

## TMD (Temporomandibular Joint Dysfunction)- the Great Impostor A Case Study of TMD Disguised as Various Medical Conditions

Jaw pain is the most common symptom people associate with TMD. However, it is not the only one. Due to the joint's close proximity to the brain and pathological mechanism, it induces a wide range of symptoms through out the entire body. When these symptoms surface at locations other than the jaw joints, they tend to mimic other medical conditions that may share some common pathways. Because of this sharing of common pathways, the true etiology is often masked. These symptoms may be reduced to a tolerable state, but they would always return without treating the true cause of the problem.

To appreciate the uniqueness of TMD, we need to have a basic understand of the anatomy. Our human skull made of several bone plates stitched together by sutures. This flexible design allows our head to absorb blunt force without damaging the brain. TMJ sits under Temporal bone. Within and around this particular bone, there are several major nerves and muscles passing through. These nerves control a wide range of functions such as facial expression, hearing, swallowing process and other involuntary muscle movements.

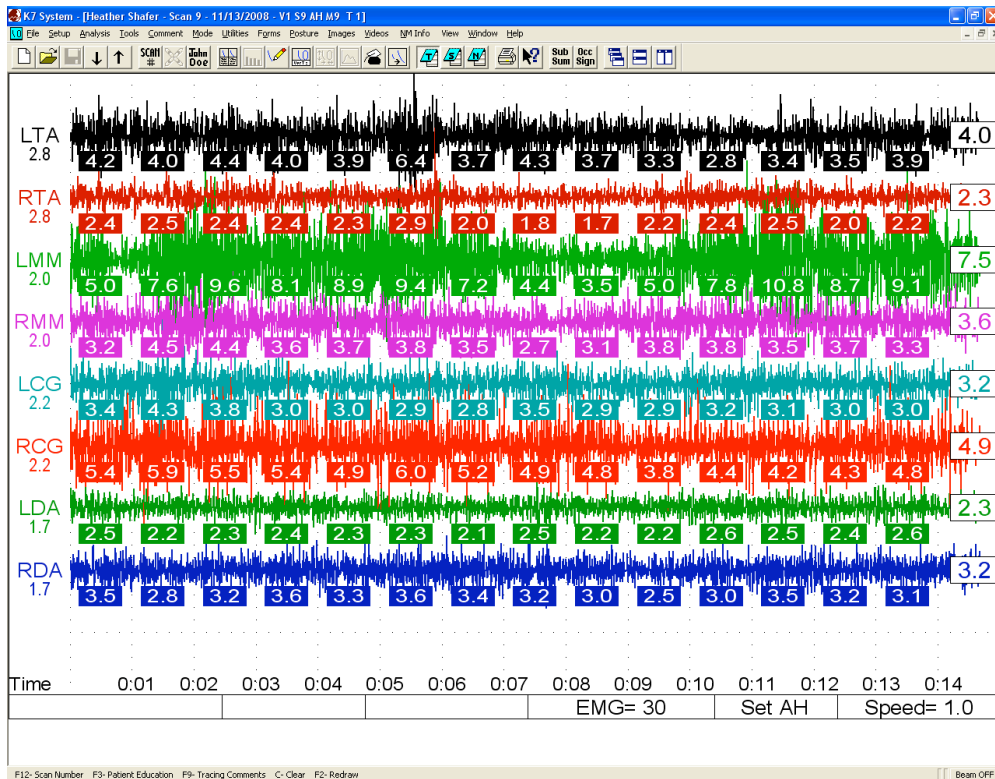
As we open and close our mouth, TMJ normally just glides over Temporal bone with the help of several major muscles. In a pathological situation, these muscles are often in spasm. The direct consequence is bracing of TMJ against Temporal bone. Compression of Temporal bone would in turn compress the nerves in the near proximity. A group of symptoms is the direct consequence of such compression. Below is a partial list of symptoms:

Headaches	Ear Congestion	Vertigo (Dizziness)	Tinnitus (Ringing in Ears)
Dysphasia (Difficulty Swallowing)	Facial Pain	Paresthesia of fingertips	Thermal Sensitivity (Hot & Cold)
Trigeminal Neuralgia	Bells Palsy	Nervousness/Insomni	Cervical Pain

Individually, each of these symptoms listed in the above table does not show a clear connection to TMD. Patients present these symptoms to their medical doctors. Based on their medical training, the doctors see and treat these symptoms differently. The result is partial improvement at best since the true cause of the problem has not yet been addressed. As time goes by, the side effects produce by chronic use of medication may further mask the true origin of the problem or create other health issues. Although non-life threatening, quality of life would suffer from this chronic condition.

## CASE REPORT

Heather is a young lady who presents to our office for consultation regarding her chronic headache. She had many episodes of headache each week. The pain mostly comes from left side of her face and around the eyes. In addition to chronic headache, she also has hypothyroid condition. Her medical doctor diagnosed her headache as vestibular migraine. Medication given has some success in reducing the numbers of episode. Clinically, Heather has sore chewing muscles. Her TMJ clicks and sometimes painful. She admits to clenching. There is no other significant issue with her dentition and supporting tissue. Based on the size her upper front teeth, we estimated her teeth are over closed by 5 mm. This is a significant number in dental term. Analysis of her major chewing muscles by scanning muscle fiber firing frequency shows a significant spasm. Notice the first four lines of the graph below. The left side of each line has three letters designation and a number. That number represents what **normal** muscle should read. One the right side of each line, the number listed is the **actual** reading.



Before Treatment

### Impression:

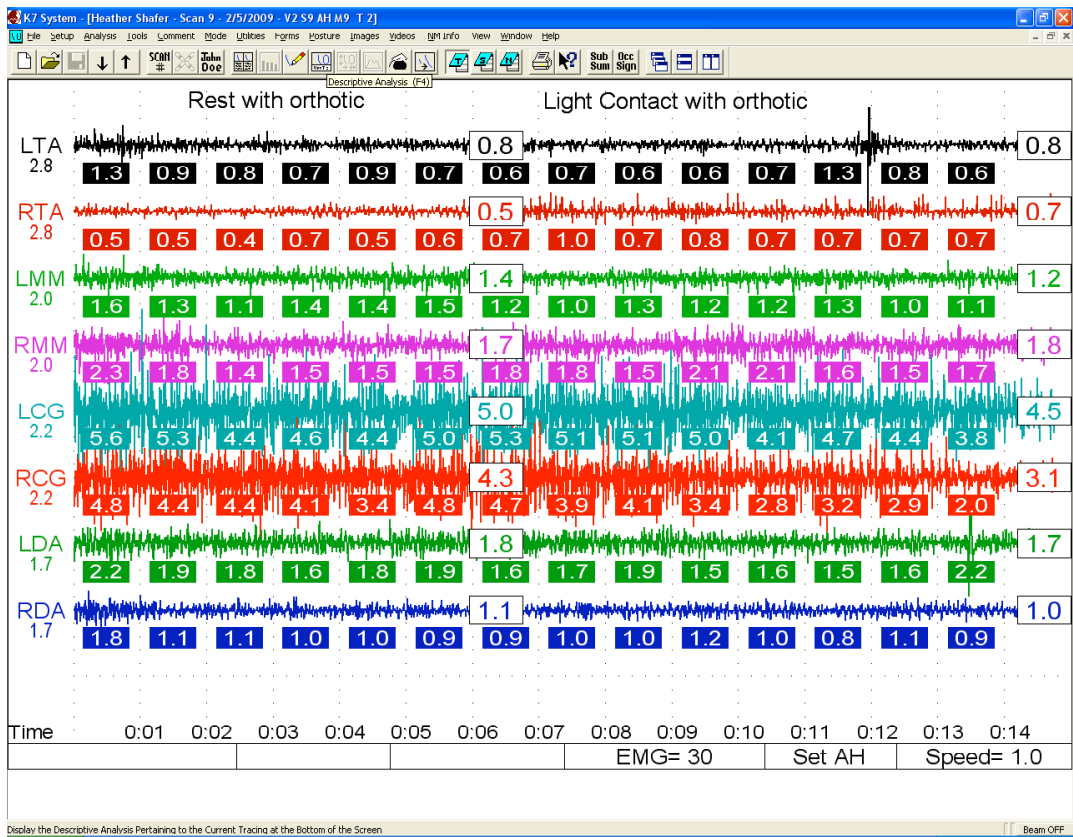
By definition, vestibular migraine is a kind of migraine that is preceded by vertigo (dizziness). Other symptoms may include: nausea, fainting, abnormal eye movement, hearing loss, weakness in arms and legs. The cause of the vestibular migraine is unclear.

However it is generally believed to be a neurological abnormality in the back of the brain. There are no drugs to treat vestibular migraine specifically. Patients are given drugs to treat vertigo and migraine separately. The most common age group is late teens/ early 20's.

Heather certainly fits the profile of a vestibular migraine patient; however, the clinical picture changes once we add the TMJ clicking, over closing, clenching, and muscle spasm. The list of vestibular migraine symptoms is very similar to TMD symptoms. Over closing by 5mm could certainly compress the nerves to produce the symptoms. The question becomes which is the real etiology? Is it a neurological abnormality or TMD?

**Treatment:**

We treated Heather based on the assumption of TMD. Using neuromuscular techniques, we construct an oral appliance for her. The goal of this appliance is to decompress TMJ and relax the chewing muscles. Three months after she began to wear orthotic, we took another look at her muscles spasms:



Compare the first four lines to the pre-op graphs. We see a dramatic improvement even with only three months. Although there are other muscles with spasms not yet resolved,

this early result is still very remarkable. Subjectively, Heather is reporting less episodes of headache and improving sense of general well being.

This case is far from over. There are still issues that may or may not be able to solve by TMD treatment alone. Ultimately, we suspect it would take the combine effort of both the medical and dental team to resolve Heather's issues. This is case does demonstrate how a fresh perspective to the same problem could produce great results.