Diagnosing Oro-Facial Pain: a Short Review

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Introduction

Patients attending dental clinics often present with some sort of oro-facial pain. Although the majority of these complaints could be easily attributed to apparent causes such as dental or Temporomandibular joint (TMJ) problems, the dental practitioner could find it difficult to pin down the aetiology of the remainder of these cases.

This short review aims at providing main guidelines to the diagnosis of oro-facial pain. The management of oro-facial pain is beyond the scope of this article.

Before proceeding, it is important to review some important terms and definitions:
Referred Pain: Pain felt at an area distant from the site of the causative factor or injury[1]
Atypical facial pain:"Persistent facial pain that does not have the characteristics of cranial neuralgias and is not attributable to another disorder".[2]

General Causes of Facial Pain

The causes of oro-facial pain could be summarized in:[3]

1. Dental, Oral and Pharyngeal causes
These include infective, inflammatory, traumatic and neoplastic conditions.
2. TMJ dysfunction
3. Facial bone diseases
These include infective, traumatic and neoplastic diseases.
4. Salivary gland problems
These also include infective, inflammatory and neoplastic problems.
5. Paranasal sinus diseases
6. Neurological disorders
Typical neuralgias: trigeminal, glossopharyngeal, nervus intermedius, superior laryngeal, occipital, supraorbital [4,5] and post-herpatic neuralgia.
7.Vascular problems
Migraine, tension headaches and temporal arteritis are examples of vascular problems.
8. Referred pain
The most dangerous being myocardial infarction referred as mandibular pain.
9. Psychogenic problems

Diagnosis of Oro-Facial Pain

The most important factors to facilitate reaching an accurate diagnosis are proper history taking and careful examination.

History taking
A detailed pain history should be taken from the patient. While the clinician should use specific

questions to inquire about the nature of the pain, the patient should be given enough time to describe the pain in his/her own words.

Pain history should cover [1,5]:
1. Onset of the pain: whether it is sudden or gradual.
2. Duration of the pain.
3. Progression of the pain (Slowly or rapidly progressive).
4. Exact location of the pain (if possible).
5. Frequency of the pain attacks.
6. Circadian distribution of the pain (day, night, random).
7. Description of the pain (stabbing, burning, constant, paroxysmal in nature).
8. Severity of the pain (according to the patient's experience).
9. Associated complaints (e.g. nausea, vomiting, fever…etc).
10. Stimulating factors (stress, tiredness, certain food products).
11. Alleviating factors (drugs, sleep, rest).
12. Radiation of pain to other locations.
13. The effect of pain on the patient's life (social activities, mood …etc).

In addition to the detailed pain history, a thorough medical history should be taken in addition to a comprehensive dental history.
If the patient -for example- gives you a history of cardiovascular problems, any unexplained pain in the left side of the mandible should be considered as a potential sign for a myocardial infarction (coronary insufficiency).
The patient's social history might be of particular importance in cases of atypical and psychogenic facial pain. Recent familial deaths, the loss of a job or a fresh break up or divorce could be triggering factors for a number of psychological problems manifesting themselves as orofacial pain.

Clinical Examination and Other Investigations
The clinical examination is very important in diagnosing the patient's problems. The clinician should always look for obvious and simple causes of pain before rushing into complicated diagnosis. Once all the common obvious causes are eliminated, the clinician should follow a systematic approach to pin down the real problem.
The clinician should thoroughly examine odontogenic and other related structures:[1,6]

1. The status of the teeth (carious lesions, traumatic lesions, abrasions, erosions ….etc)
2. The vitality of the pulp using various tests
3. Occlusal relationships (both static and dynamic)
4. The oral mucosa (ulcerations, pigmentations or neoplastic growths)
5. Muscles of mastication
6. TMJ
7. Salivary glands
8. Paranasal sinuses
9. Cranial nerves functions

Other Investigations:
The clinician should also use other available investigations such as radiographs, biopsies and laboratory tests in order to facilitate making a decision.

As an example of laboratory tests useful in the diagnosis of facial pain, the *erythrocyte sedimentation rate (ESR)* and *the c-reactive protein concentrations (CPR)* should be tested for

patients with suspected temporal arteritis. The combination of a patient's age exceeding 50 years, raised ESR, CPR, clinical symptoms (facial pain triggered by chewing) and an obviously prominent and tortuous temporal artery can finalise the diagnosis. It is mandatory to diagnose giant cell arteritis affecting the temporal artery at an early stage to avoid damage to the optic nerve.

The dentist should also keep in mind the presence of referred pain. In the orofacial region, pain originating from a mandibular tooth could be referred to maxillary teeth. The clinician could determine the true origin of pain by administering a mandibular nerve block. If the pain in the maxillary teeth is relieved, then the true origin of the pain was in the mandible.

Magnetic resonance imaging is also proving to be a useful tool in the diagnosis of oro-facial pain. It is particularly useful for the detection of any intracranial lesions and anomalies.[7]

Neuro-physiological testing of the trigeminal nerve might prove useful in determining the abnormalities affecting the nerve in conditions like trigeminal neuralgia. The blink reflex (which registers the electromyogram of the orbicularis oris muscle), the masseter inhibitory reflex (Registering the electromyogram of the masseter) and the jaw jerk test (testing the jaw closing muscles) show different results depending on the type and location of the abnormality.[8] These tests should be considered when planning a treatment for those patients. These tests can also be useful in diagnosing and managing headaches, TMJ dysfunction and other causes of pain in the orofacial region.

As a relatively specific drug for the treatment of trigeminal neuralgia pain, *Carbamezipine* can be administered to the patient with the suspected neuralgia to eliminate other causes of oro-facial pain that do not respond to this drug. However due to the efficacy of this drug in the treatment of other disorders, a combination of proper clinical history and the presence of trigger zones should be taken into consideration as well.[9]

Atypical Facial Pain:

Atypical facial pain presents the most puzzling and the most confusing form of orofacial pain. A psychological problem should be the last diagnosis the clinician thinks of and should only be reached after all the physical causes have been eliminated. Controversy still exists regarding this diagnosis and regarding its management.[10] Proper diagnosis should be reached before unnecessary treatment is carried out.

In general, in addition to being mostly middle aged women, patients with atypical chronic facial pain present with one or more of the following symptoms:[11]

1. Myofascial face pain similar to that associated with TMJ pain
2. Atypical facial neuralgia that does not follow the distribution of facial nerves
3. Atypical odontalgia where the patient experiences toothache which does not change even after endodontic treatment, apicoectomy, or tooth extraction[12]
4. Burning mouth syndrome
5. Association of other psychogenic medical problems such as:[1]

a. Irritable bowl syndrome
b. Headaches
c. Dyspepsia

d. Dysmenorrhoea
e. Chronic fatigue syndrome
f. Neck and back pains

Conclusion

Orofacial pain can sometimes present a diagnostic challenge for the dental practitioner. In addition to full clinical examination of the patient with the aid of different investigations, taking proper pain, medical, dental and social histories are vital to overcome difficulties in recognizing the true problem.

One should always keep in mind that a psychological problem should be the last diagnosis for the practitioner to think of and that such diagnosis should only be reached after full elimination of any physical problems.

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