# The perils of "phantom bite syndrome" or "occlusal dysaesthesia"


## Abstract

Occlusal dysaesthesia is a clinical disorder characterised by persistent occlusal discomfort in the absence of obvious occlusal discrepancies. Typically this is associated with significant emotional distress. This condition was first described by Marbach in 1976 as a subgroup of temporomandibular disorder patients, and he coined the phrase 'phantom bite syndrome'. The term occlusal dysaesthesia was introduced in 1997 by Clark *et al.* and currently this is the most widely used term in the literature. In keeping with the psychiatric literature of the time Marbach suggested that these patients had a 'mono-symptomatic hypochondriacal psychosis'.

Recently the psychiatric hypothesis has been challenged and alternative explanations have been proposed. It is postulated that the condition might be an intraoral sensory disorder, which can occur: a) spontaneously; b) in conjunction with an underlying autoimmune disorder; or, c) with trigeminal neuropathic pain. Although our understanding of this condition has improved, it remains a real challenge for clinicians to recognise the symptoms and provide appropriate treatment.

In the absence of controlled studies and agreed diagnostic criteria, the literature is largely based on descriptive reviews. This article describes the clinical characteristics, diagnosis, aetiology and some management strategies for this disorder. Two case studies are provided, which serve to illustrate both the diagnosis and management of this condition. Importantly, clinicians are advised that inadvertently providing further occlusal treatments can intensify the disorder.


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## Introduction

Marbach's original description of this condition as a purely psychiatric disorder has been challenged, but he pointed out correctly that patients obsessively seek adjustment/correction of their occlusion.[1,2] Clark's introduction of the term occlusal dysaesthesia (OD) has been broadly accepted but the term 'phantom bite' is still used in the literature.[3]

Recently, Imhoff and colleagues have described OD as a condition in which "tooth contacts that are not clinically identifiable as premature contacts, nor associated with other disorders (e.g., odontogenic tissues, masticatory muscles, TM joints) have, for more than six months, been perceived as disturbing or unpleasant".[4] The persistent nature of this disorder is a diagnostic feature.

The term "dysaesthesia" implies a sensation that is unpleasant and uncomfortable. The occlusal discomfort experienced by this patient group is intense with a huge overlay of psychological distress. In association with OD, patients may describe other functional disorders (e.g., unexplained back pain, headache, gastric discomfort, etc.). On occasion, OD may be part of the symptom complex seen in patients with recognisable temporomandibular joint disorders. The disorder may be triggered by simple dental procedures, e.g., tooth extraction, restorative treatment or orthodontics, but it may also arise spontaneously.[5] Repeated dental interventions typically fail to resolve the symptoms with a resulting increase in physical/emotional distress. This places a considerable strain on the dentist-patient relationship. A number of studies


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have recognised high levels of associated stress and anxiety. It has been further postulated that this underlying emotional distress might contribute to the initial development of the symptoms. However, there seems to be little dispute about the fact that patients with OD have an unhealthy preoccupation with their symptoms, and a compulsive drive to seek treatment that may alleviate their occlusal discomfort. Patients with OD meet the criteria for "somatic symptom disorder" as defined by the Diagnostic and Statistical Guide to Mental Disorders (DSM-5).[6]

For many patients the desire to seek out new dentists and new therapies is matched by their level of anger at previous treatment failures. The situation may be complicated further if patients engage in litigation, and this course of action becomes increasingly more likely as treatment costs increase.

The clinical challenge is to make the correct diagnosis as early as possible. Current expert opinion suggests that this is a sensory abnormality due to a disorder of signal processing. Realigning teeth or changing occlusal surfaces in any way will not alleviate the symptoms. In fact, repeated interventions with occlusal therapies typically increase symptom intensity. Unfortunately, the intensity of the patient's distress often creates a significant burden for the clinician as well.

Convincing the patient to accept this diagnosis is often a challenge, particularly when they are already convinced that the previous treatment failures were associated with poor technical ability. Clearly some patients are more open to this level of insight than others. Treatment approaches that include patient education and reassurance lead to a more favourable outcome. Referral to a clinic that provides a multidisciplinary approach may offer the best support for patients with this type of occlusal dysaesthesia.

## Current views on pathophysiology

### Psychiatric theory

Studies based on psychological consultations have associated OD symptoms with somatoform disorders.[7] The extent to which this condition has been categorised as a psychiatric disorder has recently been challenged. The high level of emotional distress accompanying this disorder is significant but the degree of comorbidity with anxiety, depression and obsessive compulsive disorders seems to vary from patient to patient. Lower levels of psychological comorbidity seem to offer a more favourable outcome. In this context a favourable result may just be acceptance of the problem rather than total resolution of the symptoms.[5]

### Central sensitivity and alteration of the neuromatrix

Melzack's theory of the neuromatrix is a theoretical construct that suggests that connectivity between the spinal cord and brain produces self-awareness of the whole body.[8] Melzack speculated that the "neurosignature" for all occlusal surfaces could be altered by dental procedures under conditions of intense stress or anxiety. Ultimately this distorts sensations within the oral cavity. Advances in diagnosing OD utilising prefrontal haemodynamic activity (differentiating both control and symptomatic groups) lends greater support to the possibility of changes in brain function as a cause of OD.

### Altered dental proprioception

Clark and Simmons suggested that the kinaesthetic ability of the jaw might be altered in these patients, giving rise to alterations in proprioception.[9] However, recent studies have shown that the discriminative properties of patients with OD and a control group were not significantly different.[10]

## Prevalence of occlusal dysaesthesia

The precise prevalence or incidence of this condition is unknown. However, based on a detailed review of 28 well-documented cases, the mean age of presentation was 51.7 +/- 10.6 years. The gender distribution was 1/5.1 (male/female) and the symptom duration was 6.3 to 7.5 years.[11]

## Making the correct diagnosis

The diagnosis of OD is based on information gleaned from the history and clinical examination. In addition, specific health questionnaires may be used to assess the extent of underlying anxiety and distress.[4] Factors of significance in the history include the:

- description of persistent (more than three months), non-specific occlusal discomfort often using dental jargon;
- use of emotive descriptors (e.g., occlusal difficulties may be described as exhausting, unbearable, draining, depressing, etc.);
- association of symptoms with high levels of functional impairment (cannot sleep properly, unable to work or study, relationships are affected);
- number of previous dentists or specialists attended in relation to this problem; and,
- tendency to blame others for this problem rather than admit they have difficulty coping.

Factors of significance in the clinical examination include:

- absence of clinically significant occlusal discrepancies;
- evidence of previous attempts to resolve the disorder (extensive occlusal changes, endodontics, orthodontics, etc.);
- disproportionate level of concern about their symptoms; and,
- insistence that the clinician reviews previous study models, radiographs, photos, treatment plans, etc.

If minor occlusal irregularities are present it should be borne in mind that these discrepancies are not the cause of the patient's discomfort. Further occlusal therapies ought to be avoided if the patient is to be successfully managed.[4]

The detection of psychological distress may be difficult in a dental setting. Patients may rationalise that their anxiety and distress only arose when the occlusal problems started. Anxiety disorders my impact on other areas such as interpersonal relationships, workplace scenarios, sleep disruption, appetite changes, significant weight gain/loss, reluctance to exercise, increasing use of alcohol, etc. A number of health anxiety questionnaires are available online and are easy to use.

While it is imperative that each patient is provided with a detailed clinical and radiographic assessment to rule out underlying dental disease, it is important that these findings are viewed in the broader context of the history and chief complaints. Some studies have pointed out that patients with OD may pressurise clinicians into providing further occlusal therapies.[6]

## Therapeutic approaches

Patient education and reassurance is fundamental to successful management. The initial challenge lies in getting the patient to accept the diagnosis and to move away from having more dental procedures.[7,12,13] A simple perspective is that the occlusal symptoms are a physical manifestation of underlying emotional distress. Clinical psychologists (despite their lack of dental knowledge) are often much more successful in getting this message across to patients with OD. The multidisciplinary teams available to hospital and specialist clinics will generally have more experience (and probably more

success) in getting the patient to shift their focus on this disorder.

A broader holistic approach that encourages the support, understanding and empathy of close family members is essential if patients are to be successful in accepting the true nature of their disorder. Patients with OD frequently exhibit compulsive tendencies in terms of repeatedly seeking dental treatment and close family members may be helpful in modifying this behaviour. Treatment programmes are based on a self-care model with intermittent support from a variety of professionals.[4]

Cognitive behavioural therapy is considered by most to be helpful but ,as with all psychological approaches, it is entirely dependent on the patient's level of enthusiasm and co-operation.[11] Understandably it is difficult for patients to accept that 'retraining of the brain' is more helpful than readjustment of their occlusion. Likewise, it can be challenging for clinicians to ignore the repeated requests for dental therapies in the early phases of patient management.

As yet, there is very little literature available on treatment outcome.[9] A wide variety of centrally acting medications have been tried but none with notable success.[14]

## Case reports

**Case No. 1**

A 50-year-old female patient attended her general practitioner for a regular review appointment. A simple composite filling was placed on the occlusal surface of the upper right first molar tooth. She developed postoperative occlusal discomfort and sensitivity, which did not settle over time. At the patient's insistence the symptomatic tooth was adjusted on several occasions. Ultimately the tooth had root canal therapy. Unfortunately, the patient did not improve and on review 18 months later, she had widespread and persistent dental discomfort. The patient was adamant that her occlusion was not being adjusted properly.

As time passed her anxiety and frustration grew. She attended several different general practitioners and specialists over a five-year period. Numerous dental procedures were carried out during this time in an effort to achieve a comfortable occlusion.

When the patient was referred to a specialist clinic for a further opinion on the origin of her discomfort, a number of important issues were noted in her psychosocial history. In the previous five years she had experienced difficulties in her marital relationship, which ultimately led to separation. She also acknowledged difficulties in her place of employment where she felt she was bullied by her employer. She was attending a medical consultant for investigation of unexplained gastric pain.

Detailed clinical assessment of the orofacial area was within normal limits. Her panoramic radiograph (**Figure 1**) illustrates the extensive nature of her previous dental treatment. She had a class one occlusion with bilateral even and simultaneous contacts. On completion of the examination the concept of OD was explained to the patient. She initially refuted the suggestion that underlying stress and anxiety might be contributing to her difficulties. However, her sister, who had attended with her, acknowledged that other family members had expressed concern about her level of emotional distress. Eventually the patient agreed to a programme of treatment, which included a commitment to avoid seeking further dental treatment. She also agreed to work with a counsellor on a comprehensive stress management programme. In the following months a gradual improvement in her symptoms was noted. After 12 months the patient was discharged but she committed to attending for periodic recalls for the next two years. At the two-year follow-up the patient reported that her sense of occlusal discomfort was still present but the intensity had eased. She was coping better and she felt she had 'moved on' from the ordeal.

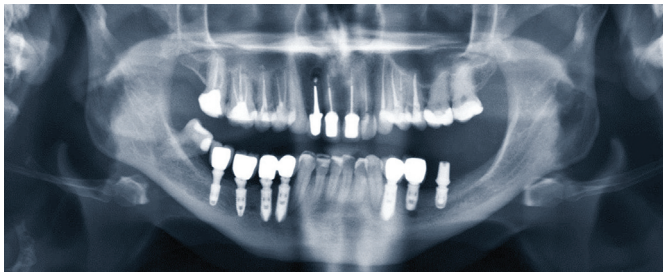

*FIGURE 1: Panoramic radiograph taken when the patient was diagnosed with occlusal dysaesthesia.*

**Case No. 2**

A 63-year-old female patient was referred for assessment of her occlusal discomfort by a prosthodontist. She had undergone a prolonged programme of extensive restorative treatment in both the maxilla and mandible five years previously (**Figures 2**, **2a**, **2b** and **2c**). She was a regular attender at her general dentist and only returned to her specialist when a posterior restoration

*FIGURE 2: Anterior view of the patient's dentition.*

*FIGURE 2a: Upper occlusal view.*

*FIGURE 2b: Lower occlusal view.*

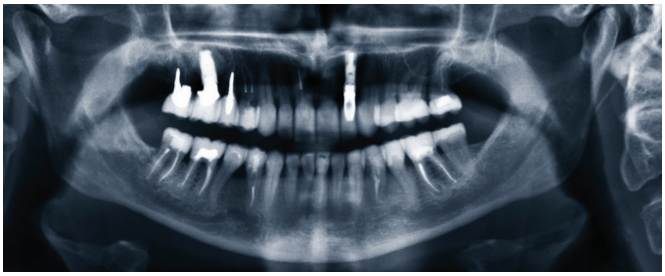

*FIGURE 2c: Panoramic view.*

fractured. The damaged restoration was replaced and subsequently the patient began to experience diffuse occlusal discomfort. Despite several attempts to adjust her occlusion her symptoms continued. Over time she began to exhibit signs of anxiety and depression. Her family became increasingly concerned about her obsession with her occlusal difficulties. The impact on her life (both personally and socially) was significant.

Detailed review of the patient's history showed that she had attended a number of different dentists and specialists before returning to her original prosthodontist. The clinicians she attended were largely in agreement that no significant mechanical difficulties were present. However, they were unable to provide an explanation for her ongoing difficulties. The patient was insistent that further extensive occlusal changes were required and demanded treatment.

On completion of her assessment the patient was reassured that she had no significant occlusal discrepancies. However, a number of items in her family history were significant. Her husband had been diagnosed with Parkinson's disease ten years previously. His condition had steadily declined until he passed away in the preceding year. She was now living alone and both of her children had moved abroad to work. She felt isolated and alone. The concept of OD was explained to the patient. She was initially sceptical and her acceptance of the proposed treatment was based on her view that she "had nowhere else to go". She committed to engaging with a programme, which included referral to a clinical psychologist.

She was subsequently diagnosed with general anxiety disorder. She completed a course of cognitive behavioural therapy, which included the objective of avoiding thoughts about her occlusion. As the patient was living alone it was suggested that she might bring a friend to the clinic where the patient's disorder was explained to her. Her friend was then in a position to provide some support for the patient, who felt isolated. As her acceptance of the programme grew, her level of emotional distress eased. Twelve months after completion of the treatment programme she reported that her occlusal discomfort was still present but it no longer bothered her as much. The patient was discharged with the recommendation that she would have annual review appointments.

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## CPD questions

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CPD

**1. Occlusal dysaesthesia is a disorder characterised by:**

- ○ A: a persistent sense of occlusal discomfort
- ○ B: irregular occlusal contact points
- ○ C: poor anterior and lateral guidance

**2. The cause of occlusal dysaesthesia is:**

- ○ A: due to persistent tooth clenching and grinding
- ○ B: not fully understood
- ○ C: TMJ dysfunction

**3. The best treatment approach is based on:**

- ○ A: occlusal adjustment
- ○ B: psychological therapies
- ○ C: orthodontic realignment of upper and lower dentition