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Hands-on checklists for chronic orofacial pain in general dental practice

The idea of this article is to summarize the information in the other articles in this series, to provide a hands-on check-list approach to diagnosis of the most common chronic orofacial pain conditions. This article therefore covers chronic orofacial pain, risk factors, diagnosis of the most common musculoskeletal and neuropathic pain conditions in the orofacial region and management principles.

The purpose of this article is to provide efficient checklists to be used in general practice to assess and evaluate as well as for initial management decisions of the most common chronic musculoskeletal or neuropathic pain conditions in the orofacial area. However, this chapter does not cover acute pain. For in-depth explanations of the conditions and managements, please see the other chapters in this series.

Orofacial pain including risk factors

Orofacial pain, as any pain in other regions, can be classified into acute and chronic orofacial pain conditions. Acute orofacial pain is a crucial warning signal of actual or threatening tissue damage and it can in most cases be readily treated and will gradually disappear, as the damaged tissue heals. Chronic orofacial pain, on the other hand, may be defined as pain lasting beyond the healing of the tissue damage. Typically, if pain has lasted more than 3 or 6 months and tissue damage is no longer present, the pain may be considered chronic. Chronic pain should be considered as a disease in itself due to the often severe pain-related disability that may result (International Association for the Study of Pain; IASP 1994) (1). There are also neurofunctional and neurodegenerative changes in the brain in patients with chronic pain, supporting the notion of chronic pain as a disease (2,3).

What is possibly not so well known is the high prevalence (8 – 15 %) of chronic orofacial pain, for example painful temporomandibular disorders (TMD) (4). There is a striking overrepresentation of women suffering from chronic orofacial pain and the prevalence of orofacial pain seems to be highest amongst women between 35 and 45 years of age (at least for painful TMD) (4). Less than half of the patients reporting chronic orofacial pain seek treatment, however. Those who seek treatment may do so by contacting either their family doctor or their dentist.

Apart from the demographic factors (age, gender and socio-economic status), a highly important risk factor for chronic orofacial pain is the presence of comorbid pain conditions as well as self-perceived impaired general health (5). Also, a bidirectional relationship between psychological distress and chronic pain has been demonstrated, i.e. high psychological distress increases the risk of developing chronic pain and vice versa (6). Sleep disorders (e.g. obstructive sleep apnea) in addition hormonal and genetic factors have also been documented. In contrast, the dental occlusion, which was originally thought to play an essential role for the risk of painful TMD development, is now considered to have only minor influence (7) although occlusal factors may still be recognized on an individual basis (8,9). Sleep bruxism has traditionally been ascribed a prominent role in the development of TMD but its association to TMD seems to be more

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anecdotal than scientific (10). Awake bruxism has a different etiology to that of sleep bruxism but to what extent the connection between awake bruxism and TMD is real, still needs to be proven.

Diagnosis of the most prevalent chronic musculoskeletal orofacial pain conditions

In general practice it is important to accurately identify the most common conditions. The recently published Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) (11) provides a simple and highly accurate methodology aimed to be used in general practice to diagnose the most common chronic orofacial pain and jaw dysfunction conditions. DC/TMD comprises two axes; Axis I (clinical condition) and Axis II (psychosocial factors). It is, however, important to remember that DC/TMD does not cover every condition, solely the most common conditions.

Axis I provides a diagnosis of the clinical condition (orofacial pain of myogenous or arthrogenous origin, headache attributed to TMD as well as disc displacements and degenerative joint disease) while Axis II assesses the degree of impact by psychosocial factors, both as consequences of the chronic pain and as background factors influencing the pain.

Diagnostics of TMD is divided into three levels: screening, a short DC/TMD version for general dentistry and a comprehensive DC/TMD version to be used in specialist clinics,

The aim of the screening is to identify patients with potential chronic orofacial pain or jaw dysfunction. This is possible by asking each patient three questions with a «Yes» or «No» alternative: i) Do you have pain in the temples, face, temporomandibular joints or jaws once a week or more often?; ii) Do you have pain when you open your mouth or chew once a week or more often?; iii) Do you experience jaw lockings or catchings once a week or more often? If the patient answers «Yes» on one or more questions, it is highly likely that the patient has a DC/TMD diagnosis of orofacial pain or jaw dysfunction (sensitivity was 0.98, 95 % CI: 0.90 to 1.0 and specificity was 0.90, 95 % CI: 0.81 to 0.95 for the two first questions) for comparison of assessments made on the same day; (12)). The majority of patients identified with this instrument requests treatment for their problems, making these questions clinically relevant and useful. The instrument has been used in several studies and is today applied routinely in several regions in Sweden in the community dentistry.

If a patient answers «Yes» on one or more of these questions, an examination using the short DC/TMD version is warranted. That examination may lead to one or more Axis I diagnoses and will provide information about psychosocial factors of importance (Axis II).

Axis I diagnostics uses information from a questionnaire as well as findings in the structured clinical examination to derive a diagnosis of the clinical condition. The clinical examination is strictly specified, including for example commands to the patient and palpation sites.

Axis II evaluation of psychosocial factors uses validated questionnaires with established cut-offs. The aim is to assess to what degree psychosocial factors contribute to the prognosis and to guide treatment planning. In general practice, these instruments can also guide whether to refer the patient or to begin the treatment by yourself. The questionnaires recommended in DC/TMD cover most aspects of pain and its consequences as well as risk factors for chronic pain. For example, the Patient Health Questionnaire-4 (PHQ-4) assesses depression and anxiety, the Graded Chronic Pain Scale assesses pain intensity and pain-related disability, the Patient Stress Scale-10 assesses the degree of stress and the Pain drawing shows the number of pain sites (11,13).

Certainly, the DC/TMD does not cover all chronic orofacial pain and jaw dysfunction conditions. The Expanded DC/TMD Taxonomy (14) broadens the list of conditions, including generalized pain conditions. Consequently there is still a need for specific examinations for certain conditions like neuropathic types of pain, at least on the specialist level.

Checklist I

1. Use the screening questions on all patients
2. On patients that answers «Yes» to at least one of the screening questions: perform the short DC/TMD examination, both Axis I and Axis II.
3. Use Axis II data to decide whether to treat or refer the patient.
4. If you treat the patient: consider Axis II information for treatment planning and prognosis evaluation

How to learn DC/TMD?

The DC/TMD procedure is strictly specified, including questionnaires, clinical examination and even the commands to the patient. This means that it is important that the learning process is simple but not time-consuming while still resulting in sufficient and high accuracy. Vilanova and coworkers showed that self-instruction, using an instruction movie and documentation, has the possibility to result in a reliability of the diagnoses that is similar to that after a structured two-day DC/TMD theoretical and clinical course (15), at least for the short DC/TMD version.

All required documents and instructions movies can be downloaded from the International RDC/TMD Consortium web site (www.rdc-tmdinternational.org).

DC/TMD is integrated in the undergraduate curriculum in three of the four Swedish faculties and in at least one Danish dental faculty. The integration of DC/TMD in the undergraduate curriculum as well as in the specialist education has started also in Finland. This means that newly graduated dentists will have the knowledge and skills to use DC/TMD in general practice. Hopefully, this may help the dissemination of DC/TMD to general dentistry. There is, however, still a need for DC/TMD courses for general practitioners. The International RDC/TMD Consortium is working with guidelines for course content and levels of calibration.

Diagnosis of the most prevalent chronic neuropathic orofacial pain conditions

Neuropathic pain is defined as «Pain caused by a lesion or disease of the somatosensory nervous system». Neuropathic pain can be diagnosed with different levels of certainty dependent on available information (16). If pain is present in a neuroanatomical relevant area and there is a relevant traumatic event affecting nerve tissue in the patient history (for example a surgical procedure in the area), the pain can be considered of «possible» origin. If sensory disturbances in the painful area can be confirmed by for example quantitative sensory tests, the pain may be considered of «probable» neuropathic origin. Finally, if nerve damage can be further documented by e.g. neurophysiological tests, imaging or direct surgical inspection, a «definite» neuropathic pain diagnosis can be formed (16,17).

Anamnestic information

If a patient presents with pain in an anatomical area with sensory changes (hyper- or hyposensitivity), which has lasted more than 6 months and where no dentist or physician has been able to detect pathology or successfully manage the pain, a neuropathic origin of pain should be suspected. In such cases, the patient history should be explored for possible events, which could have led to damage of trigeminal nerve fibers, for example trauma or oral surgery. Importantly, even standard endodontic procedures may on occasions (3–5 %; (18)) induce chronic pain of possible neuropathic origin due to cutting of primary afferent fibers during for example pulpectomy. Also, injections of local anesthetics may cause nerve damage by needle trauma or neurotoxicity (19). The description of orofacial neuropathic pain varies a lot between individual patients. The pain may be constant and insensitive to provocation and, in other cases (like for example with trigeminal neuralgia), the patient is pain free most of the time and pain is elicited only after touching a specific region of the face (trigger zone). Frequent neuropathic pain descriptors are «burning», «stabbing» or «tingling» but also here, the picture varies a lot between patients.

Status

A thorough clinical examination reveals no signs of dentoalveolar pathology. Patients with neuropathic orofacial pain may have comorbid TMD but often they will be able to distinguish between the two pain conditions.

Supplementary examinations

Radiographic examination reveals no signs of pathology.

Patients with suspected neuropathic pain should be subjected to evaluation of the somatosensory sensitivity in the painful region. In the dental practitioner´s office, a simple chair-side examination may be performed using tools already available. For example, a cotton swap may be stroked gently across the skin of the innervation territories of the three trigeminal branches on each side. The patient may then be asked to compare the touch-evoked sensation between the painful site and the corresponding contralateral site and report, whether the sensation is more intense, less intense or the same as on the contralateral side (20). Likewise, a dental explorer or a tooth pick may be used to test for pinprick sensitivity and a cold spatula (for example taken directly from the refrigerator or kept in ice water) may be used to test for thermal sensitivity. These simple tests of different sensory modalities can be performed both extraorally and intraorally with reasonable reliability (20). If sensory disturbances are detected, the patient may be referred to a specialized center for a more detailed quantitative sensory testing possibly in conjunction with neurophysiological tests of trigeminal nociceptive function. Based on such tests a diagnosis of neuropathic orofacial pain may be confirmed or rejected.

Please refer to Pigg et al. for more details on orofacial neuropathic pain, in the Nordic theme article 2015 (16).

Checklist II

1. Presence of persistent pain in an area with changed sensitivity and without signs of pathology on thorough clinical and radiographic examination?
2. If yes, consider referral to orofacial pain specialist (if available), dentist with special knowledge on orofacial pain (in countries without formal orofacial pain speciality) or neurologist
3. Avoid unnecessary invasive dental or surgical procedures

Management of chronic orofacial pain

The purpose of orofacial pain management is to reduce or eliminate pain, restore normal jaw function and quality of life as well as reducing the need for future treatments. Evidence-based assessment, treatment and follow-ups are of central importance and comprise synthesis of scientific evidence, clinical experience and patient values. In general, treatment options span from dental therapies to pharmacology, behavioral, physical and surgery. More complex cases will benefit from a multimodal approach, i.e. a coordinated combination of therapies (21).

In Sweden, the National Board of Health and Welfare (socialstyrelsen.se) have produced evidence-based national guidelines for treatment of chronic orofacial pain and jaw dysfunction. In addition, the Swedish Council on Health Technology Assessment (SBU; sbu.se) strongly promotes the biopsychosocial model of chronic pain for assessment and treatment planning in order to provide a holistic perspective of the patient. The DC/TMD fulfills this aim to a great extent (11).

The guidelines serve as an evidence-based decision support system and is freely available on-line. The national guidelines prioritize treatments for orofacial pain and jaw dysfunction conditions based on available evidence and also health economical aspects. Treatment options range from information and other types of simple biobehavioural therapy, relaxation and physiotherapy to occlusal devices and pharmacologic treatments and depends on the need of the individual patient (See paper in this theme: «Guidelines in the management of orofacial pain/TMD: An evidence-based approach»).

Similarily, based on available evidence, the Finnish national guidelines for treatment of temporomandibular disorders were produced in 2007 as a collaboration between the Finnish Dental Society Apollonia and the Finnish Medical Society Duodecim (available online www.kaypahoito.fi, either in Finnish or in Swedish) and have been updated in 2013. Because of correct translations not being available at that time the DC/TMD is only mentioned but will be included in coming editions.

How to distinguish between cases to treat in general practice and when to refer to orofacial pain specialists or medical colleagues? In general, patients with more complex pains or in need for multidisciplinary assessment or multimodal therapy should be referred. The Graded Chronic Pain Scale provides a validated cut-off: grades III and IV benefits from multimodal therapies and should therefore be referred whereas grades I and II should start their treatment in general practice according to the suggestion above (22). Certainly, patients with high scores for depression, anxiety, stress or wide-spread pain should also be considered for referral.

Prognosis

The evaluation of prognosis is a difficult yet important issue. The underlying pain mechanisms can provide some ideas about what to expect. Acute dentoalveolar inflammatory pain conditions normally have a very good prognosis for almost immediate pain relief. For more chronic orofacial pain conditions, the picture is somewhat more complicated. Therefore, when discussing the matter of prognosis of the pain condition with the patient, it is important to consider what is a realistic pain management outcome.

For the vast majority of TMD patients (i.e. grades I, II and perhaps also grade III to some extent) the prognosis is favorable, which has been shown both in epidemiological as well as controlled treatment studies (21–26). According to Palla 75 % – 85 % of patients with pain lasting even for more than 3–6 months are cured or improve significantly, often irrespective of the treatment modality used (27). TMD patients can therefore mostly be successfully treated in the general practice by means of a variety of simple, noninvasive therapies as mentioned before, provided that they do not suffer from psychological distress and disabling chronic pain (Grades III and IV) (21,27).

Considering that TMD has a good prognosis and that the majority of patients can be managed in general practice even if the pain lasted for more than 3 or 6 months, there is a great need for a better understanding of those 10 % to 15 % of patients who are therapy refractory, since they pose the greatest challenge (28).

For chronic painful TMD, for example, management is directed more towards obtaining a certain degree of pain relief and improved function than towards providing an absolute cure (29,30). Likewise, chronic neuropathic orofacial pain conditions may be alleviated but only rarely cured and in order to avoid «doctor shopping» behavior with the risk of receiving numerous unnecessary and potentially harmful invasive treatments, sufficient time should be spent educating the patient about the condition (31). A realistic goal for treatment of more severe cases with chronic orofacial pain is to decrease the impact of the pain on the patient's daily activities and quality of life rather than make the patient painfree. To decrease the impact, therapies to improve pain coping or reduce stress, depression, anxiety and catastrophizing may be considered. However, these cases are generally specialist cases.

In summary, the majority of TMD patients can be treated by general practitioners. Presence of several of the known risk factors for development of chronic orofacial pain, such as comorbid pain conditions and psychological distress hamper the prognosis for obtaining long-lasting pain-relief in more complicated cases. Often it will be necessary for the patient to seek concurrent care for the comorbidities in order to improve the prognosis of the management of orofacial pain. Importantly, the longer time the pain has been present, the poorer is the prognosis for relief due to the possibility of a permanently sensitized nociceptive processing system.

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