

THE TIME FACTOR PLAYS THE KEY ROLE IN NIWOP

No Implantology without Periodontology: A personalised preventive medical check-up, treatment and follow-up concept for implant patients

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→ Why should you read this article?

The treatment concept presented here #niwop (NIWOP – No Implantology without Periodontology) puts periodontal diseases in combination with prosthetic implants to test. It demonstrates how implants can be successfully inserted and maintained in a healthy condition in the long term, despite an underlying periodontal infection of the mouth.

Summary: An implant treatment should be principally and consistently planned in conjunction with a previous peri-implantological and following post-implantological prophylaxis. Diagnostic preventive and therapeutic measures have to be tuned to the individual risk and predisposition of the patient in concern: Suitable operative and prosthetic risk management, briefing and monitoring of the patient with regard to suitable oral hygiene and professional dental cleaning at the intervals indicated for the respective patient, if applicable, with increased frequency, are key factors which aim at ensuring a long-term stable dental implant treatment. It is recommended to start NIWOP as preventive workflow long before a planned restorative dental implant in order to establish and customise good hygiene habits on the part of the patient so that an implantation can be performed in an inflammation-free environment.

Keywords: #NIWOP; preventive care/post-implant treatment; hygiene; implants; implantology; parodontology; peri-implantitis

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INTRODUCTION

The development of biofilm is regarded as the proven root cause for the development of inflammation around teeth and also implants. A consistent compliance with the NIWOP Concept (No Implantology without Periodontology) presented by the Bürmoos Dental Company W&H in cooperation with Dr. Karl-Ludwig Ackermann and Prof. Dr. Anton Sculean at the Europerio in Amsterdam 2018 for the very first time ensures that the peri-implantological periodontal setting remains stable in the long term and is maintained post-implantologically by means of implementing a consistent after-care concept which is tuned to the requirements of the individual patient.

The fewest patients lose their teeth as a result of traumatic or other suddenly onsetting circumstances. The normal case in practice is results from previous long-term periodontal diseases, be it on the grounds of lacking hygiene, a possible predisposition or accompanied by systemic diseases promoting gingivitis. Is an



Fig. 1: Initial clinical findings of an extreme case of parodontopathy



Fig. 2: Radiological counterpart to Fig. 1

Fig. 1–17: Karl-Ludwig Ackermann



Fig. 3: Clinical mucositis at an implant crown



Fig. 4: Clinical mucositis at an implant abutment



Fig. 5: Clinical symptoms of peri-implantitis (fistula)

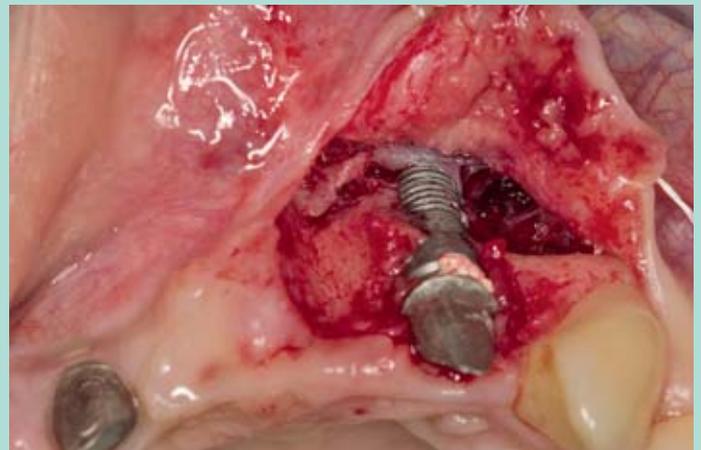


Fig. 6: Corresponding intraoperative view of peri-implantitis from Fig. 5

implantation at all possible in such an unfavourable environment (Fig. 1, 2), or is the later peri-implantitis triggered by the implantation treatment?

Almost half of the implant patients develop a controllable mucositis accor-

ding to today's findings, in over 20 % of the patients a peri-implantitis develops therefrom at a later point in time (Fig. 3, 4, 5, 6) [2]. Despite some promising approaches and intensive research, peri-implantitis at the current point in time is only regarded

as insufficiently treatable – and no standard therapy exists yet. Thus the best peri-implantitis is such that does not occur in the first place. It is absurd to imagine that it will be possible to train a patient who has not sufficiently mastered his oral



Fig. 7: General oral hygiene measures at natural teeth (using a manual dental brush)



Fig. 8: Hygiene measures with interdental brush at fixed prosthesis



Fig. 9: Age-related implant treatment (locators: oral hygiene with oscillating-rotating electric toothbrush)



Fig. 10: Laboratory-tested hygiene-specific implant crown with interdental brush

hygiene for over many years to achieve an exemplary oral hygiene setting following an implantation. In the case of other implant patients the systemic risks or motor restrictions resulting from diseases also remain. And as far as other implant patients are concerned, the systemic risks or disease-induced movement restrictions also remain. Care of the implant thus imperatively includes a pre- and post implantologic hygiene protocol.

PRE-IMPLANTOLOGIC PREVENTIVE MEDICAL CARE

According to current studies, untreated periodontitis patients face a higher risk of developing a manifest peri-implantitis following an implantation, similar to periodontal patients who underwent an initial treatment, but after that did not take part in

further supportive treatment and a recall programme [8, 6]. NIWOP starts off with



Despite promising approaches, periimplantitis is currently considered to be only partially treatable and a standard therapy does not yet exist.



peri-implantological diagnostics which, besides PSI/PSR (Periodontal Screening Index/Periodontal Screening and Recor-

ding), BOP and the determination of pocket depths also includes the investigation of systemic diseases with a special risk. That includes patients suffering from diabetes, rheumatoid arthritis, hypertension, as well as cardiovascular diseases in the case of stroke patients who are suboptimally medicated. On the one hand many studies indicate that periodontitis unfavourably influences such systemic conditions, and on the other the question arises as to whether these diseases and periodontitis are based on the same pathomechanisms. No matter whether cause or effect, the correlation exists and requires a greater attention in the dental practice. In addition thereto, dangerous habits, such as smoking, should be inquired, positively influenced and reduced in the best possible way via suitable measures, or even



Fig. 11: Initial findings documenting a patient's teeth with overall periodontal disease (after pretreatment)

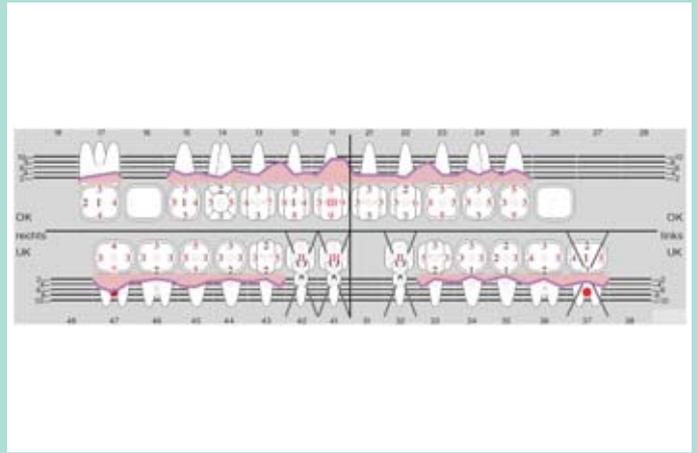


Fig. 12: Periodontal status regarding the case shown in Fig. 11



Fig. 13: Orthopantomogram (asymmetric) bone resorption regarding the case shown in Fig. 11



Fig. 14: Completed perio-implant prosthetic treatment regarding the case shown in Fig. 11

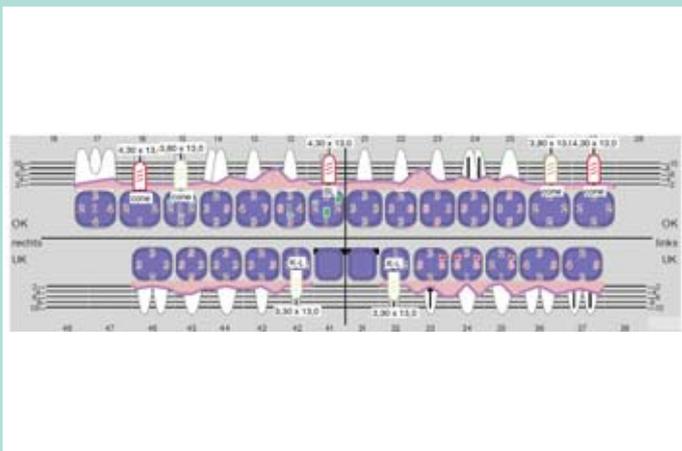


Fig. 15: Recall and renewed periodontal status on positive documentation of perio-implant prosthetic treatment regarding the case shown in Fig. 11



Fig. 16: Orthopantomogram regarding the case shown in Fig. 11 with stable bone situation level with exposed rough implant surface

gradually reduced (motivational interviewing) [4, 7].

With positive paro-diagnostics the NIWOP protocol first of all starts off with an

initial periodontal treatment. Via professional cleaning dental calculus and biofilm up into the sulcus are removed, subgingival debridement is performed with sonic or

ultrasonic devices furnished with special paro-tips. Depending on the situation further surgical and regenerative measures are implemented. During the treatment the



Fig. 17: Laser documentation at slightly peri-implant reduced bone level with exposed rough implant surface

patient is informed in detail of the adequate procedure of domestic hygiene and supplied with the appropriate suitable utensils and also, if necessary, instructed as to how such are to be used – caveat dental cleaning errors (Fig. 7–10).

At this point in time the further follow-up appointments should be tuned to the individual situation and the patient's skills in order to be able to intervene at an early point in time or to offer professional support. Professional periodontal follow-up care should also be planned individually in the course of which regularly developing new concretions and biofilm are removed by means of ultrasound, air polishing or with the help of manual instruments.

PROCESSES, INSTRUMENTS AND MATERIALS

The implant treatment is not planned until a stable periodontal status has been reached (initial situation: Fig. 11–13). The very direct communication of this clearly defined order of sequence may help to additionally motivate the patient to diligently comply with the agreed domestic hygiene and planned recall appointments. This is followed by the largely atraumatic implantation e.g. by means of applying piezo-equipment with specially designed tips for bone and soft-tissue surgery or with high-performance dental surgery equipment featuring special motors with special handpieces for a preparation of the implant bed. In addition thereto the selec-

tion of the implant system, the type of prosthetic treatment and its later cleanability should be tuned to the individual patient's risk (Fig. 14–16). Special focus should be on the site of emergence of the implant and the implant abutment connection which should be as irritation-free, biocompatible and mechanically stable [3]. The single-sided procedure („one abutment – one time“) reflects the most stable peri-implant situation [1]. Due to measuring the primary stability by means of ISQ (Implant Stability Quotient), it is possible to prematurely intervene or immediately treat after positioning the implant.

POST-IMPLANTOLOGIC FOLLOW-UP TREATMENT

As mentioned it is recommended according to the experts to intervene at an early point in time in the case of an onsetting mucositis in order to prevent a progressive peri-implantitis with accompanying loss of bone from developing in the first place [3]. The patient has to be initially informed and instructed with regard to the updated and necessary domestic hygiene processes possibly resulting from the new prosthetic treatment. In particular use of interdental brushes should be practised at the dentist's surgery from various different angles in order to avoid injuries and to ensure thorough cleaning results. The established paro-recalls ranging between two and four times per year depending on the individual patient's risk should be con-

tinued after the implant with no alterations in order to support and maintain the inflammation-free status via regular professional dental cleaning appointments and to identify inflammatory developments at an early point in time. In the case of an onsetting mucositis a professional removal of the supra- and subgingival biofilm at close intervals has proven to be a reliable method to successfully prevent a further

„WHAT IS KNOWN AND WHAT YOU SHOULD KNOW.“

- Parodontology and implantology both represent cross-disciplinary subjects in oral and maxillofacial medicine
- Epidemiologically seen not only the younger adults (age group: 35–44 years), but also the younger seniors (age group: 65–74 years) suffer by over 50 % from a moderate and/or severe periodontitis.
- It is forecasted that the number of senior patients will rise dramatically. Despite declining prevalence an increase of periodontal treatment requirements is expected in future (about 2030) [9].
- Implants will thus be primarily needed for the elderly and/or highly elderly patients, i.e. highly aged patients, and in other words the risk of disease (mucositis and/or peri-implantitis) will rise in a similar dramatic rate.
- Thus the following applies: Only a periodontal healthy dentition, which is kept „healthy“ by prophylactic and dental care measures ultimately offers excellent general conditions to ensure an unproblematic implant prosthesis
- Knowledge of a periodontal disease and the flanking co-factors as well as the just-in-time therapy represent the key prerequisites for a successful perio-implant treatment option!

Summary: No Implantology Without Periodontology

progression of the inflammation or even peri-implantitis. If, despite all preventive measures, e.g. as a result of lacking hygiene on the part of the patient, peri-implantitis nevertheless develops, the use of suitable ultrasound equipment, support by means of Er:YAG-Laser, the administration of an antibacterial photodynamic therapy (aPDT), Air Polishing or even the administration of local systemic antibiotics are a promising method of preventing a further progression (Fig. 17) [5].

If such a closed treatment is no longer possible, it is necessary to surgically open the defect to decontaminate it, if applicable, via suitable means by hard- and soft-tissue augmentation. In the next step following restoration, the prophylactic

recall program should come into play, preferably at close intervals.

Conflicts of interest: The author Dr. Karl-Ludwig Ackermann states the following possible conflicts of interest: He was funded for his activities as treasurer on the board of DGI, for his advisory activities at Camlog Biotechnologies AG, as well as within the scope of his relationship as consultant for Opus MVZ GmbH (joint practice Dres. Kirsch/Ackermann). The author also received a remuneration for speeches at several companies and facilities: Camlog Vertriebs GmbH, FVDZ, Oral Reconstruction Foundation, APW, Steinbeis-Transfer-Institut and pHfG Träger-schaft mbH.



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