

## Dentinal Hypersensitivity

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**Abstract:** Dentin sensitivity can cause considerable pain for patients. This condition is frequently encountered by periodontists and endodontists. The management of this condition requires a good understanding of the complexity of the problem, as well as the variety of treatments available<sup>1</sup>. This review considers the etiology, mechanism and management of dentinal hypersensitivity.

**Key words:** Dentinal hypersensitivity, desensitizing agents, cervical sensitivity.

### I. Introduction

Dentin hypersensitivity is known as dentin sensitivity. It is a transient tooth pain caused by exogenous stimuli. It is a pain arising from exposed dentine in response to stimuli, typically thermal, tactile, osmotic or chemical to any other form of dental defect or disease<sup>3</sup>. For dentine hypersensitivity to occur the lesion must first be localised on the tooth surface and then initiated to exposed dentine tubules. Use of desensitizing dentifrice and tooth brushing habits will improve further damage in the dentine<sup>4</sup>. Dentifrice incorporating potassium nitrite, strontium chloride and dibasic sodium citrate have been clinically determined to be effective desensitizers.

#### Mechanism:

The Hydrodynamic theory is accepted as the cause of dentine hypersensitivity causes the increase outflow of fluid in the tubules. The increase inflow causes a pressure change across the dentine, which activates dental nerves at the pulp, dentine border or within the dentinal tubules. This occurs via mechanoreceptor response that distorts the pulp nerves.

#### Etiology:

The tissue loss and exposure of dentinal tubules due to the loss of tooth substance especially enamel and dentin. The next factor is due to the opening of the dentinal tubules due to acid, dental plaque, bruxism, diet, and gastric reflex. Abrasive agents from the tooth paste and due to vital bleaching. Stimulation of the dentin hypersensitivity is due to temperature changes, overzealous tooth brushing or flossing, and also poor oral hygiene.



Cervical Erosion

Tooth brush Erosion

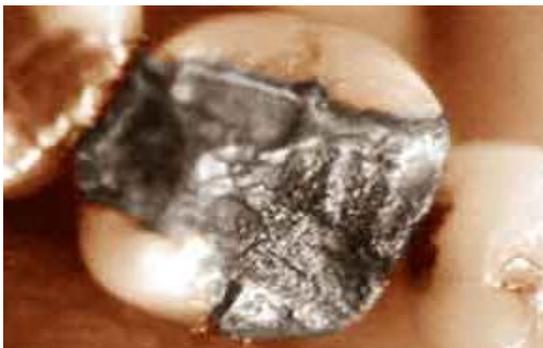


**Attrition**

**Management:**

The management of dentinal hypersensitivity can be graded by their complexity and the treatment options are plugging the dentinal tubules preventing fluid flow and desensitizing the nerve. The diagnosis modalities include eliminates the predisposing factors, use of tooth pastes and mouthwashes, application of topical agents treatment with adhesive material or surgery and prevention. Desensitizing toothpaste is recommended the first line of treatment because it is efficacious, non invasive and inexpensive and patients can initiate treatment at home as part of their existing oral hygiene.

The treatment options are nerve desensitizing agents like potassium nitrate and the dentinal tubules sclerosing agents like ions and salts like stannous fluoride, potassium oxalate ferrous oxide and strontium chloride.



**Faulty amalgam filling**



**Fractured filling**

Desensitizing tooth paste is generally designed to reduce fluid flow in dentin tubules or block the nerve response in the pulp. It interrupts neural activation and pain transmission with potassium nitrate or potassium chloride. Strontium chloride and stannous fluoride reduce the fluid flow by occluding the tubules. Most of the dentin hypersensitivity patients can be treated by the non invasive technique with the consideration for convenience and cost effectiveness, The desensitizing tooth paste application should be used correctly, twice daily brushing and maintains the barrier ,and prevents pain form coming back.

The need of continued treatment to combat chronic cases of hypersensitivity cannot be over slated. The pain will recur if the patients discontinue the treatment and switch over to the regular tooth paste. In this case patient should be approached by the long term treatment.

**Prevention Of Dentine Hypersensitivity:**

This includes dietary counseling, oral hygiene instructions, and habits. Avoid gingival recession due to poor plaque removal by practicing good oral hygiene techniques. Avoid using large amount of dentifrice or reapplying more dentifrice during brushing, Avoid over tooth brushing and also excessive pressure during tooth brushing and also avoid brushing immediately after the ingestion acid food or beverages. Avoid using improper floss and tooth picks.

The professionals also induces the hypersensitivity which can be prevented by avoiding over instrumenting the root surface during calculus removal , scaling and root planning, over polishing and exposed roots during stain removal, avoid violating biologic width when placing crowns margins causing subsequent recession, avoid burning gingival tissue during the in-orifice tooth whitening procedures.

**Self-Care Strategies:**

Tooth brushing is a factor in gingival recession, in vitro research evidence suggests that it is the dentifrice rather than the toothbrush that abrades the enamel or dentin and leads to hypersensitivity. Use of a standard fluoridated dentifrice can cause abrasive particles to be deposited at dentinal tubule openings and encourage their closure. In vitro study shows that the abrasive agent in desensitizing dentifrice can occlude dentinal tubules and remain resistant to removal. Repeated daily applications of desensitizing dentifrice or concentrated fluoride product into the sensitive area with burnishing repeated daily applications causes more damage to the dentin.

**Summary:**

Many treatment strategies are available for the management of dentin hypersensitivity. The aetiological factors need to be modified. Desensitising tooth pastes are most commonly used and would appear to provide clinically and statistically significant improvements.

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