Novel applications of a bioactive resin in perforations, root resorption and endodontic-periodontic lesions

By Dr Marta Maciak, Poland

During the last decade, a considerable amount of attention has been directed towards the development of so-called bioactive materials. To understand this phenomenon better and to avoid misinterpretation, a condensed review of the literature and an assessment of various definitions need to be considered.

There are already several commercially available dental materials that can be defined as bioactive. For instance, any fluoride-releasing material, calcium silicate- and calcium aluminate-based cements, and calcium-based or calcium-containing materials. Biomaterial scientists in the field of implantology have adopted the word "bioactive" to mean materials that are bound to each other through a bio-mineralised interface. There appears to be confusion within the dental profession, including among scientists, clinicians and industry persons, to what extent biomineralisation can be achieved with dental materials and which materials can be appropriately termed "bioactive" or "biomineralising".

Bioactivity has been defined and can be interpreted in various ways. A broad definition that has several meanings is the following: a material that is able to have a biological effect or a material that is biologically active and forms a bond between the tissue and the material. In the field of tissue engineering, the term "bioactivity" is related to the cellular effects induced by the release of biologically active substances and ions from the biomaterial, for example from bioactive glasses both in soft- and hard-tissue engineering applications. In addition, its activity has been demonstrated in pulp capping experiments in non-human primates.

Thus, in medicine, bioactivity covers all interaction of materials with living cells and tissue, including the effects of pharmaceuticals. In biomaterials science, with bioceramics and bioactive glasses, bioactivity of a material usually denotes that the material is capable of forming hydroxyapatite minerals on its surface in vitro and in vivo.

The following theoretical question should be asked: can a material that releases ions for biomineralisation be considered bioactive or is the substrate on which the biomineralisation occurs bioactive? Thus, bioactivity of dental materials relates to their potential to induce specific and...
intentional mineral attachment to the dentine substrate.

Another definition has been presented in an article by Lööf et al.:

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Dr Jorge Vera, what is your background in endodontics?

I did my postdoctoral programme at Tufts University in endodontics at Boston School of Dental Medicine in Boston. In the US, I studied endodontics at the University of Maryland, where I returned many research projects under a great team consisting of Dr Joseph Tenca, Robert White and Melvin Goldman. Since 2004, I have been lecturing in Mexico and providing evidence that the biological approach to endodontics should be used. I have authored many publications, and I have received the Dr. Marta Maciak, Poland

Dr Marta Maciak, Poland

She has authored many publications, and since 2005, she has lectured in Poland and other countries, in addition to presenting practical training in the fields of endodontics and aesthetic dentistry. Her main interests are aesthetic dentistry, endodontics and prosthodontics. She can be contacted at martamaciak2012@gmail.com.

About the author

Dr Marta Maciak, Poland

Dr Jorge Vera, what is your background in endodontics?

I did my postdoctoral programme at Tufts University in endodontics at Boston School of Dental Medicine in Boston. In the US, I studied endodontics at the University of Maryland, where I returned many research projects under a great team consisting of Dr Joseph Tenca, Robert White and Melvin Goldman. Since 2004, I have been lecturing in Mexico and providing evidence that the biological approach to endodontics should be used. I have authored many publications, and I have received the

What is one piece of advice that you would like to share with aspiring endodontists?

To be both open and critical about new techniques and devices arriving on the market, to always bring basic science into everyday practice because therein lies the foundation of our profession, so that whatever we use on patients helps both him and us, to study every single day, to revise old notes from school and to read the journals. Finally, it is advisable to take new courses every year.

Thank you very much for the interview.

Endo Micro Surgical Retreatment (Management of Endodontic Failure)

Course Objectives

DAY 1 - By the end of the course delegates will understand:

- Outcomes of endodontic microsurgery vs traditional apicoectomy.
- The science behind effective local anaesthesia in endodontic microsurgery.
- The use of a dental operating microscope in endodontic microsurgery.
- Flap design and tissue handling to improve post-surgical healing.
- How to effectively prepare an osteotomy.
- Correct methods of duro-tomography and prevention of periosteal flap elevation.

DAY 2 - By the end of the course delegates will have:

- Been calibrated to a dental operating microscope.
- Have identified cases where surgical intervention is appropriate.
- Have used a flap with microsurgical instruments.
- Created an osteotomy and identified anatomical markers.
- Performed root end resection and retrograde preparation of the root canal space.
- Performed microsurgical suturing.
- Developed a post-operative care strategy to minimize complications and improve healing.

Prof. James Prichard, UK

Five quick questions with Dr Jorge Vera

By Dental Tribune International

Dental Tribune International asked Dr Jorge Vera five quick questions about his background in dentistry and what inspires him to practice every day. In the interview, Vera also shed some light on his favourite products that he uses in his private practice and provided some useful tips for aspiring endodontists.

Dr Vera, what is your background in endodontics?

After finishing my DDS in Mexico, I did a postdoctoral programme in endodontics at Tufts University School of Dental Medicine in Boston in the US, from 1991 to 1993, helping to teach in the undergraduate clinic and doing many research projects under a great team consisting of Dr Joseph Tenca, Robert White and Melvin Goldman. Since 2004, I have been lecturing in Mexico and teaching about which I have learnt in the clinic.

What are your three favourite things about endodontics?

Firstly, I like the challenge of properly diagnosing and treating canal and dental pain, and, of course, relieving the affected patients. And then being able to treat symptomatic and previously endodontically treated teeth with retreatment techniques using CBCT, the microscope or endodontic microscopy, and returning them to functionality. Lastly, the tremendous load of basic science that endodontists must carry requires continuous study to better understand endodontic science that endodontists must carry.

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Which endo products couldn’t you do without and why?

I would not be able to work without and why?

What inspires you in your day-to-day work?

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What inspires you in your day-to-day work?
Whether you’re an endodontic enthusiast, and rely on performance and versatility, or a novice, who prefers simplicity and confidence in their endodontic treatment - we’ve got the solution for you. Our complete ProTaper Next® and WaveOne® Gold solutions, from glide path to obturation, gives you the choice.

Find out more about the endodontic solutions from Dentsply Sirona by contacting your local sales representative or visiting www.dentsplysirona.com.