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Patientenakzeptanz nach Umstellung auf «Guided Biofilm Therapy»

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Abstract: «Guided Biofilm Therapy» (GBT) represents a systematic, risk and demand-oriented prophylaxis and treatment concept. A significant difference to conventional methods is - above all - the reduced, tissue-friendly and targeted use of ultrasound and hand instruments. The biofilm is consistently shown with suitable color solutions, the oral hygiene instruction and professional tooth cleaning is optimized. The use of suitable powders guarantees a tissue-conserving and targeted removal of biofilm. While individual treatments, techniques and materials have already been well investigated and described, little data is available on patient acceptance. The aim of the present study was to gain an impression of the acceptance of this method in comparison to the conservative-classical recall care mainly based on hand and ultrasound devices in a survey of 100 consecutive patients from the clinic's internal recall system. The overall results were very positive. The powder jet device showed the best acceptance. The aspect fear before/during the recall session was also interesting: At a low level (10%), an additional reduction to 4% occurred, since hand instruments were probably used much less and only very specifically. **mConclusion:** The use of plaque elevators makes the work in the recall session more efficient, more effective and guarantees a higher quality control, which is also highly appreciated by patients.

Other titles: Patient acceptance of «Guided Biofilm Therapy»

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Patient acceptance after switching to “Guided Biofilm Therapy”

KEYWORDS

recall, gingivitis, periodontitis, teeth cleaning, survey

Image above: Removal of disclosed biofilm with an Airflow

SUMMARY

“Guided Biofilm Therapy” (GBT) is a systematic, risk- and demand-oriented prevention and treatment concept. A particularly significant difference to conventional care methods is the reduced, tissue-conserving and targeted use of ultrasonic and hand instruments. In this procedure, biofilm is consistently disclosed with suitable stain solutions and oral hygiene instructions and professional tooth cleaning are optimized. The use of suitable powders hereby ensures tissue-sparing and targeted biofilm removal. While individual treatments, techniques and materials have been well studied and described, little data are available regarding patient acceptance. The aim of the present study was to obtain an impression of the acceptance of this method compared to the classical conservative recall care performed

to date, which is mainly based on hand and ultrasonic devices together with classical polishing, within the context of a survey of 100 consecutive patients from the clinic's in-house recall system. The powder jet unit showed the best acceptance. The aspect of anxiety before/during the recall session was also interesting: although the level itself was low (10%), there was an additional reduction to 4%, probably as hand instruments were used much less overall and only in a very targeted manner. Conclusion: The use of plaque disclosing agents makes work in recall more efficient, more effective and guarantees a higher level of quality control, which is also highly appreciated by patients.

Introduction

“Guided Biofilm Therapy” (GBT) represents a potential option for a structured treatment sequence as part of a prevention and dental hygiene session and is characterized by a few special features compared to the traditional recall session, particularly in terms of biofilm disclosure and the type and sequence of instrumentation (STRAFELA-BASTENDORF ET AL. 2019). The objective of GBT is to provide patients with the most efficient and at the same time gentle treatment possible and to reduce invasive therapeutic steps to a minimum.

GBT is divided into eight individual modules (Fig. 1), which can be customized in the case of patients with an underlying problem and corresponding risk. GBT ensures a quality-oriented and systematic workflow.

Here, the care sequence begins with rinsing and disinfecting using an antibacterial rinsing solution, taking the patient's medical history, and the conventional assessment of the patient's oral health: The usual findings and indices are collected, whereby the identification and documentation of diseased sites is particularly important to later ensure targeted instrumentation at the affected inflamed sites. Next, the teeth are stained with a biofilm disclosing agent, which is used to visualize the patient's current situation, progress or deficits, and to provide targeted interactive oral hygiene instructions. This is followed by gentle cleaning with the Airflow to specifically remove biofilm and early calculus. This is performed first supra- and then subgingivally with the appropriate attachments and a low- to non-abrasive powder (for example, glycine or erythritol). Here one proceeds tooth

by tooth as shown in Figure 1. Only then are ultrasonic instruments used for the targeted removal of hard calculus. At the end, the situation is followed by a visual and tactile check and any remaining biofilm or calculus is worked on again. A dry working area, good illumination and dry conditions are important here. A magnifying glass is advantageous. In the case of residual pockets, hand instruments can also be used selectively for specific indications, particularly for scaling and root planing. Quality control and quality assurance on clean surfaces also involves caries control with fluoridation. The session concludes with scheduling a new recall appointment specific to the patient's individual needs and the identified risk.

The main advantage of this approach is that the treatment is subject to a strict regime and can be performed step by step. The tooth and root surfaces (implants are also included in the care scheme) are assessed systematically and on the basis of visual and tactile control and treated step by step, with instrumentation sequences ranging from non- or minimally invasive to (conventionally) invasive in ascending order. This preserves substance and ultimately saves time. As some patients find the use of ultrasonic or hand instruments uncomfortable, the more unpleasant treatment steps can also be kept to a minimum.

While the treatment modalities, techniques, and materials of each step have been well studied, little data are available regarding patient acceptance. The aim of the present study was to obtain an impression of the acceptance of this method compared to the conservative classic recall care performed to date within the context of a patient survey.

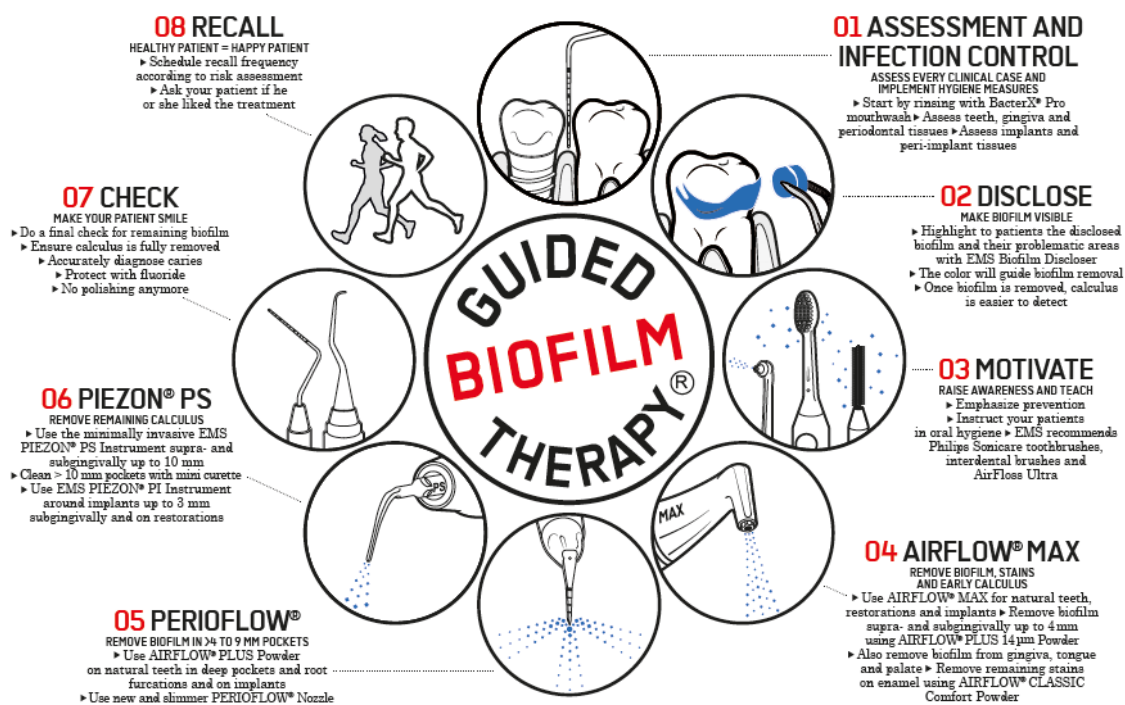


Fig.1 GBT workflow

Materials and Methods

The scope of the survey included 100 consecutive patients from our clinic's regular recall system. They gave their written consent to participate in the survey. The questionnaires were collected without names/medical history numbers and subsequently anonymized irreversibly. The questions stipulated yes/no answers or multiple answers by ticking. Individual questions were collected using the visual analog scale (VAS).

Prior to the session, the first part of a questionnaire was completed in the waiting room, with participants providing subjective information about their previous recall session experiences. This was followed by "Guided Biofilm Therapy" as recommended. Afterwards, the questionnaire was given to the patients again.

As 100 patients were included, the number of cases is *a priori* the same as the percentages. The description of the results was primarily descriptive and qualitative (mean values, medians, minima and maxima). Comparative statistics were not included on purpose.

Results

Patient profile

100 volunteers participated consecutively in the survey: 56 were men and 44 were women. The mean age was 60 years (median: 62.5). The youngest patient was 25 years old, the oldest 89. All patients had many years of prevention and dental hygiene experience at our clinic.

Periodontal baseline examination (PBE) values 1-4 were 2%, 2%, 66%, and 30%.

Assessment of prior treatments

State of well-being compared to previous treatments retrospectively was rated very positively: the mean was 0.65 and the median was 0, where 0 represented no anxiety at all and 10 maximum anxiety. Only five participants indicated values of more than 5 (maximum value: 8.5; Fig. 2). Just under 10% cited pain during treatment as the reason for anxiety. Only three also reported pain or poor well-being after treatment. The treatment time and instructions were also not criticized. Only three persons and one person respectively cited this as a disadvantage.

Fig. 2 Assessment of "Anxiety" on an analog visual scale

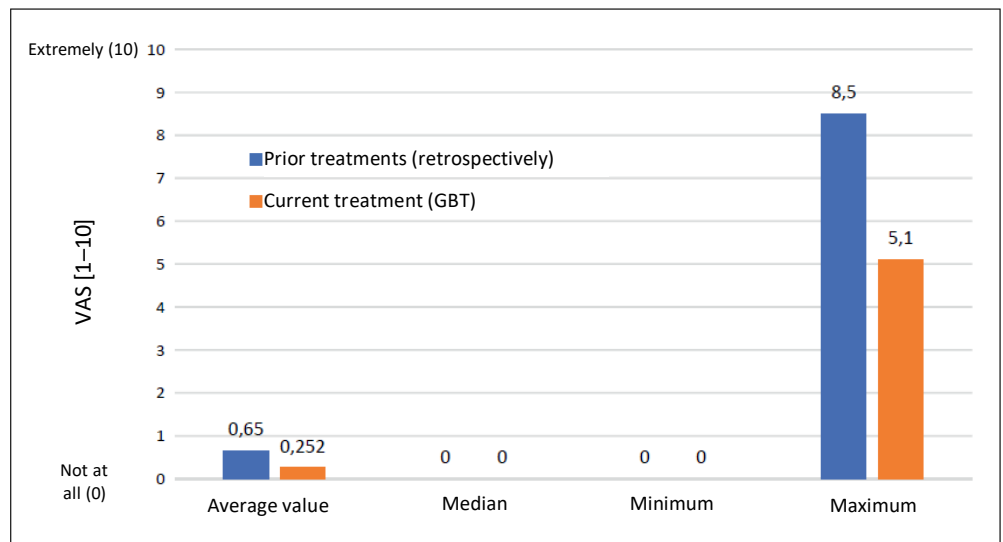
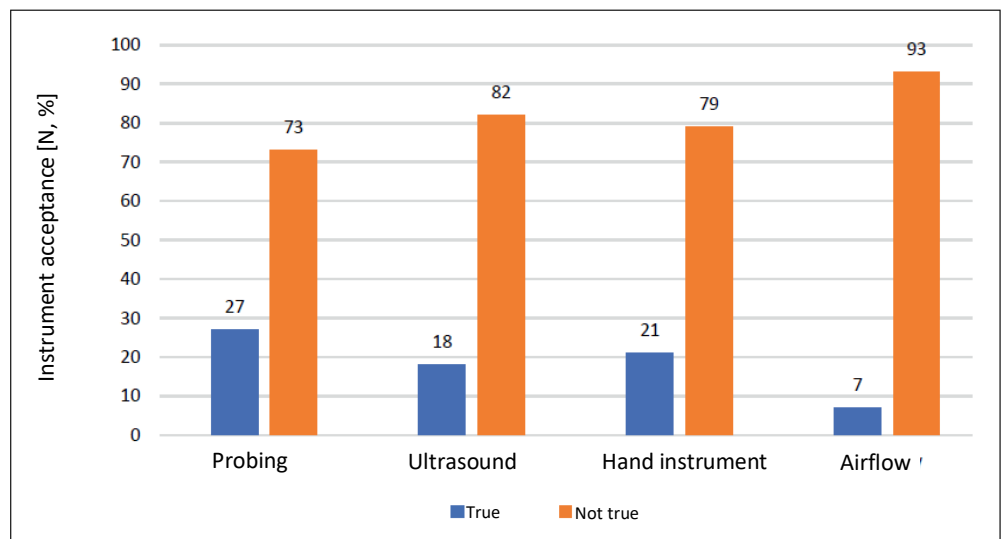


Fig. 3 Instrument (non) acceptance in 100 interviewed patients



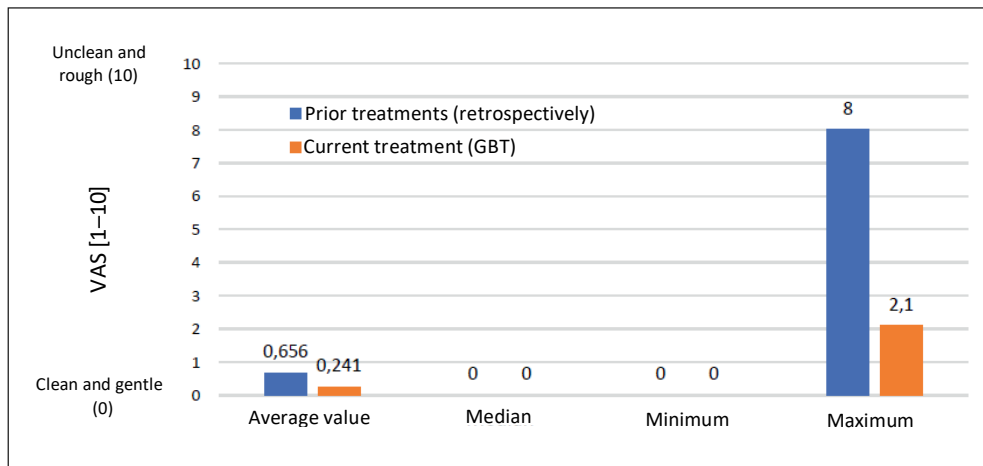


Fig. 4 Assessment of mouthfeel on an analog visual scale

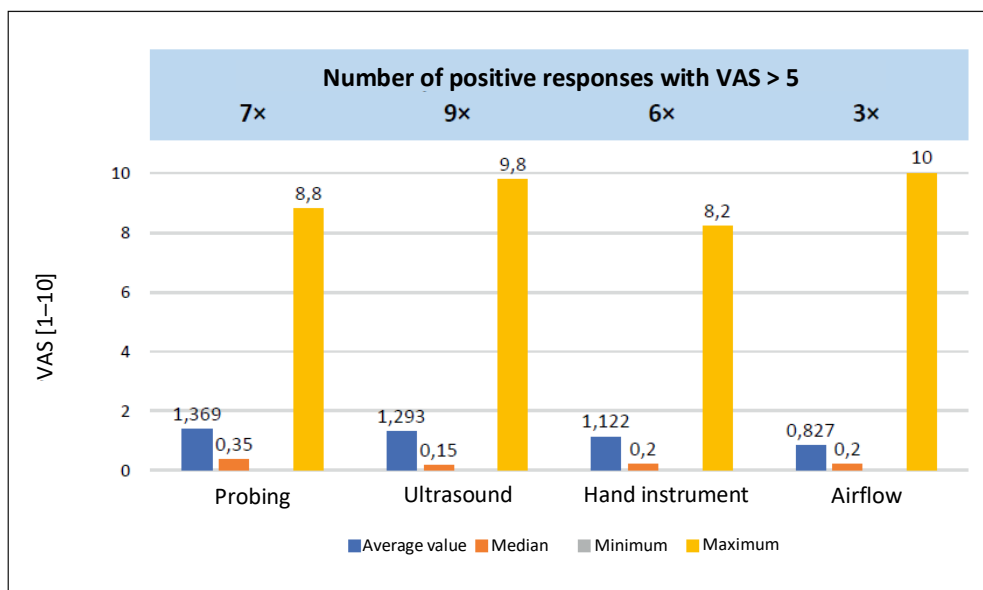


Fig. 5 Instrument acceptance following GBT treatment on an analog visual scale

When asked which instrument was not preferred (Fig. 3), probing showed the highest value with 27% positive responses, followed by hand instrumentation (21%), the use of ultrasonic instruments (18%). Airflow had the fewest positive responses (7%).

The mouthfeel (pleasant/smooth = 0 and unpleasant/rough = 10) after treatment was generally rated as very positive in retrospective with a VAS mean of 0.66 (median = 0, min = 0, max = 8; Fig. 4). Only three participants had values greater than 5.

Assessment of current treatments after GBT

Acceptance of current GBT treatment was consistently positive. The mean value and median were 0.25 and 0 (0 = no anxiety at all and 10 = maximum anxiety). Instructions and pain were scored at only 3% and 4% (Fig. 2).

Whereas the retrospective survey only questioned individual instrumentation modalities with a dichotomous response selection, i.e., whether there had been a negative experience (yes/no), a VAS survey was conducted for the current treatment (Fig. 5).

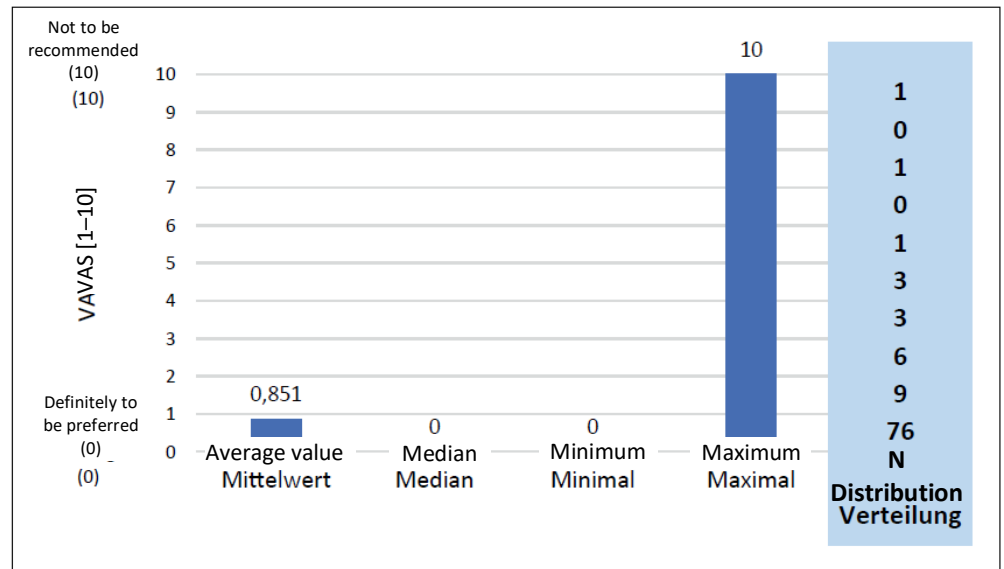
This resulted in a comparable ranking with the following

values: probing (median = 0.35, min = 0, max = 8.8), followed by hand instruments (median = 0.2, min = 0, max = 8.2), ultrasound (median = 0.15, min = 0, max = 9.8) and Airflow with the best instrument acceptance (median = 0.2, min = 0, max = 10). However, overall values were very small (< 1), and again, few respondents reported values greater than five: probing (N = 7), hand instruments (N = 6), ultrasound (N = 9), and airflow (N = 3). Here, too, less than 10% reported significantly higher VAS scores.

Mouthfeel was predominantly positive, and the majority of patients reported a clean and gentle sensation (mean [VAS] = 0.24, median = 0, min = 0, max = 2.1; Fig. 4).

The overall very good result was also reflected in the last item, patient satisfaction and recommendation (Fig. 6): no fewer than 76 of the 100 people surveyed clearly preferred the new treatment method (VAS values < 1). Another 21 gave scores between 1 and 5, and only three respondents indicated that GBT was “not to be recommended” (VAS scores = 5.1, 7.5, and 10). The mean value and median were 0.85 and 0, respectively.

Fig. 6 Satisfaction and recommendation behavior on a visual analog scale: The bar on the right reflects the respective number of patients who responded per assessment interval.



Discussion

Undoubtedly, the targeted, efficient and gentle elimination of supra- and subgingival biofilm and calculus is essential for periodontal prevention and therapy (WOLF ET AL. 2012). In addition to high efficiency, state-of-the-art biofilm management concepts should have no or only minimal negative effects on soft and hard tissue - especially during recall - and be patient-friendly.

In addition to manual debridement with hand instruments and mechanical debridement with sonic and ultrasonic instruments, airpolishing systems are also available for decontaminating surfaces as part of biofilm management with low-abrasive substances (IFF & MARINELLO 1998; PETERSILKA & FLEMMING 2004). Until now, hand instruments and the ultrasonic device (USD) were considered to be the gold standard in classical conservative recall care. However, this has been repeatedly questioned due to severe side effects upon repeated application on soft and hard tissues as well as restorations (CHANG ET AL. 2018), especially since patient acceptance also showed strong deficits to a certain degree (WENNSTRÖM ET AL. 2005; ASLUND ET AL. 2008).

As the GBT method has recently been heralded as an alternative gentle treatment strategy, we attempted to gain an impression of its acceptance among a patient population in this patient survey. For this purpose, a retrospective comparison was made with conventional recall care, which does not focus on instrumentation with airpolishing, but is predominantly based on hand and ultrasonic instruments, and which also does not include disclosure prior to starting treatment. This type of survey can, of course, already be considered a shortcoming per se, but we were not able to conduct alternative survey models within the scope of possibilities. For example, a prospective controlled split-mouth treatment would have been ideal, either in one session or at short treatment intervals, resulting in more comparable data. The present study also provided mainly descriptive results, and no statistical comparisons were pursued.

The present patient survey basically resulted in an absolutely positive evaluation: 96 of 100 patients surveyed preferred this therapeutic option. Above all, the gentle and targeted treatment was rated positively. The powder jet unit showed the best acceptance trend.

It is certainly also worth emphasizing that GBT reduced anxiety before/during the recall session from an already low 10% to 4%. This point should not be neglected, as the so-called anxiety status should not be underestimated, even in the context of prevention, and is relatively common, as was demonstrated in a previous paper (THOMA ET AL. 2015). A positive recall experience is critical for ensuring and maintaining the quality of adherence. It was interesting that the study could not identify any clear favorites with regard to instrument acceptance, however, it at least showed a comparable trend in line with the literature, according to which hand instruments in particular are considered clear losers (WENNSTRÖM ET AL. 2005; ASLUND ET AL. 2008; CHUNG ET AL. 2011), followed by USD. The lack of or negative acceptance of hand instruments could primarily be due to the hypersensitivity of a predominantly periodontally pre-exposed patient clientele (recessions). The same may also apply in the rather negative assessment of piezo-ceramic scaling (MULLER ET AL. 2017).

Due to the technically demanding handling of the various hand instruments, this treatment is also far more time-consuming, which is also reflected in the patients' subjective overall assessment of the treatment (STRAFELA-BASTENDORF ET AL. 2016). The generally positive impression of the airpolishing method can be confirmed by two clinical studies in particular (PETERSILKA ET AL. 2004; MOËNE ET AL. 2010). The main reasons for this are the high efficiency and the resulting reduced treatment time (approx. 15 to 20 minutes for full dentition). On the other hand, the lower pain sensation also seems to be decisive, as there is less injury to the soft tissue, among other things. Another contribution to pain relief could also be a potential sealing of the dentinal tubules during treatment (AGGER ET AL. 2001).

The dental hygienist and the prevention assistant work very efficiently and effectively guided by the biofilm disclosure agent and thus have higher quality control over their work.

As professionals, we should work according to the guiding principle “Clean sites don't need instrumentation”, and we can achieve this with “Guided Biofilm Therapy”.

Abstract

FURRER C, BÄTTIG R, VOTTA I, BASTENDORF K-D, SCHMIDLIN P R: **Patient acceptance of «Guided Biofilm Therapy»** (in German). SWISS DENTAL JOURNAL SSO 131: 229–234 (2021)

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