

Individually tailored operating protocol for NSPT

Gianna Maria Nardi presents a recent case study involving non-surgical periodontal therapy.

Air-polishing is an absolutely indispensable part of any treatment to decontaminate the oral cavity. It lies at the heart of every dental treatment for the purpose of primary, secondary or tertiary prevention.

My clinical experience confirms that which scientific evidence has proven since 1984: air-polishing is the most effective and efficient treatment for the mechanical removal of bacterial biofilm and acquired discolouration of tooth and root surfaces. It has moreover proven to be effective for professional hygiene maintenance of implants and prosthetics.

Bacterial biofilm deposition, an aetiology of diseases of the oral cavity, tends to occur in areas that are anatomically difficult to reach using at-home methods of oral hygiene, such as the interproximal spaces. Inflammation caused by microbial plaque leads to gingival attachment loss, papillary recession and the exposure of root surfaces.

The risk of gingival inflammation and the formation of periodontal pockets greater than 4mm in depth increases with age:

- In subjects 35 years of age, periodontal attachment loss is greater (nearly double) on the distal surface



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Fig 1a.



Fig 1b.



Fig 2.

of the first molar with respect to the mesial surface.

- At approximately 50 years of age, the distal surface of the maxillary molars has a high incidence of furcation involvement.
- At around 65 years of age, the survival percentage for molars is slim.

At-home dental hygiene is absolutely essential for the effective control of microbial plaque, especially in difficult-to-reach areas (such as the interdental spaces). The patient must be made to understand that it is crucial to ensuring the health of oral cavity tissues and maintaining rehabilitative therapies.

What is equally important is the individually tailor management of NSPT (non-surgical periodontal therapy) treatments, choosing

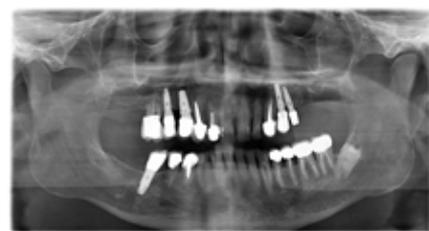


Fig 3.



Fig 4a.



Fig 4b.



Fig 4c.

technologies which permit effective and minimally invasive periodontal debridement that is more comfortable for the patient and easier for the professional. This can be done by selecting safe and ergonomic instruments when managing treatment. Mectron's Combi Touch technology, used in the case report described below, offers a valid approach to NSPT. ☺

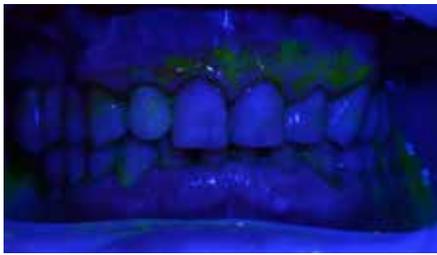


Fig 5.



Fig 6.



Fig 7.



Fig 8.



Fig 9.

Case report

Let us examine the case of a male patient, 67 years of age, in apparent good systemic health, complaining of a feeling of gingival discomfort and unpleasant breath.

Clinical observation involving the use of a video camera reveals the presence of bacterial biofilm and tartar in the interproximal spaces (fig 1a-b). The patient's records show that,



Fig 10.



Fig 11.



Fig 12.



Fig 13.



Fig 14.

years ago he underwent an implant-prosthetic rehabilitation and that, as a result of a high level of bone resorption and the presence of infections, a decision had been taken to extract a number of teeth and replace them with implants (in areas 1.4 – 1.5 – 2.4 – 2.5 – 4.6).

A physical examination revealed the presence of evident redness around the majority of the necks of the teeth, with a large quantity of bacterial biofilm, chiefly along the interproximal surfaces (fig 2). Although no signs of abrasion



Fig 15.



Fig 16.

were visible on the tooth surfaces, signs of wear were evident, however, along the incisal edge of components 4.3 – 4.2 – 4.1 – 3.1 – 3.2 – 3.3, with loss of vertical height and of canine guidance, as well as excessive lateral excursion.

The X-ray results (fig 3) revealed horizontal bone resorption across all four quadrants, with the anterior areas, top and bottom, being the most affected. With the exception of the third quadrant, the molars and premolars had been extracted and replaced with implants. This led us to the hypothesis that, since the accumulation of plaque and tartar always begins at the lingual/palatal level of the molars, the periodontal damage and resulting bone resorption had probably reached such high levels that the previous operator had been forced to adopt that type of rehabilitative strategy.

NSPT

In order to provide a broader operative field and greater patient comfort, a lip and cheek retractor was used. A tongue cleaner was inserted (fig 4a-b-c) in the saliva ejector tube. After having cleaned the surface of the tongue, the plaque index was measured using a fluorescent disclosing agent (fig 5).

At this point, the Mectron Combi Touch (fig 6) device was used to perform clinical deplaquing. Glycine powder was used with the 120° spray nozzle for deplaquing of the posterior area (fig 7). The angle of this spray nozzle makes it possible to perform effective deplaquing, even in cases when the operator is faced with difficulties arising from unusual

anatomical structures of the soft tissues, odd tooth positions or the presence of prosthetic components in areas that are difficult to access.

In order to remove particularly stubborn dental staining, a 90° spray nozzle was mounted on the same handpiece, this time using sodium bicarbonate powder, which is particularly effective for the removal of such pigmentation (fig 8) and for the decontamination of occlusal surfaces, thanks to a special jet that protects the gingival tissue.

While air-polishing was underway, an instrument was used which made it possible to eject the saliva and the particles of bicarbonate or glycine, avoiding the dispersion of infected aerosol droplets. It is important to perform deplaquing before probing, in order to prevent bacterial transmigration between sites. If there are exposed root surfaces, deplaquing is performed using glycine powder, which is biocompatible, finely micronised and can be used on delicate gingival tissue. Sodium bicarbonate powder, on the other hand, is reserved for the most stubborn acquired discolourations.

Gentle scaling was then performed with the use of the S1 insert in 'Soft mode' (fig 9), which reduces the insert's oscillation amplitude, rendering its motion compatible with even the most sensitive of patients.

The next step following deplaquing is periodontal probing (fig 10), in order to identify pockets which were greater than 5mm deep. These sites are then decontaminated using the 120-degree perio nozzle, on which the disposable sterile subgingival tip has been manually mounted, making it possible to enter the periodontal pocket in a minimally invasive fashion. The tip is made to be soft, flexible and anatomically adaptable to the pocket. It is used only with glycine powder, using small movements inside the pocket to decontaminate the site (fig 11-12).

At-home oral hygiene

The proper manner of using at-home oral hygiene instruments was demonstrated to the patient. He was advised to use an interdental brush (fig 13), which is used in place of dental floss to clean hard-to-reach interproximal spaces effectively and with very little trauma.

For effective plaque control, he was recommended a toothbrush suitable to his structural and anatomical needs, in order to provide effective cleaning under and along the gum line and in his interdental spaces (fig 14).

For chemical plaque control, it was recommended he use a mouthwash containing 0.06 per cent CHX + 0.05 per cent CPC and GUM Paroex Gel twice a day.

A check-up performed two weeks later showed significant improvement of clinical indices (fig 15). The patient, satisfied and motivated by the professional advice received, understood the importance of following the at-home operating protocols. Regular follow-ups were scheduled for every three months.

Conclusions

It was possible to decontaminate the oral cavity in an effective manner (fig 16). Thanks to the technology used it is now possible to perform effective, fast and minimally invasive NSPT, even in periodontal pockets deeper than 5mm.

References available on request.

General Medical