

Toothaches of Non-dental Origin



This brochure is produced by the American Academy of Orofacial Pain

The American Academy of Orofacial Pain is an organization of health care professionals dedicated to alleviating pain and suffering through the promotion of excellence in education, research and patient care in the field of Orofacial Pain and associated disorders.



This brochure is intended to provide general information on toothaches of non-dental origin and is not a substitute for careful evaluation by a physician or orofacial pain specialist.

Introduction

Some patients experience persistent toothaches without having an apparent dental problem, such as tooth decay, that could explain their pain. These patients may visit several dentists and specialists in the search for a solution, and may have root canal therapy, dental extractions and other procedures without relief.

Thus, toothaches of non-dental origin encompasses a group of conditions in which pain is due to problems in structures other than a tooth. Since the pain still feels like a toothache, the cause can be difficult to identify and puzzling for the dentist and patient.

What patients experience:

The pain from a toothache of non-dental origin can present in many different ways. Some patients have a low-grade, bothersome ache and others experience an excruciating pain, described as throbbing, sharp or shooting. The pain can be present all the time or come and go. It is usually felt in the teeth or in the surrounding areas such as the gums and bone. Unexpectedly, the pain can migrate from one tooth to another and even change sides of the mouth. The pain may be present from weeks to several years. The similarity to a classical toothache will cause some patients to undergo dental treatments in multiple teeth before a diagnosis is established. It is important to exercise caution in having irreversible procedures performed, such as a root canal or an extraction, in these situations.

Disorders that cause persistent tooth pain:

Toothaches usually occur as a consequence of dental problems such as an inflammation in the dental pulp ("the nerve") due to deep decay, gum problems or periodontal disease. These dental problems can cause pain and inflammation in the tooth pulp and supporting gums and bone. Your dentist can treat the tooth or gums, and the pain will disappear after the treatment.

A toothache of non-dental origin, however, has other causes for the pain. Previously, when the cause of persistent toothache was unknown, it was often labeled as *atypical tooth pain* or *atypical odontalgia*. As the actual cause of this type of pain becomes better understood, this term will be used less often.

To determine the source of persistent tooth pain, several conditions have to be considered. These include conditions that are due to dental problems and frequently go unnoticed, as well as conditions due to non-dental problems.

Cracked tooth (Fig. 1A):

A cracked tooth or incomplete tooth fracture is a possible source of persistent toothache. Since it does not present with obvious signs, it may be difficult to identify. A diagnosis can usually be made by transillumination (shining a bright light through the tooth) or tooth biting tests. These fractures are often treated with a band, a crown and possibly, root canal therapy. When the fracture is in the

root of the tooth, extraction may be necessary.

Periodontal ligament pain (Fig. 1B):

The periodontal ligament refers to the tissues that surround and support the tooth within the bone. Repetitive strain to these ligaments through clenching of the teeth, bite problems or trauma can cause pain and inflammation in these tissues. The most common sign is tenderness to tapping of the teeth. Treatment may include protecting the teeth through a mouth guard and patient education in reducing the cause.

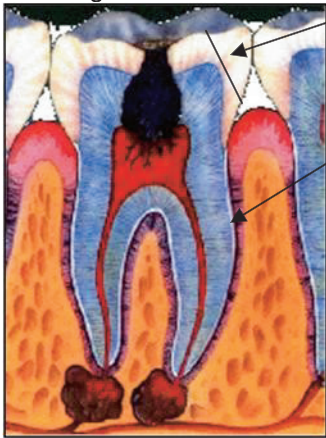


Fig. 1: Incomplete tooth fracture (A) and periodontal ligament pain (B) are common causes of persistent pain

Referred muscle pain (Fig. 2):

Muscle or myofascial pain is a condition characterized by dull, aching muscles with localized tender areas. These tender areas can refer pain to other structures in consistent patterns. Jaw muscles can refer pain to the teeth, and this can be perceived as dental or intraoral pain. The pain can increase with overuse of the muscles. If this is the case, treatment often involves treating the jaw muscles and reducing the factors that place strain on them.

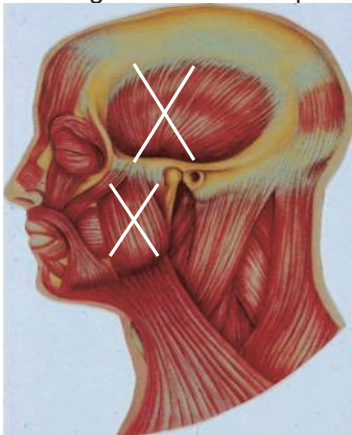
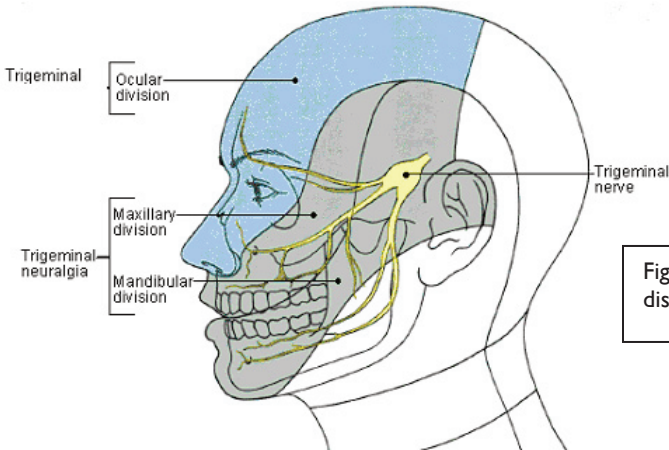


Fig. 2: Temporalis and masseter muscle can refer pain to the teeth

Trigeminal neuralgia (Fig. 3):

The trigeminal nerve provides sensation to the face and teeth. Trigeminal neuralgia is a condition affecting the trigeminal nerve and is characterized by episodes of short, severe, shock-like pain, after harmless stimulation of the area such as brushing of the teeth, eating or touching your face. This pain can sometimes be felt in a tooth, mimicking a toothache. When this condition appears in its first stages (*pre-trigeminal neuralgia*), it can be difficult to diagnose due to the variability of the pain. Proper diagnosis may include a neurological evaluation and brain imaging. Education, anticonvulsant medications and sometimes microsurgery are used to treat this condition.



Neuropathic pain:

Neuropathic pain is a group of conditions in which there has been damage to the nerves that transmit sensation. Traditionally, neuropathic facial pain begins following an injury to the face, teeth or gums. This can be through tooth extraction, trauma, surgery, or sometimes routine dental procedures. The result is pain and other symptoms (numbness, tingling, hypersensitivity) that persist even after the injury has healed. Specific nerve testing or local anesthetic nerve blocks are useful to diagnose neuropathic pain. Education and multiple medication regimens are used to treat neuropathic pain.

Referral headache pain:

Migraines, cluster headaches and hemicrania continua are types of headaches that result from changes in the nerves and blood vessels of the head. In some cases, through referral patterns of the trigeminal nerve, these headaches can also be felt in the teeth, causing toothaches. The pain can be spontaneous, severe, throbbing, and have periods of remission. Treatment is directed at the cause of the headache and often includes behavioral therapy and medications.

Cardiac toothache:

Heart problems such as angina pectoris or acute myocardial infarction, refer pain to the shoulder, arm and even to the jaw. We know that these conditions can

refer pain to your teeth as well. Sometimes it is associated with chest pain but occasionally it is not. When a toothache has a cardiac origin, it usually increases with exercise and decreases with medication specific for your heart (such as nitroglycerin tablets). Treatment is directed to the underlying heart problem, usually after your dentist has evaluated the tooth.

Sinus/nasal toothache (Fig. 4):

Problems in the maxillary sinuses and/or paranasal mucosa can refer pain to the upper teeth. The pain is usually felt in several teeth as dull, aching or throbbing. Sometimes it is associated with pressure below the eyes and it can increase with lowering the head, putting pressure over the sinuses, coughing or sneezing. Tests performed on your teeth, such as cold, chewing and percussion, can increase the pain from sinus origin. A history of an upper respiratory infection, nasal congestion or sinus problem should lead to suspicion of a "sinus toothache." Diagnostic tests, such as visual nasal exam, sinus X-rays or MRI, will reveal this condition. Also, application of topical anesthesia to the offending area should eliminate the pain. Treatment with antihistaminics, decongestants and antibiotics will help.

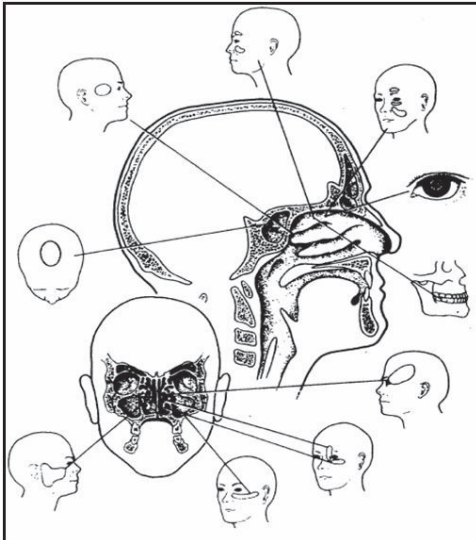


Fig. 4: Sinuses and associated structures

Neoplasias and other lesions in the head:

Some tumors, aneurisms (abnormality of a blood vessel), and other intracranial disorders can cause pain in your mouth or teeth. The tooth symptoms are generally accompanied by other nerve malfunctioning or systemic symptoms, such as weight loss, fatigue, etc. These accompanying symptoms suggest more than a localized tooth problem is occurring. Tumors can also appear in the areas near the nerves of the teeth, which may cause the teeth to be loose or displaced. Proper imaging of the face, jaw and head is important to evaluate for these problems. Although possible, these problems are very rare, and treatment needs to be directed to the specific problem.

Salivary gland dysfunction (Fig. 5):

Patients with salivary gland dysfunction can experience dental pain through different mechanisms. It may occur through referred pain from the glands to the teeth. It may also occur through compromising the health of the teeth and supporting structures and by the absence of the protective saliva. In such case, a comprehensive evaluation of the salivary glands is needed.

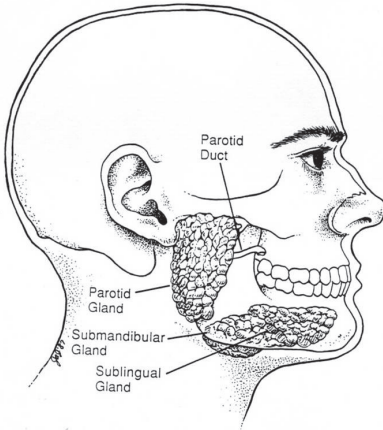


Fig. 5: Salivary glands

Psychological disturbances:

Psychological disturbances have also been proposed as a cause of tooth pain. However, even though we know factors such as stress, muscle tension, anxiety and depression can contribute to the experience of pain, a causal link between psychological factors and toothaches of non-dental origin has not been established. Therefore, psychological disturbances are considered contributing factors and not the cause for tooth pain.

Getting help / what to expect:

It is common that patients report having consulted multiple different specialists for their toothache, including general practice physicians, dentists, neurologists, ear-nose-throat (ENT) specialists and maxillofacial surgeons, in hopes of finding relief.

A comprehensive evaluation and assessment should be done by a dentist with experience in orofacial pain to help identify the problem. If dental pathology is not detected through a detailed clinical history, examination, X-rays and other necessary tests, the dentist should be cautious in performing any irreversible dental treatments such as root canals or extractions before a diagnosis is established.

If the tooth is healthy, identifying the non-dental source of the pain is the next step. There are some symptoms that suggest the cause for your pain might not be in your teeth. These include: pain in several teeth, pain that moves from one tooth to another, pain that has a tingling or burning quality, is constant (as time goes by there is no relief or change in quality or intensity), occurs intermittently without provocation or is related to other non-dental complaints. Also, if it does

not disappear when the dental structures are anesthetized or if you have had one or more reasonable dental treatments and the pain still persists, it is possible that the source of your problem is not in your teeth.

In order to assess your problem and provide you with the best care, it is recommended your problem be evaluated by a knowledgeable orofacial pain dentist. The American Academy of Orofacial Pain (www.aaop.org) can help you identify one in your area.

What will be done at the doctor's office:

Your doctor will compile a thorough clinical history, carefully listening to the description and associations of your pain. He or she will want to know things such as how long you have had it, how it started, characteristics of the pain (quality, intensity, episodic or continuous, spontaneous versus provoked), aggravating and alleviating factors and past treatments and consults.

Then, he or she will perform a physical examination, looking at the appearance of the painful area, touching it, and maybe pressing on it, and at other areas. Some tests may be performed; for example, ice and heat test over the painful and non-painful areas, and pins and brushes to assess small nerves in that area, or nerve blocks (numbing one or more areas of your mouth or head with local anesthetic injections).

There are some other diagnostic tests, such as MRI or CT scans, that your doctor may also use to further assess your problem and, more importantly, to rule out the existence of other more serious conditions.

Research is in progress to learn more about the specific mechanisms and disorders that cause toothaches of non-dental origin and treatment options. The search for an appropriate diagnosis and treatment for your problem can be frustrating. To provide the best potential outcome, close communication with your orofacial pain dentist is important.

Questions for your doctor or notes:

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To locate knowledgeable and experienced specialists in orofacial pain, contact:

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