Periodontic Applications of Microcyn

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Background

Periodontitis, an infectious degenerative disease of bacterial etiology, is the second most important cause of tooth loss in the world, constituting a major public health problem. Current therapeutic modalities include scaling and root planing of the surfaces of the teeth to eliminate bacterial plaque and calculus, and the use of antiseptic solutions to combat the infectious process caused by a wide spectrum of oral micro-organisms. These antiseptics, however, have high toxicity and consequently cannot be used for prolonged periods. In addition, some of the commonly used antiseptics have adverse side effects such as distortion of taste and staining of teeth. Microcyn, a newly available super-oxidized solution for wound care, offers a radically improved approach to treatment of periodontitis. This neutral pH, no-rinse, superoxidized water was certified as an antiseptic for wound care in México in 2004. Animal tests were initially conducted to show that Microcyn does not induce irritation or sensitization in skin and mucosas (Gutiérrez, 2006). The active components of this solution include 99.98% superoxidized water and < 0.02% of various reactive species of chlorine and oxygen including hypochlorous acid, sodium hypochlorite, sodium chloride, ozone, and chlorine dioxide. However, the overall content of free available chlorine is low and ranges between 50 and 80 ppm. This SOW has bactericidal, virucidal, fungicidal and sporocidal activities and it is ready to use with no further dilution or mixing (Landa et.al., 2006). Of note, it does not require special handling or disposal and has an extended shelf life of >12 months.

In view of the limitations of existing oral antiseptics and water for use with ultrasonic scalers, the purpose of this communication is to present initial case studies which reflect our experience using Microcyn instead of water in the ultrasonic scaler (Cavitron). Further, we suggest the type of investigations needed to confirm the apparent striking benefit of this super-oxidized solution for treatment of periodontitis.

Case study

The well-documented case presented here is representative of the 14 patients [ages 22-53 years, 11 female] we treated initially. The patient, a female age 24, presented with a history of frequent gingival bleeding, especially the maxillary gingiva. Initial evaluation revealed the presence of materia alba, bacterial plaque, and calculus, causing a typical case of gingivitis and incipient periodontitis. This patient and the other 13 study subjects were treated, and then examined weekly for 12 weeks.

Figure #1 shows generalized gingivitis in this patient. Figure #2 is a close-up view of inflamed papillae between tooth number 7 and 8, and 8 and 9. Figure #3 shows the presence of materia alba on the patient’s lower anterior teeth. In figure #4 a periodontal probe measures a six
millimeter pocket on the mesial of tooth #7. The following figure, #5, shows radiographically
the existence of a bony defect between the central and lateral incisors. Figure #6 shows a
periodontal measurement of only 3 millimeters on the distal of tooth #9. However on figure #7
we observe the destruction of the bony crests in all of the interproximal spaces. The next three
figures (8, 9 10) show instrumentation with the Cavitron using Microcyn as the irrigating
solution. Figure #11, taken two weeks after treatment, shows a considerable reduction of
inflammation in the patient. In figure #12 a dramatic reduction in inflammation is observed in
comparison with figure #2. Figure # 13 provides an additional example of resolution of
inflammation two weeks post treatment. Importantly, figure #14 shows, on the mesial of tooth
#7, a reduction of the pocket to a depth of 3 millimeters. The following figure, #15, shows the
absence of inflammation in the lower anterior gingiva. The final figure, #16, indicates
regeneration of the bony crest between teeth # 7and #8.

Results
The other 13 patients in the study had comparable degrees of gingivitis and were treated with the
Cavitron and Microcyn. All the patients were instructed in proper brushing technique and in the
use of dental floss. In all of the cases we recommended the use of Microcyn mouthwash for two
minutes, three times per day, preferably after meals. In none of the patients were adverse signs
or symptoms observed in the use Microcyn as an irrigating solution or as a mouthwash. To our
surprise, the period of resolution of the gingivitis was only two to four weeks. Bleeding upon
brushing resolved in all patients within 24 hours to 4 days. Unexpectedly, in all patients two
weeks post-treatment we observed radiographic evidence of bone regeneration similar to the
described case. None of the patients received antibiotics or other medications.

Discussions and Conclusions
Prior to this study our standard treatment with similar patients was the use of an ultrasonic scaler
with water, brushing and flossing instructions, and twice daily rinsing with chlorhexidine
solution for 15 days. An important stimulus for undertaking this study was our longstanding
concern about the use of chlorhexidine and its limitations. Based on our observations, we
believe that Microcyn may offer several advantages over chlorhexidine and other common
antiseptic solutions. We also believe the use of Microcyn both as an irrigating solution in the
Cavitron and as a mouth rinse provides added benefits for the patient.

Recognizing the limitations of this preliminary descriptive report, we hope to stimulate
investigators to undertake rigorous controlled studies using Microcyn in the treatment of
gingivitis and periodontitis. These studies should include objective measures such as pocket
depth, bleeding on probing, and standardized radiographs to document degree of bone
regeneration. We believe such studies have a high probability of confirming and expanding
initial observations.
Figures:

Figure 1

Figure 2
Figure 9

Figure 10
Figure 13

Figure 14