The Proof is in the Powder

Why you should be using a subgingival air-powder polisher

Abstract

With greater pocket depths, challenges arise upon removal of plaque biofilm. Although supragingival air polishing is not new in the armamentarium of technology designed, many have not seen the undeniable benefits of using this method combined with glycine powder for therapeutic affects sub-gingivally.

What the Studies Show

- Patients receiving subgingival air-polishing resulted in significantly lower bacterial counts. P. gingivalis remained significantly lower for the glycine powder group compared to standard SRP even at 90 days post-therapy. [1]
- Patients reported a lower perceived amount of pain. [2]
- Subgingival APP is clinically effective in treatment of peri-implant mucositis with a greater reduction in bleeding on probing when compared to the use of curettes. [3]
- Similar clinical results were present at 6 months post-therapy, even in cases of severe peri-implantitis. [4]

Devices Available

The unit pictured above combines piezo power-driven technology and subgingival air powder polishing with glycine powder.

There is also a convenient hand-held option with interchangeable nozzles.

Steps for Use

•Gently insert the nozzle directly into the sulcus. Reach the base of the pocket and withdraw 1mm
•Use with HVE to minimize the spread of aerosols
•Use the foot pedal to activate the polisher and spend 5 second on each surface making a circular motion with the tip
•Do not move the tip horizontally, only vertically

Safety of Use

Advantages:

- Glycine powder air-polishing caused less gingival erosion than both hand instrumentation and sodium bicarbonate air polishing. [1]
- Glycine-based powder is being promoted as less abrasive than bicarbonate-based powder. [5]
- The glycine-based powder produced the least amount of root damage. [6]
- This device facilitates less hand fatigue on the operator and greater time efficiency than rubber tip polishing. [1]
- Safe to use on implants and other hardware
- Most effective in pockets deeper than 4mm

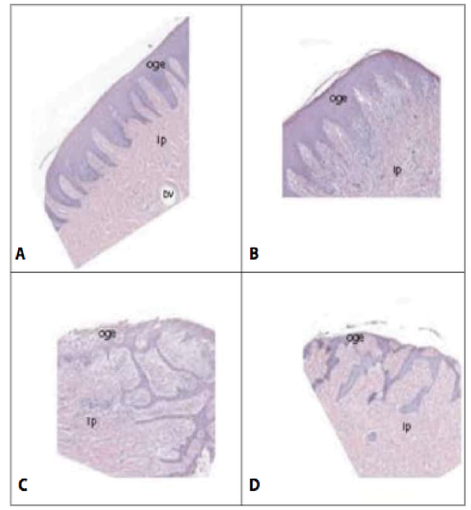
Disadvantages:

- Clinicians need to be trained in order to use this.
- Not for use in an area with less than 3mm of bone support
- One-time use in each pocket to prevent tissue/tooth damage
- ⇧ Cost = ⇧Production

Discussion

Light micrographs of biopsied oral epithelium

(A) Gingival epithelium with no mechanical debridement.
(B) Gingival epithelium immediately following glycine air polishing.
(C) Gingival epithelium immediately following sodium bicarbonate air polishing.
(D) Gingival epithelium immediately following hand instrumentation.



Glycine air-powder polishing biopsies displayed an intact epithelial layer and resulted in the least amount of gingival erosion compared to other methods of debridement.

References

1. Flemmig TF, Arushanov D, Daubert D, Rothen M, Mueller G, Lerouz BG. Randomized controlled trial assessing efficacy and safety of glycine powder air polishing in moderate-to-deep periodontal pockets. J Periodontol. 2012; 83(4):444-452.
2. Wennstrom JL, Dahlen G, Ramberg P. Subgingival debridement of periodontal pockets by air polishing in comparison with ultrasonic instrumentation during maintenance therapy. J Clin Periodontol. 2011; 38(9):820-827.
3. Muthukuru M, Zainvi A, Esplugues EO, Flemmig TF. Non-surgical therapy for the management of peri-implantitis: a systematic review. Clin Oral Implants Res. 2012; 23(suppl)6:77-83
4. Renvert S, Lindahl C, Roos-Jansaker AM, Persson GR. Treatment of peri-implantitis using an Er:YAG laser or an air-abrasive device: a randomized clinical trial. J Clin Periodontol. 2011; 38:65-73.
5. Frankenberger R, Lohbauer U, Tay FR, Taschner M, Nikolaenko SA.,J Adhes Dent., The effect of different air-polishing powders on dentin bonding, 2007 Aug; Dental Clinic 1, Operative Dentistry and Periodontology, University of Erlangen-Nuremberg, Erlangen, Germany, 9(4):381-9,
6. Pelka M, Trautmann S, Petschelt A, Lohbauer U. Influence of air-polishing devices and abrasives on root dentin – an in vitro confocal laser scanning microscope study. Quintessence Int. 2010 Jul-Aug; 41 (7): 3 141-8.
7. Davis, K. (2013). Biofilm Removal With Air Polishing & Subgingival Air Polishing. PennWell Publications, 1-11. Retrieved March 6, 2018, from https://www.dentalacademyofce.com/courses/2507/PDF/1309cei_davis_web.pdf.