

How to Deal with Cervical Tooth Sensitivity (Review)



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Abstract

The objective of this review is to inform practitioners about dentin hypersensitivity (DH); to provide a brief overview of the diagnosis, etiology and clinical management of dentin hypersensitivity and to discuss technical approaches to relieve sensitivity. This clinical information is described in the context of the underlying biology. The author used PUBMED to find relevant English-language literature published in the period 2000 to 2015. The author used combinations of the search terms "dentin*", "tooth", "teeth", "hypersensit*", "desensitiz*". Abstracts and also full text articles to identify studies describing etiology, prevalence, clinical features, controlled clinical trials of treatments and relevant laboratory research on mechanisms of action were used.

Introduction

A common question asked by dentists is how to deal with cervical tooth sensitivity. Practitioners are commonly confronted with patients who complain about cervical sensitivity, but unfortunately, those patients seldom receive adequate relief. The minor discomfort is often considered too minimal to warrant significant time on the dentist's part, and very few practitioners have delegated tooth desensitization to auxiliary personnel [1-3].

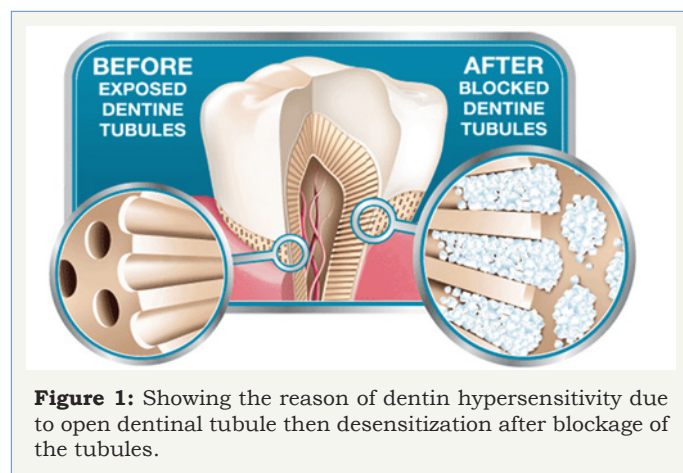
This article explores major causes of cervical tooth sensitivity, describes products and techniques for reduction or elimination of this annoying challenge, and encourages use of dental auxiliaries to provide tooth desensitization procedures.

Major Reasons for Cervical Tooth Sensitivity

Gingival recession

Gingival recession is usually expected as a person ages; however, it might also be caused by traumatic conditions [4,5]. It is impossible to avoid lifelong apical migration of tooth-supporting tissues. As gingiva recedes, cementum surfaces become denuded and dentin is exposed [6-8]. Depending on the patient's age, dentinal canals might be large and wide open, allowing easy access of mouth fluids, food debris and microorganisms, or they might be small and nearly occluded. Occurrence of sensitivity of these surfaces is difficult to predict [9,10]. While some patients complain of sensitivity with only minor gingival recession, others appear to have no sensitivity

with major gingival apical migration and exposed dentin [11-13] (Figure 1).



Certain beverages

Soft drinks and other acidic beverages are consumed in large volumes by many people. It is not uncommon for some people to carry refillable containers in their cars with some form of acidic drink available nearly all of the time. Both sugar-containing and so-called "diet" soft drink beverages have a low pH. Consumption of several 12-ounce containers of soft drinks per day is not uncommon, especially among young adults [13-16]. Tooth demineralization

is unavoidable under these conditions. When patients complain of cervical tooth sensitivity, they should be questioned about excessive consumption of soft drinks, low-pH fruit juices or other similar drinks. If they are consuming low-pH drinks in excess, they should be advised to reduce the amount consumed and to rinse their mouths with water after drinking the low-pH solutions [17-20] (Figure 2).

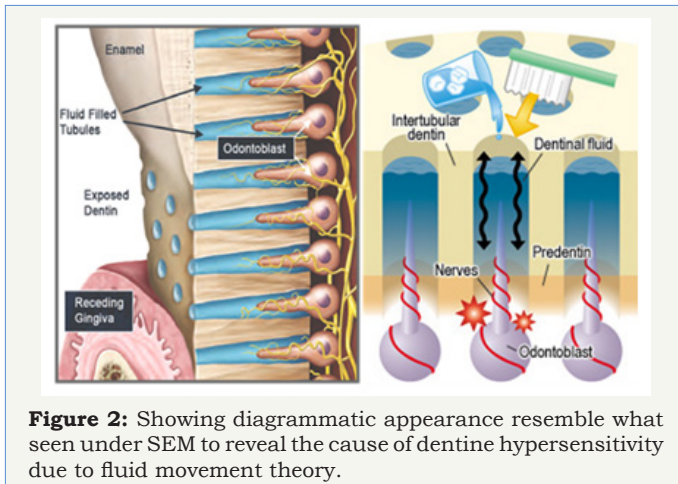


Figure 2: Showing diagrammatic appearance resemble what seen under SEM to reveal the cause of dentine hypersensitivity due to fluid movement theory.

Bulimia

Bulimia is a common malady in which thousands of people, mainly girls and women, attempt to reduce or control their weight by vomiting, sometimes several times per day. Tooth enamel is dissolved very rapidly by the resultant constant low-pH oral condition. Bulimics can have severe tooth sensitivity to the degree that even the slight temperature change caused by alginate impressions is intolerable. If bulimia is suspected, as evidenced by significant enamel destruction on the lingual surfaces of upper anterior and upper molar teeth, psychological treatment of patients should be sought immediately. Lack of treatment for bulimic patients often results in dire physical conditions and even death [21-23].

Sugar

Sugar-containing objects in the mouth, such as breath candies, chewing tobacco and gum, are often placed in the same oral location frequently. Their sugar content, combined with oral debris, soon initiates tooth demineralization, sensitivity and caries, especially in Class V areas. People using these products are easily identified, due to localized tooth sensitivity or dental caries, and they should be advised to avoid these destructive practices [24,25].

Pyrophosphates

Tartar-control toothpastes containing pyrophosphates cause cervical tooth sensitivity in a small percentage of people. When cervical sensitivity persists, patients should be advised to avoid all toothpastes for at least two weeks, using only toothbrush and floss for oral hygiene, to see if elimination of pyrophosphate reduces sensitivity. If sensitivity is reduced, toothpastes not containing pyrophosphates should be used by these people [26-29].

Abusive tooth-brushing

Abusive tooth-brushing habits are easily observed. Patients should be advised about the necessity to eliminate abusive tooth-brushing habits as soon as they can be observed by dentists or dental hygienist [30].

Products and Techniques for Reduction or Elimination of Cervical Sensitivity

a) Reduce or remove the offending factors described previously.

It is foolish to initiate clinical techniques to reduce tooth sensitivity if patients can accomplish the desensitization without any therapeutic procedures [31].

b) Place the patient on a regimen of highly fluoridated dentifrices, the most well-known of which is (Colgate Prevident 5000), a specially introduced prescription dentifrice containing 5,000 parts per million fluoride. This toothpaste is also highly effective in preventing dental caries, as it contains five times more fluoride than most over-the-counter toothpastes [32].

c) Have the patient use one or more of the over-the-counter tooth-desensitizing toothpastes. Numerous types are on the market. They contain low concentrations of various chemicals. Unfortunately, these toothpastes are weaker than is desirable, allowing them to be dispensed over the counter without a prescription. As a result, their therapeutic value is less than what is possible. Nevertheless, they give patients something to use, and in combination with reduction of tooth sensitizing habits, they could reduce tooth sensitivity [33,34].

d) Use of conventional dentin bonding agents is the most commonly performed clinical procedure for cervical tooth sensitivity. Clinical techniques for desensitization are simple and can be delegated easily to competent, educated, responsible auxiliaries in accordance with the dentist's diagnosis and treatment plan. A typical technique follows: Anesthetize the affected teeth; place gingival retraction cord to reduce periodontal fluid flow; clean teeth well with flour of pumice slurry; place your most used dentin-bonding agent, as all of these products accomplish essentially the same purpose: obturation and sealing of dentinal canals. (Popular, effective products are Amalgam bond, Parkell; Single Bond, 3M Dental Products Division; Prime & Bond, Dentsply/ Caulk; Optibond, Kerr Corp.; and One-Step, Bisco.) Limit the placement of these materials to the tooth areas that were sensitive to explorer touch. Do not "pool" the bonding agents. If bonding resins are pooled, patients can pull them off when flossing, and they feel rough to the tongue. Place only thin coats in multiple applications [35-37].

e) Use of iontophoresis is an effective desensitization procedure that should be employed more often. Typical desensitizing iontophoresis devices are the Desensitron by Parkell and the Iontophoresis Instrument by Hampton



Research. These instruments allow delivery of provided fluoride into dentin tooth surfaces by the electrical phenomenon of iontophoresis [38-41].

Desensitization by iontophoresis can be accomplished in place of other procedures, or the technique can be used before the placement of a bonding agent [42,43]. The most effective procedure for eliminating cervical tooth sensitivity is iontophoresis followed by placement of bonding agent. All desensitization procedures described in this article can be accomplished easily by dental auxiliaries. Desensitization is a technique well-accepted by patients [44-46].

Desensitization of teeth is one of many procedures that can be delegated to auxiliary personnel successfully, stimulating them to further professional achievement and satisfaction with their clinical activities [47].

Conclusion

One of the most perplexing minor tooth maladies is cervical tooth sensitivity. After personal habits that encourage tooth sensitivity are reduced or eliminated, numerous clinical procedures can be used to control remaining tooth sensitivity well.

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