

Int Poster J Dent Oral Med 2002, Vol 4 No 3, Poster 130

Treatment of the Edentulous Mandible with Immediately Loaded Implants

Language: English

Authors: Dr. Georg Bayer¹, Dr. Dr. Paul Becker², ZTM Kurt Beck², PD Dr. Andrea Behneke³, Prof. Dr. Nikolaus Behneke³, Prof. Dr. Bernd d'Hoedt³, Dr. Günther Dhom⁴, Dr. Klaus Lotzkat⁵, Dr. Mathias Plöger⁶, Dr. Uli Koke⁷, Dr. Helmut Steveling⁷, Prof. Dr. Helmut Lindorf⁸, Dr. Ady Palti⁹, Dr. Peter Brabant¹⁰, DDS Stephen Wallace¹¹

¹Landsberg, Germany, ²Neunkirchen, Germany, ³Mainz, Germany, ⁴Ludwigshafen, Germany, ⁵Hannover, Germany, ⁶Detmold, Germany, ⁷Heidelberg, Germany, ⁸Nürnberg, Germany, ⁹Kraichtal, Germany, ¹⁰Waregem, Belgium, ¹¹New York, USA,

Date/Event/Venue:

April 15-17, 1999

8th International Congress on Reconstructive and Preprosthetic Surgery
San Diego, USA

Implant prosthetic planning for immediately loaded implants

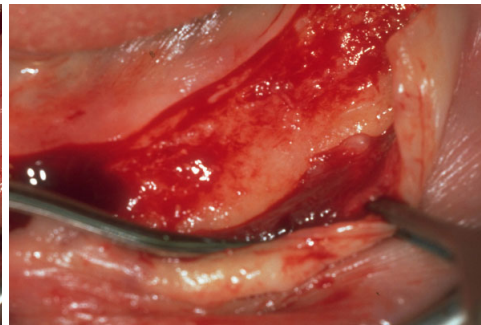
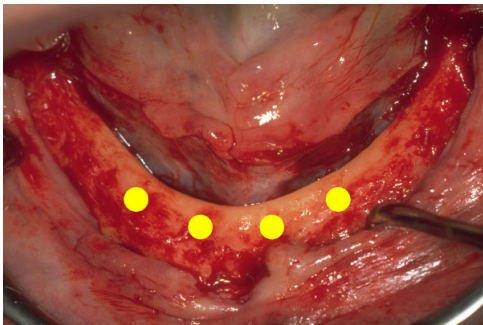


Fig. 1: Trapezoid position of four implants for immediate loading. Flap preparation for interforaminal placement of four implants.

Fig. 2: Most distal position for ideal anterior-posterior load distribution with nerve protection.

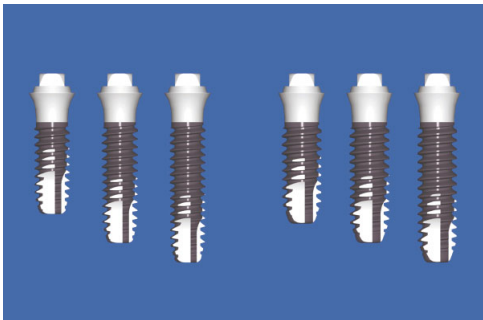


Fig. 3: FRIALOC® implants with diameter D 3.5 / D 4.0 and length L 10, L 13 and L 15.

Implant site preparation for D3.5 and D4.0 implants

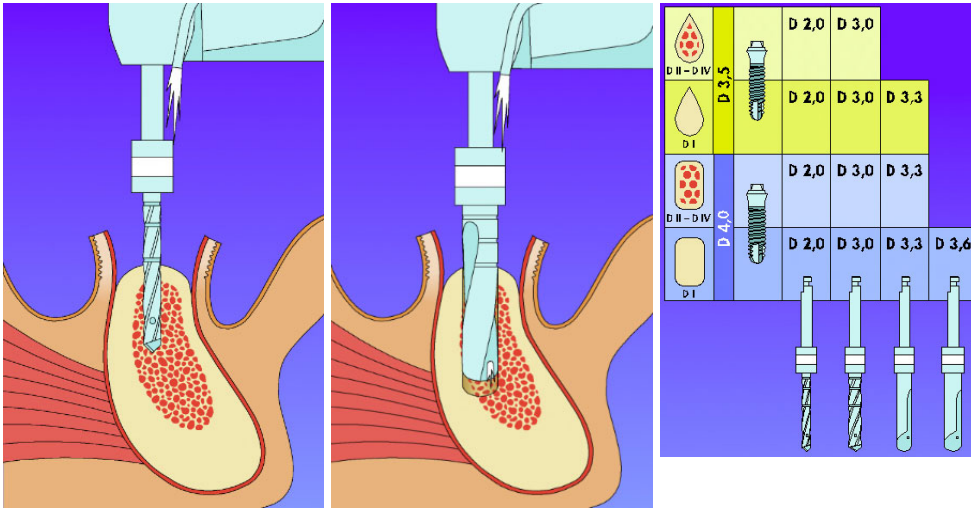


Fig. 4: **Pilot drill D 2.0**
Initial preparation with pilot drill D2 of the IMZ®-TwinPlus or FRIALIT®-2 Implant System.

Drill D 3.0
Final preparation in bone density D II - D III with drill D 3.0 for D 3.5 mm implants.

Fig. 5: **Drill D 3.3**
Final preparation in average dense bone with drill D 3.3 for D 4.0 mm implants. The same drill is used in dense bone for the enlargement of the receptor site for D 3.5 implants.

Drill D 3.6
In cortical bone D I an enlargement with a drill D 3.6 guarantees an atraumatic placement of D 4.0 implants.

Fig. 6: Sequence of the drills according to the shape of the alveolar crest and bone quality.

Sterile packaging



Fig. 7: The implants are held by a silicone cap in the inner vial of the sterile packaging.

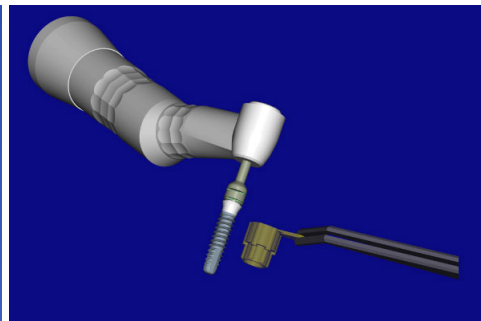


Fig. 8: The placement instrument is attached directly to the sterile packaging.

Implant placement

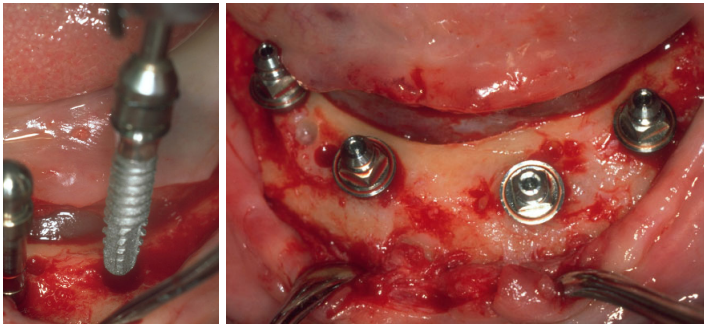


Fig. 9: The placement of the implant is possible by handpiece or by ratchet. Irrigation with saline solution facilitates the implant placement especially in dense bone. Optimal primary stability is achieved with a torque of at least 45 Ncm.

Fig. 10: After final placement, the placement screws have to be removed.

Impression taking



Fig. 11: Placement of impression posts directly after implant placement.

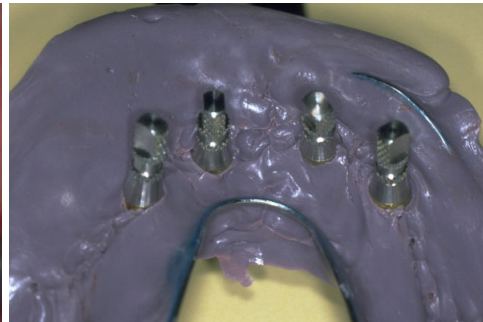


Fig. 12: Repositioning of impression posts with implant analog.

Laboratory procedure



Fig. 13: Fixation of bar copings and bar with acrylic for soldering on master cast.

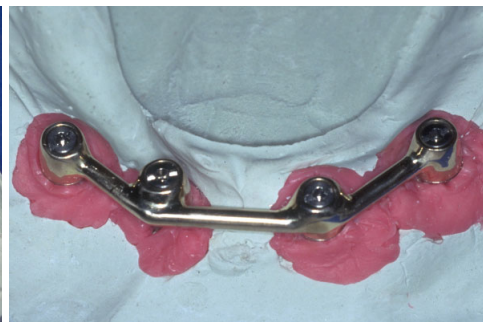


Fig. 14: Utilizing soldering analogs guarantees a passive fit of the final bar restoration. Polishing is the final step of the bar fabrication.

Final reconstruction

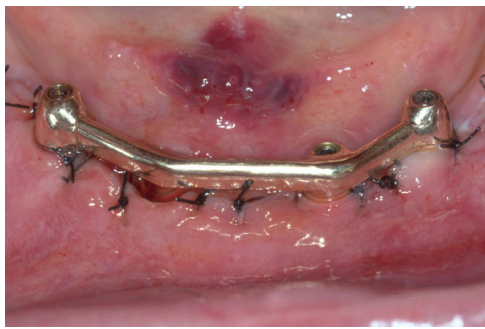


Fig. 15: Try-in of final bar restoration one day after surgery.

Fig. 16: Five months after prosthetic loading with overdenture.

Patient satisfaction level before and after treatment

	Are you satisfied with your denture in specific?				
	<i>very satisfied</i>	<i>satisfied</i>	<i>average</i>	<i>unsatisfied</i>	<i>very unsatisfied</i>
Before implantation	5%	23%	14%	18%	41%
Recall	86%	14%	0%	0%	0%
	Satisfaction of the appearance of your denture?				
	<i>very good</i>	<i>good</i>	<i>average</i>	<i>bad</i>	<i>very bad</i>
Before implantation	5%	50%	23%	9%	13%
Recall	64%	28%	8%	0%	0%
	How is the COMFORT of the denture?				
Before implantation	0%	18%	9%	28%	45%
Recall	71%	29%	0%	0%	0%
	How well can you SPEAK with your denture?				
Before implantation	18%	45%	23%	5%	9%
Recall	64%	36%	0%	0%	0%
	How well can you CHEW with your denture?				
	<i>very good</i>	<i>good</i>	<i>average</i>	<i>bad</i>	<i>very bad</i>
Before implantation	0%	23%	9%	18%	50%
Recall	62%	38%	0%	0%	0%
	How often do you WEAR the denture?				
	<i>very often</i>	<i>often</i>	<i>average</i>	<i>rare</i>	<i>very rare</i>
Before implantation	68%	9%	9%	0%	14%
Recall	93%	7%	0%	0%	0%
	Are you comfortable with your denture in social situations?				
	<i>YES</i>		<i>NO</i>		
Before implantation	67%		33%		
Recall	100%		0%		
	Would you have this treatment again?				
Recall	100%		0%		
	Would you suggest this treatment to your friends?				
Recall	100%		0%		

8th International Congress on Reconstructive and Preprosthetic Surgery, April 15-17, 1999, San Diego, USA

Discussion

118 implants were placed in the edentulous mandible of 28 patients during the last 10 months. All patients were treated with a bar restoration or a cast superstructure immediately after surgery. One patient was not treated with a bar restoration immediately after implant placement because of inadequate primary implant stability. After three months of healing one implant showed no osseointegration. Primary stability was observed in all cases when the surgical protocol was adapted to the different bone qualities. For an improved functional rehabilitation, six patients were restored with five implants supporting a screw-retained bridge with acrylic teeth. To adapt the prosthetic load, the patients were restored to first molar occlusion. A well organized presurgical treatment sequence is necessary for implant placement and impressions in one session. The complex treatment within 24 hours requires careful guidance of the patient. The time effective treatment with less surgical and prosthetic complications is especially the elderly patient. Immediate loading of implants offers a new opportunity for the therapy of edentulous patients with implant supported superstructures in carefully selected indications with a strict protocol.

Literature

- Ledermann PD. Die neue Ledermannschraube. Die Quintessenz 5/1988;1-17
- Tarnow DP, Emtiaz S, Classi A. Immediate loading of threaded implants at stage 1 surgery in edentulous arches: Ten consecutive case reports with 1- to 5-year data. Int J Oral Maxillofac Implants 1997; 12:319-324
- Chiapasco M, Gatti C, Rossi E, Haefliger W, Markwalder TH. Implant-retained mandibular overdentures with immediate loading. A retrospective multicenter study on 226 consecutive cases. Clin Oral Implants Res 1997; 8(1):48-57.

This poster was submitted by Dr. Jörg Neugebauer.

Correspondence address:

Dr. Jörg Neugebauer


Medical Center University to Cologne Clinic and Teaching Hospital for Dental Surgery and for Oral-, Maxillo and Plastic Facial Surgery
Kerpener Strasse 32
D-50937 Köln
Germany

Poster Faksimile:

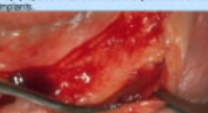
Treatment of the Edentulous Mandible with Immediately Loaded Implants

Georg Bayer, Landsberg, Paul Becker & Kurt Beck, Neunkirchen, Andrea Behneke & Nikolaus Behneke & Bernd d'Hoedt, Mainz, Günther Ohm, Ludwigshafen, Klaus Lotkat, Hannover, Matthias Pflüger, Darmold, Uli Klose & Helmut Steveling, Heidelberg, Holmut Lindorf, Nürnberg, Jörg Neugebauer, Heidelberg, Aaly Paik, Krasichtal, Germany, Peter Brabant, Waregem, Belgium, Etsohes Walke, New York, USA


Implant prosthetic planning for immediately loaded implants



Optimized position of four implants for immediate loading. Flap preparation for interforaminal placement of four implants.




Most distal position for ideal anterior-posterior load distribution with nerve protection.




FRALOC® implants with diameter 3.5 / 4.0 / 4.5 and length 1, 10, 13 and 15.


Implant site preparation for D3.5 and D4.0 implants




Pilot drill D3.5
Initial preparation with pilot drill D3 of the RAZ® TwinPlus or FRALOC® 2 Implant System.



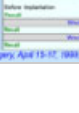
Drill D3.0
Final preparation in bone density D3 - D4 with drill D3.0 for D3.5 mm implants.



Drill D3.3
Final preparation in average dense bone with drill D3.3 for D4.0 mm implants. The same drill is used in dense bone for the enlargement of the receptor site for D3.5 implants.




Drill D3.6
In cortical bone D1 an enlargement with a drill D3.6 guarantees an atraumatic placement of D4.0 implants.




Dependence of the drills according to the shape of the alveolar crest and bone quality.

Sterile packaging




The implants are held by a silicone cap in the inner vial of the sterile packaging.




The placement instrument is attached directly to the sterile packaging.

Impression taking




Placement of impression posts directly after implant placement.

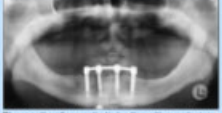


Repositioning of impression posts with implant analog.

Final reconstruction

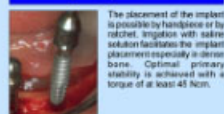


Tylin of final bar restoration one day after surgery.




Five months after prosthetic loading with overdenture.

Implant placement




The placement of the implant is possible by handpiece or by ratchet. Irrigation with saline solution facilitates the implant placement especially in dense bone. - Optimal primary stability is achieved with a torque of at least 45 Nm.

Laboratory procedure



Fluxion of bar covers and bar with acrylic for soldering at master cast.



Using soldering analogs guarantees a position 01 of the final bar restoration. Positioning is the final step of the bar fabrication.

Discussion

110 implants were placed in the edentulous mandible of 28 patients during the last 10 months. All patients were treated with a bar restoration or a cast superstructure immediately after surgery. One patient was not treated with a bar restoration immediately after implant placement because of inadequate primary implant stability. After three months of healing one implant showed no osseointegration. Primary stability was observed in all cases when the surgical protocol was adapted to the different bone qualities.

For an improved functional rehabilitation, six patients were restored with five implants supporting a screw-retained bridge with acrylic teeth. To adapt the prosthesis best, the patients were restored to first molar occlusion. A well organized pre-surgical treatment sequence is necessary for implant placement and impressions in one session. The complex treatment within 24 hours requires careful guidance of the patient. The time effective treatment with less surgical and prosthetic complications is especially the elderly patient. Immediate loading of implants offers a new opportunity for the therapy of edentulous patients with implant supported superstructures in carefully selected indications with a short protocol.

Patient satisfaction level before and after treatment

Patient	Before treatment				After treatment			
	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
Bar restoration	75%	25%	0%	0%	85%	15%	0%	0%
Cast superstructure	60%	40%	0%	0%	70%	30%	0%	0%
Bridge	100%	0%	0%	0%	100%	0%	0%	0%
Overdenture	100%	0%	0%	0%	100%	0%	0%	0%
Implant-retained	100%	0%	0%	0%	100%	0%	0%	0%
Overall	80%	20%	0%	0%	85%	15%	0%	0%

Note: Most patients reported this treatment as pain-free.

© International Congress on Reconstructive and Prosthetic Surgery, April 15-17, 1988, San Diego, USA