IDS is coming up in March 2023

Minimally invasive trends in endodontology

There is a trend towards minimally invasive methods in the field of endodontics and even towards regenerative measures. The International Dental Show (IDS) that is being staged in Cologne from 14 to 18 March 2023 shows what is possible today and in the near future.

Impression IDS 2021.

Endodontic files are becoming more flexible and more resistant to breakage. In the meantime, this is the case to such an extent that it is changing the concepts and methods. The tooth structure can be spared more and more frequently. The art lies in achieving the right balance: Less is taken away in the coronal area and yet sufficient space is created in the apical region to allow effective rinsing. This method does however restrict the view of the orifices in comparison to a more invasive preparation. The person carrying out the treatment can however obtain the best result possible by utilising a bright dental microscope. This conservative approach gives him the security that even if further treatment is necessary there is sufficient substance left over to enable a safe post-endodontic treatment. IDS shows which files, microscopes and—for an initial insight—magnifying glasses are most suitable for the current methods.

Today, the chosen therapy for inflamed pulp can be a less invasive method: Less often pulpectomy, instead more frequently pulpotomy. One is familiar with it from the treatment of milk teeth, where it is used to support the space retainer function of the latter. But pulpotomy can also be successful even after the root growth has finished. In this case, the wound that arises after the vital amputation is treated using a suitable material. Whereby hydraulic calcium silicate cement or MTA (Mineral trioxide aggregate) is increasingly replacing the classically implemented calcium hydroxide. MTA-based bioceramic

IDS 2021 in Cologne. 2023 will be the 100th anniversary of IDS.

sealers are also becoming more popular. Because newer products appear to be completely eliminating any existing reservations particularly regarding their suitability for possible follow-up treatment.

At present, endodontics is going way beyond the boundaries of conservative treatment methods for the hard tissue and tooth preservation and is even progressing forward in the direction of revitalisation and even regeneration. This is possible with the aid of tissue engineering: The tissue is recreated. To this end, pulp tissue from local stem cells is placed on an individualised substrate. An autologous graft then forms through the activation of endogenous growth factors.

In the case of multi-root teeth, a combination between a conventional root canal treatment (strong inflammation of the pulp through to far into the root canals) and tooth-preserving pulp treatment (well-containable inflammation of parts of the pulp) can even be the chosen therapy. Depending on the clinical situation, it is also possible for the dentist to even carry out individual types of treatment for the different canals of one single tooth. Endodontics already offers finely differentiated options today.

There are also more and more options for dividing up the tasks between the general dentist and the specialist. The following is already true today: A large spectrum of digital tools are available for endodontic backward-planning—from 3D X-rays through to drilling templates. This helps the person carrying out the treatment to maintain the ideal angle for the introduction of files. The specialist can carry out this stringent planning and either subsequently complete the execution himself/herself—or not. Because the point is here: The specialist can alternatively refer the patient back to the family dentist and the latter carries out the treatment using the digital documents supplied. IDS 2023 presents a unique abundance of suitable software for the endodontic planning and smooth communications between the different practices involved.

In some cases, the exhibiting companies have over 100 years of experience in the field of endodontology often with roots in fine mechanical precision work. For instance, the ISO standardisation of endodontic instruments in the 1960s and the introduction of rotating nickel/titanium instruments (NiTi) in the 1990s were among the most important milestones.

The experts particularly consider the transition from a sequence of stainless-steel manual files and several rotating Gates-Glidden drills over to NiTi files as a decisive clinical step forward. Executions with variable conicity then made it possible to achieve the desired safe and deep preparation with a shorter sequence of instruments. Sporting a rectangular, eccentric cross-section in the cutting area, other files proved particularly effective as a blocking protection and for debris removal. Instruments with reciprocal motion characteristics brought about the opportunity to instrument the odd root canal from A to Z using one single preparation file.

"Enhancements and alternatives to recognised endodontic treatment routines have repeatedly been presented at IDS," said Mark Stephen Pace, VDDI Chairman (Association of German Dental Manufacturers). "That was already the case at the very first trade fair of its kind in the year 1923; for example in its era among others the development of the Walkhoff paste was considered to be a novel bacteria-eliminating root filling material. And the same will also be true in 2023 when we celebrate the 100th anniversary of IDS. Digital methods arrived especially on the endodontics scene a little later than in the area of prosthetics, but now I am observing that they are also creating new scope for family dentists and specialists. The thing that impresses me most is how much the opportunity for maintaining natural teeth can be increased thanks to new methods of tooth preservation and regeneration of the pulp. Last, but not least this is directly noticeable via a positive sensitivity test! As the leading global trade fair of the dental industry, IDS 2023 provides a unique orientation as to how a dental practice can strive to attain these achievements."

Source: VDDI, Germany