The MIMI Concept: Easy and Gentle

An essay written by Frank Schrader

With the minimally invasive dental implantation concept, affordable and uncomplicated prosthodontic restorations can be provided. In this article, the author reviews how patients can benefit from the optimal implantation and prosthodontic treatment services offered by both general dentists and implantologists.

The minimally invasive implantation procedure has become routine in the dental office as a preferred alternative to the classical method of implantation. The MIMI method is beneficial in many aspects in comparison to the classical method, including:
-Surgery is transgingival, and the periost is well-protected
-Minimally invasive surgery results in decreased post-surgery pain and swellings
-Less surgical and healing time is needed
-The treatment costs less.

In the following case, four Champions implants were inserted, on which temporary restorations were then fitted, and the final prosthodontic restoration was fitted two months after the implantation.

Case Report

A 49-year old patient was referred to our dental office by his general dentist for a dental implant treatment in regios 14 and 46/47. The tooth 14 had been extracted, and a monoblock appliance was fitted on the right side of the lower jaw. The patient opted for dental implants to replace the edentulous space of regio14 and the edentulous space in the lower jaw on the right. The preoperative view can be seen in Figures 1 and 2.

Since the bone volume was sufficient, four piece Champions implants could be prepared, which could then be immediately loaded. (Fig. 3 and 4)

Implantation Procedure

In regio 14, we pre-drilled the bone cavity to a diameter of 1.8 mm. The bone cavities were then prepared until the planned final depth was reached. Then, we inserted the implant, allowing bone spreading to be realized.
In order to achieve primary stability of at least 40 Ncm, the pre-drilled bone cavity dimension is usually sufficient in the upper jaw. The transgingivally inserted implant can be seen in Fig. 5. In this case, we inserted the implants according to the minimally invasive, periost-protecting, implantation technique in the lower jaw as well (Fig. 6, 7).

Fig. 1: Preoperative view of regio14. [All pictures were taken by Schrader]

Fig. 2: Preoperative view of regios 46/47.

Fig. 3: The bone volume was sufficient.

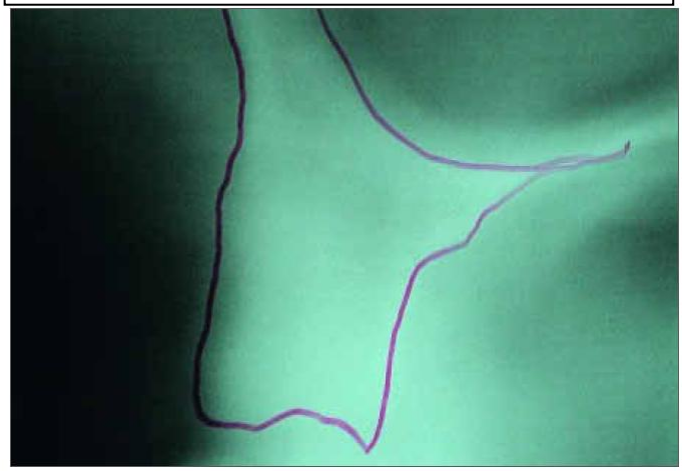

Fig. 4: Four one-piece Champions implants could be prepared, which could then be immediately loaded.

Fig. 5: View of a trangingivally inserted implant in the upper jaw.

Fig. 6: View of a trangingivally inserted implant in the lower jaw.

In general, it is usually necessary to pre-drill in the lower jaw bone cavity to a diameter of more than 1.8 mm because the lower jaw bone is usually very solid. This can be performed without any problems with twist drills with increasing diameters. Using an OPG, we check for the correct seating of the dental implants after the insertion of all implants. Should it be necessary, it is recommended to use section diagrams as well.

Prep-Caps

Prep-Caps for the dental implants are offered as an optional solution by the manufacturer. The Prep-Caps, which are available in zirconium dioxide and in titanium, can be set and precisely cemented on the implant heads with Glasionomer Base Cement. As opposed to two-piece implants with micro-clefts that are vulnerable to anaerobic bacteria, these one-piece implants do not have a micro-cleft; thus, the risk of anaerobic bacteria penetration is considerably reduced.

Fig. 7: View of inserted implants in regios 46/47.

Fig. 8: Range of zirconium components.

Fig. 9: Cemented Prep-Cap.

Fig. 10: Cemented and splinted provisional restoration.

Prep-Caps fulfill the following tasks:

- Widening of the clinical crown
- Easier cast creation without an implant analogue
- Exact transfer of the implant preparation from the mouth to the laboratory
- Aesthetic improvement of the implants
- Improved, peri-implant soft tissue situation following implantation
- Compensation of implant divergences

Step by Step

The range of zirconium components is shown in Fig. 8. The following figures show the fabricated provisional crown, splinted to the adjacent tooth. In this case, the Prep-Caps with the right height and angle were chosen. Then, the Prep-Caps were cemented with Glasionomer Base Cement (Fig. 9).

Then, the Prep-Caps were prepared. This was done as if a natural tooth had been shaped. Then, the provisional prosthodontic restoration was made and splinted to the adjacent tooth or teeth (Fig. 10). To reduce the risk that the immediately loaded dental implants would get loose during the healing phase, they had to be stabilized and splinted.

We proceeded the same way for the lower jaw.
After the appropriate titanium Prep-Caps had been chosen, the Prep-Caps were fixed with GIZ (Fig. 11). Then, the titanium Prep-Caps were prepared. With the Prep-Caps, the implant divergences could be compensated. The provisional restoration was also solidly cemented to ensure a trouble-free, two-month healing phase.

Fig. 11: Cemented Prep-Caps.

Fig. 12: Cemented zirconium crown.

Fig. 13: Zirconium dioxide block in the lower jaw.

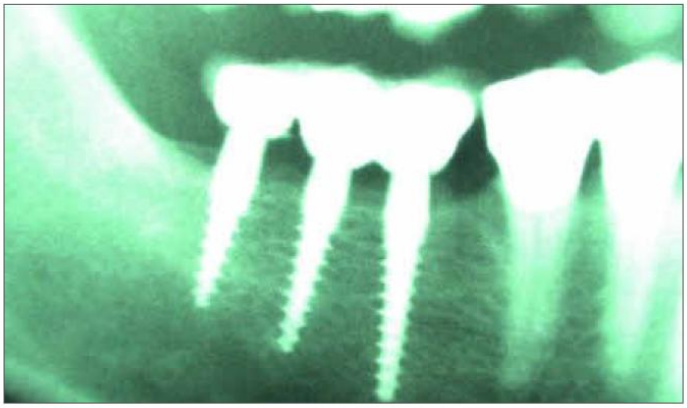

Fig. 14: Final X-rays.

Final Prosthodontic Restoration

In a letter we referred the patient to his general dentist. The dentist fitted the final prosthodontic restoration in the third month after the implantation. For this task, a specific background in the field of Implantology was not absolutely necessary. After having taken out the temporary prosthodontic restorations, the dentist took sandwich impressions of the upper and lower jaw. Fig. 12 shows the cemented zirconium dioxide crown. The fitted zirconium dioxide block in the lower jaw can be seen in Fig. 13. By taking final X-rays, the correct seating of the bridge construction was checked (Fig. 14)

Conclusion:

The minimally invasive method of implantation differs from the classical procedure in the organization and the time frame. In general, only one surgery session is needed, and an incision of the mucosa is usually not necessary.

In many cases, the prosthodontic restoration can be made right away and fitted two to twelve days after the implantation. Since this implantation and prosthodontic procedure is quite simple, general dentists and prosthodontists can work together to offer an optimal treatment.

Implantologist Frank Schrader

Frank Schrader has been working in private practice in Zerbst since 1991. He graduated in Dentistry from the University in Halle/Wittenberg and got his Master's degree in Stomatology. He is active as a lecturer and author on a national and on an international basis. He is particularly engaged in the field of Implantology.

Focusing on the field of Implantology, Frank Schrader offers continuing education courses. In 2007 he founded an Implantology continuing education center with hands-on courses with case reports and live-surgeries.

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