Diagnosis and management of dentine hypersensitivity

Dr David G. Gillam
UK

The aim of this review is to update dental professionals on this troublesome clinical condition that is not fully appreciated by many dental practitioners and as such is often under-diagnosed in dental practice.

Diagnosis and differential diagnosis

Before considering a treatment strategy for the management of the condition, it is important to note from the published literature that there are a number of individuals who may be at risk from dentine hypersensitivity (DH), for example overenthusiastic brushers, periodontally treated patients, bullimics, people with xerostomia, high-acid food/drink consumers, older people exhibiting gingival recession, and people who chew 'smokeless' or 'snuff' tobacco.

History-taking, oral examination and diagnosis

One of the difficulties facing the dental professional when confronted with a patient complaining of tooth pain is that there are a number of clinical conditions that may elicit the same clinical symptoms as DH, and they have to be eliminated before a correct diagnosis of DH can be made. It is also important to acknowledge that patients who have been suffering from various types of orofacial pain in the form of toothache or tooth sensitivity may suffer various physical or emotional symptoms that can be very upsetting and disturbing to them. For example, they may experience a feeling of despair or helplessness, and frustration of not being able to cope and relying on a dental professional to resolve their problem. This in turn may make recording a satisfactory history of the condition difficult and the dental professional will need all his or her skills in obtaining the correct diagnosis, which will lead to a successful conclusion in his or her treatment strategy. In a busy dental practice, this may take time and the dental professional needs to be a good listener, sympathetic and patient in order to elicit the necessary information from the patient. However, it is important to remember that no irreversible treatment procedure should be performed until a definite diagnosis is made; in other words, no diagnosis, no treatment.

No doubt dental professionals may remember various acronyms from Dental School such as ‘LOCATE’ and ‘SOCRATES’ in order to aid them in obtaining sufficient information about the character, site, onset, duration, periodicity and severity of the problem that the patient may have when they come to see the dental professional (the reason for attending). Further questions as to what makes the problem better or worse, as well as asking the patient to describe the pain he or she is experiencing may yield useful descriptors such as in the McGill Pain Questionnaire (and may also be useful) may give the dental professional more information to aid his or her search for the correct diagnosis. A useful question in relation to the severity of the pain is asking the patient to estimate his or her pain on a 0 to 10 visual analogue scale (no pain to very severe pain) or simply relate it as a 0 to 10 numerical score. It is important for the dental professional to conduct this part of the diagnostic process in a systematic manner. Once the history-taking has been completed the patient should be examined, in order to diagnose the presenting problem that patient may have. This will include all extra-oral and intra-oral tissues (including palpation) in a thorough and systematic manner. Various investigational aids, such as radiographs and vitality tests, relevant to the oral examination may be taken and these should be able to confirm the clinical diagnosis based on a thorough history, identification of localised areas of exposed buccal or facial aspects of dentine may be investigated by using an explorer probe and gently drawing it across the dentine surface. This procedure may elicit a response from the patient, although it is generally accepted that a blast of cold air from a dental air syringe is more likely to record a response from the patient if his or her problem is due to DH. A practical tip the dental professional can use in the diagnostic process is to apply a varnish such as Duraphat on the affected area and then retest using a cold air blast. If the patient’s response indicates a reduction in his or her discomfort this may indicate that the problem is due to DH. However it should not exclude the dental professional from identifying and relieving any aetiological and predisposing factors in his or her management strategy.

It is important to note that diagnosis may not be simple, as there are a number of conditions that may cause similar symptoms, of which the dental professional needs to be aware. These may include conditions such as cracked tooth syndrome, dental caries, reversible and irreversible pulpitis, fractured teeth or restorations, post-operative sensitivility (from restorative, periodontal and bleaching procedures) and atypical facial pain (see also Table 1, page 12). These may well require a prolonged clinical examination using various diagnostic tests (such as vitality pulp tester, ethyl chloride, ice stick; percussion; and radiographs). A useful tip in diagnosing cracked tooth syndrome, for example, is the use of a diagnostic local infiltration or inferior dental block or the use of a tooth学生的. The importance of the definition as suggested by Ardiy et al.1 and evident from the Canadian consensus document2 is that it provides a very useful clinical description of the condition and suggests the need to exclude other forms of tooth pain or sensitivity.

Counselling and prevention

This aspect of the diagnostic and management process is...
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DH by providing a toothpaste, often forgotten. It is not accept-
able practice to simply treat often forgotten. It is not accept-

Table 1: Differential diagnosis of dental pain (adapted from Aghabeigi4).

<table>
<thead>
<tr>
<th>Aetiology</th>
<th>Pain character and timing</th>
<th>Pain intensity</th>
<th>Provoking factors</th>
<th>Believing factors</th>
<th>Associated features</th>
</tr>
</thead>
</table>
| Dentine hypersensitivity      | Sharp, stabbing,          | Mild to moderate| Thermal, evapo-
|                               | stimulation evoked        |                | rate, evaporative, tactile, chemical, osmotic | Removal of the stimulus | Attrition, erosion, abrasion, attrition |
| Reversible pulpitis           | Sharp, stimulation evoked | Mild to moderate| Hot, cold, sweet  | Removal of the stimulus | Caries, restora-
|                               |                           |                |                   |                   | tions                  |
| Irreversible pulpitis         | Sharp, throbbing,         | Severe         |                   |                   |                   |
|                               | intermittent/continuous   |                |                   |                   |                   |
| Cracked tooth syndrome        | Sharp, intermittent       | Moderate to severe| Biting, 'rebound pain' |                   | Trauma, para-func-
|                               |                           |                |                   |                   | tion                   |
| Peri-apical periodontisitics  | Deep, continuous boring   | Moderate to severe| Biting            | Removal of trauma | Peri-apical redness, swelling, mobility |
| Lateral periodontal abscesses | Deep, continuous aching   | Moderate to severe| Biting            | Deep pockets redness and swelling |
| Peri-coronitis                | Continuous                | Moderate to severe| Biting            | Removal of trauma | Fever, malaise, imprint of upper tooth |
| Dry socket (acute alveolar ostitis) | Continuous              | 4–5 days post-extraction| Biting            | Irrigation        | Loss of clot, exposed bone |

Management of dentine hypersensitivity

It is important that the dental professional not simply rely on previous success strategies but address the specific aetiological and predisposing factors relevant to the patient. The choice and suitability of a particular treatment procedure or product should be based on a sound understanding of evidence-based dentistry rather than on product literature alone. A problem in evaluating results from the various studies in the published literature is that there is a very strong placebo effect when assessing patients with pain in the form of DH. As emphasised in this article, any treatment strategy (over-the-counter [OTC] or in-office) in a patient suffering from DH should be based on a current diagnosis and management by the dental professional who should be aware of other clinical conditions that are similar in their presenting features.1

Management should be based on the severity of the condition. For example, for isolated problems, therapy is largely professionally delivered in the form of in-office treatment using adhesives, resins, cervical restorations (glass-ionomer cements) and varnishes that may provide effective treatment of DH over time.
“Most people are worried it is often something worse.”

Dr Nick Rote. East Finchley, UK

1 in 3 people suffer from dentine hypersensitivity and over 50% of sufferers don’t mention it to their dental professional. Research shows that this may be because they fear it requires major dental work, the pain may be variable so they don’t report it or because they may be using techniques to try and avoid the pain.

These findings highlight the important role that dental professionals play in actively diagnosing dentine hypersensitivity.

Recommending daily brushing with Sensodyne is a simple, effective solution which is clinically proven to reduce the symptoms of dentine hypersensitivity.

“When they come back to see me next time, they’re very pleased that the solution was given to them so easily.”


2. Canadian Advisory Board on Dentin Hypersensitivity, Consensus-Based Recommendations for the Diagnosis and Management of Dentin Hypersensitivity. J Can Dent Assoc 2003; 69(4): 221 - 226

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The importance of implementing preventative and management strategies in identifying and eliminating predisposing factors in particularly erosive factors (such as dietary acids) cannot be ignored...