When an idea turns into innovation

By Marc Chalupsky, DTI

Although the headquarters of COLTENE are in Switzerland, its endodontics plant is in southern Germany. At the factory, located in Langenau, a town between Stuttgart and Munich, 155 employees produce treatment auxiliaries and endodontic equipment in a fully automated and camera- and laser-controlled process. The German location houses an impressive logistics department thanks to the office’s central location. Dental Tribune was invited to learn more about the company’s endodontic products.

A now well-known expert in endodontics, Dr. Barbara Müller has been responsible for the company’s endodontics business unit for over 20 years. She takes pride in the company’s achievements. Today, COLTENE is an international leader in the development and manufacture of dental consumables and solutions for a variety of applications. The company operates worldwide, with subsidiaries and distributors in over 120 countries. With the 1990 introduction of the ParaPost X System, COLTENE came to be known as a provider of endodontic solutions. This position has been further entrenched in recent years as the company’s portfolio of endodontic products has continued to grow.

An impressive endodontic range

The CanalPro line, for example, features a cordless endodontic motor, a fully automated electronic apex locator and a variety of rinsing solutions, which are colour-coded for procedural safety. ROEKO and HYGENIC paper points are sterile and highly absorbent, and being non-adhesive, allow for reliable and easy drying of the root canal. Fast and safe obturation can be conducted with GuttaFlow BioSeal, a bioactive three-in-one obturation material that combines cold free-flow gutta-percha with a sealer and bioceramic in one outstanding filling system and with HYGENIC and ROEKO Gutta-percha points. Recent studies have evaluated the in vitro toxicity of endodontic sealers such as GuttaFlow BioSeal and GuttaFlow 2, as well as Angelus’s MTA-Fillapex and Dent...
Root canal treatments with the Endo-System by VDW – Peace of mind included

By VDM

MUNICH, Germany: Deliver root canal treatments with an opt-mally integrated concept from a single source. This claim is be-hind the campaign ‘Peace of mind included – the Endo-System by VDW.’

Peace of mind included with the Endo-System by VDW means that dentists have a holistic system for simplified, individualised work processes. They also benefit from safety and streamlined concepts from a single source. The VDW Endo-System by VDW means that dentists can have a holistic system for endodontics.

Further, owing to an innova-tive manufacturing process using electrical discharge machining, Hy- Flex EMD has a specially hardened surface that makes the files stronger and more fracture-resistant. The controlled memory of both HyFlex CM and HyFlex EMD gives the instru-ments a number of important properties, including extreme flexibil-ity, superior canal tracking, regen-eration after repeat autoclaving and strong fatigue resistance.

To achieve these characteristics, HyFlex CM and HyFlex EMD are manufactured using a special ther-momechanical process whereby the crystallographic phase transi-tion from austenite to martensite at room temperature results in an advanced controlled memory of the material, making both files extreme-ly flexible. ‘We successfully man-aged to give our Niti material shape memory properties,’ said Müller.

‘We did this by changing the DNA of the material through a switch from low to room temperature. Our idea came not only as an innovation, but a product many of our competitors have tried unsuccessfully to copy.’ Introduced at the International Dental Show in Germany two years ago, the new HyFlex EMD reduces the number of files needed to two, three particularly in straight and wider canals.

Proven clinical experience

According to Müller, a number of clinical studies have demonstrated the effec-tiveness of both systems. For example, Goo et al. compared the bending stiffness, cyclic fatigue and torsional fracture resistance of NITI rotary instruments, including Hy-Flex EDM OneFile from COLTENE, Pro-Taper Gold and ProTaper Universal (both Dentply Sirona). The results showed that HyFlex EMD OneFile demonstrated significantly higher cyclic fatigue resistance and higher distortion angle to fracture, but a lower torsional resistance than both ProTaper options. In addition, Pedulla et al. sought to measure the torsional and cyclic fatigue re-asistance of HyFlex EMD OneFile in comparison with VDW’s REPROBAC R5 and Dentply Sirona’s WaveOne Primary. HyFlex was found to have a significantly higher cyclic fatigue re-sistance and higher angular rotation to fracture. Furthermore, Lacono et al. aimed to measure the wear of HyFlex EMD af-ter clinical application. No fractures were registered, no wear or degrada-tion was reported, and the increased fatigue resistance of HyFlex EMD (compared with HyFlex CM) allowed it to remain usable for longer when shaping severely curved canals.

A case from the Philippines

Dr Margaret Tui, a clinician based in the Philippines, agrees that the in-creased fatigue resistance and strong flexibility of both HyFlex systems allowed her to manage an S-shaped case more easily. At a recent COLT- ENIE Train the Trainer event, she presented a mandibular first mo- lar case with four canals that was referred to her by another dentist who could not negotiate the canal owing to its difficult anatomy. After utilising the crown-down technique and the HyFlex EMD files to flare the coronal third of the distobuccal and distolingual canals, Tui then contin-ued to use HyFlex EMD to negotiate the mesiobicual and mesiolingual canals, as she had discovered a slight curve in the middle third of the canals. As for the S-shaped disto-buccal and distolingual canal, she continued with the HyFlex CM files. Post obturation radiographs showed properly shaped canals with proper healing.

References


The VDW Endo-System

More about ‘Peace of mind included’ – the Endo-System by VDW can be found at vdw-dental.com/endsystem and at congresses and trade fairs.

About VDW

VDW GmbH based in Munich, Ger-many is one of the most well-known manufacturers working in the den-tal field of endodontics. For almost 150 years, VDW has been a pioneer in shaping the evolution of root canal treatment significantly. VDW focuses on offering the dentist a holistic solution covering the entire endo-dontic treatment process including preparation, irrigation, obturation and post-endodontic care as well as service and training.

For more information about the products, the VDW brand and prod-ucts, please visit www.vdw-dental.com/en/