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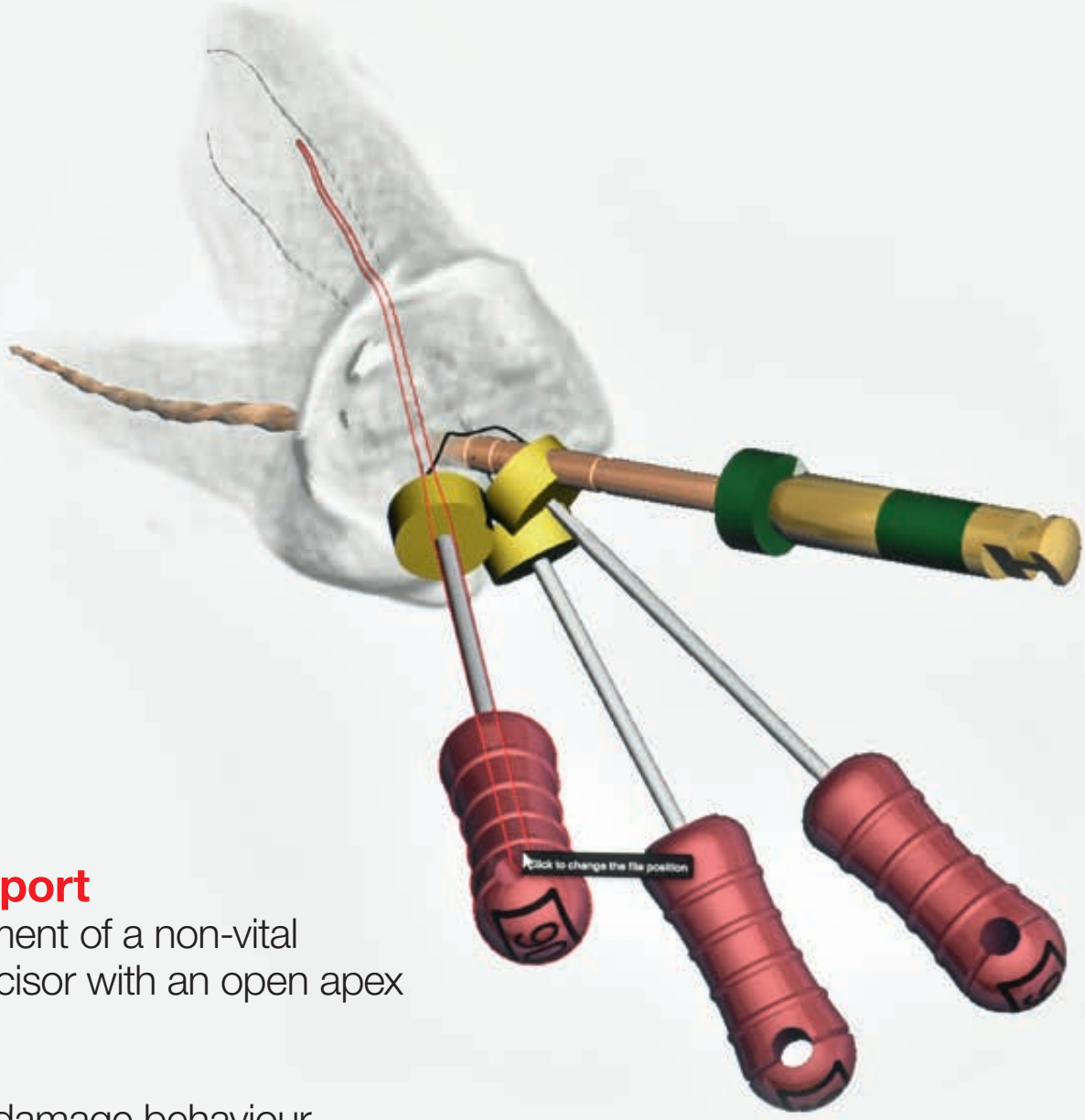

case report
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study
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Golden standards and modern technology

Prof. Philippe Sleiman

Decades ago, the giants of modern endodontics put together the standards of root canal treatment, and we have been following them ever since. At the time, they had only ideas and rather simple research techniques and yet managed to formulate golden standards for a whole field of therapy.

Shaping and cleaning the root canal system (as proposed by Schilder) is a key phrase from Seltzer and Bender: it is more important what we take out from the root canal system than what we put into it (even today, with the warm vertical technique of obturation).

Images obtained with simple methylen blue dye showing the complexity of the system was their precursor of our sophisticated micro-CT scanning, and yet it was them who opened our eyes to the root canal system complexity. And such examples are many.

Today, we need to ask ourselves—especially when new, marketing-driven concepts are promoted to us—what are we doing to our patients and are we still following those concepts? It is true that with new tools we are able to work faster and potentially safer; it is also true that we managed to add to those concepts or modify them a bit—nevertheless, we still work in the spirit of those guidelines.

At the end of the day, we need to see one simple thing—with all the great studies and publications serving the same purpose—the outcome of the root canal treatment that we perform in our chair for our patient. This is where we need to focus. What kind of service are we offering to our patients and what is the viability of our treatment? Are we putting our skills and knowledge to the test? Are we recalling our patients in order to check if what we did is still standing true and healthy?

It is definitely a difficult task, and takes huge effort from our staff and from our patients, especially when they say, *"I am fine and I am busy, I don't feel a thing and maybe I cannot manage to pass by the clinic for a follow-up"*. It has to be a joint effort (maybe even included as a clause in the consent form the patient signs, to make sure the patient understands that they need to come for regular check-ups on a yearly basis). Hopefully, we will then be able to publish more data and learn from what we see from the recalls—and use real-life clinical experience to introduce change to some of our protocols.

Prof. Philippe Sleiman
Guest Editor

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"The field of tissue engineering has exploded during the last decade"

An interview with Dr Ibrahim Abu Tahun, Jordan

Author: Kristin Hübner, Germany

Dr Ibrahim Abu Tahun

Being actively involved as a founding member and president of several endodontic societies, Dr Ibrahim Abu Tahun has experienced the changes in the field significantly over the last decades. DTI had the opportunity to speak with Tahun, who is an associate professor in the Department of Conservative Dentistry at the University of Jordan, about the most influential developments in the specialty and how these advances are changing the way endodontics is practised.

Dentistry is changing rapidly, with new materials, devices and treatment protocols being introduced constantly. What is the situation in endodontics in particular? What are the major developments currently?

At the beginning of the 21st century, we have greater understanding of the pulp biology, pathophysiology and its powers of healing. The field of tissue engineering has exploded during the last decade, and extensive reviews on dental applications are available, producing a critical mass of knowledge and methods that are likely to answer the challenge issued decades ago.

Various animal and human studies have shown high success rates for vital pulpal therapy. These investigations have demonstrated that the amputated pulp can be repaired by itself or after application of bioactive materials.

Recent approaches to pulpal wound treatment have essentially followed two lines: one has continued the conventional path to seeking improved synthetic materials that provide better seals, resulting in a breakthrough in bioactive materials, while another line has taken a biological approach with the hope of identifying a biologically based strategy for treatment of clinical conditions.

What are the advantages of new treatment modalities compared with conventional root canal therapy?

The potential benefits to patients and the profession are groundbreaking. From a public health point of view, the recent advances in tissue management and wound healing, compared with the current form of root canal therapy, which is more of a mechanical and chemical process, should be reflected in our clinical management to develop more biocompatible treatment modalities and increase tooth longevity.

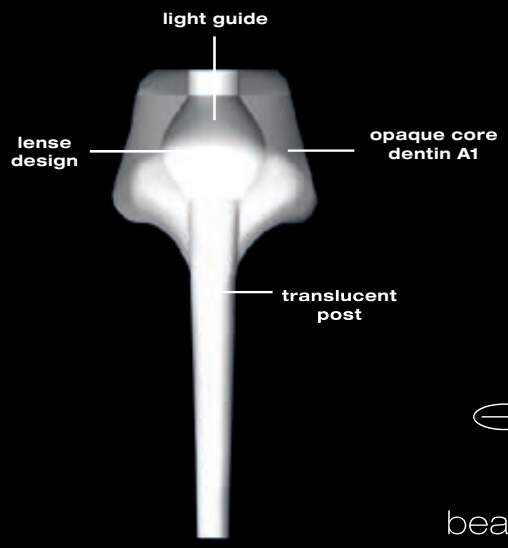
In the past, it was unthinkable that the tissue in the periapical region of a non-vital infected tooth could regenerate. Case reports published during the last 15 years have demonstrated convincingly in humans that this type of environment may create

> "In the past, it was unthinkable that the tissue in the periapical region of a non-vital infected tooth could regenerate."

the ideal clinical outcome if disinfection can be achieved, just as it is for the canals in the case of dental avulsion. These novel endodontic tissue engineering therapies offer the possibility of restoring natural function and improving the long-term outcome of teeth with a poor prognosis.

When it comes to implementing new treatment modalities in daily practice, do you think the endodontic community is somewhat divided or is the specialty as a whole on the verge of a major paradigm shift?

The debate on clinical technique and the concept of regeneration and revascularisation per se is not a product of modern medicine. The varying treat-



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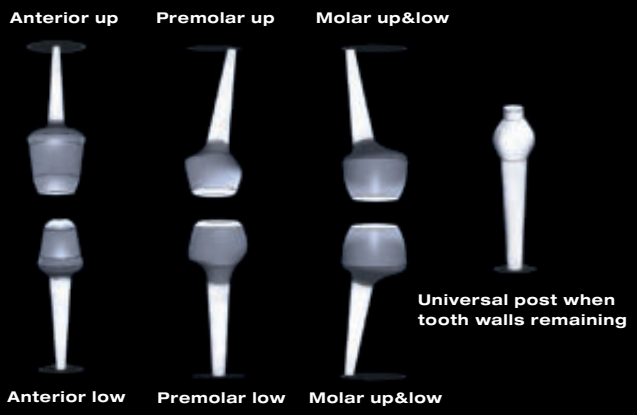

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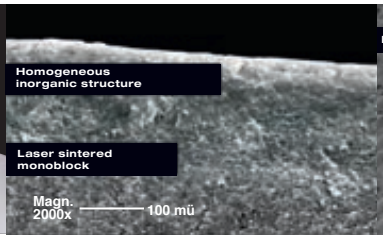

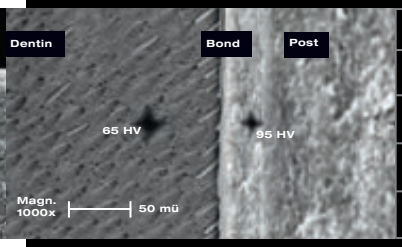

Technical Data	POST & CORE
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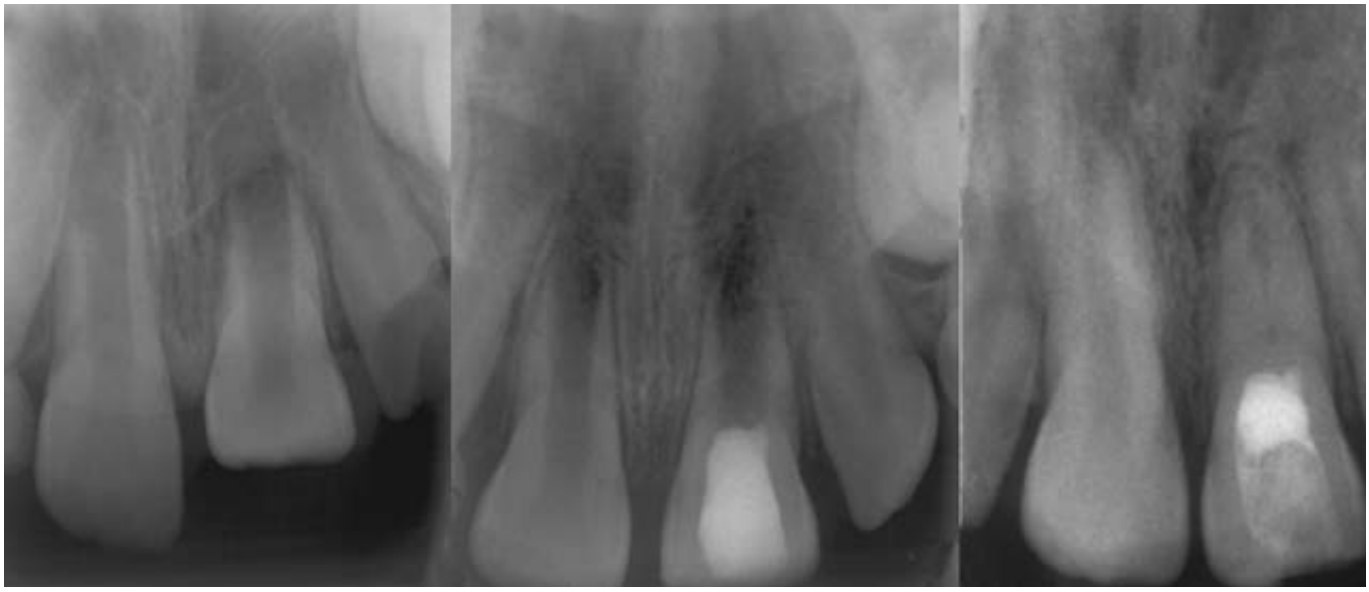

Source: Ibrahim Abu Tahun & Mahmoud Torabinejad. Management of teeth with vital pulps and open apices. Endodontic Topics 2012, 23, 79–104.

ments for the tooth pulp during the last three centuries illustrate this clearly. Recently, various treatment concepts have been suggested using less-invasive approaches. Even though an optimal treatment protocol is lacking, however, many case reports and case series on pulpal therapy have been published.

Once considered taboo, vital pulpal treatment of symptomatic permanent teeth with mineral trioxide aggregate has been reported to be successful, and greatly improved prognoses for permanent retention are now possible.

A very recent study has found that regenerative endodontic treatment has the potential to be used to retreat teeth with persistent periapical periodontitis after root canal therapy.

More high-quality cohort studies would strengthen the evidence-based recommendations. However, the current best available evidence allows clinicians to provide these treatment modalities safely to patients.

Globally, what is necessary to implement this new approach to endodontic treatment?

A reparative, biological approach to pulpal therapy is not only welcome, but also absolutely essential. Ideally, the delivery of biologically based endodontic procedures must be more clinically effective than current treatments and the method of delivery must also be efficient, cost-effective and free of health hazards or side-effects for patients. A recent study has suggested that endodontic practitioners are supportive and optimistic about the future use of regenerative endodontic procedures.

Best practice guidelines must be updated to include guidance to maintain the self-respect of the dental profession and the trust of the patients we serve, as the fact remains that more biological endodontic treatment means endodontics that is more ethical than today.

In your opinion, what innovations will influence endodontists most in the years to come?

The tremendous and exciting new research on regenerative endodontics from Japan, the US and other countries has made the cultivation of potential in this field a strategic priority without undermining the efficacy of conventional endodontic therapies, but positioning practitioners at the forefront of this field.

We are changing protocols, towards going biological. This path to the future with various potential approaches based on clinical and scientific results presented in the professional literature will lead to predicable conservative treatment that may enable practitioners to fill a root canal with nature's tissue instead of plastic materials or artificial surgical prostheses. The important challenge facing us now is to develop and adapt a safe, effective and consistent method for regenerating a functional pulp–dentine complex in our patients._

Thank you very much for the interview.

Editorial note: At the 19th Scientific Congress of the Asian Pacific Endodontic Confederation, which was held from 5 to 8 April in New Delhi in India, Tahun addressed current endodontic challenges and conflicting priorities between conventional therapies and new treatment modalities in his lecture "Can we do it forever?".

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