Guest Editorial

Chronic Orofacial Pain: Could It be that "The Pain is in the Brain"?

Pain can be a complex and controversial issue for dentists and patients alike. Let us first consider some of the related definitions and classifications. Pain has been defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage."[1] It can be categorized into acute and chronic pain. Chronic pain has been defined as "pain that persists or recurs for longer than 3 months."[2] Chronic pain has been divided into primary and secondary pain. Chronic primary pain has been defined as "pain in one or more anatomical regions that (1) persists or recurs for longer than 3 months, (2) is associated with significant emotional distress (e.g., anxiety, anger, frustration, or depressed mood) and/or significant functional disability (interference in activities of daily life and participation in social roles), (3) and the symptoms are not better accounted for by another diagnosis."[3] Such other diagnoses are then called "chronic secondary pain" where pain may at least initially be conceived as a symptom secondary to an underlying disease.[3] Conditions such as chronic temporomandibular disorder pains and chronic burning mouth can be found in the general structure of the classification of chronic primary pain.[3] One of the secondary pain categories is chronic secondary headache or orofacial pain (which has also been separated into primary, or idiopathic, and secondary, or symptomatic, types) and includes conditions such as chronic secondary temporomandibular disorder pain, chronic dental pain and chronic neuropathic orofacial pain.[4] Pain has also been divided into nociceptive (pain that arises from actual or threatened damage to nonneural tissue and is due to the activation of nociceptors) and neuropathic (pain caused by a lesion or disease of the somatosensory nervous system) categories.[5] Neuropathic pain has also been defined by the International Headache Society as pain caused by a lesion or disease of the peripheral or central somatosensory nervous system.[6] Some have made an argument that a third mechanistic descriptor for chronic pain states should be considered (e.g., nociplastic, algopathic, nocipathic), in part to account for people who have neither obvious activation of nociceptors nor neuropathy but in whom clinical and psychophysical findings suggest altered nociceptive function (e.g., those with fibromyalgia or "nonspecific" chronic low-back pain).[5]

Having stated all of that, there can be occasions when patients seek care from dentists for acute pain and the diagnosis (e.g., irreversible pulpitis, apical periodontitis) can be relatively straightforward, as can the treatment (e.g., endodontic treatment, extraction of the offending tooth). In many of these instances, the problem is resolved within a short period of time. There are situations, though, when the pain is not completely resolved or it recurs. The dentist then often reassesses the original treatment, possibly finding missed canals, cracked teeth or even a different tooth that actually might be the culprit. Endodontic retreatments, for example, might be attempted, with the clinician hoping that the result is better this time (and perhaps wondering if the original treatment was the correct treatment and was truly indicated). This second treatment will occasionally finally resolve the problem. However, there are patients who end up receiving multiple root canals, endodontic surgeries and/or extractions, yet continue to basically complain of the same pain, or perhaps the problem becomes even worse. What is going on at that point?

Let us further consider the dilemma of a patient with a complaint of an ongoing "toothache" that has not responded to multiple dental treatments. The frequency of nonodontogenic pain (dentoalveolar pain present for 6 months or more after endodontic treatment without evidence of dental pathology) has been estimated in a systematic review and meta-analysis to be 3.4%.[7] Also, in articles containing data regarding both odontogenic and nonodontogenic causes of persistent tooth pain, at least half were thought to have a nonodontogenic cause. In those cases, further endodontic therapy would not be the best treatment option.[7] Nonodontogenic toothaches can arise from a variety of sources, including referred myofascial pain, primary headaches (e.g., migraine, cluster headache), pathological processes outside the immediate dentoalveolar region that refer pain (e.g., sinus disease, angina, brain tumors), psychogenic issues, persistent idiopathic pain, and neuropathic pain disorders.[7,8] A comprehensive history (including the pain complaint) and patient examination (including the head and neck, oral soft tissue and dental/periodontal structures) must be undertaken so that none of these other diagnoses are missed and no further inappropriate dental treatments are provided.

Orofacial pain that is of neuropathic origin is a complex topic on its own (e.g., potentially involving mechanisms such as peripheral and central sensitization).[9] Several different conditions can fall into this category, including trigeminal neuralgia, herpes zoster and painful posttraumatic trigeminal neuropathy.[8] Several other conditions are mentioned in a discussion of neuropathic orofacial pain, such as atypical odontalgia (AO). There have been several synonyms for this condition over the years, with the most recent being persistent idiopathic facial pain and persistent dentoalveolar pain[10] (there has been some controversy as to whether AO is indeed a neuropathic pain). Neuropathic orofacial pain can present a variety of symptoms, including episodic (e.g., short electrical or sharp pain that may be paroxysmal) or continuous burning pain.[11] In addition to a careful history and examination, several types of special tests can be utilized during the investigation of patients with possible chronic neuropathic orofacial pain. These can include assessing sites of reported intraoral pain in soft tissue locations (e.g., edentulous ridges where patients continue to perceive toothache-like pain following an extraction) using tactile stimuli (e.g., with a cotton swab) and pin-prick (e.g., with a toothpick – or perhaps a periodontal probe or dental explorer).[12] It is possible to determine that there are abnormal sensations such as hypersensitivity or allodynia, or decreased sensations or anesthesia, in areas of persistent pain.

We should also consider the question of how pain becomes chronic and resistant to treatment for some, but not for others. This question continues to avoid being satisfactorily answered, but advances in pain research may be moving us closer. For instance, the concept of "stickiness" has been proposed as an alias for capturing the multiple influences on the persistence of pain and pain behavior and their stubborn resistance to therapeutic intervention.[13,14] We should also contemplate the role that the brain plays in determining if a stimulus should be interpreted as pain or not – yet again a question that has an unsatisfactory answer. However, some interesting theories exist that try to explain it. As an example, it has been proposed that the brain follows a Bayesian approach to perception. As part of this discussion, it has been stated that we do not necessarily feel pain because we "sense" it directly from the peripheral body, but we feel pain because we predict that we are in pain, based on an integration of sensory inputs, prior experience and contextual cues.[15] This could then lead us to changing our approach to managing patients with chronic pain as, once pain becomes chronic, it can become "central" (in the nervous system and brain, but not psychogenic).[15] Under those circumstances, it can be extremely challenging to adequately manage many chronic pain patients. These patients will not likely benefit from another treatment in the periphery (e.g., root canal or extraction), but will probably require a multidisciplinary approach, usually including health care practitioners who can implement a biopsychosocial approach to help with such factors as depression, anxiety and catastrophizing that are often part of the clinical picture when pain is disproportionate to the signs that can be found in the area of the reported symptoms.[16,17]

When faced with a patient with pain then, particularly persistent pain in spite of numerous treatments, we must resist "search satisfying"[18] and not stop at the first diagnosis that seems to suit some of the signs and symptoms and our desire to find a condition that we can treat. Before we settle on a diagnosis, perhaps we should ask ourselves: what else could this be? Then treatment decisions might be more rational. We must listen to these patients and make sure that they have the time to tell us their entire stories. We should see if their overall presentation suggests that all, or at least most, of it can be rationally explained by a "dental" diagnosis alone. If not, we should consider consulting with our healthcare colleagues or even referring some of these patients to others who will be able to assess and treat them from a different, perhaps more appropriate, perspective. We need to try to prevent acute pain from becoming chronic as best as possible.

So, if our patient's chronic orofacial pain condition might be such that "the pain is in the brain", we need to use our own even more than normal.

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