CLINICAL ORAL SCIENCE AND DENTISTRY

CLINICAL STUDY ISSN 2688-7428 Open Access

Diagnosis and Management of a Patient who Complained of Pain to Cold Following a Recent Visit to a Dental Practice: A Clinical Scenario

[1]Manraj Singh K Kalsi and David G Gillam[2*]

[1]Oral Immunobiology, Barts and the London School of Medicine and Dentistry, Queen Mary University, London, UK.

[2*]Oral Bioengineering, Barts and The London School of Medicine & Dentistry, Queen Mary University, London, UK

Received date: February 04, 2023, **Accepted date:** February 15, 2023, **Published date:** February 22, 2023.

***Corresponding Author:** Dr. David G Gillam, Oral Bioengineering, Barts and The London School of Medicine & Dentistry, Queen Mary University, London, UK.

Abstract

The scenario in this paper discusses the diagnosis and management of a patient who complained of pain to cold following a recent visit to a dental practice. The symptoms were localised to one-two teeth in the lower jaw (mandible). On examination, the teeth in question exhibited gingival recession on the buccal (facial) aspects with no obvious signs of dental caries. The gingival tissues were healthy with no periodontal pocketing and the teeth in question were not mobile. Following the application of cold air from a dental triple syringe on to the exposed dentine surface, the patient indicated that they had experienced some discomfort which was sharp but eased somewhat once the air blast was removed. When asked to rate the level of discomfort, the patient indicated that it scored 5 on a visual analogue scale (VAS). The question that will be addressed in this paper is what steps the clinician should take in successfully diagnosis the problem and resolving the patient's complaint.

Keywords: Dentine Hypersensitivity, Post-operative, Clinical Management Strategies, Desensitizing products

Introduction

The key to successful diagnosis and successful management of dental pain is to 1) recording a good medical, dental and social history from the patient and 2) a through, well conducted clinical examination (including special tests and investigations such as radiology, pulp vitality testing etc). It is also important to record what the patient is describing, the intensity, level and duration of the pain in question and whether it impacts of the quality of life (QoL). A helpful aid to assessing pain, is the SOCRATES mnemonic (Site (S), Onset (O), Character (C), Radiates (R), associated symptoms (A), Time (T), Exacerbating/relieving factors (E) and Severity (S)) which can be used to identify the type of pain, site, whether localised or generalised, the onset, duration, periodicity and severity of pain and stimuli that exacerbate or relieve the pain [1]. The diagnosis of dental pain can be extremely difficult to resolve, and it is therefore essential to obtain all the relevant information when reaching a clinical diagnosis leading to successful management of the patient's pain [2-3]. In this regard there will be two types of patients that will attend a dental practice: 1) the patient who regularly attends the practice and 2) the occasional or infrequent patient who will attend when they have a dental emergency. It is important to keep this in mind as it will have an impact on the duration and time spent in reaching a definitive diagnosis and successful management. In the scenario described in this paper the patient attending the dental practice complaining of cold to a localised area, is a patient who is a regular attender at the practice and who recently received some dental treatment.

Diagnosis and Investigative Procedures

When diagnosing dental pain, it is therefore, important to recognise that pain is 1) subjective and both the pain threshold and personal attitudes to pain varies between individuals and cultures, 2) is influenced by previous pain experiences, and 3) affected by the patients' psychological profile, stress levels [1]. Furthermore, the importance of good record keeping, obtaining the relevant information regarding the present complaint, the symptoms involved, the extent and duration of the pain as well as the impact on the patient's quality of life (QoL) is paramount in making a definitive diagnosis [2-4].

In this scenario, the patient reported that following her recent visit to the dentist for a routine scaling and debriding procedure she experienced some discomfort to cold air and when drinking cold drinks. Although the discomfort diminished once the stimulus was removed, the discomfort persisted every time she ate or drank thereby impacting on her QoL. To avoid further episodes, she started eating and drinking on the other side of the mouth as well as modifying her toothbrushing around the affected area. The patient did not experience any discomfort when lying down to sleep at night. She also indicated that prior to the previous visit for treatment, she had no problems with sensitivity to cold stimuli. On examination, the teeth in question exhibited gingival recession on the buccal (facial) aspects with no obvious signs of dental caries (Fig 1). The gingival tissues were healthy with no periodontal pocketing and the teeth in question were not mobile. Following the application of cold air from a dental triple syringe on to the exposed dentine surface, the patient indicated that they had experienced some discomfort which was sharp but eased somewhat once the air blast was removed. When asked to rate the level of discomfort, the patient indicated that it scored 5 on a visual analogue scale (VAS)(Verbal rating/descriptor scales can also be used).

Figure 1: Photograph illustrating the clinical features described in the scenario (Acknowledgement G. Belibasakis)

Although the patient had other areas of exposed dentine, there was no discomfort experienced during the evaluation and the discomfort appeared limited to the mandible (lower jaw). To rule out any other possible causes of discomfort, it would be prudent to refer to any recently taken radiographs (plus any relevant special test [pulp testing]) as well eliminating other possible causes such as: reversible pulpitis, irreversible pulpitis, caries, cracked tooth syndrome, fractured restorations, gingival inflammation, chipped teeth, hypoplastic defects in tooth structure, idiopathic orofacial pain, sinusitis and TMJ disorders [1-3].

Following these explorative procedures, the dentist is able make a definitive diagnosis of Dentine hypersensitivity (DH) following a dental procedure (post operative sensitivity) and is now able to recommend management strategies to reduce or minimize the patient's problem.

Management

The clinician has a range of both in-office (professionally applied) and over the counter (OTC) products, which have been reported to be effective in reducing DH either through their tubular occluding or nerve desensitising properties based on the principle of the Brännström & Anstrom, (1972) hydrodynamic theory [5-6]. Any management strategy should, however, be based on several factors 1) a thorough medical, dental and social history, 2) patient's self-reporting of the problem and any impact on their QoL, 3) the clinical features of individual patients identified during the clinical examination, 4) a definitive diagnosis, 5) a pragmatic treatment plan relevant to the patient's needs including the appropriate remedy (e.g., toothpaste, varnish etc), and 6) compliance and the patient's willingness to change their behaviour.

There have been numerous treatment paradigms recommended in the published literature, for example, 1) the 2003 Canadian guidelines on Dentine sensitivity [7], 2) a simple less invasive stepwise approach [6] and 3) more recent guidelines from the UK Forum guidelines document on DH, which may help clinicians to adopt a simplified management scheme, which could be easier to implement into clinical practice [2-3]

For example, according to Orchardson and Gillam [6] mild generalised discomfort from DH may be managed by 1) Removing any aetiological factors associated with DH, 2) Instituting preventive measures to reduce the impact of acid food and drink and 3) Recommending an OTC toothpaste. If this strategy does not resolve the problem within two weeks following the procedure (e.g., scaling and debriding), or after a reasonable period of monitoring, then the clinician may incorporate a more invasive treatment approach (e.g., restorative measures; glass ionomer cements etc). Alternatively, if the pain associated with DH is of a severe nature limited to one or two teeth, then a restorative approach (supplemented with dietary and oral hygiene advice) should be implemented at the onset (see Table 1).

Reassurance that the condition is transient
Recognition that any predisposing factors should be either modified or removed to minimise or prevent any further events
Re-educate the patient on the causes of the problem and provide the relevant advice on prevention (e.g., modification of lifestyle including dietary advice, modification of a toothbrushing technique)
Recommendation of a relevant OTC or an In-office desensitizing product
Reassessment as part of an ongoing maintenance/monitoring strategy
Re-evaluation if symptoms are ongoing and increasing in severity (Revisit the original diagnosis).

Table 1: Simple steps in managing post-operative pain.

Discussion

In this scenario, the diagnostic process was relatively straight forward as it was evident that the patient's complaint related to her recent dental visit. Post operative pain following dental procedures has been well documented and may be because of periodontal, restorative, and bleaching procedures [8-11]. In most cases, simple reassurance by the dentist may be sufficient, explaining that the discomfort may be transient and will resolve without any further treatment apart from monitoring the situation. Alternatively, the dentist may recommend or apply a varnish for short term relief and supplementing this with the recommended use of a desensitising toothpaste. A stepwise approach to manage DH may also be a useful strategy initially commencing with minimally invasive dentistry, e.g., prevention, remineralisation techniques before moving to more invasive techniques if these initial methods fail to work [6]. Several investigators have reported that the prevalence for DH (root sensitivity) (following non-surgical therapy) was between 62.5% and 90% one day following treatment decreasing to approximately 52.6% to 55% after one week [8-9]. It is therefore apparent from these studies that in most cases the post-operative discomfort is transient in nature (as described in this scenario) and will resolve naturally within two weeks. Nevertheless, it is important for patient comfort that the patient is reassured that her discomfort is transient and should resolve within one-two weeks. This advice may be supplemented by providing preventive advice on modifying her toothbrushing technique and the awareness of the impact of acidic food and drink in the diet, which should be moderated. A fluoride containing varnish or desensitizing paste may be applied in the clinic supplemented by the recommendation of a desensitizing toothpaste. It would also be prudent to rebook the patient within a few weeks for reassessment (depending on the appointment schedule) as well as documenting that the patient experienced post operative sensitivity following

treatment and advising that preventive measures be taken (such as applying desensitizing paste (pre/post treatment).

It should, however, be acknowledged that there is no single desensitising product, over the counter (OTC) or professionally applied capable of resolving all presenting features of DH, and it may require a range of products or resolve a patient's symptoms. Successful management requires correct diagnosis, implementation of prevention strategies that either eliminate DH or limit further deterioration via appropriate treatment choices, dietary advice, and monitoring [1-3]. Clinicians should therefore avoid simply recommending a desensitising toothpaste without considering and discussing the aetiology that predisposed to the problem [12]. According to Gillam & Koyi [1] successful treatment requires the patient to not only understand the management strategy being proposed but also be willing to change their behaviour and comply with the dentist's recommendations.

Results

The successful management of the patient's post operative pain as described in this clinical scenario was based on several factors including a definitive diagnosis based on 1) the medical, dental, and social history and 2) a thorough clinical examination, which enabled the clinician to recommend a management strategy relevant to the patient's condition.

References

1. Gillam, DG. & Koyi, B. Dentin Hypersensitivity in Clinical Practice. JP Medical, India. ISBN: 1909836478 Publication date August 2019 (Editors).

2. Gillam D, Chesters R, Attrill D, Brunton P, Slater M, Strand P, Whelton H, Bartlett D. Dentine hypersensitivity--guidelines for the management of a common oral health problem. Dent Update. 2013 Sep;40(7):514-6, 518-20, 523-4.

3. Gillam DG. A New Perspective on Dentine Hypersensitivity – Guidelines for General Dental Practice. Dent Update. 2017 Jan;44(1):33--6, 39-42.

4. Bekes K, Hirsch C. What is known about the influence of dentine hypersensitivity on oral health-related quality of life? Clin Oral Investig. 2013 Mar;17 Suppl 1:S45-51.

5. Brännström, M. & Aström, A. The hydrodynamics of the dentine; its possible relationship to dentinal pain. Int Dent J. 1972 Jun;22(2):219-27.

6. Orchardson R, Gillam DG. Managing dentin hypersensitivity. J Am Dent Assoc. 2006 Jul;137(7):990-8; quiz 1028-9.

7. Canadian Advisory Board on Dentin Hypersensitivity. Consensus-based recommendations for the diagnosis and management of dentin hypersensitivity. J Can Dent Assoc. 2003 Apr;69(4):221-6. PMID: 12662460.

8. von Troil B, Needleman I, Sanz M. A systematic review of the prevalence of root sensitivity following periodontal therapy. J Clin Periodontol. 2002;29 Suppl 3:173-7; discussion 195-6.

9. Lin YH, Gillam DG. The Prevalence of Root Sensitivity following Periodontal Therapy: A Systematic Review. Int J Dent. 2012;2012:407023. doi: 10.1155/2012/407023. Epub 2012 Oct 31. PMID: 23193405; PMCID: PMC3501835.

10. Krishnakumar K, Tandale A, Mehta V, Khade S, Talreja T, Aidasani G, Arya A. Post-Operative Sensitivity and Color Change Due to In-Office Bleaching With the Prior Use of Different Desensitizing Agents: A Systematic Review. Cureus. 2022 Apr 11;14(4):e24028. doi: 10.7759/cureus.24028. PMID: 35547454; PMCID: PMC9090214

11. Bayne SC. Dental composites/glass ionomers: clinical reports. Adv Dent Res. 1992 Sep;6:65-77. doi: 10.1177/08959374920060011901. PMID: 1292465

12. Gillam, D.G. & Ramseier, C.A. Chapter 10: Advances in Management of the patient with Dentine Hypersensitivity: Motivation and Prevention. In: Gillam, D.G. Ed). Dentine Hypersensitivity: Advances in Diagnosis, Management and Treatment. 2015. Springer International Publishing: Switzerland.