

# Occlusal Dysesthesia

Literature Review by Sina Moshiri

## Background

- Occlusal dysesthesia (OD) is a somatoform-like disorder characterized by the perception of altered bite with no obvious occlusal discrepancy
- Associated with psychological distress and may be provoked by dental procedures. Usually starts after an occlusal adjustment, orthodontic, prosthodontic or restorative treatment. First described by Marbach in 1976 as “phantom bite” as a variation of the phantom limb phenomenon
- Attempts at “correcting” the occlusion to address the patients concern are often unsuccessful and only serve to frustrate the patient

## Epidemiology

- No precise data on prevalence and incidence exists, but OD is considered a rare condition
- Recent survey found that in patients with temporomandibular disorder (TMD), 30% had minor discomfort with their bite and 10% had constant problems with their bite
- Appears to occur more in females
- Age distribution varies from 20 to 80 years and mean age of 40-50 years
- Onset of symptoms occurs at mean age of 45 years and symptoms last on average for 6 years
- A report by Watanabe (2015) found 70% of patients reported onset after dental procedure

## Taxonomy & Etiology

- No agreement on etiology and characteristics, meaning there is no official classification of OD
- Neurological mechanism underlying OD not elucidated but three hypotheses exist:
  1. Psychopathologic etiology
  2. Neuromatrix theory
  3. Altered dental proprioception

### *Psychopathologic etiology*

- Described by Marbach et al. as a mental disorder with the term monosymptomatic hypochondriacal psychosis (MHP)
- MHP is a somatic type delusional disorder consisting of an erroneous conviction of bodily disease, abnormality or alteration. Sole symptom of MHP is perception of abnormal bite.
- DSM-V (diagnostic and statistical manual of mental disorders) describes delusional disorders as one or more delusions existing for 1 month or longer. Delusions are “fixed beliefs that are not amenable to change in the light of conflicting evidence.” Delusions may consist of different subjects. One subject is the somatic type which refers to delusions regarding bodily functions or sensations, as with OD patients. Patients with OD are mainly concerned with the interdigitating of the teeth rather than the appearance of the teeth.
- The psychopathological etiology model has not been supported by clinical research

### *Neuromatrix theory*

- Revised theory of the pathophysiology of OD using Melzack's neuromatrix theory.
- Neuromatrix theory describes the concept of neurosignature, where a matrix of neurons in the central nervous system (CNS) maintain self-knowledge of the entire body. Marbach applied this self-knowledge to an individual's dental occlusion and termed it occlusal neurosignature, which includes the sensation of occlusal contacts. When this self-knowledge is modified by dental treatment, the distorted interpretation of bite can lead to OD in predisposed individuals. This is thought to be similar to phantom limb pain. Patients may continually attempt to seek care to restore their original occlusion, often without resolution.

### *Altered dental proprioception*

- Clark and Simon proposed OD develops as a result of altered kinaesthetic ability of the jaw, which is ability to discriminate the position of the mandible. This may lead to impaired interdental thickness discrimination which leads OD. Jaeger and Korszun mentioned a similar theory and referenced Klineberg's book where it is termed "iatrogenic dysproprioception" which is caused by changes in dental occlusion.
- Recent study by Baba et al. comparing the perceptive and discriminative abilities of patients with OD and healthy subjects found no statistically significant differences. Thickness discrimination testing was done using i) occlusal registration foil, ii) bite block and iii) mouth opening reproducibility. Tsukiyama et al similarly found patients with OD and control groups displayed similar ability to discriminate interdental thickness.
- As of now this hypothesis is not supported by clinical research. Rather than a higher sensitivity to proprioceptive stimuli, it is more likely that patients with OD misinterpret normal occlusal sensations.

### **Symptomatology**

- Main symptoms include:
  - Bite discomfort -- Patients generally describe their bite as uneven and is usually associated with emotional distress. Patients use expressions like "my bite is not comfortable", "my bite is off", "I don't know where my teeth belong", "my jaws are not biting correct", and "My jaw is wandering around looking for a comfortable position".
  - Long dental history -- Details on the shape, size and height of their teeth, previous dental treatments (occlusal adjustments, orthodontics, restorative, prosthodontic) which failed to resolve the bite issue.
  - Irritation against previous clinicians that were unsuccessful in resolving complaint or aggravated symptoms.
  - May occur alone or associated with TMD, tooth clenching, depression, anxiety, obsessive compulsive tendencies, and somatoform disorder.
- Onset is usually preceded by dental treatments. Often repeated dental procedures are attempted to resolve problem but fail.

### **Diagnosis**

- Many studies exist describing symptoms of OD but specific diagnostic criteria have not been established
- In general, OD is diagnosed using a self-report survey consisting of a variety of phrases related to the patient's symptoms and bite-related issues
- Other researchers that subscribe to the somatoform disorder theory for OD also apply the diagnostic criteria from DSM-V. This includes; A) one or more somatic symptoms

that are distressing or disrupt daily life, B) excessive thoughts or feelings or behaviors related to the somatic symptoms, C) symptoms present more than 6 months.

- The authors compiled all existing criteria used for the diagnosis of OD and summarized them to 6 presentations.
  1. Complaint of uncomfortable bite sensation
  2. Significant associated emotional distress
  3. Symptoms last for more than 6 months
  4. History of various bite-altering dental procedure failures
  5. Absence of dental occlusal discrepancies or disproportional to the complaint
  6. Not attributed to another disorder (dental disease, muscle, TMJ or neuropathic disorder)
- It is critical to rule out any physical cause for the altered sensation, including premature occlusal contacts or dental malocclusion. In addition, disorders such as TMJ disorder, oro-facial dyskinesias, oromandibular dystonia, tumors, and long-term use of dental appliances can lead to actual or perceived occlusal changes and must be rule out.

## Treatment

- Variety of different treatment modalities have been attempted, to varying results. In general, the authors summarized the treatments into 4 major categories:
  - 1. Patient education
  - 2. Psychological therapy
  - 3. Splint therapy
  - 4. Pharmacologic therapy
- It appears that “the best treatment is non-treatment” alluding to the fact that any dental procedure aiming to resolve the bite invariably fails or exacerbates the problem.
- Patient education may be the most important approach since OD cannot be attributed to a physical problem. Patient should be informed that the abnormal sensation is not due to a physical problem but an altered interpretation of occlusion. Emphasis must be made that perfecting tooth contact through further treatment is unfeasible. Teeth contacts may change constantly based on posture, head position, muscle tension.
- Occlusal disengagement devices (anterior bite plane, soft appliance) may help mask the perception of occlusal contact. Must be followed-up closely as in some cases the use of an appliance may have the reverse effect of increasing the patient’s attention to the teeth.
- Pharmacotherapy involves the use of medications targeting the CNS. The objective is to reduce patient anxiety, stabilize mood and suppress the compulsive attention towards tooth contacts. Pharmacologic treatments have been attempted. Use of the following drugs have been proposed:
  - pimozone (non-phenothiazine neuroleptic drug)
  - dothiepin (antidepressant)
  - milnacipran, mirtazapine (tricyclic antidepressants)
  - escitalopram, duloxetine (serotonin-selective reuptake inhibitors)
  - monoamine oxidase inhibitors (antipsychotic drug)
  - aripiprazole (dopamine partial agonist)
- Psychological therapy consists of cognitive behavioural therapy, aiming to educate the patient and redirect the patient’s focus away from their teeth.
- Notably, all mentioned treatment modalities stem from experts’ opinions and case reports. To date, no controlled experiment supporting any of these treatments have been conducted.

## Summary

- OD refers to a perception of uncomfortable or altered bite with no obvious physical occlusal discrepancy
- Often results following a dental procedure (restorative, orthodontic, prosthodontic) and subsequent attempts at resolving the complaint through additional treatments invariably fail or exacerbate the issue
- Exact pathophysiology is not understood; three prevailing theories exist but none have been supported with clinical data
- No agreed upon diagnostic criteria (diagnosis of exclusion at this point) or treatment.
- Possible treatments including patient education, psychological therapy, pharmacotherapy and occlusal appliances, with varying effectiveness
- Most important lesson is to avoid further treatment and focus on patient education

## Reference:

Melis, M., and K. H. Zawawi. "Occlusal dysesthesia: a topical narrative review." *Journal of oral rehabilitation* 42.10 (2015): 779-785.