

**A CASE REPORT**

**TREATING LOCALIZED REFRACTORY  
IDIOPATHIC GINGIVITIS WITH SUPEROXOL**

STEPHEN J. MERAW, D.D.S.; CHARLES M. REEVE, D.D.S.

**A B S T R A C T**

**The authors describe a case of localized refractory idiopathic gingivitis in a 29-year-old patient that was successfully treated with hydrogen peroxide (Superoxol, Sultan Chemists, Inc.). The gingivitis was refractory to previous oral hygiene measures and was persistent in the face of meticulous oral hygiene. This case illustrates a successful treatment measure for an uncommon clinical challenge.**

**T**he treatment of gingival inflammation with locally applied oxygen dates back to 1913.<sup>1</sup> Since that time, various methods have been tried, including the use of 30 percent hydrogen peroxide (Superoxol, Sultan Chemists, Inc.) by Orban as long ago as 1942.<sup>2</sup> Although this method of treatment might seem outdated today, when bacterially elicited inflammation logically seems to warrant treatment aimed at controlling the microbial offenders, there exist rare cases in which the etiology might not be as clear-cut—cases wherein

- antimicrobial measures have been unsuccessful;
- no contributory underlying factors can be identified;
- no contributory systemic involvement can be established.

Furthermore, to complicate matters, the gingival inflammation may be localized without apparent reason. This set of circumstances may be a good indication for use of Superoxol therapy. The following is a report of successful treatment of such a case.

**CASE REPORT**

A 29-year-old female patient visited the periodontics division of the Mayo Clinic Department of Dental Specialties with a complaint of persistent gingival inflammation localized to the labial marginal gingiva of tooth no. 27, which bled easily on brushing or other contact (Figure 1). The patient was referred by her general dentist, who had been treating the lesion without improvement over the previous three months, from its inception. Dental prophylaxis had been performed every three to four weeks in this area, and oral hygiene instructions to maintain meticulous oral hygiene had been reinforced.

When she arrived at the clinic, the patient had excellent oral hygiene, no trace of plaque in this area and no other precipitating factors such as rough restorations, marginal overhangs or sources of trauma. She had no loss of attachment in this area, with periodontal probings revealing depths of less than or equal to three millimeters, and spontaneous bleeding upon probing. Radiographic examination revealed nothing remarkable; neither did her medical history, which indicated no history of systemic illness. The patient was taking no medications except an oral contraceptive. Her blood chemistries and profile were



**Figure 1. Initial presentation of case of localized refractory idiopathic gingivitis. The localized inflammation was confined to the labial gingiva of tooth no. 27.**



**Figure 2. Hydrogen peroxide application. Note the bubbling effect around the inflamed tissue.**

within normal limits. The patient did not smoke. No contributory factors could be identified, and the remaining periodontium was healthy. She had a stable Class I occlusion and no evidence of traumatic occlusion. The only other clue that the patient could offer was a history of an aphthous ulcer on the adjacent labial mucosa several weeks before the inflammation arose. The periodontist made a

working diagnosis of localized refractory idiopathic gingivitis.

As no clear underlying cause was identified for this localized gingivitis, and bacterial reduction measures had not resolved this lesion, the periodontist recommended the use of Superoxol therapy. The patient desired treatment and expressed concerns about esthetics in this area, as well as about frequent bleeding with oral hygiene mea-

asures or other types of contact with this area. She accepted the recommendation and sought treatment immediately.

The periodontist applied 30 percent Superoxol to the area (Figure 2) with a saturated cotton pellet, using direct gentle swabbing, for 30 seconds; then he rinsed the area with water for another 30 seconds and asked the patient to expectorate. This treatment was repeated on days one, two, six, 10, 15 and 23. Treatment was concluded on day 23 owing to the complete resolu-

*The use of hydrogen peroxide should be restricted to localized refractory cases.*

tion of the inflammation (Figure 3). Incremental improvement was noted throughout each successive treatment. No recession occurred, and the gingiva appeared firm, pink and healthy. The patient was happy with the esthetic result. Follow-up visits proved uneventful, with no recurrence of inflammation.

#### DISCUSSION

Superoxol is a 30 percent acidic (pH of approximately 2.6) solution of hydrogen peroxide. According to Orban,<sup>3</sup> the effect of the topical Superoxol is that of an oxidating agent, when the enzyme catalase splits the hydrogen peroxide into water and oxygen. The oxygen penetrates the tissues through the epithelium. A bubbling effect can be seen clinically (Figure 2) as well as histologically within the connective tissue,<sup>3</sup> with possible blanching of the tissue. The oxygen bubbles compress the capillaries, which results in an eventual decrease in local pressure until



**Dr. Meraw** is a resident in periodontics, the Department of Dental Specialties, The Mayo Clinic, 200 First St., S.W., Rochester, Minn. 55905. Address reprint requests to Dr. Meraw.



**Dr. Reeve** is director of graduate periodontics, the Department of Dental Specialties, The Mayo Clinic, Rochester, Minn.

circulation returns to normal.<sup>3</sup>

The use of hydrogen peroxide should be restricted to localized refractory cases such as the one described here. A comprehensive work-up and evaluation are necessary to determine if a clear cause can be identified. Most forms of gingivitis can be successfully treated with plaque reduction methods and proper oral hygiene.<sup>4,7</sup> However, gingival bleeding could be indicative of an underlying systemic illness such as leukemia.<sup>8,9</sup> Likewise, gingival redness could be indicative of another underlying infection such as candidiasis, for example, in an immunocompromised patient.<sup>6</sup> Therefore, a thorough medical history and evaluation will aid in ruling out more serious underlying systemic problems.



**Figure 3.** By day 23, inflammation had been reduced and the tissue's appearance closely resembled that of adjacent gingival margins.

**CONCLUSION**

Although the prevalence of localized refractory idiopathic gingivitis is unknown, it seems to be quite an uncommon finding. The treatment with Superoxol was successful in this case in terms of resolving the gingivitis without an esthetic compromise. However, caution should be taken in terms of case selection to rule out other underlying causes, affording the appropriate treatment for the particular diagnosis. ■

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