Stable and Aesthetic Dental Restorations with Modern Composites

The universal nanohybrid restorative material Polofil® NHT in clinical use

by **Dr. Svetlana V. Chlebas**

The demands on dental restorations in terms of functionality, aesthetics and durability have risen significantly in recent years, and today, a wide range of modern composites are available on the market which largely meet such requirements. As a result, dentists are now spoilt for choice.

However, the material chosen should be equally suitable for both posterior and anterior regions and should also have a high level of stability, i.e., one that can also be used for extensive cavities in the masticatory load-bearing region. Last but not least, the economical factor also plays an important role in selection. Therefore, the material should be time-saving and thus easy to apply.

Commendable choice

My choice of composite is the universal nanohybrid restorative material Polofil NHT from VOCO, which combines the tried and tested composite technology with innovative nanotechnology, providing benefits both in terms of material properties and handling. Thanks to the nanoparticles evenly distributed in the matrix, Polofil NHT has a high filler content of over 83 per cent by weight, resulting in low polymerisation shrinkage of under 1.8 per cent by volume. At the same time, the material has a high compressive strength of over 440 MPa, a high flexural strength of over 157 Mpa, a modulus of elasticity of 17,000 MPa similar to that of dentin and a high abrasion resistance of under 20µm (ACTA abrasion). This makes Polofil NHT ideally suited for posterior restorations. Polofil NHT provides me with a material that can appropriately treat bruxism cases – with long-lasting results, which is particularly important in view of the ever-increasing number of findings. It is also perfectly suited for anterior restorations as its high translucency and chameleon effect enable highly aesthetic results with just one shade that corresponds to the natural tooth. It also features outstanding handling properties. The material does not adhere to the instrument during layering and modelling, preventing it from developing a "ripped look". The increments can be quickly and easily applied into the cavity and light-cured as directed. Available in five shades (A1, A2, A3, A3.5 and B2), it is perfectly adequate for the range of restorations usually carried out in practices and enables natural-looking results to be achieved. A shade guide made from light-cured original composite simplifies shade selection and individual adjustments. Subsequent checks have confirmed the high colour stability of Polofil NHT in all cases.

Clinical case

A female patient presented with an insufficient composite restoration in tooth #36. After the administration of a local

anaesthetic, the cavity was prepared, rinsed and dried. The universal adhesive Futurabond U (VOCO) supplied in a practical SingleDose blister was chosen for bonding. The self-etch mode was used in this case. The adhesive was then applied evenly in the cavity with a microbrush and rubbed in for 20 seconds.

After gentle air-drying, light-curing was carried out for ten seconds with a conventional polymerisation lamp. The composite Polofil NHT (shade A3) was then applied in 2mm increments. Each layer was light-cured for 20 seconds with a light output of 500mW/cm^2. After modelling the occlusal surface, the occlusal contacts were checked, followed by finishing with a diamond polisher with a small tip, as well as polishing with paper and silicone grinding burs. Finally, a varnish containing fluoride (Bifluorid 12, VOCO) was applied to seal the restoration margins with fluoride. The result shows a natural-looking restoration that harmonises perfectly with natural tooth substance. **DA**

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Initial situation: insufficient composite restoration in tooth #36.

The cavity after preparation.

Final result: A natural-looking aesthetic restoration.

About the Author

Dr. Svetlana V. Chlebas studied dentistry at the Dnipropetrovsk State Medical Academy and is now a lecturer at the National Medical Academy for post-graduate training in Kiev, Ukraine.

Dr. Chlebas also works concurrently as a dentist at Stamil (Scientific Centre for Clinical Stomatology SNKZ). She has spoken at various training events and participated in seminars in Germany, Austria, Italy, Greece and the US.