

Approach to Dentin Hypersensitivity: A Case Study

Critical factors for successful management



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Among the most common causes and predisposing factors for dentin hypersensitivity are recession, erosion, diet, and aggressive oral hygiene. This case presents a dental hygienist's preferred method for the management of this common complaint in a patient with good oral hygiene and regular dental care, but with a history of bruxism and erosion.

Case Report

A 43-year-old woman, who has been a regular patient in the practice since 2004, presented at her 6-month appointment with a complaint of dentin hypersensitivity, which had worsened since her last visit. The sensitivity was triggered by cold air and was especially pronounced in the cervical area, involving teeth Nos. 18, 19, 20, 21, 28, 29, 30, and 31.

Patient History

The patient's home care included twice-daily brushing with an electric toothbrush, daily flossing, and occasional use of a fluoride-containing rinse. She reported intermittent use of an anti-sensitivity toothpaste for occasional sensitivity, which she had first experienced 5 years previously during her last pregnancy when she also experienced severe nausea and vomiting that resolved only after delivery.

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Patient Examination

The patient's oral examination revealed little evidence of oral disease, with good periodontal health, probing depths of 1 mm to 3 mm, and some areas of early recession (1 mm to 2 mm). Evidence of bruxism included some minor wear facets on the occlusal and incisal surfaces as well as incipient crazing and superficial enamel fracture lines on several teeth.

During the examination, areas of erosion and recession were identified—mainly along the cervical areas—involving teeth Nos. 18, 19, 20, 21, 28, 29, 30, and 31 (Figure 1). Some very early white spot lesions were identified labially on teeth Nos. 28 and 29 (Figure 2).

Clinical photographs taken for patient education purposes reflect these findings, showing good gingival health frequently associated with very minor recession, some exposed dentin, and an absence of apparent supragingival plaque. The panograph demonstrated the overall good oral health status, with a minimal past caries experience and generally good periodontal support.

FIGURE 1—The patient's sensitivity was triggered by cold air and was especially pronounced in the cervical areas.



FIGURE 2—Mild gingival recession and early-stage erosion, as well as bruxism and early caries, were identified on teeth Nos. 28 and 29.



Images courtesy of Huffman.

Diagnosis and Treatment Plan

The diagnosis included generalized dentin hypersensitivity associated with mild gingival recession and early-stage erosion, as well as bruxism and early caries on teeth Nos. 28 and 29.

The treatment plan called for a custom-made splint to manage the bruxism, and application of an in-office desensitizing agent. The desensitizing treatment of choice was an agent that would instantly occlude any patent tubules and provide instantaneous relief to the patient. Therefore 8% arginine-calcium carbonate paste (Colgate Sensitive Pro-Relief® Desensitizing Paste), was applied in accordance with the manufacturer's instructions. A rotary cup was loaded with the paste and applied at slow speed, taking care to apply the paste thoroughly to all exposed dentin.

For ongoing support at home, the patient was provided with a prescription and instructions for a 1.1% sodium fluoride, 5% potassium nitrate toothpaste (Colgate® PreviDent® 5000 Sensitive) in place of her regular toothpaste for twice-daily brushing. PreviDent® 5000 Sensitive was chosen due to its potassium nitrate desensitizer, very low abrasivity, and high fluoride content to reduce further risk of demineralization.

The patient declined the custom-fitted splint and instead elected to investigate the usefulness of an over-the-counter boil-and-form mouthguard. She was advised to return in 12 weeks for a follow-up visit.

Follow-up Findings and Treatment

Due to complaints of generalized “achy-teeth,” cold sensitivity associated with tooth No. 30 (Figure 3), and intermittent throbbing associated with No. 22 (Figure 4), the patient returned after 8 weeks. On examination, tooth No. 30 exhibited approximately 4 mm of attachment loss, and the exposed dentin was sensitive to gentle probing. A flowable composite was placed to protect and insulate the exposed dentin surface. The generalized “achy-teeth” symptom was considered to be a result of the ill-fitting over-the-counter mouthguard. A mandibular arch impression was taken for construction of the originally planned custom-fit occlusal splint. The splint was delivered with instructions that it be worn each night. The patient was referred for an endodontic evaluation of tooth No. 22.

At the scheduled 12-week follow-up visit, the patient reported having continually used the high-fluoride potassium nitrate PreviDent® 5000 Sensitive paste and had experienced no further sensitivity since the previous visit. Tooth No. 22 was evaluated by the endodontist, but because the throbbing had

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subsided after the fitting of the splint and the tooth vitality tests were positive, no further treatment was necessary. The patient was advised to return to her regular fluoride toothpaste and discontinue the PreviDent® 5000 Sensitive. However, she was warned that sensitivity could return, and if that occurred, she should switch to a potassium-nitrate-based desensitizing toothpaste such as Colgate Sensitive Pro-Relief®.

FIGURE 3—Tooth No. 30 exhibited approximately 4 mm of attachment loss, and the exposed dentin was sensitive to gentle probing.



FIGURE 4—Intermittent throbbing associated with No. 22 subsided with the use of a custom-fit occlusal splint.



Images courtesy of Huffman.

Conclusion

The application of the Colgate Sensitive Pro-Relief® Desensitizing Paste brought about immediate relief of the patient's chief complaint. The change of toothpaste to a high fluoride (1.1% NaF) prescription strength formulation that also contained 5% potassium nitrate addressed the early caries and any ongoing risk of acid erosion, as well as providing ongoing relief of hypersensitivity if it were to return, providing a level of assurance for both the patient and the dental team.

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