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Temporomandibular Joint Disorder (TMJ)

What is the temporomandibular joint?

The temporomandibular joint (TMJ) is the area directly in front of the ear on either side of the head where the upper jaw (maxilla) and lower jaw (mandible) meet. Within the TMJ, there are moving parts that allow the upper jaw to close on the lower jaw. This joint is a typical sliding "ball and socket" that has a disc sandwiched between it. The TMJ is used throughout the day to move the jaw, especially in biting and chewing, talking, and yawning. It is one of the most frequently used joints of the body.

The temporomandibular joints are complex and are composed of muscles, tendons, and bones. Each component contributes to the smooth operation of the TMJ. When muscles are relaxed and balanced and both jaw joints open and close comfortably, we are able to talk, chew, or yawn without pain.

We can locate the TMJ by putting a finger on the triangular structure in front of the ear. The finger is moved just slightly forward and pressed firmly while opening the jaw. The motion felt is from the TMJ. We can also feel the joint motion if we put a little finger against the inside front part of the ear canal. These maneuvers can cause considerable discomfort to a person who is experiencing TMJ difficulty, and doctors use them for making diagnosis.

What are TMJ disorders, and how are they caused?

TMJ disorders are a group of complex problems of the jaw joint. TMJ disorders are also sometimes referred to as myofascial pain dysfunction and the Costen's Syndrome. Because muscles and joints work together, a problem with either one can lead to stiffness, headaches, ear pain, bite problems (malocclusion), clicking sounds, or locked jaws. The following are behaviors or conditions that can lead to TMJ disorders.

1. Teeth grinding and teeth clenching (bruxism) increase the wear on the cartilage lining of the TMJ. Those who grind or clench their teeth may be unaware of this behavior unless they are told by someone observing this pattern while sleeping or by a dental professional noticing telltale signs of wear and tear on the teeth. Many patients awaken in the morning with jaw or ear pain.
2. Habitual gum chewing or fingernail biting.
3. Dental problems and misalignment of the teeth (malocclusion). Patients may complain that it is difficult to find a comfortable bite or that the way their teeth fit together has changed. Chewing on only one side of the jaw can lead to or be a result of TMJ problems.
4. Trauma to the jaws. Previous fractures in the jaw or the facial bones can lead to TMJ disorders.

5. Stress frequently leads to unreleased nervous energy. It is very common for people under stress to release this nervous energy by either consciously or unconsciously grinding or clenching their teeth.
6. Occupational tasks such as holding the telephone between the head and shoulder may contribute to TMJ disorders.

What are the common symptoms of TMJ disorders?

TMJ pain disorders usually occur because of unbalanced activity, spasm, or overuse of the jaw muscles. Symptoms tend to be chronic, and treatment is aimed at eliminating the precipitation factors. Many symptoms may not appear related to the TMJ itself. The following are common symptoms.

Headaches: Approximately 80% of patients with TMJ disorder complain of headache, and 40% report facial pain. Pain is often made while opening and closing the jaw. Exposure to cold weather or air conditioned air may increase muscle contraction and facial pain.

Ear Pain: About 50% of patients with TMJ disorder notice ear pain and do not have signs of ear infection. The ear pain is usually described as being in front or below the ear. Often, patients are treated multiple times for a presumed ear infection, which can often be distinguished from TMJ disorder by an associated hearing loss or ear drainage (which could be expected if there really was an ear infection). Because ear pain occurs so commonly, ear specialists are frequently called on to make the diagnosis of a TMJ disorder.

Sounds: Grinding, crushing, or popping sounds, medically termed crepitus, are common for patients with TMJ disorder. These sounds may or may not be accompanied by increased pain.

Dizziness: Of patients with TMJ disorder, 40% report a vague sense of dizziness or imbalance (usually not the spinning type vertigo). The cause of this type of dizziness is not well understood.

Fullness of the ear: About 33% of patients with TMJ disorder describe muffled, clogged or full ears. They may notice ear fullness and pain during airplane takeoffs and landings. These symptoms are usually caused by Eustachian-tube dysfunction, the structure responsible for the regulation for pressure in the middle ear.

It is thought that patients with TMJ disorders have hyperactivity (spasms) of the muscles responsible for regulating the opening and closing of the Eustachian-tube.

Ringing in the ear (tinnitus): For unknown reasons, 33% of patients with a TMJ disorder experience noise or ringing in the ears (tinnitus). Of those patients, half will have resolution of their tinnitus after successful treatment of their TMJ disorder.

How are patients evaluated and diagnosed when TMJ problems are suspected?

A completed dental and medical evaluation is often necessary and recommended to evaluate patients with suspected TMJ disorders. One or more of the following diagnostic clues or procedures may be used to establish the diagnosis. Damaged jaw joints are suspected when there are popping, clicking, and grating sounds associated with movement of the jaw. Chewing may become painful, and the jaw may lock or not open widely. The teeth may be worn smooth, as well as show a loss of the normal bumps and ridges on the tooth surface. Ear symptoms are very common. Infection of the ear, sinuses, and teeth can be discovered by medical examination. Dental x-rays, computerized tomography (CT), and imaging (MRI) is used to analyze soft tissues.

How can TMJ disorders be treated?

The mainstay of treatment for acute TMJ pain is heat and ice, soft diet, and anti-inflammatory medications.

1. **Jaw rest:** It can be beneficial to keep the teeth apart as much as possible. It is also important to recognize when tooth grinding is occurring. Patients are advised to avoid chewing gum or eating hard, chewy, or crunchy foods such as raw vegetables, candy, or nuts. Foods that require opening the mouth widely, such as a big hamburger, are not also recommended.
2. **Heat and ice therapy:** These assist in reducing muscle tension and spasm. However, immediately after an injury to the TMJ, treatment with cold applications is best. Cold packs can be helpful for relieving pain.
3. **Medications:** Anti-inflammatory medications such as aspirin, ibuprofen (Advil and others), Naproxen (Aleve and others), or steroids can help control inflammation. In specific situations, other medicines such as muscle relaxants or steroid injections may be helpful.
4. **Physical therapy:** Passively opening and closing the jaw, massage, and electrical stimulation help to decrease pain and increase the range of motion and the strength of the joint.
5. **Stress management:** Stress support groups, psychological counseling, and electrical stimulation help to decrease pain and increase the range of motion and the strength of the joint.
6. **Occlusal therapy:** A custom-made acrylic appliance which fits over the teeth is commonly prescribed for night but may be required throughout the day. It acts to balance the bite and reduce or eliminate teeth grinding or clenching (bruxism).
7. **Correction of bite abnormalities:** Corrective dental therapy, such as orthodontics, may be required to correct an abnormal bite. Dental restorations assist in creating a more stable bite. Adjustments of bridges or crowns act to ensure proper alignment of the teeth.
8. **Surgery:** Surgery is indicated in those situations in which medical therapy has failed. It is done as a last resort. TMJ arthroscopy, ligament tightening, joint restructuring, and joint replacement are considered in the most severe cases of joint damage or deterioration.

Temporomandibular Joint Disorders at a Glance

- The temporomandibular joint (TMJ) is the site where the upper jaw (maxilla) and lower jaw (mandible) meet.
- TMJ disorders are a group of complex problems with many possible causes.
- Symptoms of TMJ disorders include headache, ear pain, dizziness, and fullness or ringing in the ear.
- There are many treatment options for TMJ disorders.

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