Benefits of the Flapless MIMI® Minimally Invasive Dental Implantation Method

Dr Armin Nedjat, dentist, Implantology specialist, Diplomate ICOI, CEO Champions-Implants GmbH presents a case

MIMI® stands for the “flapless” and periosteum preserving Minimally Invasive Method of Implantation, which avoids the creation of a flap. For dentists or dental surgeons who use the conventional implantation method, this flapless surgery technique is an alternative treatment option. It offers the possibility of placing implants with perceived less bleeding and less patient discomfort. Following implantation, patients can be provided with excellent prosthetic restorations. In fact, more and more patients opt for a MIMI® treatment, which has proven beneficial.

Our priority is the benefit for the patient instead of financial profit. Thanks to MIMI®, many patients will become real fans of your dental office. If dentists are also very motivated, they will contribute to success and a good atmosphere in the dental office.

A patient had visited three big dental clinics in Germany who said that he had to be treated with the conventional implantation method. He was told that the treatment would cost 36,000 Euros! Therefore, the frustrated patient looked for another dental office. This patient, who then lived in Palma de Mallorca, Spain, presented to our dental office in Palma de Mallorca. He had a bone height of 8-10 mm on both sides. In my view, a sinus lift on both sides and bone transplantation were not recommended in this case because they could have been harmful for the patient. These methods are no longer considered as the “lege artis” treatments. In fact, clinical studies on the benefits of MIMI® and long-term comparative studies on flapless surgery have now been conducted.

Discussion
Some questions have been raised by patients who were very satisfied with the MIMI® treatment, such as: “Why don’t all dentists use the MIMI® method?” “Why did some dental clinics plan to...
It is important to be mindful of the primary goal of performing a non-traumatic and painless implantation successfully, such as the MIMI® minimise invasive surgery, which makes bone augmentations unnecessary. For us as dentists, our priority is the benefit for the patient. Instead of bragging about our know-how and skills, the successful results should be the priority for every profession. For instance, the goal of a pilot is not to brag about brilliant flight maneuvers but to ensure that the airplane passengers have a good and safe flight to the right destination. Our objective as dentists is not to show patients how well we can perform complicated implantations, flag open the mucosa, suture, and perform bone augmentations. Instead, it’s the successful treatment result that counts. When implanting using MIMI®, bone augmentations can be avoided in about 80 per cent to 90 per cent of the cases. In cases where implants can be immediately loaded (if there are more than three implants/teeth that can be splinted), restorations can be fit immediately, sometimes already within five days!

Implantology conferences are sometimes oriented towards classical implant industry, which tends to be influenced by industry-led dogmas and which tends not to be adapted to the day-to-day work in dental offices. Sometimes, lecturers who have not had enough hands-on experience in dental offices for years talk about these dogmas. Current studies have cast doubt on these conventional assumptions. These theses have sometimes been emphasised during conferences by referring to studies of the eighties that have been increasingly questioned. For instance, some dentists said that flapless bone augmentation would require the use of a DVT-based navigation-guided drilling template, which has not been proven true for all dental implant systems and computer-guided implant systems.

In order to place a Champions® implant, you slowly drill in the bone with small-diameter conical triangular drill at a drilling speed of 250 rpm. The mucosa thickness is measured with the drill. Then, before placing the implant, the bone cavity is checked with a BCC (Bone Cavity Check) probe after each drilling step. The titanium grade 4 implant is inserted if primary stability can be achieved at a torque of 40 Ncm with a 4.5 mm conserver in the D3/D4 bone. In this case, a 4.5 mm-diameter implant should only be inserted if primary stability cannot be achieved at a torque of 50 Ncm with a 5.0 mm conserver in the D5/D6 bone. The bone anatomy does not determine which implant diameter is to be used. Rather, the diameter of the implant is determined by the achieved primary stability. If a 5.5 mm-diameter implant achieves primary stability at a torque of 40 Ncm, it will be sufficient! From a physiological/implantological point of view, inserting a 4.5 mm or 5.5 mm-diameter Champions® implant with force can cause poor peri-implant nutrition if sufficient primary stability could also have been achieved with an implant with a diameter of less than 4.5 mm. In addition, the use of drill templates is always useful, but it is essential to feel bone with the BCC probe. Actually, the dentist himself/herself can evaluate the clinical situation better than any computer software-guided navigation system. Scientific studies on the accuracy of the placement of implants that were assisted by a navigation-guided template have shown apical deviations of 1000 µm on average. Drilling templates are particularly useful when the diameter of the drilled cavity with cylinder drills is almost the same as the diameter of the implant that will be placed.

One of the benefits of the flapless MIMI® method is that the implant serves as osteotome. Bone can be well-nourished by the intact peristeum. That’s nature!

Summary
MIMI® does not require the mucoperiosteal flap reflection, and excellent soft tissue and hard tissue conditions can be observed after surgery. In recent years, literature has shown that the flapless MIMI® method, which has been applied since 1994, is very beneficial. Classical implantation methods have been increasingly questioned. MIMI® treatment has been shown to be effective in protecting bone and significantly reducing the risk of inflammatory soft tissue conditions in the first 12 weeks post surgery.

The peri-implant bone is almost completely nourished by the histological, double-layered membrane of the bone, which is richly supplied with blood vessels and nerve fibers: the inner cambium layer (Stratum osteogenicum) is rich in cells. It is composed of stem cells (osteoblasts!), ensuring bone regeneration as well as of nerves and blood vessels. The outer fibrous layer (Stratum fibrosum) is connective tissue, which is not connective tissue.
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✓ Champions (R)Evolution® Implant
✓ Standard Abutment
✓ Gingiva-Shuttle
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Suitable for MIMI® (Minimally Invasive Method of Implantation)
Successful implant system

Excellent primary stability thanks to the crestal micro-thread

9.5° internal cone → Excellent abutment/implant connection
(Study from the university of Frankfurt, H. Zipprich)

CHAMPIONS® surface:
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Sources: Studies from the university clinic in Cologne, Germany

You can find several clinical cases and articles on the website.
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cell-rich but rich in collagen fibers. The Sharpey’s fibers, which pass from the outer layer through the inner layer, are embedded in the Substantia compacta of the bone and secure the periosteum to the bone. The isometric detachment of the periosteum can lead to poorly nourished bone after weeks, months or years.

Following radiologic examination, pocket depths of more than 5 mm, bleeding and peri-implant inflammation are clinically diagnosed as crater-shaped defects and bone loss around the implant. In combination with D2 to D4 bone spreading during implantation, 3.0 mm or 5.5 mm-diameter implants can also be placed in a narrow jaw, and the implants will be surrounded by sufficiently solid bone in all dimensions. If flapless surgery is performed correctly, there will be very little risk of bone resorption or loss or soft tissue loss. With flapless surgery, optimal bone nutrition can be ensured on the long term. Recent studies in conjunction with immediate restoration/immediate loading have shown that flapless surgery results in good bone nutrition and good soft and hard tissue outcomes1-5. For 18 years, these techniques have been performed with the Champions® implants and other implant systems.

A flapless MIMI® treatment should be performed by an experienced Implantologist specialist because if the mucosa is not flapless open, beginners in Implantology might fear not to see exactly in which precise site they are to insert the implant. Contrary to what skeptics might think, MIMI® surgery, which is related to key-hole surgery, is not a “blind procedure”. Before inserting the implant, it is an absolute must to palpate and check the bone cavity thoroughly in all dimensions. Not only is it necessary that the surgeon and the implantologist have considerable manual dexterity and a lot of experience with implantology and with the MIMI® procedure (and eventually also with the classical “full-flap” method) to apply the MIMI® method successfully, a suitable implant system is also necessary for the MIMI® method.

Thanks to the MIMI® technique, augmentation (external sinus lift or bone transplantation) can be avoided in many cases.

Fig. 7-12: With transfer caps, which were manufactured and delivered by the laboratory, a "navigated preparation" of the implant/bone area performed in the second session. We purposely did not prepare the crown edges that were positioned about 0.4 mm subjacentingly. The navigated preparation allowed in a framework to be passively fit (in this case, the framework was laser-sintered). The preparation, the framework, and the 2nd bone recipient in the bone of the patient were done three days post surgery and without anesthesia, which was not necessary in this case.

Fig. 13-18: The laminated ceramic crowns were fit only 1 day after implantation. Restorations supported by many teeth/implants are usually fit with Implant Link semi (which is also available via the Champions®-Liga). The restorations can be easily removed by the dentists. If necessary, they can be relined with ceramic. According to our experience, relining is not absolutely necessary because healthy gingiva tolerates ceramic very well, leading to healthy appearance instead of causing gingival recession.

Fig. 10: View of a 3D DVT image of an implantation that was performed using the flapless MIMI® method 18 years ago. The D2 bone only had a width of 3.0 mm. Bone was drilled with conventional drills with a maximum diameter of 1.8 mm. Then, 3.5 mm-diameter implants were placed and ensured excellent lateral bone condensing.

Fig. 11: Filling defect with conical drill with a maximum diameter of 1.8 mm. Then, 3.5 mm-diameter implants were placed and ensured excellent lateral bone condensing/spreading. The periost was intact. The implants achieved primary stability at a torque from 40-60 Ncm. Then, they were immediately loaded. Even 15 years after implantation, no resorption or perforation were observed. Instead, bone spreading was observed. One of the benefits of the flapless MIMI® method is that the implant stress-as osteotomy. Bone can be well-nourished by the intact periostum. That’s nature!

Fig. 20: Thanks to the MIMI® technique, augmentation (external sinus lift or bone transplantation) can be avoided in many cases. Long-term complications and perimplantitis can be significantly reduced or eliminated. Patient compliance is important as well, but patients will become real fans of this flapless MIMI® method. The implantological and prosthodontic treatments that were demonstrated in this case report were completed in only five days following a periodontal pre-treatment. Immediately after implantation, the patient left the dental office with a temporary fixed bridge. A day after surgery, the patient was able to resume his daily activities as a business man without feeling any pain. In addition, the treatment was far less expensive than it would have been in many other dental clinics/dental offices.

References available from the publisher.

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