

“The field of tissue engineering has exploded during the last decade”

An Interview with Dr Ibrahim Abu Tahun, Jordan

By Kristin Hübner, DTI



Dr Ibrahim Abu Tahun, Jordan

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. *Dental Tribune* 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.

Dental Tribune: 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?

Dr Ibrahim Abu Tahun: 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 the ideal clinical outcome if disinfection can be achieved, just as it is for the canals in the case of dental avul-

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 treatments 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.

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.

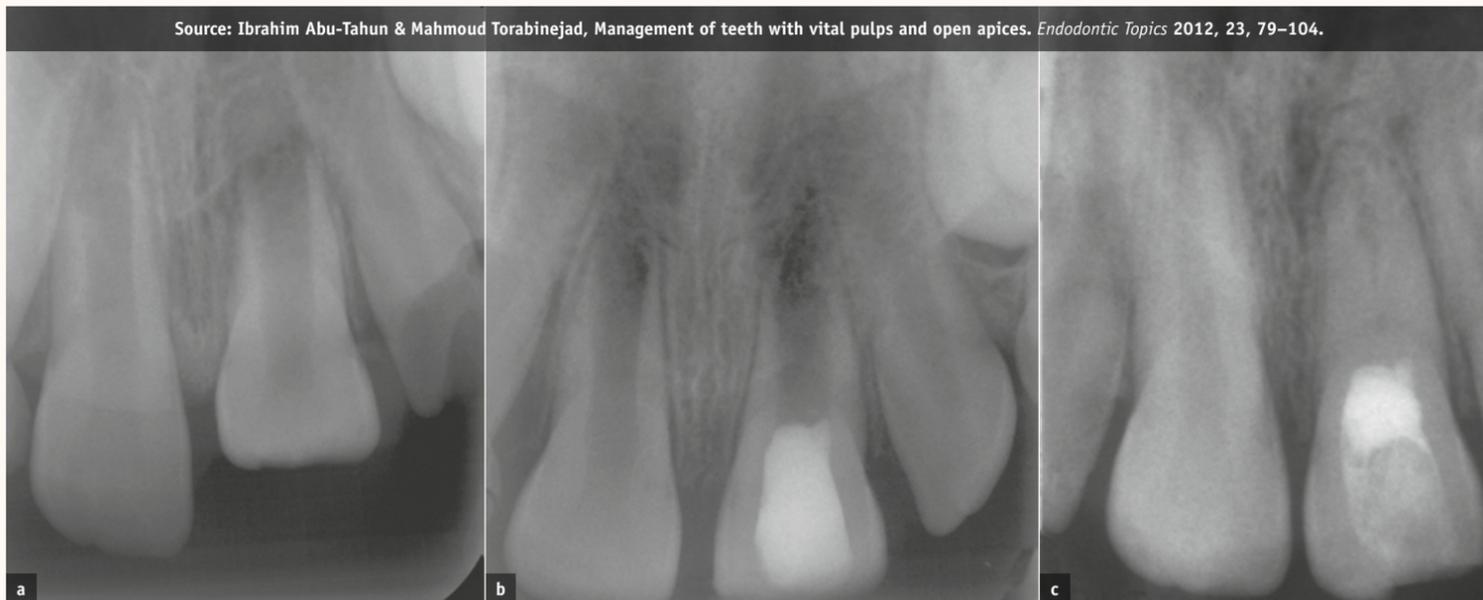
Endodontic treatment means endodontics that is more ethical than today.

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 predictable conservative treatment that may enable practitioners to fill a root canal with nature's tissue in-

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



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sion. 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.

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.

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 en-

stead 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 will be held from 5 to 8 April in New Delhi in India, Tahun will be addressing current endodontic challenges and conflicting priorities between conventional therapies and new treatment modalities in his lecture “Can we do it forever?”.