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PROF. GIANNA MARIA NARDI

AIR-POLISHING SYSTEM COMBI *touch*

OPERATING PROCEDURES

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OPERATING PROCEDURES FOR USING THE COMBI *touch* AIR-POLISHING SYSTEM

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FOREWORD

The personalisation of clinical dental treatment lies at the basis of good clinical practice and advanced technologies must favour the philosophy of an approach that is defined tailor-made (Nardi et al. 2014). The choice of the most appropriate technology for each individual clinical case is the prime objective of the tailor-made approach, in which the dentist carefully observes the patient's anatomical and tissue characteristics, the presence of any disease, the characteristics of the surface to be treated, allowing effective and minimally invasive operations to be performed and thus the decision to be taken together with the patient.

Air-polishing is an absolutely indispensable procedure in an oral cavity decontamination treatment, at the basis of every primary, secondary and tertiary preventive dental therapy.

My clinical experience confirms what scientific evidence has demonstrated since 1984: the air-polishing procedure is the most effective and efficient system for mechanically removing bacterial biofilm and stains from the tooth and root surfaces (Weaks et al. 1984).

Gianna Maria Nardi

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1. AIR-POLISHING

1.1 INTRODUCTION

Air-polishing can be used on healthy patients as an alternative to the use of curettes, scalers or abrasive paste to remove ugly stains caused by tea, coffee, red wine, tobacco or other staining substances. In addition, the diseases of the oral cavity with the greatest epidemiological significance (caries, gingivitis and periodontitis) are induced by bacterial biofilms. Mechanical control of bacterial biofilms is fundamentally important in the prevention and management of these diseases. Air-polishing has been found to be effective in removing biofilms from above and below the gums and acquired dyschromia (Europerio 2012, Vienna).

1.2 THE AIR-POLISHING SYSTEMS

The air-polishing systems use compressed air, water and various types of powder with different particle sizes, specifically designed for different treatments, to emit a well-controlled jet, which sprays particles at the surfaces of the teeth (Barnes et al, 2004).



The abrasive flow therefore consists of:

- Water
- Compressed air
- Specific powders with a controlled particle size

(Black R. Technique for non-mechanical preparation of cavities and prophylaxis. J Am Dent Assoc 1945; 32:955-965).

Currently available on the market, there are numerous devices with an air/water jet for preparing cavities, polishing tooth surfaces and eliminating extrinsic stains in patients that have trouble maintaining adequate oral hygiene (Kozlovsky et al. 1989; Horning et al. 1987).

In addition, the shape and design of the spray nozzle are important characteristics

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that may influence the abrasive properties of the powders used.

In fact, minor changes in the size of the nozzle, such as the diameter of the opening or the length of the tube or its curvature may cause significant changes to the efficacy of the instrument (Momber A, 2008).

This factor underlines the importance and responsibility of having an in-depth knowledge of the instrumental technique used on any type of tooth or root surface. When making the determination as to how to treat each specific case, the operator may be faced with the challenge of excess deposits which require removal. In such cases, the more difficult treatment areas will certainly require a more thorough and lengthy treatment. It is therefore important to avoid directing the jet directly at the edge of the gums, on the necks of exposed teeth and on the mucosa.

1.3 COMBI *touch*



COMBI *touch* combines in a single device a multifunctional piezo-electric scaler and a jet polisher, designed for a complete dental prophylaxis, above and below the gums. The polisher supports the use of two types of powder according to the type of treatment to be performed: sodium bicarbonate powder for supragingival prophylaxis, and glycine-based powder for subgingival treatment.

The operating principle of the polisher is based on the mechanical action obtained from a jet of crystals of various kinds accelerated by a compressed air flow. The kinetic energy applied to the particles is dissipated almost completely when they strike the enamel surface, producing a gentle but effective cleaning action.

The action is completed by a water jet, which, using the pressure drop created around the nozzle, is arranged in the form of a bell around the main flow, thus producing a dual effect: it largely prevents the cloud of powder from bouncing and being expelled

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and continually washes the treated area by dissolving the powder.

The device has 3 different spray nozzles with different angles and dedicated periodontal subgingival tips.

AIR-POLISHING OUTSIDE THE PERIODONTAL POCKET:

120° SPRAY NOZZLE



Indication:
supra- and subgingival (universal)

Powders:
sodium bicarbonate
glycine

90° SPRAY NOZZLE



Indication:
supragingival (designed for anterior areas), occlusal surfaces

Powders:
sodium bicarbonate
glycine







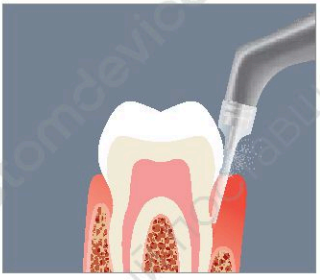
AIR-POLISHING INSIDE THE PERIODONTAL POCKET

PERIODONTAL SPRAY NOZZLE WITH PERIODONTAL SUBGINGIVAL TIP



Indication:
subgingival treatment (pockets > 5 mm)

Powder:
glycine



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1.4 OPERATING METHOD



The COMBI *touch* device operates at a working water pressure of 1 to 6 bars and an input air pressure of between 4 and 8 bars ("Prophy" function = 3.5 bars; "Perio" function = 2.7 bars). The direct jet should not be directed at the gums while the peripheral jet can be used close to the gingival margin.

COMBI *touch* air-polishing produces excellent hygienic and cosmetic results: it removes even the most stubborn extrinsic stains quickly, gently and under conditions of absolute safety.

The enamel surfaces of the teeth remain intact and shiny. When used below the gums, it removes bacterial biofilms from the periodontal and peri-implant pockets.

The abrasive nature of the jet of powder is directly proportional to the selected level of irrigation. In this way, by increasing the level of irrigation, at the end of the treatment the teeth above the gums can also be cleaned.

We recommend exclusive use of the Mectron Prophylaxis Powder and Mectron Glycine Powder. The manufacturer declines all liability and the guarantee becomes null and void if non-original Mectron powders are used, in that they could irreparably damage the spray nozzles and/or handpiece of the polisher, thus jeopardizing the operation and creating a risk of injury to the patient.

With the supra- and subgingival technique, the spray nozzle of the instrument must be kept constantly rotating at a distance of 4-5 mm from the tooth surface for about 5 seconds per tooth.

For maintenance treatment, the instrument should be held at an angle of incidence of between 30 and 60 degrees between the powder jet and the axis of the tooth; the correct angle of the handpiece is essential to avoid damaging the soft tissues and to reduce the quantity of aerosol emitted (Barnes, 1991; Worrall et al, 1987).

The Mectron Combi *touch* offers 3 spray nozzles at different angles to allow the operator the ability to customize the operating procedures according to every clinical need.

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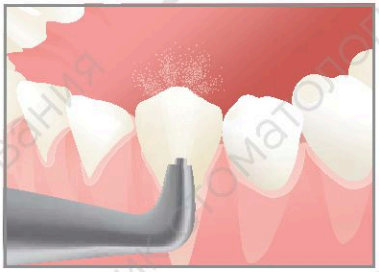
A. 120° SPRAY NOZZLE FOR USE OUTSIDE THE PERIODONTAL POCKET:



The use of the spray nozzle at this angle provides an effective deplaquing action, primarily in cases in which the operator encounters difficulties due to particular anatomical structures of the soft tissues and positioning of teeth or prostheses that are difficult to reach. For healthy gum tissue and particularly stubborn stains, the use of sodium bicarbonate powder is recommended. In the presence of metal-free prostheses, implants, exposed root surfaces and in mouths with a thin tissue biotype, use should be made of the glycine powder. This spray nozzle is also capable of deplaquing subgingival surfaces with glycine powder for periodontal pockets with a depth of up to 5 mm.



B. 90° SPRAY NOZZLE FOR USE OUTSIDE THE PERIODONTAL POCKET:

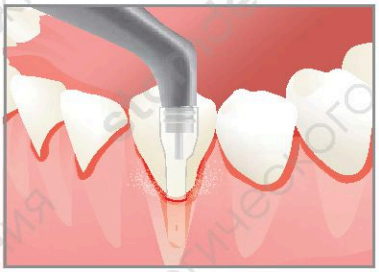


Used for deplaquing the surfaces of the front teeth using sodium bicarbonate or glycine powder is recommended, with the advantage or preserving the soft tissues of the gums. It is also used for cleaning the occlusal surfaces of permanent teeth with sodium bicarbonate powder or the occlusal surfaces of deciduous molars with glycine powder. Ideal for treating acquired dyschromia, as in the case of stubborn tobacco stains, with sodium bicarbonate powder.



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C. PERIODONTAL SPRAY NOZZLE FOR USE INSIDE THE PERIODONTAL POCKET:



Ideal for effective detoxification in the presence of periodontal pockets with a depth of over 5 mm using the sterile, disposable periodontal subgingival tip, which enables the inside of the pocket to be cleaned in a minimally invasive manner.

In addition, its 120° angle enables the operator to work under more favourable ergonomic conditions with the correct supporting points, without applying stress to the carpal tunnel.



The tip does not emit the jet in the apical direction but orients it sideways towards the root surface and the wall of the pocket, preserving the integrity of the junctional epithelium.

Having determined the clinical indexes, if a site with a pocket having a depth of over 5 mm is found during the examination, the periodontal subgingival tip should be applied to the PERIO spray nozzle, ensuring that it is fully inserted so that the two parts must be in contact with one another.

During the decontamination of the periodontal pocket with glycine powder, the tip is to be inserted gently inside the pocket, against the root surface to be decontaminated, making extremely light and regular forward and backward movements. A time of about 5-10 seconds of spraying is necessary to satisfactorily detoxify a periodontal pocket (mesial, distal, vestibular and lingual surfaces). Consequently, it will take about 20-40 sec. for the instrument to clean a single tooth.



Air-polishing below the gums should be performed with glycine powder only!

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1.5 SAFETY FOR THE PATIENT AND THE OPERATOR:

For the operator:

Put on:

- Mask
- Visor/glasses and/or magnifying glasses
- Bouffant/cap
- Gloves

For the patient:

- Preoperative rinse with antibacterial mouthwash for about 30 seconds if it is a mouthwash with essential oils, or 2 rinses with CLX 0.2% for 60 seconds, so as to lower the bacterial load and reduce the risk of transport of bacteria in the aerosol.*1
- Take care to preserve the lingual mucosa and the ducts of the parotid salivary gland.
- Apply lubricant to the lips to prevent the sodium bicarbonate from causing dehydration and abrasion during the procedure.
- Use swabs or gauze to protect the soft tissues of the cheeks.
- A mouth mirror/aspirator (ClasenUNO) should be used to prevent the powder jet from passing through the spaces between the teeth and reaching the mucosa of the cheeks, tongue, palate or floor of the mouth.
- Particular attention should be paid to avoid irritating the floor of the mouth, the soft palate and the pharynx.
- The fine particles of powder may enter the eyes and beneath contact lenses, so the patient should preferably wear protective glasses during treatment.
- A retractor should be used to increase the operator's view.
- A surgical aspirator with a broad tip should be used *2

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*1 It is known that the spraying of powders using supra- and subgingival air-polishing devices produces an abundant jet of water and powder containing oral microorganisms and residues; consequently, as for all aerosols, there is an increased risk of contamination.

*2 A study conducted at the Baylor College of Dentistry in 2004 by Harrel and Molinari demonstrated the importance of using a high-speed aspirator, equipped with a broad tip and positioned in the direction opposite to the jet, as close as possible to the nozzle: the saliva aspirator is not sufficient to reduce the number of bacteria in the aerosol (Harrel & Molinari, 2004).







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2. THE POWDERS

Sodium bicarbonate and glycine are the most commonly used powders, but other less known powders are documented in the literature.

Powders with different compositions, particle sizes and applications are available on the market. The choice depends on the device used, the operator's preference, the type of deposit and the medical contraindications. We recommend exclusive use of Mectron prophylaxis powder and glycine powder with the COMBI *touch* device.

2.1 SODIUM BICARBONATE

From an analysis of the scientific literature available, it emerges that sodium bicarbonate is a salt composed of sodium ions and bicarbonate ions which, at room temperature, is a white crystalline powder. Its ability to react with acids enables the sodium bicarbonate to be used in pharmaceutical preparations as a mild antacid. It is also used in the formulation of toothpastes for its whitening abrasive action. Sodium bicarbonate powders have been used in dentistry since 1980 in special air/water jet devices for removing bacterial biofilms and extrinsic stains. Sodium bicarbonate particles may have a particle size of < 150 µm and these crystals have a rectangular and/or square chiselled form.



Bicarbonate crystals with 100x enlargement (image provided by courtesy of 3M Espe))

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Sodium bicarbonate effectively removes bacterial biofilms above the gums (Barnes CM et al, 1990) and stains on the enamel surface without any changes or significant loss of substance (Kovacevic R, 1992). However, it is important to consider that sodium bicarbonate is to be used with care on dentin and radicular cement in case of demineralization of the enamel as major abrasion and loss of healthy tissue may occur (Kontturi-Narhi V. et al, 1990; Schiffner U, 1992). The treatment of decontamination with bicarbonate powder is to be personalized on the basis of the anatomical structure of the dental arch and the clinical needs of each patient.

2.2. GLYCINE

Glycine is an amino acid, the first to be isolated from sugar cane in 1820 by Braconnot (La Rousse Enciclopedia Rizzoli, 1964). Glycine can also be obtained by hydrolysis from isinglass, gelatin, or silk fibrin. Due to its properties, glycine is used during oral hygiene treatments using supra- and subgingival air-polishing devices to remove bacterial biofilms, mild extrinsic stains and to detoxify periodontal pockets.

Glycine powders have a particle size of less than 25 µm (D50) and are currently used in various countries in non-surgical clinical dental practice. Glycine is recommended in the following clinical indications:

→ INDICATIONS	→ SODIUM BICARBONATE	→ GLYCINE POWDER
Removal of plaque	☺	☺
Removal of stains	☺	😐
Use on enamel	☺	☺
Use on restoration materials	☹	☺
Use on dentin	☹	☺
Use on the root surface	☹	☺
Use below the gums	☹	☺
Cleaning of grooves	☺	😐
Cleaning of the prosthetic margin	☺	☺
Cleaning of the surfaces of the implant	☹	☺

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This powder is also indicated for patients with systemic diseases or on low-salt diets, such as patients with hypertension and kidney failure, in whom the use of sodium bicarbonate is contraindicated. It is also minimally invasive on radicular cement, enamel, dentin and exposed implants, for which natural glycine powder with a low particle size (d50=25 µm) should be used.

Decontamination treatment with glycine powder should be personalized for every clinical need and type of patient with the advantage that it can be used for frequent recalls.



Glycine powder with 100x enlargement (image provided by courtesy of 3M Espe)

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3. SUPRA- AND SUBGINGIVAL AIR-POLISHING: OPERATING PROCEDURES

3.1 HEALTHY PATIENTS AND/OR PATIENTS RECEIVING COSMETIC TREATMENT

The air-polishing technique is extremely effective and minimally invasive compared to the selective polishing technique with silicon cups and/or tooth brushes, in that it is easier to use, quicker and above all, capable of removing more stubborn stains, such as those caused by tobacco and chlorhexidine more effectively.

Sodium bicarbonate has a greater cleaning power than glycine and is thus the gold standard for removing extrinsic stains.



Removal of extrinsic stains by air-polishing with sodium bicarbonate

Glycine powder should be used for less stubborn stains, in the presence of exposed root surfaces or a thin tissue biotype. In fact, glycine powder does not damage the mucosa and the jet can even be directed at the neck of the tooth to remove stains closer to the gum without damaging the basement membrane of the epithelium of the gingival groove without any pain or discomfort for the patient. Due to the flexibility of the new COMBI *touch* device, the sodium bicarbonate and glycine powders can be used at the same time.

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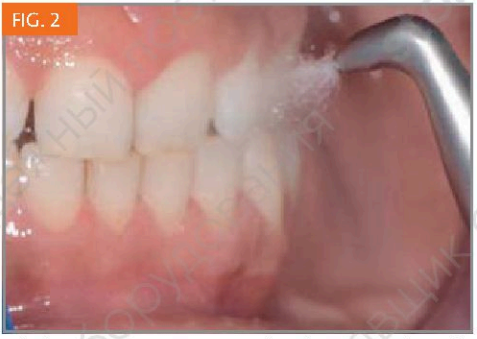
CLINICAL CASE

FIG. 1



clinical observation

FIG. 2



deplaquing posterior area with 90° spray nozzle and bicarbonate powder

FIG. 3



deplaquing posterior area with 90° spray nozzle and bicarbonate powder

FIG. 4



deplaquing occlusal surface with 90° spray nozzle and bicarbonate powder

FIG. 5



deplaquing occlusal surface with 90° spray nozzle and bicarbonate powder

FIG. 6



final result

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3.2 PERIODONTAL PATIENTS

For a minimally invasive deplaquing procedure also on recessions and exposed root surfaces, use is made of a 120° spray nozzle with glycine powder. If, from the clinical point of view, the patient presents major acquired dyschromia (e.g. tobacco stains), the 90° spray nozzle with sodium bicarbonate powder should be preferred. With the supra- and subgingival technique in the presence of pockets with depth of less than 5 mm, the spray nozzle of the instrument should be kept constantly rotating at a distance of 4-5 mm from the surface for about 5 seconds for each tooth. If, during the examination, the site is found to present a periodontal pocket with depth of over 5 mm, the sterile and disposable periodontal subgingival tip will have to be applied to the PERIO spray nozzle, positioning the nozzle against the surface of the tooth. It will take about 5-10 seconds of spraying to satisfactorily detoxify a periodontal pocket (mesial, distal, vestibular and lingual surfaces).

The periodontal subgingival tip does not emit the jet in the apical direction, but orients it sideways towards the surface of the root and the wall of the pocket, preserving the integrity of the junctional epithelium.



Diagram of use in periodontal pockets < 5 mm

Its thin tip enables it to pass gently along the surface of teeth and be inserted inside narrow pockets and moved along the root surfaces of adjacent teeth. It is to be inserted inside the periodontal pocket and directed parallel to the root of the tooth.

Treatment areas that are difficult to reach with other instruments, such as distal to the molars, may be treated easily with the 120° spray nozzle with glycine powder. Due to its precise angle, this nozzle ensures proper decontamination of these sites, which often involve exposed root surfaces. If a radicular furcation is discovered after exploration with a Nabers probe, we recommend the use of the periodontal subgingival tip, which ensures delicate entry into the furcation due to its unique anatomical shape.



Decontamination with periodontal subgingival tip

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3.2.1 BEFORE ROOT PLANING TO REMOVE PLAQUE RESIDUE

It is always best to work on surfaces of the mouth not contaminated by bacteria. At times, it happens that even strongly motivated patients are not capable of obtaining effective bacterial film control. Consequently, before proceeding to plane the roots, it is important to decontaminate sites using the air-polishing technique with a 120° spray nozzle and glycine powder. This operation performed before the examination avoids the risk of bacterial transmigration.

3.2.2 AFTER ROOT PLANING

After the root planing operation, air-polishing with glycine powder and a 120° spray nozzle can be useful to remove residue left by manual or ultrasonic instruments, thus increasing the detoxification of the root surfaces. It should be pointed out that this procedure does not remove any hard deposits that remain inside the pocket and for explorations to a depth of more than 5 mm, use should be made of the sterile, disposable periodontal subgingival tip.

3.2.3 IN SUPPORTIVE THERAPY

In this case, use should be made of the 120° spray nozzle. Once the initial treatment has been performed with sessions of root planing, the patient should be scheduled for maintenance therapy or supportive periodontal therapy (SPT). The patient follow-up sessions must be monitored, with the recalls personalized according to the patient's clinical needs, for the efficacy of his/her home bacterial plaque control (Protocollo di tailoring personalizzato e condiviso - Nardi et all. 2014), (Wilkins EM, 1999) and following the indications of the clinical protocols (Genovesi A et al, 2004). The removal of the aetiological agents above and below the gums is greatly favoured by air-polishing with glycine powder. This technique eliminates the need for curettes, is painless, requires no particular operating skills, is effective to a pocket depth of 5 mm, is completed extremely quickly (about a quarter of the time required by the traditional method, Petersilka GP et al, 2003) and mechanically detoxifies the root surface. In pockets greater than 5mm with inflammation, the periodontal subgingival tip is recommended. If the mouth is affected by major acquired dyschromia, use should be made of bicarbonate powder with the 90° spray nozzle, ideal for effective decontamination of grooves and dimples on the occlusal surfaces of molars and premolars.

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CLINICAL CASE

FIG. 1



clinical observation

FIG. 2



topography of the presence of bacterial biofilms using erythrosin-based three-tone plaque detector

FIG. 3



determination of clinical plaque and bleeding indexes

FIG. 4



periodontal debridement with a Mectron S1 insert

FIG. 5



deplaquing with glycine powder and a 90° spray nozzle

FIG. 6



periodontal examination with location of pocket having a depth of over 5 mm

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FIG. 7



insertion of subgingival tip in pocket with a depth of over 5 mm

FIG. 8



insertion of subgingival tip in pocket with a depth of over 5 mm

FIG. 9



personalized and shared tailored brushing technique

FIG. 10



cleaning the interproximal spaces

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3.3 CHILD PATIENTS

In paediatric dentistry, the use of glycine powder is preferred to sodium bicarbonate for all procedures, as its reduced particle size makes it less invasive on the delicate anatomy of the deciduous teeth of child patients. The 90° or 120° spray nozzle with glycine powder can be used on all surfaces. This air-polishing operation favours professional hygiene controls as it is quick, effective and well tolerated by the young patients.

3.3.1 CLEANING OCCLUSAL GROOVES BEFORE SEALING

The use of glycine powder is ideal for cleaning occlusal grooves before sealing them to reduce the risk of undermined caries. For this clinical operation, use should be made of the 90° spray nozzle with glycine or bicarbonate powder if in semi-permanent teeth. This operation will certainly be less invasive than selective polishing.

3.3.2 REMOVING PLAQUE BEFORE TOPICAL FLUOROPROPHYLAXIS

The tooth can be preserved and made more resistant to acid attacks through the direct application of remineralizing substances after its eruption. For these clinical practices, the tooth surfaces must be carefully cleaned, removing bacterial biofilms and AEP (acquired enamel pellicle).

For deplaquing, prior to fluoroprophylaxis or topical remineralization with other substances, the use of air-polishing with glycine powder provides all the advantages listed above, as well as the possibility of cleaning white spots without removing significant quantities of tissue that will subsequently be fluorized. After cleaning with the powder, the operator can apply gel, mousse, cream, foam and varnish.

In this case, the operator can choose whether to use the 90°or 120° spray nozzle with glycine powder on all surfaces.

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3.3.3 REMOVING THE PLAQUE DETECTOR AFTER MOTIVATION TECHNIQUES AND/OR PLAQUE INDEX

A patient's motivation to maintain adequate oral hygiene is a fundamental, extremely important aspect to be able to reach oral health objectives, whether it is daily oral hygiene or individuals with mild or serious diseases.

The motivation of the patient by the operator during the initial approach, if it is particularly incisive and easy to learn, will give better result in shortest possible time. Stimulating all the patient's senses will make him/her more aware of its importance. Viewing of the plaque index (PI) is one of the best "conscience effects" that can be given to the patient. Once the PI has been calculated and the motivation phase has been completed, it becomes indispensable to remove the parts of biofilm soaked in erythrosin.

The glycine powder carried by air-polishing is particularly indicated for this type of treatment, both for children and for adults. Its use will effectively eliminate both the erythrosin and the fluorescein-based plaque detector.

The advantages lie in the delicacy with which it cleans the surface and the little time required to remove the plaque from the teeth. Another advantage is that it cleans the mucosa on the neck of the tooth and this cannot be done with bicarbonate or by traditional polishing.

CLINICAL CASE

FIG. 1



clinical observation

FIG. 2



deplaquing posterior area with a 120° spray nozzle and glycine powder

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FIG. 3



deplaquing with a 90° spray nozzle and glycine powder

FIG. 4



clean surfaces after deplaquing

FIG. 5



deplaquing before sealing

FIG.6



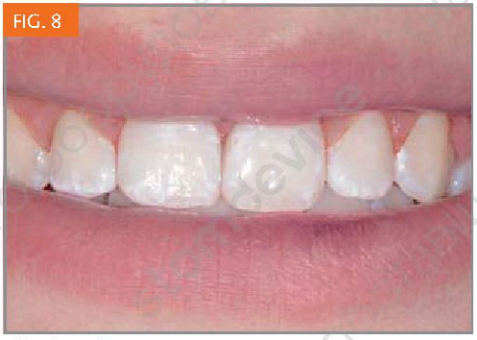
home dental hygiene

FIG. 7



application of fluoride varnish

FIG. 8



final result

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3.4 ORTHODONTIC PATIENTS

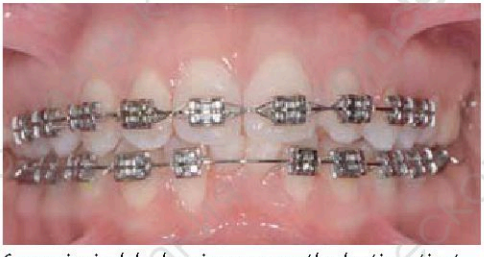
Orthodontic patients require special attention in the control of bacterial biofilms. Treatment before, during and after orthodontic treatment must also be personalized.

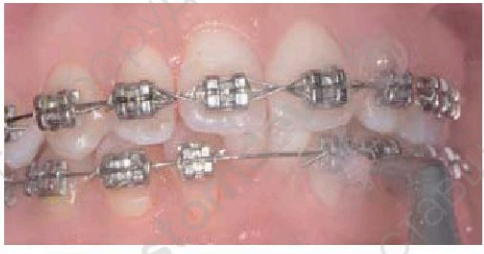
3.4.1 CLEANING THE TOOTH SURFACE PRIOR TO ORTHODONTIC TREATMENT (BEFORE FIXING THE BRACKETS)

It is essential to remove bacterial plaque and stains from the tooth surfaces before putting the orthodontic appliance into place. If the patient comes to the appointment with a good level of oral hygiene, his/her gums will not bleed during polishing or air-polishing. The bicarbonate powder is certainly more abrasive and has a greater cleaning power, but if the patient is prepared correctly by the odontologist and/or dental hygienist, no invasive procedure will be necessary and deplaquing with glycine powder will be sufficient. The advantage of using glycine powder is the fact that it is gentle on the hard tissues and, above all, on the soft tissues, thus avoiding surface dysepithelization while bicarbonate could, if used incorrectly, cause marginal bleeding.

3.4.2 REMOVING PLAQUE DURING TEETH CLEANING SESSIONS

Performing a professional teeth cleaning session on a patient with a fixed orthodontic appliance is not simple and the patient often fails to maintain adequate plaque control because the brackets interfere with the instruments used to remove the plaque and to apply toothpaste (Wilkins EM, 1999).





Supragingival deplaquing on an orthodontic patient

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It is not easy for the operator to remove bacterial biofilms from tooth surfaces situated between the attachment and the gum margin, or close to the attachments. The extremely limited spaces create difficulties during the operation in that they are difficult to reach with the instruments. Air-polishing with glycine powder not only removes plaque and any residual materia alba from the attachment and the enamel but, unlike bicarbonate, allows the jet to be directed below the neck of the tooth, thus detoxifying the gum margin with great operating ease and simplifying the operator's work considerably.

This operation is also much more tolerable for the patient in that it is completely painless. It also allows cleaning close to interdental and interpapillary bands and spaces due to the aid of the spray nozzle at 120°.

3.5 PATIENTS WITH SYSTEMIC DISEASES (DIABETES, CARDIOVASCULAR DISEASE, OBESITY)

Patients with systemic diseases should be monitored frequently for their hygiene control. In these specific cases, glycine powder should be used with the 120° spray nozzle. Before carrying out the clinical air-polishing procedure, remember to pay special attention to patients with cardiovascular diseases that require specific pharmacological therapy.

3.6 SMOKERS

The operator will make a careful assessment of whether to use sodium bicarbonate powder on the stubborn stains of smokers.

This kind of patient is likely to have gingival recessions with consequent exposed and stained root surfaces; in this case, adding the use of glycine powder with a 120° spray nozzle in a mixed technique is recommended. If pockets with a depth of over 5 mm are present, the PERIO spray nozzle may be used with the disposable periodontic subgingival tip on the damaged sites.

3.7 IMPLANT PATIENTS

The problem that all dentists have always had in treating peri-implantitis without surgery concerns the instruments at their disposal.

Up to now, the clinical protocols for the treatment of pockets on implants indicated the use of plastic and Teflon curettes (Wilkins EM, 1999) or chemical and

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pharmacological treatments, such as chlorhexidin in xanthan gel (Genovesi A et al, 2004). In addition, even only cleaning the external neck of the implant or the prosthesis-abutment connection point posed a risk of minor abrasions to the titanium.

3.7.1 REMOVING PLAQUE FROM PROSTHESES ON IMPLANTS

The ease offered by the use of glycine powder for this procedure is unrivalled compared to similar operations.

When glycine powder is used, there is no risk of damaging either the prosthesis or the neck of the implant, and these characteristics are supplemented also by ease of use and speed of execution. It will therefore be possible to direct the jet of glycine powder at both the prosthesis and the implant, with a perfect inclination of the jet emitted, without any risk for either of the structures. The operator will choose the 90° or the 120° spray nozzle according to the type of anatomical structure and type of implant. In clinical cases of gingivitis around the implant tissues, caused by poor home oral hygiene, the use of glycine for removing bacterial plaque and detoxifying hypertrophic tissues offers excellent rapidity and depth of action.

3.7.2 IN PERI-IMPLANTITIS

The glycine powder has proven to be an authentic revelation in the treatment of the aforesaid diseases. Having removed the tartar from the exposed surface of the implants using the traditional methods (Teflon or titanium curettes) or using specific ultrasonic tips, further detoxification with subgingival air-polishing guarantees a full recovery from the disease in 8 cases out of 10 (Sarri S et al, 2006).

If there is no tartar on the implant but the peri-implantitis is caused by bacterial plaque, the use of subgingival air-polishing has been found to be effective in healing the active site. For the treatment of peri-implantitis in the presence of pockets with a depth of no more than 5 mm, use should be made of the 120° spray nozzle. The technique and method of use are identical to those used for periodontitis. If the examination with a Teflon probe reveals an involvement with a depth of more than 5 mm, the PERIO spray nozzle with a disposable periodontal subgingival tip should be inserted, holding it always parallel to the pillar of the implant.

In this way, the granulation tissue is removed and the surface of the implant and surrounding tissues are cleaned, reducing the risk of tissue loss.

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3.8 POLISHING REMOVABLE PROSTHESES

Glycine powder can also be used with a 90° spray nozzle to polish removable prostheses, having removed any plaque and tartar from them, so as to remove the ugly stains caused by poor oral hygiene and contact with staining substances.

4. CONCLUSION

The efficacy of sodium bicarbonate in deplaquing and the elimination of acquired dyschromia had been known for some time now, but the true revolution was the introduction of supra- and subgingival air-polishing using glycine powder.

The COMBI *touch* technology, which enables both powders to be used at the same time due to the use of ergonomic spray nozzles oriented at 90° and 120°, enables the operator to obtain an excellent clinical result, with an advantage in the timing of the procedure much appreciated by patients.

The highly sophisticated supra- and subgingival air-polishing technique enables the operator to perform a complete, effective, minimally invasive and repeatable clinical procedure without interfering with the health of the hard and soft tissues of the oral cavity.

For the therapy to be successful, the operator must adopt a personalized tailor-made approach, shared with the patient, to clinical supra- and subgingival air-polishing practice (Gianna Maria Nardi). In fact, the skill of the operator is of fundamental importance, who must be capable to work only after making an accurate diagnosis and to establish the opportunities for using the subgingival air-polishing technique.

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