Periodontitis therapy with 3,000 % more power

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_Sometimes by asking questions that nobody has ever asked before you break new ground. In my case, this was: how can I help periodontitis patients even more effectively? And the simple answer is: with the "3,000 % more power" therapy.

What's that?
Is that dangerous?
How is that supposed to work?
Why do we need this?
What's that supposed to mean?

No one had asked me these questions when I presented the concept developed in our office in 2007 as a pilot project at IDS. Nevertheless, I shall answer these previously unasked questions here.

_The idea

I came upon the idea of a different way to treat periodontitis while researching literature on the topic of lasers. The 2003 Yukna Report[1] described the LANAP method. This Laser-Assisted New Attachment Procedure promised regeneration instead of repair, combined with a spectacular design. Dr Yukna of New Orleans, Louisiana, had three female patients, each of whom agreed to undergo the study on two single-rooted teeth with plaque. One tooth in each patient was treated using the LANAP method and the other with the Nd:YAG laser in accordance with a standard protocol.

And here's the kicker (this would happen only in the US): after monthly recalls, both teeth were removed from the bone block in all three patients!

The histological results showed regenerated bone and new periodontal ligament in two of the three LANAP teeth. The control group had only one long functional epithelium. Neither the root surface nor the pulp showed histological changes.


Fig. 1


Fig. 2

Fig. 1_Initial scenario.
Fig. 2_Opening the socket.

So far so good—anyone who knows me knows that, as a general dentist, I am a fan of the diode laser. The only Nd:YAG laser that can handle the LANAP procedure and is patented for the job is the Millennium Laser from the undisputed master inventor and laser pioneer Dr Robert H. Gregg.

_The method

I analysed which factors were different from a standard laser protocol and tried to adapt the diode-laser procedure accordingly. Thanks to the support of elexxion, I was able to develop a protocol for the claros at 30 W and 20,000 Hz.

What clinical indication of successful treatment can we expect based on the Yukna Report*?*


Fig. 3


Fig. 4

Fig. 3_Elap-p, the first time around.
Fig. 4_Plaque and toxin removal.


Fig. 5


Fig. 6

Fig. 5_Elap-p, the second time around.
Fig. 6_Soft laser treatment.

Such an indication is bleeding from the treated socket. As a laser user, I am sure you know that treated sockets can become very dry after normal laser treatment. Many manufacturers even use this as a selling point, and the patient is satisfied as well—after all, there is no more bleeding. The problem is, no blood means no regeneration, no healing, no new bone. Every dentist is familiar with the problems caused by dry sockets. Schulte addressed this concept in the filling of cysts with autologous blood.

_The questions

How do we achieve this?

We achieve this with extremely short impulses at very high wattage levels.

Is this safe for the patient?

In order to answer this question, we asked Dr I. Krejci of the University of Geneva to conduct a pilot study in 2007. The results of the study can be summarised as follows. At the recommended tested settings, a temperature reduction of up to 20% occurred compared with treatment with a 1.11 W continuous wave. There were no significant electron microscopical changes to the root. At these settings, no carbonisation of the root surfaces took place. Of course, further studies are necessary and desirable to corroborate these results.

Why do we need this?

The goal is greater regeneration instead of repair.

How does this work?

This works using elap-p, a procedure developed in the dentist's office for the dentist's office.

What is elap-p?

Simply put, elap-p means the following: 3,000% more power with up to 20% less heat generation with no carbonisation or coagulation.

Every dentist has experienced first-hand the scenario below.

_Case study

Initial scenario

The patient comes into the office on Friday evening with sharp shooting pains and was not able to sleep the night before. Pain medication works only for a short period. Redness and bleeding clearly indicate an acute periodontal cause.

Opening the socket

After local anaesthesia, a traditional cleaning, including plaque removal, is first performed, either with an Er:YAG laser or, as shown here, through an ultrasonic periodontal probe. Of course, manual instruments can also be used if preferred. This allows the laser fibre easy access to the site of the inflammation.

Elap-p, the first time around

Laser decontamination is performed using the 810 nm, 30 W, 5,000 Hz diode laser at a pulse duration of 10 µs. The average measured output from the 400 µm fibre tip is 1.2 W. Using the periodontal handpiece, the surface of each tooth is treated in a grid pattern for 5 seconds, i.e. about 20 seconds per tooth. Forced intentional bleeding occurs with no coagulation or carbonisation.


Fig. 7


Fig. 8

Fig. 7_Follow-up after 48 hours.
Fig. 8_Comparison between treated side and untreated side.

Plaque and toxin removal

The Er:YAG laser, ultrasonic periodontal probe or manual instruments are once again used to remove bacterial debris, toxins (antigens) and plaque.

Elap-p, the second time around

Laser decontamination is repeated using the 810 nm, 30 W, 5,000 Hz diode laser at a pulse duration of 10 µs with an average output from the 400 µm fibre tip of 1.2 W. Using the periodontal handpiece, the surface of each tooth is treated in a grid pattern for 5 seconds, i.e. about 20 seconds per tooth. With a knock-on effect (repeated laser decontamination) on bacteria and intentional forced bleeding with no carbonisation or coagulation, the unique effect of the 30 W pulse on the tissue shows an excellent healing prognosis and minimal damage to the gingival tissue, as the blood contains everything necessary for tissue regeneration or repair.

Wound closure

The socket is closed through bidigital pressing of the gingiva.

Soft laser treatment

Soft laser treatment is then performed at 75 MW, 8,000 Hz and 9 µs for two minutes to alleviate pain and accelerate wound healing.

Follow-up after 48 hours

The patient comes in on Monday at 8:30 a.m. and reports immediate pain relief directly after treatment. She was able to enjoy the weekend without pain medication or antibiotics and was able to eat anything she wanted later in the evening following treatment.

_Comparison between treated side and untreated side

For mobility grades higher than 1, simple acid-etch composite splinting is required. Premature contact leading to non-physiological stress must generally be removed. Naturally, after successful acute treatment, systematic periodontal treatment is to be performed.

Wishing you successful tooth maintenance!_

_contact laser

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