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The Use of a New Minimally Invasive Protocol (MINST-PH) to Reduce the Need for Periodontal Surgery in Step 3

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Introduction

Non-surgical periodontal therapy is the gold standard for the initial management of periodontitis. Recently, minimally invasive techniques (MINST) have gained interest to preserve periodontal tissues and optimize healing. Within this framework, we developed a new protocol, MINST-PH, combining mechanical decontamination with adjunctive chemical and biological agents to enhance clinical outcomes.

Materials and Methods

Three non-smoking, ASA I patients diagnosed with periodontitis stages II to IV, grade B or C, were treated. The MINST-PH protocol included: Scaling and root planing with manual curettes and corundum-coated piezoelectric tips (ESACROM®); application of PERISOLV® (stabilized sodium hypochlorite and amino acids) for 60 seconds; saline irrigation; second SRP cycle and re-application of PERISOLV®; final mechanical decontamination and application of cross-linked hyaluronic acid (REGEDENT®). Patients received no NSAIDs, antibiotics, or chlorhexidine rinses post-operatively

Re-evaluation was conducted at 4 months. The study was conducted in accordance with the Helsinki Declaration; no Ethics Committee approval was required due to its observational nature.

Results

A total of three patients were included in this preliminary study, accounting for 41 teeth and 62 sites presenting an initial probing pocket depth (PPD) of ≥4 mm with positive bleeding on probing (BOP). Following treatment with the MINST-PH protocol, a pocket closure (PPD <4 mm) was achieved in 73% of the initially affected sites.

The mean clinical attachment level (CAL) gain observed was 2.76 mm, corresponding to a 59% improvement compared to baseline measurements. Additionally, the mean probing pocket depth (PPD) decreased significantly, from an initial average of 5.1 mm to 2.6 mm at the 4-month re-evaluation, representing a 49%.

Finally, a marked reduction in bleeding on probing (BOP) was achieved, decreasing from 100% of sites at baseline to just 23% after therapy reduction.

TAB 1; Pocket Depth Distribution Before and After Treatment

PPD (mm)	Baseline (n. sites)	4-Month Recall (n. sites)
4 mm + BOP	20	10
5 mm	18	5
6 mm	12	2
7 mm	7	0
8 mm	4	0
9 mm	1	0

TAB 2; Summary of Main Clinical Outcomes

	Basel.	4 m	Dif.	% diff
Sites with PPD ≥4 + BOP	62	17	-45 sites	**73% clos.**
Mean PPD (mm)	5.1	2.6	-2.5 mm	49% redct
Mean CAL (mm)	4.7	1.9	**+2.76**	59% gain
BOP sit	100%	23%	-77%	77% redct

Conclusions

The MINST-PH protocol demonstrated superior outcomes compared to traditional non-surgical periodontal therapies. The combination of mechanical decontamination, chemical disruption, and biological stimulation allowed effective subgingival biofilm removal and promoted enhanced tissue healing, leading to substantial pocket closure and CAL gains.

Fig.1 Final filling of the treated pocket with xHYA after debridment with MINST-PH

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