kriftel) which can be attached to the Waterlase iPlus, providing both water and air from an additional handset that stands alongside the regular handpiece and fibre delivery system. This polyamide bar features an air connection which is powered by the Waterlase iPlus, and its own water bottle reservoir system. The tool rests on a telescopic fibre support arm which is very similar to the one that came with the Waterlase iPlus. The bar is connected to the wrap plates which firmly hold it in place. Both the support arm and the delivery tubing, which is attached to a multifunction water and air tool, stand at the end of the bar on the upper side. At the same end of the bar, a water reservoir is screwed into its underside. Compressed air is supplied via a T-connector which is attached to the air inlet connector and which enters the centre underside of the bar, providing pressure for the water and air functions.

Management in practice

The above-described combination of instruments allows for a significant increase in the workspace and range of motion of the treating dentist. The laser can easily

be used for small soft-tissue surgery or for working on teeth as a versatile stand-alone solution. The suction is provided by the assistant from his or her side of the chair—as usual. Placed in a five-o'clock position, the dental instruments can be accessed by dentist and assistants alike without ever interfering with the patient's position or chair. The overall amount of nearby equipment is being reduced, which results in fewer fear incidents—especially involving patients suffering from claustrophobia. In addition, patients suffering from dementia and patients who are physically or mentally disabled can be treated more successfully. Moreover, patients in wheelchairs can be accessed and treated more easily as well. When treating these patients, the dentist can seat himself or herself in front of them (in a six-o'clock position) in order to keep eye contact at all times. When it comes to reduced treatment time and costs, the above-described configuration has proven to be of notable value in dental treatment procedures featuring the Waterlase iPlus® system.

Further information on the design of the add-on instrument can be obtained from the author via e-mail: huennebeck@wiesbadent.de

Editorial note: According to the author, the add-on instrument was not financially supported by any company. Moreover, the author holds the copyright to Figure 1.

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Successful communication in your daily practice

Part IX: Boosting a new employee's performance

Dr Anna Maria Yiannikos, Germany & Cyprus

This series covers the most common and challenging scenarios that might arise in your dental practice and presents successful ways to deal with them in order for you to gain peace of mind. Each article of this series teaches you a new, easy-to-use specialised protocol that can be adapted to your own dental clinic's requirements and needs right from the start. Today's challenging topic is how to address deterioration of a new employee's performance and, instead, find ways to boost it.

Imagine this scenario: You have chosen an excellent employee. You've tested him or her and he or she performed exceptionally well. However, what if after a month or so

you notice that his or her performance is not as promising as it was when he or she started? You might start to wonder: Have I made the wrong choice? Where did his or her motivation go? Does he or she feel bored all of a sudden? Is something wrong in general?

5 revolutionary steps

A sudden decline in the performance of a new employee is quite unusual. Naturally, you still have faith in his or her capabilities and all you want is to get to the bottom of this unexpected, and thus scary, situation and solve it. Follow the five steps given here and you will be able to deal with this situation easily, effortlessly and effectively.



1. Always check yourself first before you even think about confronting him or her; reflect on your own behaviour first. Challenging your attitude and calling it into question is a difficult, but necessary thing to do. Try to find out whether your employee's performance is likely to continue to decline or if it was just a one-time thing. After all, every human being makes mistakes. Hence, stop making assumptions and save yourself a great deal of stress. After you have reflected thoroughly on your own behaviour, block off 45 minutes in your schedule and call him or her in for a meeting in order to address the problem. By the way, do not allow yourself to be disturbed during this meeting.
2. Keep the tone of the conversation natural and casual. It is very important to create an environment in which the employee feels comfortable enough to express himself or herself and share the true reasons for his or her reduced performance. Always remember: do not pressure your employee. Knowing the reasons for his or her poor performance will, of course, benefit you, as you will be more aware from that point on, and, thus, you will be able to anticipate similar future situations and solve them faster.
3. The sandwich technique can prove a very useful tool for solving those kinds of situations. You begin by saying: "Mary, I am so happy that you are part of our team". You continue by stating a fact: "You showed us right from the start how keen you are to be working in the company. However, over the course of the last week, I've noticed a deterioration in your performance, and ever since, I have been wondering what the reason might be for that." You can then conclude by saying: "I am confident that we can deal with this situation effectively and I am here to assist you. What do you need from us?"
4. Give the employee space to express himself or herself and do not interrupt him or her. Try to show empathy and put yourself in his or her shoes. Consider: What is the actual problem? Is he or she just anxious about failing in his or her new position, because of too much pressure? Does he or she only need some time to adjust to the new professional situation? Whatever the reason is, you should acknowledge and respect it. And make sure you have a mutually developed plan or protocol by the end of your conversation and act accordingly.
5. Set a date for a future meeting in order to re-evaluate the situation and the development after the initial conversation and see whether things have changed for the better by then. You can ask the employee to set a date for this next meeting himself or herself. This will help him or her to feel responsible, in charge of the whole situation and in control of his or her own behaviour.

Isn't that easy?

As you can see, applying the 5 steps is not so difficult, is it? Use these steps as a protocol and you will feel prepared and in control the next time such an undesirable situation occurs. You now know the exact steps to resolve situations like these quickly and efficiently. By applying this protocol, I believe that you will achieve greater peace of mind in the long run. In addition, you will have a great deal more time and energy on your hands. Just try it and let me know what you think!

I am certain that you are already looking forward to the next issue of laser magazine, in which I will present the tenth part of this unique series of communication concepts and touch on further useful and interesting topics. Are you curious about what's next? We will take an honest look at how to deal with your own procrastination, as well as how to transform someone who is constantly complaining into a loyal patient. This is a common and challenging situation that we as dentists face in our clinics. In this regard, I will provide five essential tips that will help you to cope with these situations more effectively.

Until then, remember that you are not only the dentist at your clinic, but also its manager and leader. For questions and further information and guidance, keep in touch by sending me an e-mail at dba@yiannikosdental.com or via our website, www.dbamastership.com. I am looking forward to our next step towards business growth and educational development!



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Fig. 1

On unifying the **laser** family

In this interview, Georg Isbaner, editor of *laser—international magazine of laser dentistry*, spoke with DGL/ISLD President Prof. Dr Norbert Gutknecht about the success of the 16th WFLD World Congress in Aachen in 2018, as well as current trends and future developments in laser dentistry.

At the beginning of October last year you hosted an international congress in Aachen in collaboration with the DGL and the WFLD/ISLD. What was the response?

In a nutshell—a huge success. This conference exceeded all expectations and pre-planning efforts by far. Considering that the last Laser World Symposium in Japan attracted only 220 visitors and we ended up with more than 540 participants, in Aachen, from 44 countries all over the world representing every continent on the planet, that's really quite something. Even the number of free short presentations (over 200) and the number of e-posters presented (86) reached an unprecedented level. The world-class line-up for the 38 plenary sessions, who not only presented the latest scientific research, but also demonstrated the significant advantages of applying lasers to a wide range of different dental treatment settings was particularly pleasing.

A laser convention of this magnitude is simply extraordinary. What do you think were the reasons for this success?

Put simply, it was the programme. The selection of the invited speakers took a very long time because we put great emphasis on the relevance and significance of the content. We also allocated time for many young scientists to present their research results in short presentations and for the first time ever, we also provided more opportunities for additional presentations by showcasing scientific posters as e-posters. In addition, there were great social parts of the programme including the first evening get-together held in the industrial exhibition area which featured live music and buffet snacks. Furthermore, the gala dinner held at the Rahe Castle was spectacular with its great musical and dance interludes which culminated in a firework display.

And was there much interest from the German dental community?

We received a great deal of positive feedback from our German participants, above all because, in addition to the diverse series of lectures, we also offered up-to-date continuing education and training, which was also supplemented with numerous practical workshops. We also more than doubled the number of German participants compared to last year's conference, and I am sure that we would have had even more German visitors if they had been able to imagine the scope, variety and quality of the programme on offer and if the German laser manufacturers and distributors had provided their customers with even better information and incentives.



Fig. 2

Fig. 1: The 16th WFLD World Congress in Aachen in 2018 was expected to be the most successful WFLD conference ever. **Fig. 2:** Prof. Dr Norbert Gutknecht is curious about future innovations in laser dentistry.

become an integral part of modern, innovative, minimally invasive dental therapy.

The completely outdated assertions made over the past years and even decades are still being used as arguments against laser applications, albeit now to a much lesser extent. That would be like saying today that an electric typewriter is still superior to a computer just because you ignore current computer technology and you refer to technical data of computers from the late 1980s to support your claim. This could also apply to automotive engineering and many other technical achievements. The progress of laser technology is readily accepted in medicine and is now fully integrated into treatment processes.

What are the most important indications that dentists who want to use lasers should be aware of?

Minimally invasive selective and painless removal of dentine and enamel cavities is only an option with erbium lasers. The removal of old composite fillings including any subsequent preparation has even without anaesthesia become a pleasant experience due to the use of erbium lasers. Diode laser or CO₂ laser oral surgery, in which labial frenulum, lingual frenulum, fibroma, hyperplasia, tooth hood and many other small surgical phenomena can be treated easily, quickly, bloodlessly and without sutures or scarring. The laser-assisted treatment of periodontal diseases requires considerably fewer antibiotics, a fact which not only leads to very good and speedy clinical results, but also helps to decrease the spread of antibiotic resistance. The same applies to the inflammatory forms of endodontic diseases, in which laser-assisted treatment not only leads to equivalent bactericidal results in the root canal, but also has an extremely high bactericidal effect in the lateral dentinal tubules, accessory root canals and isthmus.

One of the most promising applications in the future will be in the treatment of peri-implantitis. There's currently no therapeutic approach in the conventional treatment of peri-implantitis that would even come close to the success achievable with erbium lasers.

Beyond that, many minor therapeutic indications which result in very good treatment outcomes, precisely because of the use of lasers, deserve to be highlighted. And finally, I also want to mention the photodynamic therapies using diode lasers, which have a wide range of applications in dentistry and which contribute greatly to improving clinical outcomes and reducing the total number of medications required for treatment.

In Germany itself and in the wider German-speaking region, laser dentistry has lost some of its buzz. What do you think are the reasons for this?

One of the reasons I can identify is the domination of manufacturers and commercial companies. Every manufacturer tries to keep their training and further education in-house—even their own meetings are initiated merely to improve perceived customer loyalty. I think it's good to keep close contact with your customers, but these “in-house events” can't replace conferences and meetings organised by an independent scientific society such as the DGL. Only a scientific society can represent the interests of its members in professional organisations and take care of the sensible and correct use of lasers in dentistry objectively and impartially.

In the past, manufacturers and distributors in Germany used to encourage their customers to become DGL members. These days, this is no longer the case because they fear that customers might be won over by competitors' products. But this is precisely the “spice of life” that stimulates the consumer's appetite for this technology and which generates new customers and new membership. That's why I have called upon all manufacturers and sales organisations to encourage their customers to become DGL or ISLD members. I'm sure that their sales performance would improve as a result and that they would inject new momentum.

Where does laser as a therapy tool stand today?

These days, lasers have a much broader therapy spectrum than ever before. With the improvement of technology, the greater variety of different wavelengths and a sound scientific basis, lasers as a therapeutic tool have

Would you also encourage young, prospective dentists to use lasers or is it still reserved for more experienced dentists?

The answer is quite clearly a very big YES. The application of the laser in dentistry doesn't hinge on many years of professional experience, but rather on sound laser training. A dentist with many years of professional experience completes exactly the same training, since the use of lasers in dentistry does not yet form an integral part of the mainstream dentistry curriculum.



Generally speaking, how do you intend to use your activities to promote the awareness of laser dentistry in Germany? The keyword, of course, being curriculum.

The only way to stimulate more interest is by providing well-founded information and solid training concepts for the application of lasers. We've, therefore, not only integrated conventional presentations into the programme of the previous two DGL conventions, but we've also integrated workshop-relevant introductory presentations followed by practical workshops featuring a broad range of different wavelengths and manufacturers, which have all proven very popular. We've also launched a programme, initiated by our Practice Advisory Board, to inform colleagues in various regions of Germany about the application potential of lasers in dentistry. At the end of these introductory events, course participants are made aware of the accredited courses on offer at the AALZ in partnership with the RWTH International Academy. Courses offered in this module can be credited towards an M.Sc. in the application of lasers in dentistry.

In this context, where do industrial partners come into the equation? Are these products technologically mature or do you still expect important future developments?

Industry partners play a very important role in the dissemination of this therapeutic option. Unfortunately, there's often a lack of trust on the part of independent institutions such as the ISLD, the DGL, the AALZ and other university institutions, because they fear that potential customers might turn to other laser manufacturers and other products. I strongly urge manufacturers and sales organisations of dental laser equipment to open up the market and to raise awareness even among non-laser users by supporting independent events, such as congresses and certified training courses. This technology can only be increasingly integrated into the treatment processes of our colleagues through joint efforts between industry, sales, scientific societies and universities.

Current laser systems are very sophisticated and good, effective and safe to use. It is common to see small innovations and improvements in modern technology from time to time—just like in the car or computer industry.

Is laser technology going to play a role in dentistry at IDS?

Yes, of course. Some of the leading laser manufacturers will be exhibiting and demonstrating their products. I'm sure that many new companies will join the circle of established laser manufacturers—I myself am very curious to see which innovations or improvements will be on display.

In collaboration with the OEMUS MEDIA AG, the DGL, has been publishing a quarterly international trade journal for over ten years now: the *laser—international magazine of laser dentistry*. How important is this journal for the DGL, its members and the international fans of the laser community?

The journal is an important constituent of the available information channels both in terms of scientific progress and product development and it's completely autonomous and independent from all the other events and training courses. It also gives our members a means of communication that allows them to follow up on events that they might not have been able to attend themselves, both from a visual and content point of view. I consider it a very important part of our laser universe and undoubtedly a unifying element within the greater "laser family".

Will you be hosting a laser convention this year (2019) and next year too? Can you tell us what you have in store for your participants?

As you can see from our conversation, we are very interested in developing and refining programmes for our members and interested colleagues that not only have academic scientific components, but also include other significant components in the form of practice-oriented, user-friendly workshops. And last but not least, we don't want to overlook the importance of the social and recreational aspects of our interactive evening events.

Prof. Gutknecht, thank you for this conversation.

contact

Prof. Dr Norbert Gutknecht

DGL/ISLD President
Pauwelsstraße 30
52074 Aachen, Germany
www.dgl-online.de
www.isldlaser.com

Laserschutzkurs der DGL



Hinsichtlich der Anforderungen, die an die Ausbildungsseminare zum Laserschutzbeauftragten, oder kurz „Laserschutzkurs“, gestellt werden, ist festzustellen, dass diese sich in den letzten Jahren deutlich verschärft haben. Achten Sie als Interessent, der seine Sachkunde auffrischen möchte, darauf, dass die Anforderungen nach der aktuell gültigen OStrV erfüllt sind. Hier wird explizit gefordert, dass die Kurse eine Minstdauer nicht unterschreiten – und dies gilt auch für bereits fachlich einschränkende Kurse, z.B. für das Gebiet der Zahnheilkunde. An allgemein gültige Kurse, mit denen auch Laserschutzbeauftragte in allen Anwendungen befähigt werden sollen, werden noch höhere Anforderungen gestellt. Als Zahnmediziner genügt für Sie natürlich der auf die Zahnheilkunde abgestellte Kurs!

Auch an den Inhalt der Kurse werden strikte Anforderungen gestellt, z.B. soll neben diversen curricularen Anforderungen auch die mittlerweile obligate beispielhafte Erstellung einer Gefährdungsbeurteilung behandelt werden. Ebenso muss mit einer verbindlich durchzuführenden und strukturierten Prüfung ein Erfolg der Teilnahme nachgewiesen werden.

Zu Zeiten der zuvor gültigen BGV B2, nach der zahlreiche unserer Mitglieder noch ausgebildet wurden, wurde von der Berufsgenossenschaft klar Stellung bezogen gegen

verkürzte Angebote oder gar reine On-line-Angebote zur Schulung, die bereits damals nicht anerkannt wurden. Achten Sie daher immer und unbedingt auf qualifizierte Referenten und geeignete Kursanbieter. Kursanbieter sind z.B. Stellen wie der TÜV Nordrhein für allgemeine Kurse, Hochschulen und Universitäten, oder Fachgesellschaften, die eng mit Universitäten oder universitätsnahen Instituten zusammenarbeiten. Auch verschiedene Dentaldepots bieten korrekt durchgeführte Kurse an, organisieren diese aber über entsprechend beauftragtes Lehrpersonal, i. d. R. von einer Hochschule.

Im nun speziell ausgeschriebenen Kurs am **Freitag, dem 17. Mai 2019 von 9.00 bis ca. 17.00 Uhr** bieten wir Ihnen selbstverständlich einen entsprechend qualifizierten Kurs in Zusammenarbeit mit dem AALZ Aachen Dental Laser Center, Mitglied des RWTH Aachen Campus an.

Auch wenn Sie sich für einen anderen Kursanbieter entscheiden, achten Sie bitte darauf, dass die beispielhaft genannten Anforderungen erfüllt werden. Im Zweifelsfall berät Sie Ihre DGL natürlich gerne bei einer konkreten Rückfrage.

Referent: Priv.-Doz. Dr. Rene Franzen, Aachen

Seminaranmeldung



Laserschutzbeauftragter nach BGV B2, aktualisierte Verordnung OStrV

Datum: 17.05.2019 von 9.00 bis 17.00 Uhr

Kursort: MTZ-Gebäude
Pauwelsstraße 19
52074 Aachen
(vor dem Universitätsklinikum)

Kursleiter: Priv.-Doz. Dr. rer. medic. Rene Franzen

Kosten: 350,00 Euro (DGL-Mitglied)
450,00 Euro (Nicht-Mitglied)

Kontoverbindung:

Sparkasse Aachen
IBAN: DE56 3905 0000 0042 0339 44
BIC: AACSDE33
Verwendungszweck: LSO Kurs

Die Bestätigung Ihrer Anmeldung erfolgt nach dem Eingang Ihrer Kursgebühren.

Ich melde mich hiermit verbindlich an:

DGL-Mitglied: ☐ Ja ☐ Nein

Name, Vorname

Straße, Nr.

PLZ, Ort

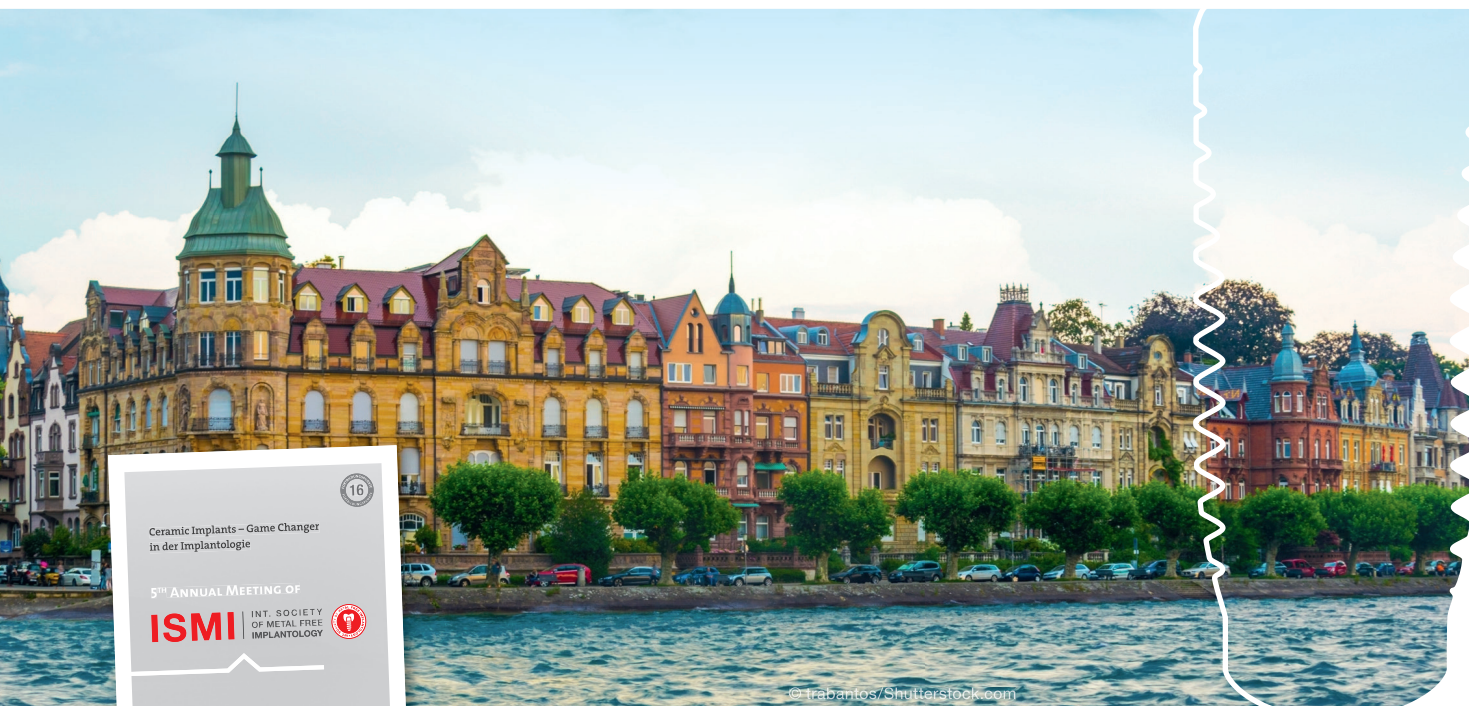
Telefon

E-Mail

Unterschrift, Stempel

Ort, Datum

Ceramic implants—Game changer in implant dentistry



On 10 and 11 May 2019, the 5th Annual Meeting of the International Society of Metal Free Implantology (ISMI) will take place on the premises of the Constance Clinic under the theme “Ceramic Implants—Game Changer in Implantology”. Renowned speakers and participants will discuss practical experiences and current trends in

the use of ceramic implants on both congress days. With its 5th annual conference, ISMI—founded in January 2014 in Constance, Germany—would like to push boundaries and offer new insights into a particularly innovative field of implantology. After a successful kick-off event in 2015, and the successful annual congresses in Berlin (2016), Constance (2017), and Hamburg (2018), ISMI returns to its place of origin and invites participants once again to Constance in 2019. The two-day event starts on Friday with a Pre-Congress Symposium, seminars and the broadcast of a live operation via the Internet. The highlight of the first congress day will be the ISMI White Night, taking place directly after the day's programme (hedcke's Terracotta) and offering participants a relaxed atmosphere with wine

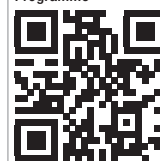
and music to wind down the day. On Saturday, which will be dedicated to scientific lectures, a wide range of topics will be presented and discussed, covering almost all areas of metal-free implantology. The Scientific Director of the conference will be ISMI President, Dr Dominik Nischwitz.

ISMI was founded with the aim of promoting metal-free implantology as an innovative and particularly trend-setting field within implant dentistry. In this context, ISMI supports its members with training offers, as well as current tech and market information. In its public relations work, i.e. in specialist circles, as well as in patient communication, ISMI is also committed to a comprehensive establishment of metal-free implantological treatment concepts. ISMI members receive a 20 per cent discount on the congress fee.

contact

OEMUS MEDIA AG
Holbeinstraße 29
04229 Leipzig, Germany
www.ismi-meeting.com

Programme



5TH ANNUAL MEETING OF ISMI

10 & 11 May 2019

Constance, Germany—hedicke's Terracotta

BOOK ONLINE /
CONGRESS PROGRAMME



www.ismi-meeting.com



Theme:

**Ceramic Implants—Game Changer
in implantology**

Scientific Director:

Dr Dominik Nischwitz | Germany

Organisation:

ISMI – International Society of Metal Free Implantology

Lohnerhofstraße 2 | 78467 Constance | Germany

Phone: +49 800 4764-000

Fax: +49 800 4764-100

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☐ I would like to receive further information on the 5TH ANNUAL MEETING OF ISMI.

Title, Surname, Name

E-mail (for digital programme)

Stamp

laser 1/19

Prophylaxis **works** and offers **future potential**

Laser among promising technologies

The dentists have chosen the right path in the field of dental prophylaxis. Over the past years, the Fifth German Oral Health Survey (DMS V) has recorded a significant reduction in tooth decay among children and youths in Germany and less toothless old-age pensioners aged between 65 and 74. The aim is now to secure and consistently expand the achieved success. Innovations in

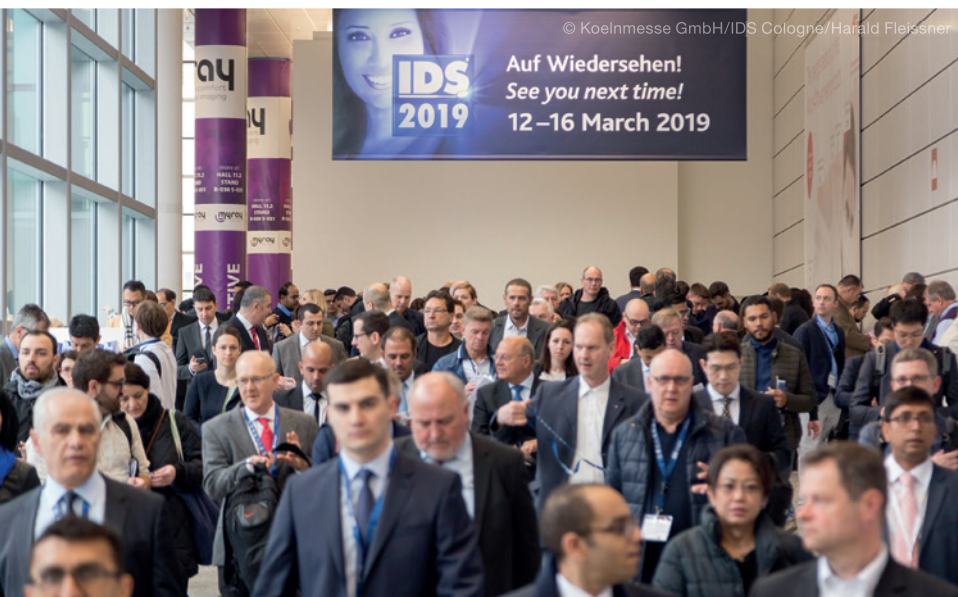
pastes also serve this purpose and are even in a position to microscopically close small cavities. This also reduces the sensitiveness of the affected tooth. The differentiation between the appropriate manual toothbrushes and electric toothbrushes for the respective age groups is becoming more and more pronounced. This is noticeable among others from the bigger grips for old-age pensioners or special attachments for electric toothbrushes for denture wearers. In the case of periodontal diseases, classic therapy approaches with the application of antibiotics, chlorhexidine, hydroxylapatite and natural antibacterial ingredients have established themselves—both in practice, as well as in relevant trials. Meanwhile digital technologies are turning the electric toothbrush into a monitoring and training tool for more effective oral care. And children and youths could in future learn to undertake prophylactic measures in a playful manner, because computer games such as “Plaque Attack”, or “Ritter Zahndalf” increase the fun factor while carrying out preventative measures and, thus, also in turn the compliance.

Dr Markus Heibach, Executive Director of the Association of German Dental Manufacturers (VDDI) stated, “Domestic oral care products, professional prophylaxis and dig-

ital tools—these enable prophylaxis to be carried out more consistently than ever before.” According to Heibach, the entire spectrum of opportunities of a clinically modern prophylaxis that is in line with the contemporary customer address will be presented at the International Dental Show (IDS), to be held from 12 to 16 March 2019 in Cologne.

the field of prophylaxis are the basis therefore. One of the more recent and promising technologies is: laser. On the prophylaxis front alongside the classic, established methods (scaling and root planing with hand curettes or ultra sound systems or powder jet devices), the diode laser in particular (i.e. at 635 and 660nm) offers additional options for killing bacteria, or surface decontamination, among others.

Furthermore, even in the case of restorative measures, the topic of prophylaxis can more and more often be dealt with simultaneously. Glasses that are rich in fluoride and phosphate are a good example here, because beyond their function as filling materials they can also improve the remineralisation of the dentine. Certain tooth-



contact

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Plovdiv to become European Capital of Laser Dentistry

In 2019, the beautiful city of Plovdiv, Bulgaria, will not only become the European Capital of Culture, but also the European Capital of Laser Dentistry. After the huge success of last year's 16th World Congress in Laser Dentistry in Aachen, Germany, the International Society for Laser Dentistry (ISLD) invites participants from all over the world to their 17th International Congress, which will be held in Plovdiv this summer—from 6 to 8 June 2019. Since new technologies are rapidly evolving at the moment and new ways of applying these technological innovations in the daily clinical practice are constantly being developed, the overriding theme of the event was chosen to be "Laser Technologies and Translation to Clinical Practice", addressing two major challenges in the field of laser dentistry. International researchers and clinicians who helped shape the world of laser dentistry in the past two decades have joined their efforts to develop an exceptional scientific congress programme, which includes round table debates, workshops, and short oral presentation sessions addressing cutting edge topics. Several promising new technologies are on the horizon in laser dentistry and the congress will serve as an ideal forum for exchanging knowledge related to these innovations in order to advance and elevate the medical field. Educational sessions and practical courses will be offered on topics

that are of immediate scientific relevance. In addition, being a city that is known for its art and rich history, Plovdiv offers numerous great social and tourist activities. There is plenty to discover in the second-largest city in Bulgaria: the attractions of the city, which are mostly within a few



International
Society for
Laser Dentistry

minutes of walking distance from the conference venue, include the old town, the Roman amphitheatre and the medieval basilicas, among others.

contact

International Society for Laser Dentistry (ISLD)

University of Aachen Medical Faculty
Pauwelsstraße 30
52074 Aachen, Germany
www.isldlaser.com

VISIONS IN IMPLANTOLOGY

2ND FUTURE CONGRESS FOR DENTAL IMPLANTOLOGY

Perio-Implantology: Implants, Bone & Tissue— Where are we today and where are we headed?

According to the motto “Visions in Implantology”, the German Association of Dental Implantology (DGZI) hosted their 48th International Annual Congress in 2018. The Düsseldorf event, which was held as “Future Congress in Dental Implantology” for the first time, turned out to be a great success.

The 250 dentists and the 120 practice employees attending the event experienced a congress that provided answers to topical issues and that pointed out new ways regarding the interaction between participants, speakers and the industry. This inherent high and new standard of content was also reflected in a completely fresh organisational concept, which will also serve as the bedrock of the 2nd DGZI Future Congress in Dental Implantology, to be held in **Munich from 4 to 5 October 2019**.

The overriding aim of the congress will be to provide top-notch practical education on the highest level and to bridge the gap between the latest scientific findings and industry innovations, with a view to the integration into the daily clinical practice of the latter. To sharpen its profile as practical and application-oriented event, the congress will no longer be split into separate speaking stages, workshops and side programmes. Instead, it will be divided into a so-called industry day on Friday featuring strategy talks, transmissions of live operations and table clinics, as well as a science-oriented Saturday. This setup guarantees that individual demands—especially from implantologists—will be met and satisfied. By using modern tools such as the Future Podium, innovative presentation techniques, an internet-based digital poster presentation, interactive solutions or a catering concept based on “flying services”, the event will resemble a congress trade fair. Without there being considerable breaks between lectures, live surgeries and table clinics anymore, participants, speakers and industry representatives will be given significantly more time and space for communication.



DGZI
Deutsche Gesellschaft für
Zahnärztliche Implantologie e.V.

16

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Perio-Implantology: Implants, Bone & Tissue—
Where are we today and where are we headed?

**VISIONS IN
IMPLANTOLOGY**

2ND FUTURE CONGRESS
FOR DENTAL
IMPLANTOLOGY

**Oktoberfest
Dapft is
2019**

4 & 5 October 2019
The Westin Grand Hotel Munich

49TH DGZI INTERNATIONAL
ANNUAL CONGRESS

Dapft is

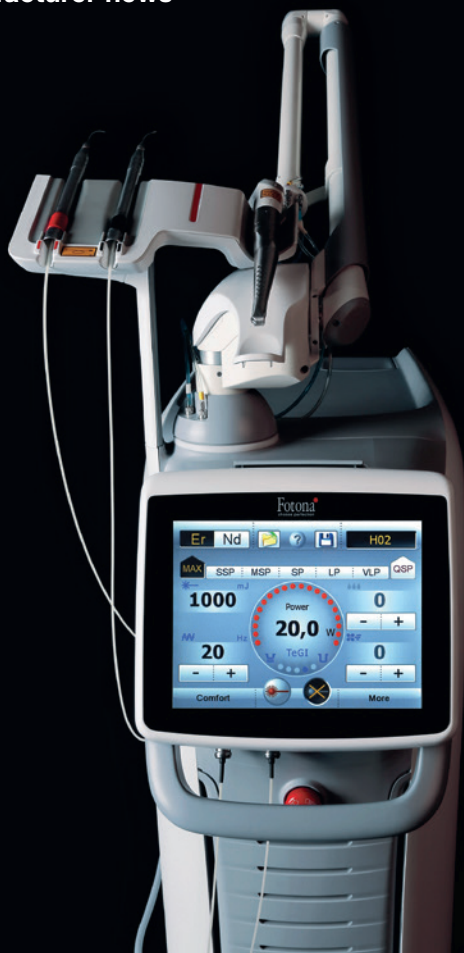
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Fotona

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LASERVISION

Lightweight magnifying goggle for laser treatment

Laser-safe loupes are especially required in dentistry. Owing to the optical characteristics of a loupe the protection of the eyes is notably considered. When used in laser-assisted applications, loupes allow for an increase in the power- and energy density of the laser. Within dentistry, precise laser treatments and, as a consequence, successful treatment outcomes can be achieved using loupes. The new F27 magnifying eyewear combines the already proven F22 eyewear frame and a newly developed adapter with the magnifying glass of one of the leading German manufacturers. Owing to the large number of available laser protection filters for this spectacle frame, a suitable magnifying glass can be configured for almost every laser-assisted application. Especially in combination with the HR2.5x/340 mm binocular loupe, the new F27 loupes cover almost the entire range of laser-assisted applications. Moreover, laservision offers magnifiers with working distances of 340, 420 and 520 mm. For further information on the available shields for the innovative laser safety loupes, contact LASERVISION GmbH & Co. KG—we are always at your disposal.

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Key topics:

- | Caries management and tooth preservation for elderly people and high risk patients
- | Minimally invasive aesthetic dentistry
- | Post-endodontic restorations and adhesive techniques

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Joint conference organised by the EFCD (European Federation of Conservative Dentistry) and the DGZ (German Association of Dentistry) in cooperation with the DGÄZ (German Association of Aesthetic Dentistry).

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DGL-Einführungskurs 2019

„Laser in der Zahnheilkunde“ neu aufgelegt

Nach wie vor ist der Einsatz von Lasergeräten in der zahnmedizinischen Therapie, trotz inzwischen fast dreißigjähriger Nutzung in Deutschland, kein Bestandteil des zahnärztlichen Curriculums an bundesdeutschen Universitäten. Die Deutsche Gesellschaft für Laserzahnheilkunde e.V. (DGL) hat es sich zur Aufgabe gemacht, Laser in das zahnärztliche Therapiespektrum zu integrieren und den Einsatz dieser modernen Behandlungsmethode zu verbreiten. In diesem Zusammenhang wird ein Einführungskurs an mehreren Terminen im kommenden Jahr gehalten. Ziel des Kurses ist es, die Teilnehmer produktneutral über die Einsatzmöglichkeiten und Indikationen verschiedener Dentallaser zu informieren. Neben der Vermittlung physikalischer Grundlagen und der biophysikalischen Interaktion der aktuellen Wellenlängen mit unterschiedlichen Geweben werden vor allem die klinische Anwendung und der Mehrwert für Patient und Behandler in dieser Fortbildung herausgestellt. Eine Vielzahl an Fallbeispielen und ein Hands-on-Training an Präparaten sollen den direkten Bezug zur Praxis sicherstellen. Neben der Vermittlung von Basiswissen wird mit allgegenwärtigen Vorurteilen aufgeräumt und durch erfahrene Spezialisten die Chancen und Behandlungsoptionen des Lasereinsatzes dargestellt. Zielgruppe sind Studierende der Zahnmedizin, Assistenzärzte und interessierte zahnärztliche Kollegen.



Zur Auswahl stehen folgende Kurstermine:

- 22. März 2019 (Köln)
- 29. März 2019 (Berlin)
- 06. September 2019 (Köln)
- 20. September 2019 (Berlin)
- 12. Oktober 2019 (Erwitte)
- 15. November 2019 (Grimmen)



Die Kursdauer wird pro Termin etwa 4 Stunden betragen. Bestandteil sind eine kurze Lernkontrolle und ein Hands-on-Training. Gemäß den DGZMK-/BZÄK-Richtlinien wird dieser Kurs mit 6 Fortbildungspunkten bewertet. Der Kostenbeitrag liegt bei 30 Euro, allerdings ist die Teilnahme für Studierende mit einem gültigen Studentenausweis frei. Die Kursanmeldung erfolgt über die Geschäftsstelle der DGL, das Anmeldeformular ist entweder auf dgl-online.de oder über den anbei stehenden QR-Code zu finden. Falls Sie teilnehmen möchten, senden Sie uns bitte das ausgefüllte Anmeldeformular entweder per E-Mail an sekretariat@dgl-online.de oder especk@ukaachen.de, per Fax an 0241 803388164 oder per Post an folgende Adresse: Uniklinik Aachen, Abt. für ZPP/DGL, Frau Eva Speck, Pauwelsstraße 30, 52074 Aachen.

Quelle: Deutsche Gesellschaft für Laserzahnheilkunde e.V.

Commensal flora to play key role

In fighting periodontal infections

The development of an animal's immune system relies on commensal flora—microorganisms such as bacteria present in certain parts of the body. In the case of immunity against periodontal diseases—infections of the areas surrounding teeth—it is unclear, however, what exactly the role of commensal flora is. Now, Professor Manabu

Morita from Okayama University and colleagues have investi-

gated the relation between commensal flora in the mouth and the immune response to a bacterium called *Porphyromonas gingivalis* (*P. gingivalis*), which contains lipopolysaccharide (LPS), a known periodontal pathogen. The researchers tested the immune response of mice after the application of *P. gingivalis*/LPS. Two types of mouse were used in the experiments: germ-free and specific-pathogen-free mice. The former are free of any microorganisms, including commensal flora; the latter are mice guaranteed to be free of certain pathogens—in this case, periodontal pathogens—but not of commensal flora. The response to the bacterium was assessed by the amounts of particular types of cells that are characteristic of immune system activation. The scientists observed that exposure to *P. gingivalis* led to an increase in the number of a certain type of cell associated with immune system activity in the specific-pathogen-free mice, after three hours, indicating that application of the bacterium, indeed, triggered the immune system. At the same time, the germ-free mice did not show similar increased levels of these cells, suggesting that commensal flora contribute to the development and functioning of the periodontal immune system.

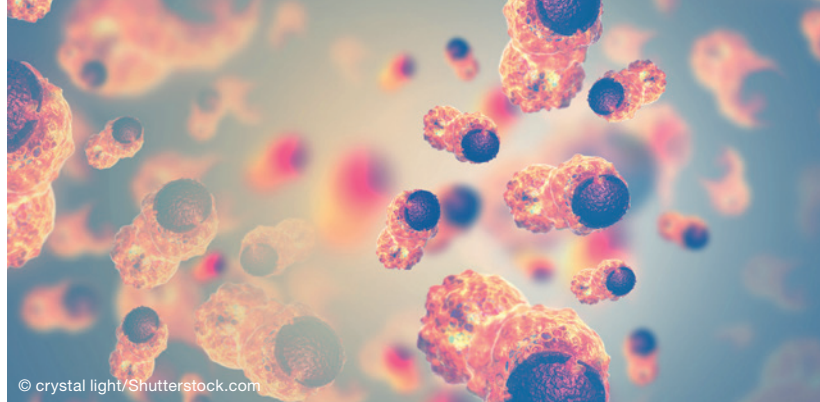
Source: Okayama University



Neutrophil and cancer cell "crosstalk"

Underlies oral cancer metastasis

An abnormal immune response or "feedback loop" could very well be the underlying cause of metastases in oral cancers, according to Dr Marco Magalhaes, assistant professor at the University of Toronto's Faculty of Dentistry and lead researcher in a study published in the journal *Cancer Immunology Research*. Magalhaes has unearthed a significant connection between the inflammatory response of a very specific form of immune cells, neutrophils, and the spread of this deadly disease. "There's a unique inflammatory response with oral cancers," explains Magalhaes, citing the growing body of evidence between cellular inflammation and cancer, "because the oral cavity is quite unique in the body. A great many things are happening at the same time." Magalhaes focused attention on neutrophils, immune cells commonly found in saliva and the oral cavity but not widely researched in relation to oral cancer. Like other immune cells, neutrophils secrete a group of molecules, including TNF α , that regulates how the body responds to inflammation. The study noted that oral cancer cells secreted IL8, another inflammatory mediator, which



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activates neutrophils, effectively establishing a massive immune-response buildup or "feedback loop". Ultimately, the researchers found, the immune-response loop resulted in increased invasive structures known as "invadopodia", used by the cancer cells to invade and metastasize. "If we understand how the immune system interacts with the cancer, we can modulate the immune response to acquire an anti-cancer response instead of a pro-tumor response," Magalhaes argues. While the study points to the possibility of one day creating targeted, personalised immunotherapies for patients with oral cancer that could effectively shut down the abnormal immune response, the team is currently expanding upon their study of inflammation and oral cancer.

Source: DTI

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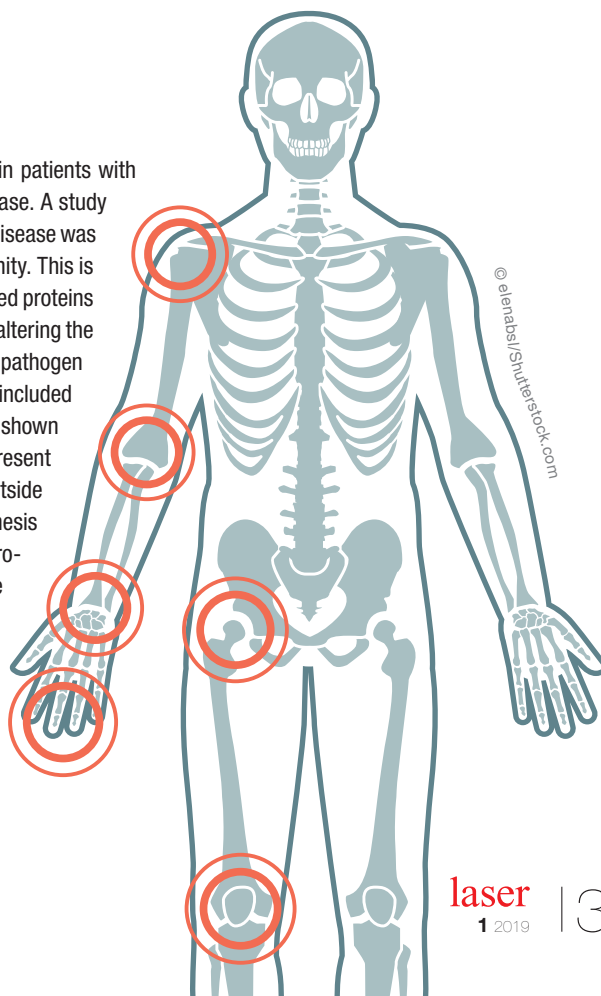


Periodontal disease may be

Key initiator of rheumatoid arthritis

For some years now, there is an increasing attention on aspects of oral health in patients with rheumatoid arthritis (RA), especially related to associations with periodontal disease. A study conducted at the University of Leeds, UK, found that the prevalence of periodontal disease was increased in patients with RA and could be a key initiator of RA-related autoimmunity. This is because autoimmunity in RA is characterised by an antibody response to citrullinated proteins in which the amino acid arginine has been converted into the amino acid citrulline, altering the proteins' structure. The oral bacterium *Porphyromonas gingivalis* is the only human pathogen known to express an enzyme that can generate citrullinated proteins. The study included 48 at-risk individuals, 26 patients with RA and 32 healthy controls. "It has been shown that RA-associated antibodies, such as anti-citrullinated protein antibodies, are present well before any evidence of joint disease. This suggests they originate from a site outside of the joints," said study author Dr Kulveer Mankia. "Our results support the hypothesis that local inflammation at mucosal surfaces, such as the gums in this case, may provide the primary trigger for the systemic autoimmunity seen in RA." "We welcome these data in presenting concepts that may enhance clinical understanding of the key initiators of rheumatoid arthritis," said Prof. Robert Landewé, Chairperson of the EULAR 2018 Scientific Programme Committee. "This is an essential step towards the ultimate goal of disease prevention."

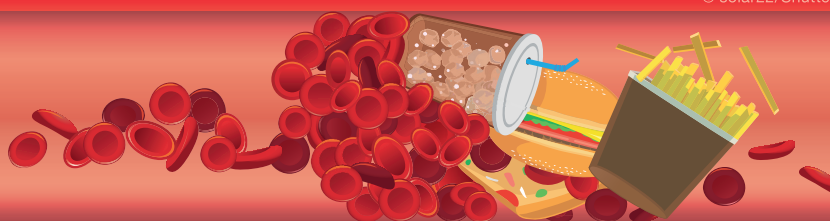
Source: DTI



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Cholesterol has an influence

On dental health



Interrelations between systemic diseases and periodontitis have been known for a long time. In addition, an increased cholesterol level as a result of gum disease can lead to tooth loss, as reported by newdelhitimes.com. Various studies have provided evidence that high cholesterol levels weaken the gums and cause problems such as inflammation and deeper gum pockets. Previous articles by ISRN Dentistry and BMC Oral Health have linked cholesterol to periodon-

titis. German and Finnish scientists had tested the effects of statin medication, which is commonly used to lower cholesterol, in various studies. In both studies, the participants showed significant positive developments in their periodontal inflammation, for example the number of gingival pockets could be reduced by more than one third.

Source: ZWP online

Launch of the Oral Reconstruction Foundation

Research Award 2018/2019



The Oral Reconstruction Foundation announced that it is now accepting applications for the 2018/2019 Oral Reconstruction Foundation Research Award, which is presented every two years and is open to all young, talented scientists, researchers, and dedicated professionals from universities, hospitals, and practices. Eligible scientific papers include those that have been published or accepted for publication in an English peer-reviewed journal that addresses one of the following topics in implant dentistry, oral reconstruction, or related areas: diagnostics and planning, hard- and soft-tissue management, sustainability of implant-supported prosthetics, physiological and pathophysiological aspects, or advances in digital procedures. The recipient of the Oral Re-

construction Foundation Research Award 2018/2019 will have the opportunity to present his or her work at the Oral Reconstruction Global Symposium, which takes place in New York City from 30 April to 2 May 2020. Furthermore, the authors of the three best contributions will receive prizes of EUR10,000, EUR6,000, and EUR4,000 respectively. To be considered a candidate for this award, visit www.orfoundation.org/awards to download the mandatory registration form and to review the eligibility requirements. The registration deadline is 30 November 2019.

Source: Oral Reconstruction Foundation

Poor toothbrushing habits

Linked to heart disease

Numerous studies have established a link between periodontal disease and heart disease, but few have looked specifically at whether toothbrushing habits are associated with the latter group of conditions. For a new study, a team of researchers from Hiroshima University's Institute of Biomedical and Health Sciences led by Dr Shogo Matsui examined the toothbrushing behaviour of 682 participants. After adjusting for various factors, they found that those who reported brushing less than twice a day for less than two minutes at a time had a threefold increased risk of developing cardiovascular disease compared

with those who brushed their teeth for at least two minutes twice daily. In response, the Oral Health Foundation, a leading charity working to combat oral disease in the UK, stressed the importance of taking charge of one's oral health, stating that it can provide benefits that go far beyond the mouth. "Findings like this may sound slightly scary to hear but it could prove to be just the push we need to take better care of our oral health," said Dr Nigel Carter, OBE, CEO of the Oral Health Foundation. "This study adds to the growing scientific evidence that this is a strong link between the health of our mouth and that of our body."

Source: DTI

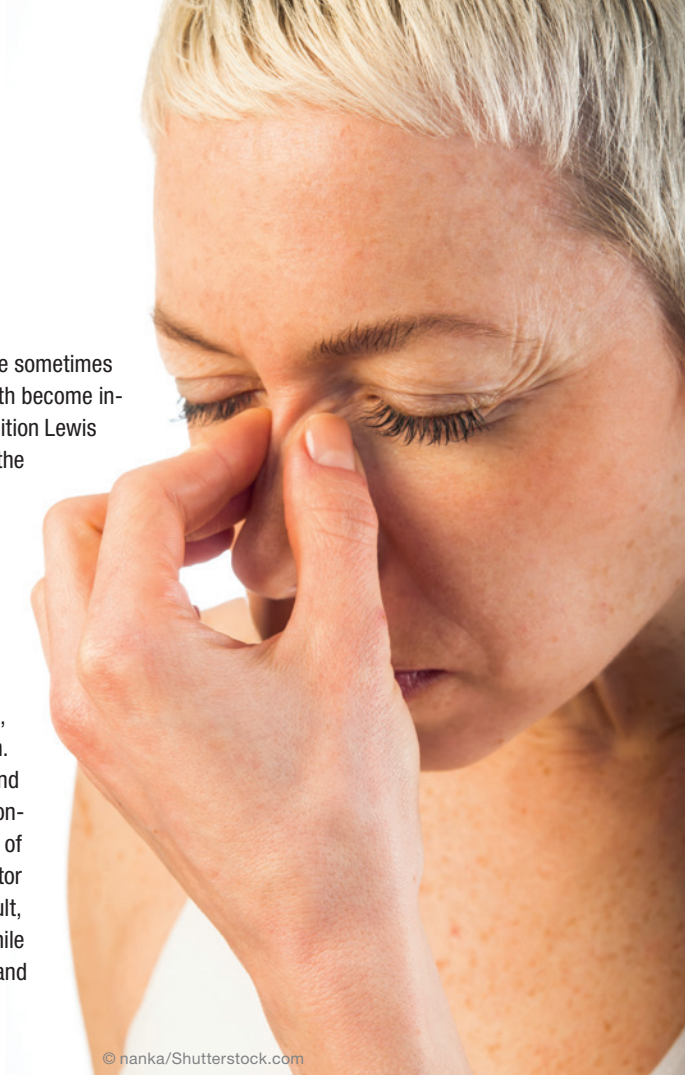


Tooth infections could be the source

Of chronic sinus problems

According to Dr Michael J. Lewis, a root canal specialist, chronic sinus infections are sometimes caused by an underlying tooth infection. "In short, sometimes the roots of one's teeth become infected, and that infection can spread to their sinuses," Lewis said. This medical condition Lewis referred to is called maxillary sinusitis of endodontic origin (MSEO). The roots of the upper back teeth often extend quite close to a hollow, air-filled space located behind their cheekbones called the maxillary sinus. If one of these upper back teeth becomes infected, the infection can spread rather easily out of the end of the tooth's root and spread into the maxillary sinus. Patients suffering with MSEO will often exhibit low-grade sinus or nasal symptoms, including post-nasal drip or general sinus congestion, which they may think is due to seasonal allergies. Some patients may even experience recurring sinus infections, which are often treated by their physician with antibiotics. While antibiotics will resolve the patient's sinus symptoms for a period, the antibiotics are incapable of reaching the source of the infection inside the tooth. Once the antibiotics are ceased, the infection will slowly re-emerge from the tooth and spread back into the sinus and the symptoms will often recur many months later. Ironically enough, patients with MSEO often do not exhibit any tooth pain. This absence of dental symptoms can make it very difficult for both the patient and their medical doctor or general dentist to recognise that there is even a tooth infection present. As a result, patients often suffer from this condition for many years before it is recognised. While the diagnosis of MSEO can be difficult to arrive at, endodontists are specially trained and equipped to diagnose and treat this condition.

Source: DTI



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Processed starch linked

To dental caries

A recent review commissioned by the World Health Organization has shown that a diet rich in wholegrain carbohydrates is less likely to negatively impact oral health than a diet high in processed carbohydrates. The findings come from a review of 33 papers on starch and oral health, conducted by researchers at Newcastle University. The analysed papers were studies of foods containing rapidly digestible starches, such as white bread, cake and pretzels, or slowly digestible starches, such as legumes and whole grains, and these foods' relationships with dental caries, oral cancer and periodontal disease. The researchers found that there was no evidence to suggest an association between the amount of starch eaten and dental caries. However, rapidly digestible starches were linked to an increased risk of dental cavities, since amylase, a component of saliva, is able to break these starches down into sugars. Fur-

ther findings from the review suggested that slowly digestible starches might offer protection against periodontal disease and lead to a lower risk of oral cancer.

Source: DTI

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