Atypical facial pain (AFP) is not as common as other diseases associated with facial pain, such as temporomandibular disorders (TMD). Its importance though is emphasized by its chronic nature, resistance to treatment, and the devastating effects it has on patients suffering from this condition. Patients with AFP often consult numerous dentists and physicians seeking an explanation and effective treatment. Their use of medical and dental services is excessive, costly, and usually unsatisfactory. A history of multiple ineffective treatments is common. Surgical treatments are often performed, including tooth extractions, endodontic procedures, exploratory surgery, sinus surgery, and temporomandibular joint (TMJ) surgery, that have no effect on the pain and often complicate the problem.

The lack of a definite etiology and positive diagnostic criteria has led some authors to recommend against using the term. This is in part a reaction to the historic association between AFP and psychological disorders. Behavioral and psychological abnormalities are often present in AFP but are likely to be a consequence of chronic pain. Behavioral and psychological abnormalities are part of chronic pain disorders regardless of the original source or site of pain. Even though AFP has yet to be explained, clinicians still apply the term to a group of patients who defy other diagnostic criteria and who share some common features. This chapter outlines the clinical features of AFP.

### Etiology

Numerous theories have been proposed for the etiology of AFP, but a definite etiology has not emerged. The term was first used to describe patients with chronic facial pain who did not respond to neurosurgical procedures aimed at interrupting pain pathways in the peripheral and central nervous system (CNS). When surgical lesionmaking of somatic afferent nerve fibers and tracts was not effective, surgical procedures on the sympathetic nervous system pathways were performed and also failed. The model of pain as a sensation generated by a peripheral stimulus and relayed to the brain, and the lack of predictable effects of sectioning nerves suggested that a psychological abnormality was the likely cause. The absence of a local orofacial abnormality or ongoing injury supported this assumption. Variants of AFP, burning mouth syndrome and atypical odontalgia, have emerged as distinct conditions and are addressed in Chapters 32 and 34.

A specific psychological or behavioral disorder has not been consistently identified with AFP. Depression has been considered as the cause, but it is well established that psychological problems occur as a result of chronic pain, and depression is one of the most common consequences. Behavioral and psychological changes often dominate the clinical picture of AFP, but their role as cause or effect is not clear.

The role of peripheral trauma leading to chronic neuropathic pain has been a research focus in the recent literature. A significant percentage of patients with AFP ascribe the onset of pain to dental procedures that were of a routine nature: scaling, restorative, and endodontic procedures and dental extractions. Neuropathic pain may result from tissue injury that affects peripheral nerves, resulting in CNS changes, causing persistent pain (see Chapter 32).

The absence of a clear explanation for AFP and studies demonstrating the effectiveness of tricycle antidepressant (TCA) medication have been used to support a psychological explanation. The effectiveness of TCAs...
at doses lower than the antidepressant dose and their effectiveness against AFP in nondepressed patients, support the hypothesis that these drugs have analgesic effects separate from their antidepressant properties.

Chronic pain for any reason causes psychological and behavioral changes. Identifying these abnormalities in a population with AFP may only reflect the changes that have occurred as a consequence of chronic pain. It does not establish that these abnormalities were present prior to the onset of pain and that they are the cause. No one specific psychiatric diagnosis has emerged to be associated with AFP. At present there is no convincing evidence that AFP is a psychiatric disorder, however, the comorbidity of AFP and depression is clear.

Necrotizing intrabony cavitational osteonecrosis (NICO) has been proposed as a cause of AFP. Pathologic jaw bone cavities have been proposed as the cause of not only continuous or nearly continuous facial pain but also intermittent paroxysmal pain disorders. There has not emerged a characteristic clinical presentation nor are there specific imaging techniques that can be used to establish this diagnosis. The diagnosis remains controversial, especially since the treatment is surgical, which could further aggravate chronic pain.

Recently studies on brain activity indicate that pain processing in the CNS is different in patients with AFP than in control subjects. The hypothesis that AFP may be related to abnormal processing of information in the CNS is still speculation.

Classification

Atypical facial pain has been included in some classifications and not others. It remains in the International Disease Classification, 9th Edition, Clinical Modification (ICD-9-CM) in the section “Diseases of the Nervous System and Sense Organs.” The term is also included in the International Headache Society’s Classification of Headache and Craniofacial Pain. Atypical facial pain was replaced with the descriptor “facial pain not fulfilling criteria in groups 11 and 12.” The definition provided is “persistent facial pain that does not have the characteristics of the cranial neuralgias classified and is not associated with physical signs or a demonstrable organic cause.” Although the term has been associated with specific etiologies such as depression, and is subject to misinterpretation or misuse, the term still is clinically useful, and no better terminology has emerged. It is often described as a disorder characterized by what it is not rather than by positive diagnostic criteria. The most prominent features often included in classification systems are the presence of continuous or nearly continuous pain, the lack of ongoing stimulus at the site of pain even though there may have been an initiating peripheral injury, and no physical or diagnostic imaging findings to explain the pain. Atypical facial pain has been used in classifications as a category that includes all chronic facial pain that has not been diagnosed or classified in other categories. This complicates interpreting the literature on AFP, since the populations studied are heterogeneous and often include patients with other diagnoses and causes for the pain.

Clinical features

Descriptive studies primarily from orofacial pain clinics or specialty practices indicate that the majority of patients with AFP who seek treatment are postmenopausal women between 40 and 60 years of age. The ratio of females to males is four or five to one. Published reports are primarily case series studied retrospectively in specialty clinics or by practitioners involved in the diagnosis and treatment of chronic facial pain, and no data are available of the prevalence or incidence of AFP in the general population. Whereas older women present more frequently than any other population, no correlation has yet been established with hormone physiology and AFP.

Pain is continuous or nearly continuous and usually does not have clear associations to events or activities that make it better or worse. Patients often use dramatic descriptions of pain in an attempt to convey the experience: “as if someone had poured gasoline in my mouth and set it on fire.” Pain can be unilateral or bilateral or can start on one side and spread to involve the opposite side. There are characteristically no local physical or imaging findings at the site of pain. The physical examination and the results of diagnostic imaging and other special tests and consultations are negative. Local anesthetic testing to attempt to establish a peripheral source of pain is usually equivocal. Local anesthesia may alter the symptoms, but it usually fails to completely eliminate pain. This pain does not tend to prevent sleep nor does it seem to significantly affect chewing ability. Some patients experience contact sensitivity when eating and avoid the involved side or area, but this is not consistent.

Psychosocial problems and disability are part of AFP. Patients are characterized as using medical services excessively, being nonresponsive to treatments, and experiencing psychological problems. Conventional treatments, such as analgesic medication, are usually ineffective. It is also characteristic of this group of patients to frequently undergo surgical procedures that are ineffective in altering the pain. This profile often leads the patient to be seen as a “problem patient.” It is not always possible to separate cause and effect with regard to these issues given the information available.
Many of the problems patients with AFP have can be explained on the basis of the difficulties they have had in attempting to obtain a diagnosis and effective treatment. Patients often are referred to a variety of medical and dental specialists and often seek out specialist consultations themselves.

**Diagnosis**

The application of the AFP diagnosis has narrowed since distinctions have been made for other diagnoses, such as burning mouth syndrome, glossodynia, and atypical odontalgia. These have previously been considered variants of AFP but are now more distinct entities (see Chapter 34). Diagnostic features of AFP have been listed in classifications such as that published by the International Headache Society, but these criteria have not been subjected to studies that establish their validity.

**Clinical assessment**

The process necessary to establish the diagnosis of AFP is complex, because there are so many possible causes of chronic facial pain. The diagnostic assessment must include investigations required to detect alternative causes before the diagnosis of AFP is established. Because there are no positive criteria that define the diagnosis of AFP, the process is directed toward eliminating other possible causes. A comprehensive assessment to rule out other conditions is critical, which implies that the detail and quality of the diagnostic process must be exhaustive. Full assessment of the physical structures of the head and neck and their functional competence should be performed. Muscle assessment for both pain and motor quality is needed to rule out TMD and myofascial pain. Neurologic assessment of the cranial nerves should be coupled with CNS functional assessment to rule out degenerative neurologic disorders. Cognitive and memory assessment is important since dementia with CNS dysfunction is known to generate symptoms similar to AFP, either by causing abnormal neurologic sensations or reducing the ability of the patient to distinguish normal sensations from nociceptive input. Care must be taken to rule out referred pain from adjacent structures, such as the sinuses, cervical muscles, and vascular structures of the head and neck. Occasionally, atypical presentations of odontogenic pain can mimic AFP, which necessitates that pulp testing be done on all teeth in the region that could refer pain to the principle site of pain. Questionable teeth should be tested with the electric pulp tester and subjected to hyperstimulation with cold and heat. Periodontal sulcus areas should also be carefully examined for the presence of neuropathic periodontal triggers. These often occur around teeth that have encountered prior traumatic injury, such as tooth fracture, fractured restorations, and food impaction into the periodontal sulcus. During examination of the head and neck, careful observation is warranted to detect signs suggestive of autonomically triggered pain. Indicators include increased pain along with other autonomic changes, such as flushing, ischemia, salivation, or sweating with stimulation. Tumors of the base of the tongue and pharyngeal area are known to refer atypical pain sensations to the posterior area of the mandible, so assessment should include those tissues.

**Behavioral assessment**

Chronic pain may cause behavioral or psychological problems that have to be treated as part of comprehensive management. These abnormalities may be significant in the perpetuation of symptoms and may prevent other treatments from being effective. Most dental schools do not include training in psychological diagnosis, but a dentist should be able to screen the patient to determine the need for a more thorough assessment. In multidisciplinary clinics treating chronic pain, psychological assessment is one part of the comprehensive process. Psychological and behavioral techniques have become an important part of chronic pain management, regardless of the original cause of the problem.

One should inquire about recent stresses at work and at home, changes in mood, or events that are thought to contribute to the problem. A family history of chronic pain disorders or other close relationships with people suffering from chronic pain or illness should be explored. Responses to events that preceded or followed exacerbation of pain and identification of activities that have been modified (increased or decreased) since the pain began may help assess the disability associated with the pain. The presence of chronic pain in other body sites should be explored. Obtaining details about the vegetative signs of depression, disrupted sleep, loss of appetite, and libido may increase the level of suspicion that a depressive disorder is present.

**Diagnostic imaging**

Imaging of the dental, sinus, and osseous structures of the face and jaws is important in patients with suspected AFP. They often are suspicious that organic pathology is responsible for their pain syndrome and
often resist a diagnosis of AFP until it is clear that no structural pathology exists. Imaging, therefore assumes two purposes in these patients. First and foremost, imaging is required to rule out pathology, and second, it is psychologically necessary to reassure the patient that no pathology in deeper structures has been overlooked. Radiographs of the teeth and alveolar structures are essential as are sinus films to make certain that occult sinus disease is not responsible for the symptoms. Since there is some possibility that symptoms are arising from CNS pathology, computed tomography (CT) or magnetic resonance imaging (MRI) of the head and neck may be appropriate, depending upon the presence of other signs or symptoms suggestive of CNS pathology. Occasionally a radioactive bone scan merits consideration. If the patient has had invasive treatment, exploratory or other inflammation producing procedure in the region in question within 6 to 12 months, the scan will show a false-positive response, with the area of surgery showing up brightly on the scan.

### Diagnostic local anesthetic testing

Anesthetic testing can be a useful part of the workup of patients thought to have AFP. Topical anesthetics can be applied to the region of pain to rule out atypical presentations of neuropathy or neuralgias that present with active superficial nociceptors in the epithelium and skin. Infiltration anesthesia around the teeth and into soft-tissue structures can isolate local triggers and define the region of pain. Intraligament injection of the teeth can isolate individual teeth and periodontal structures that are triggering symptoms. Divisional anesthetic blocks and regional infiltration anesthesia help to determine the trigeminal division involved and whether more than one division is active. Failure of anesthesia to extinguish painful symptoms suggests that they are being generated from a more proximal point or that they are referred from adjacent tissues or arising from the CNS. In extreme cases, sympathetic and other autonomic nerve blocks are useful.

### Consultation

As with most complex physical or neurologic problems, consultation is often advisable during the diagnostic and case planning phase of care. Consultation with dental specialists, such as endodontists, can provide new findings or confirm that no odontogenic pathology is present. Medical consultations usually include primary care physicians or specialists in internal medicine to rule out metabolic disease and consultations with neurologists, otolaryngologists, and behavioral specialists.

### Confirming the diagnosis

If after a thorough search for a specific cause none is identified, the diagnosis of AFP can be considered and tentatively applied or used as the working diagnosis. It is necessary to perform reassessments periodically to minimize the risk of missing early local disease that is not initially detectable and to ensure that no other disease is present that changes the diagnosis or requires alternative treatment.

Other orofacial pain disorders may have specific characteristics in the history or physical, imaging, or laboratory findings to differentiate them from AFP. Because AFP has such a variable presentation in terms of pain characteristics, differential diagnosis may be difficult. The most likely disorders confused with AFP include myofascial pain, odontogenic pain, and neuropathies attributable to occult or intracranial pathology or nerve injury, temporal arteritis, and somatoform pain disorder (Table 33–1). These conditions may result in continuous vague pain in which the presenting physical findings may be minimal or not obvious.

Chronic orofacial pain may also be associated with more generalized disorders. Fibromyalgia is a chronic pain disorder associated with muscles, and may present as facial pain. A thorough history and review of systems should detect systemic symptoms that would raise the possibility that the orofacial pain is a manifestation of a systemic disorder.

### Treatment

Atypical facial pain has been managed mainly as a chronic pain disorder requiring a multidisciplinary approach. Several studies have demonstrated the effectiveness of tricyclic antidepressants in pain reduction, but no treatment has been found to abolish the pain. Although amitriptyline has been shown to be effective, it may cause dry mouth, dysphoria, increased appetite, and sedation that may limit its value. Amitriptyline also has cardiovascular effects that may make it inappropriate for patients with existing cardiovascular disease.

Cognitive-behavioral therapies, relaxation techniques, pain medications, medications that promote or enhance restorative sleep, physiotherapy, conditioning and stretching programs, occupational therapy, and family counseling are treatments that are usually included in comprehensive management. No one discipline or individual is able to provide the multiple aspects of care that are required for chronic pain management. For this reason health care professionals have organized themselves into interdisciplinary clinics to provide these services.

A dentist has a role in the ongoing management of patients with AFP. The dentist should be the individual...
who performs periodic examinations to identify any undetected orofacial disease that may contribute to or explain pain. Often, there is a tendency to perform dental procedures when the patient identifies a tooth or localized site in the mouth as the possible source of pain. Many patients submit to or pursue endodontic therapy, dental extractions, alveolar surgery, and occlusal adjustments when the pain is localized to the dentition or surrounding structures. The dentist should be the individual to determine whether the clinical findings indicate the presence of an odontogenic or periodontal disease that is likely to explain the pain. The dentist should counsel the patient, to prevent unnecessary procedures that may complicate the AFP problem.

Most of the medications used in the treatment of chronic pain have been originally approved for use in other conditions. Anticonvulsants, antidepressants, and antianxiety medications are often used as part of chronic pain management for their analgesic effects. These medications have effects primarily in the CNS. Newer medications, especially anticonvulsants and antidepressants, are being developed with the hope that they will be more effective without as many side effects. Gabapentin, a drug recently approved as an adjunct in treating seizure disorders, is an example. It is also being used for chronic pain disorders, especially neuropathic pain.

There has also been a renewed interest in the use of opioid medications to manage chronic nonmalignant pain. A concern that is often raised as the argument against using these drugs is the possibility of dependence, resulting in increased disability and antisocial behavior. The preliminary research that has been published suggests that dependence and psychosocial dysfunction are not significant problems. These medications may be effective in certain circumstances in chronic nonmalignant pain.

Patients with AFP pursue many alternative or holistic therapies when they do not receive satisfaction from their physicians and dentists. Most patients will have consulted numerous physicians and dentists; five to seven, according to recent studies. The lack of patient’s ability to access appropriate care drives them to seek any possible method of treatment. There is little data on the use of these therapies in AFP. Acupuncture has been used, with anecdotal reports of effectiveness.

Presently the most effective method of managing AFP is the multidisciplinary pain clinic model, with the dentist participating as part of the team. The dentist is in a unique position to perform the comprehensive examination of the orofacial region, including diagnostic local anesthetic testing when indicated. Dentists are also skilled at taking and interpreting radiographs of the teeth, periodontium, and jaw bones. The dentist can be the individual who supervises the use of any medications applied directly to the oral mucosa or the construction and fitting of any oral appliances that may be part of treatment. The dentist who has advanced training and skill in managing chronic facial pain may prescribe and manage the medications and coordinate the interdisciplinary treatment.

### Table 33–1 Differentiating Other Disorders from Atypical Facial Pain

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Characteristics</th>
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<tbody>
<tr>
<td>Myofascial pain</td>
<td>Tender muscles on palpation&lt;br&gt;Altered range of mandibular movement&lt;br&gt;Reproduction of the pain by palpation examination of the involved muscle&lt;br&gt;Association of pain with masticatory function</td>
</tr>
<tr>
<td>Odontogenic pain</td>
<td>Changing pain symptoms to reflect advancing inflammatory disease&lt;br&gt;Consistent changes in symptoms associated with thermal stimulation to teeth&lt;br&gt;Physical findings on examination (e.g., specific tooth abnormalities on diagnostic testing)</td>
</tr>
<tr>
<td>Neuropathy</td>
<td>History of injury&lt;br&gt;History of altered sensation&lt;br&gt;Altered sensory findings on physical examination&lt;br&gt;Loss of function&lt;br&gt;Symptoms becoming increasingly severe over time</td>
</tr>
<tr>
<td>Temporal arteritis</td>
<td>Temporal pain&lt;br&gt;Constitutional symptoms of illness&lt;br&gt;Findings of swelling and tenderness associated with the temporal artery&lt;br&gt;Increased erythrocyte sedimentation rate&lt;br&gt;Positive temporal artery biopsy</td>
</tr>
<tr>
<td>Somatoform pain disorder</td>
<td>Pain causing significant distress or impairment in social, occupational, or other important functioning&lt;br&gt;Psychological factors are judged to have an important role in the onset, severity, exacerbation, or maintenance of the pain&lt;br&gt;Pain is not better accounted for by a more specific mood, anxiety, or psychotic disorder</td>
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</table>
Conclusion

The cause of AFP remains an enigma. The population seeking treatment is reported to be mainly female between the ages of 40 and 60 years. A significant percentage of patients relate a dental procedure as the initiating event related to the onset of pain, but examination reveals no abnormality. Patients have histories that usually include multiple consultations with dentists and physicians and multiple treatments including surgical procedures, that are ineffective. The diagnostic assessment to establish the diagnosis of AFP is extensive, to rule out alternative explanations. Treatment is best approached using the multidisciplinary pain clinic model that can adequately address the many problems that develop as a result of chronic pain. The dentist’s role is to provide the expertise in orofacial examination and to provide and supervise local therapy that is part of comprehensive management.

Suggested reading