A Vedic Smile approach to dentistry

Dentist Dr Sushil Koirala talks about the Minimally Invasive Cosmetic Dentistry concept and why it matters to dental professionals

Jaspreet M. de Paiva
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MIAMI, USA: An extremely skilled clinician with over 17 years of experience in Cosmetic Dentistry, Dr Sushil Koirala says that technology should work to improve health, never to compromise it. His Minimally Invasive Cosmetic Dentistry (MiCD) treatment protocol is based on consciousness, nature and evidence-based technology that really respects the patient’s long-term health and needs.

Koirala, who is the founder and president of the Nepagale Academy of Cosmetic Dentistry and of the South Asian Academy of Aesthetic Dentistry, compiled his MiCD protocol based on consciousness, philosophy, scientific research, and what can be described as a Vedic Smile or holistic approach to dentistry.

Preserving Health, Enhancing Smiles

Patients today are much more educated and demanding regarding dental treatments. Amalgam is a perfect example. A high percentage of patients demand not to have amalgam fillings for cavities, but a tooth color material. In the past, a restoration with amalgam required cutting a lot of tissue, but the new direct tooth-colored restorative materials cause less damage to the tooth and provide better aesthetics.

"Many patients are now going for direct aesthetics: restorations, non-prep veneers, minimal tooth preparation indirect restorations, and mini-implants, which are less invasive," says Patrick lake, SHOFU’s General Marketing Manager for Asia Pacific. "The trend is growing."

The goal now is achieving good aesthetics with minimally invasive treatment with the support of MiCD instruments and bio-aesthetic materials." Lake continues.

"We are the official partner of the MiCD movement, which motto is ‘Preserving Health, Enhancing Smiles.’ We are fully committed to support their educational events for both the patient and the dentist."

Minimally Invasive Cosmetic Dentistry

A Pioneer Pager

In a ground-breaking article entitled “Minimally Invasive Cosmetic Dentistry: Concept and Treatment Protocol,” Dr Koirala offered a much needed guide to minimally invasive cosmetic dentistry, a discipline that up to now has been more concerned with appearances than with clinical evidence. The article, published in cosmetic dentistry magazine, was translated into many languages and attracted many followers eager to at last have a clinical protocol for many dental cosmetic procedures that stressed something that while obvious was not widely followed —preserving as much natural tissue as possible.

The ability to differentiate between what a patient wants and what he or she actually needs is a large ethical question in cosmetic dentistry. In order to address this issue, Dr Koirala has developed what he calls a simple self-consciousness pre-treatment test, "whereby I ask myself four simple yet honest questions".

1. How would I treat my own family members?
2. Would I prescribe a specific treatment if I was the patient?
3. Am I competent and happy enough to take up the case?
4. Is the patient happy with the biological, Financial, and Time (BFT) cost estimation of the treatment?

Dr Koirala explains that ‘what a patient wants and what a patient needs are two different things. The needs are the basic treatments a dentist can provide. But the wants are of a different variety, like choosing clothes in a store; you choose the color of the teeth, the texture of the teeth, the shape of the smile.’

What is Beauty?

Since the definition of beauty is different in each culture, it also affects cosmetic procedures. For Western-style contemporary smile aesthetics, beauty is white long teeth and a straight smile, but the same parameters don't apply in Asia,” he explains. “In fact, Asian patients don't mind having a little bit of overlapping teeth, which they see as natural. So we cannot use the same formula globally in cosmetic dentistry.

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Studies have shown that the dental pulps of Asian patient are generally wider, in comparison with European or American patients, and Dr Koirala points out that ‘preparations with wide shoulders could be a hazard to the pulps in Asian patients.” Even so, many dental technicians follow Western standards for non-Western patients with different facial features.

Dr Koirala warns that “you need to be very careful choosing the right technology for your practice, as technology may not always be health-oriented. As a sample, he thinks that CAD/CAM restoration technology still has to be refined in order to be adopted fully in restorative dentistry. "CAD/CAM presently demands extension for insertion, Strength and Aesthetics," thus, “we are compromising health for technology.”

Clinicians still believe that articulating paper mark gives them ideal force component in occlusal adjustment,” he continues. “The "big mark big force, small mark small force" concept has no scientific evidence, but most cosmetic dentists rely on articulating paper marks to do occlusal force adjustment. Computerized Occlusal Analysis System, which can objectively measure occlusal forces of each tooth with the time sequences of occlusal contact, was developed almost 5 years ago. Dr Koirala finds that clinicians neglect scientific facts about articulating paper marks and still believe in it for balancing the force component in smile design. This is why I advocate consciousness in dentistry, because technological information is not enough; you need consciousness to rightly use it for mankind.”

This is the background against which Dr Koirala revolved and led him to develop the MiCD treatment protocol, which he summarizes “as bringing consciousness, nature and technology together.” Rather than inflicting one’s own definition of beauty on the patient, the dentist must listen to and understand the personal and cultural desires of the individual undergoing the dental work, he says. Dr Koirala strives to preserve the definition of beauty set forth in the cultural tradition of the patient rather than following the status quo of a broad, one-size-fits-all plan.

Regarding teeth whitening for instance, Dr Koirala says that while some people may need it, “more often than not the coloring of the teeth is a perfect balance designed by nature. The eyes, teeth and skin tone should be in harmony. If the teeth are too white, it may look awkward and unnatural.”

Changing the Mindset

While the principles of MiCD may seem complicated, the protocol is easy to follow and very practical. Dr Koirala believes that "you don't require changing clinical techniques, but using them in a conscious way which is beneficial for both the patient and the dentist.

"We don't say, ‘Don't cut the tooth this way,’ we say, ‘Cut less,’" explains Dr Koirala. In fact, the MiCD protocol does not reject any conventional procedures, including full crowns or bridges, it just asks the dentist to use their consciousness properly to think if invasive options can be avoided, and to use them only as a last resort. In other words, the only thing a dentist has to do to comply with MiCD is to change the priorities for a given procedure, to alter his or her mindset.

The framework of MiCD establishes five golden principles:

1. “Sooner the Better”—early exploration of diseases and defects to minimize possible invasive treatment in future.
2. “Smile Design Wheel”—follow these principles, and respect the psychology, health function, and aesthetics of the patient.
3. “Do no Harm”—select treatment procedures that maximize preservation of healthy tissue.
4. “Evidence-based Approach”—selection of materials and equipment must be based on science.
5. “Keep in Touch”—focus more on regular maintenance, timely repair and strict evaluation, which should be understood by the patient.

As Dr Koirala says, they are simple principles, which should date every treatment in a dynamic protocol because science constantly changes.

"A good protocol should incorporate changes based on scientific evidence,” he continues. “The philosophical part may be the most difficult because it is subjective, which is why we give a questionnaire to the patient whereby he judges what he wants. We give him the science and inform him about

Dr Sushil Koirala talking to Dental Tribune. (DTI/Photo Javier M. de Picasso, DT Latin America)
the technique, but he decides what type of aesthetics he wants.”

High-quality materials
When Dr Koirala published his MiCD protocol in 2009, he not only gained a following among dentists, but also the respect of high-quality dental manufacturers.

“I met with Mr. Patrick Loke,” Koirala says referring to SHOFU’s Asia-Pacific Marketing Director, “who told me he liked the concept (a bio-aesthetic restorative material), so much so that it inspired me to write a book,” he adds referring to a new type of restorative materials whose name is a hybrid of the words “glass ionomer” and “composite” (see Sidebar, page 9).

He believes he has developed a concept that is good for the patient, good for the dentist, and good for society. The MiCD protocol is in its preliminary stage worldwide, but the conferences he gave in South East Asia and South Africa have been widely accepted. “This is the right time to come out with this new philosophy,” he explains, “so that in four or five years a new generation can start talking about the preservation of health in the long run.”

Non-Invasive Health
The medical sciences are moving towards non-invasive procedures, and adequate ways of health promotion to avoid oral diseases. In dentistry, however, minimally invasive procedures are being used routinely only in caries management.

“In the medical sciences it is inherent not to cut tissue,” Dr Koirala continues. “If patients knew that to place a crown you need to cut the tooth’s enamel, they probably would not accept the treatment. You need to start at an early age, like 6 or 7, in order to detect various smile defects like orthodontic problems, everything that can affect oral health, including cosmetics, should be thought at an early age.”

“Dentists may use MiCD or not,” he adds, “but they all agree it’s the right approach. I want to encourage everybody to join the MiCD mission. Our MiCD Global Network (a web-based organization) is a group of dedicated professionals who wish to improve the knowledge of the clinician and the patient. Information technology can help promote these ideas through networks of dentists, people, and like-minded companies. We need to change our mindset.”

Dr Koirala plans to change the mindset through more international lectures, collaborating with like-minded clinicians and academicians, creating study clubs to exchange knowledge, and providing internet-based educational seminars.

“We are changing protocols for the health of the patient, and ultimately, dentists will win too, because it saves time on procedures and provides aesthetics and function. The type of material used is secondary to me, as long as it preserves health, a harmonious function (the force component), and promotes aesthetics. We are not promoting a company here, but promoting health. And that is our first responsibility as clinicians. It is something that can be the pride of the profession.”

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Reconstructing an anterior dentition with composite resin

A clinical case using IPS Empress Direct from Ivoclar Vivadent

Dr. Gabriela Krauli

Switzerland

A young female patient was dissatisfied with the appearance of her upper teeth, which resulted from an accident-related injury to tooth #11 a few years prior. After the dental trauma, the tooth was restored with composite resin but the patient wished to have corrective work done. Compared with the adjacent teeth, the remaining natural part of tooth #11 appeared yellowish, while the composite build-up appeared greyish and translucent. The clinical examination revealed that the teeth did not show any signs of decay and were in good condition overall in relation to the patient's age. In addition, the patient also practised excellent oral hygiene (Fig. 1).

Following the adhesive pre-treatment, a palatal “enamel shell” is created.——

Prior to the start of the clinical procedure, the patient was anaesthetised and the tooth #11, the matrix was correspondingly trimmed with a scalpel. A closer look at the two central incisors revealed that the teeth were slightly asymmetrical (Fig. 3), as the crown of tooth #11 appeared somewhat wider. When the patient was asked about this, she stated that she had had a median diastema that was closed after the restorative work on her dental trauma had been finished.

The build-up of a tooth is a very sophisticated procedure, which requires careful planning. In order to ascertain and visualise the desired result before the tooth is built up, it is useful to draw up a "map" of the tooth's characteristics, which will show areas that are highly translucent or opaque. A digital photograph that captures the pre-operative situations of irreversible use in the subsequent build-up procedure. However, it is important to note that digital photographs only provide a rough indication of the placement of the different composite resins and staining materials, as they do not convey true colour. In this case, A3 Dentin, A2 Enamel, Trans Opal and Tetric Color white materials were used for building up the composite resin restorations.

An X-ray showing apical periodontitis in tooth #11.—

A Mock-up was prepared for the fabrication of a silicone matrix. The shape and contour of the existing restoration were largely copied and transferred to the neighbouring tooth #12. Therefore, only small adjustments to the shape were necessary, such as a slight lengthening of the incisal edge in the distal region. Silicone putty was used to register the rubber dam and the information provided by the mock-up. Since only the palatal part and the incisal edge of the silicone matrix were needed for the building up tooth #11, the matrix was correspondingly trimmed with a scalpel.

Preparation, adhesive pre-treatment and adjustments to the adjacent tooth

The old composite resin restoration was removed with rotating instruments and the enamel margins were bevilled. A wide area was prepared in the palatal region (approximately 2 mm) to ensure the invisibility of the final restoration margin (Fig. 4). A rubber dam was placed over the anterior teeth (up to the first premolar) to allow a full view of the operating area. Ligature wires were tied to isolate the anterior teeth requiring treatment and to place the rubber dam towards the gingival margin. A three-step syringe technique with carbamide peroxide etching (e.g. Syntac Classic) was used for the adhesive pre-treatment.

In this case, a small amount of transparent enamel material (A2 Enamel) was placed in the trimmed silicone matrix and thinly distributed with a spatula. The defect had to be covered as far as possible. Some Flowable Tetric Ecolux was applied to the palatal defect margin of the prepared tooth #11. Then, the silicone matrix, together with the enamel materials, was placed on the antagonist from the palatal aspect and checked for correct fit. If the enamel material in the silicone matrix has been properly placed, it will reach the cervical margin of the defect. The flowable material on the tooth side is thus displaced and fills out possible voids. Furthermore, it ensures good marginal adaptation.

The restoration was initially polymerised from the labial aspect. Then, the silicone matrix was carefully removed and the build-up composite resin was polymerised from the palatal aspect. Small amounts of excess in the palatal and proximal areas were removed with a scalpel (size 12). The palatal surface prepared in this way was produced to the desired width in the incisal area. Nevertheless, the proximal part of the restoration displayed black contact with the neighbouring tooth at this stage. The chosen matrix technique was used to fabricate the final restoration. A rubber dam was placed and the silicone matrix was removed. The examined tooth was placed in a silicone matrix and then a preliminarily trimmed with a scalpel.

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The new restoration technique based on a pre-defined silicone matrix is presented and compared to a conventional technique. An X-ray showing an endodontic retreatment in tooth #11.—

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The built-up dentine core provides only very little space for the enamel material. — Fig. 8. The restoration is ready for polishing once it has been formed with translucent and white-opaque materials and sculpted. — Fig. 9. A natural-looking surface texture and fine morphological structure is produced with a suitable polishing technique. — Fig. 10. The follow-up examination after four weeks, showing a normal clinical situation. — Fig. 11. The final X-ray showing the root canal filling and composite restoration. — Fig. 12. The smile of a satisfied patient.

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