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Migraines and Massage Therapy

by Allen Galante, Licensed Massage Therapist

Blinding Thunder by Angela Fristoe

Starting gentle, faintly first
a slow rush of pressure
I barely notice it
the thundering behind my eyes

It begins to build
to a pounding
I feel blinded
by thunder behind my eyes

Everything starts to fade
I can no longer see the sights
I am blinded
Only the thunder behind my eyes

Still it builds
pulsing, pushing
breaking me
the thunder behind my eyes

A light hits
shining, searing
tearing me apart
this thunder behind my eyes

Whispers turn to yells
grating, shrill
bringing me to my knees
thunder behind my eyes

At last it fades away
hours after fact
I lay my head and release my tears
thunder behind my eyes

"Migraine" by Delphine Karjala





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“Of the 45 million Americans who suffer from chronic headaches, more than 60 percent suffer from migraines. For many, it’s a distressing disorder that is triggered by stress and poor sleep. In a recent study, **massage therapy recipients exhibited fewer migraines and better sleep quality during the weeks they received massage**, and the three weeks following, than did participants that did not receive massage therapy. Another study found that in adults with migraine headaches, **massage therapy decreased the occurrence of headaches, sleep disturbances and distress symptoms. It also increased serotonin levels, believed to play an important role in the regulation of mood, sleep and appetite.**”

Sources: *Annals of Behavioral Medicine*, August 2006; *International Journal of Neuroscience*, 1998. (*emphasis added*)

The picture and text above shed light on two perspectives of migraines – personal representations of the pain one endures and a statistical description. The impact of massage as a preventative treatment cannot be underestimated and is a burgeoning field of therapy for migraine syndromes. I will discuss the early and progressive symptoms, diagnostic methods, and all body systems potentially affected by migraines. As with most pathologies – with such a wide variation in symptoms, diagnostic observations, and treatments – total comprehensiveness in one paper is impossible. Therefore, I will focus on the major elements of migraines.

Prodrome phase - early onset symptoms

For many people, the word “Aura” evokes parapsychological luminous visions. But for some migraine sufferers (approximately fifteen percent of all migraine sufferers), aura also has a physiological and



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scientific explanation. Migraine auras are an early onset symptom due to increased nerve activation, causing visual flashing lights or arcs of sparkling. Most migraine patients don't report this symptom, for those who do it may be a warning sign of an oncoming attack.

With or without auras, another symptom of a migraine is a transient heightened sense of euphoria (brought on by an "extreme vasoconstriction in the affected hemisphere"⁽⁴⁾) followed by a crash to an impending sense of doom, accompanied by irritability and anxiety (related to "a huge vasodilatation: a veritable flood of blood to the affected part of the brain."⁽⁴⁾). If one is paying attention to these emotional states, he or she may be able to take simple action – for example, eating or resting -- and avoid a migraine all together.

Fatigue can provoke a migraine. Some patients report clumsiness and inability to think clearly for up to two days prior to onset. This suggests the subject be evaluated for a Vestibular Balance Disorders in the vestibular branch of CN VIII (the vestibulocochlear nerve)⁽³⁾. Other symptoms include auditory or olfactory hallucinations, slurred speech, vertigo, tingling or numbness of the face and extremities, and hypersensitivity to touch⁽³⁾.

Presenting complaints

Migraines are primarily considered vascular headaches, and the majority of sufferers are women⁽³⁾. New research is challenging the vascular categorization and revealing another cause: brain dysfunction⁽⁵⁾.

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Migraines are idiopathic, and while much is unknown, we are sure that both brain changes and heredity play a role. “If one parent has a history of migraines, the child has a 50% chance of developing migraines, and if both parents have a history of migraines, the risk jumps to 75%.”⁽⁷⁾

As mentioned above, migraines are related to blood flow changes in the brain. Following are migraine symptoms as outlined by the International Headache Society: “A diagnosis of migraine headache may be determined if a patient has at least five attacks that meet the following criteria:

- * Headache attacks that last four to 72 hours (untreated or unsuccessfully treated)
- * Headache that has two of the following characteristics:
 - o Unilateral site
 - o Pulsating quality
 - o Moderate to severe intensity
 - o Aggravation by walking stairs or similar routine physical activity
- * During headache, at least one of the following symptoms:
 - o Nausea or vomiting (or both)
 - o Photophobia and phonophobia (unusual sensitivity to light and sound)
 - o No evidence of another related disease”⁽⁴⁾

Sensory pains can foster the development of fears - photophobia from the pain of light in the eyes and/or phonophobia due to the pain of loud noises.

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In addition to classifying the type of headache, the International Headache Society defines “intensity of pain on a verbal 4-point scale:

0 no pain

1 mild pain 'does not interfere with usual activities'

2 moderate pain 'inhibits, but does not wholly prevent usual activities'

3 severe pain 'prevents all activities’”⁽⁴⁾

The symptoms of a migraine may range from no pain to severe and can be reported, with an attempt at objectivity, by using the above numerical scale (or the more familiar ten point scale). However numerically quantified, the pain’s pulsating quality may range from a faint level to an intense throbbing and pounding often occurring on “half of the head,” or Hemicranial.

Progressive symptoms

Many classifications exist for migraines and often are not fully applied to a sufferer until a headache history is established. Migraines can be classified as “Classic” (with aura) or “Common” (without aura). Other classifications include Ocular (eye blood vessels), Ophthalmoplegic (pain in eye with droopiness), Basilar Artery (in the brainstem), Carotidynia a.k.a. “facial migraine” (painful in neck and jaw), and Status (lasting over three days).⁽⁴⁾

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Regardless of the variety of migraine, many migraine sufferers often self-medicate, doing themselves more harm than good. Overmedication may lead to “rebound headaches” which propagates frequent headaches with harsher symptoms.

Methods of diagnosis - blood test results to rule out other problems

Unfortunately, a blood test cannot identify migraines⁽¹²⁾. Blood tests may rule out other problems (for example meningitis, brain cancer, and possible stroke issues). Imaging tests, such as Magnetic Resonance Imaging (MRI) and computerized tomography (CT Scans), can take pictures of the brain to rule out tumors or other serious problems.

Organ system considerations and findings

Migraines affect almost every system of the body. A migraine starts when hyperactive nerve cells stimulate blood vessels. The central nervous system is affected by the changes in blood vessel dilation and constriction pattern. The expansion of blood vessels in the brain can apply pressure on the meninges that in turn radiate pain.⁽¹⁾

The painful pulsation is caused by inflammatory substances (prostaglandin releases).⁽¹⁾ Release of serotonin is underway as well. The serotonin neurotransmitter is a controlling function of the



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constriction/dilation and triptans activate serotonin receptors to stop the painful attack. Lymphatic white blood cells reach the site of inflammation and work to protect and provide immunity during inflammation.

The peripheral nervous system will experience a slowness or lagging of information affecting fine motor along with cranial nerves for the face, eyes and speech. This leads to lethargy, slurred speech, and droopy eye symptoms. Also gastrointestinal issues arise with stomach nausea (and possible vomiting) triggered by a high pain level.

Integumentary/skin sensations may also occur, such as tingling or numbness of the face and extremities, and hypersensitivity to touch affecting cutaneous nerve receptors. Attempts to cool the body may affect temperature regulation, and sweat glands become activated to lower body temperature.

Hormones -- especially in women -- have been linked with migraine problems, and correlate with menstruation cycles, menopause, and pregnancy. The main hormonal link is with changes of estrogen and progesterone. "Some women have reported the initial onset of migraines during the first trimester of pregnancy, with disappearance of their headaches after the third month of pregnancy."⁽⁸⁾

The cardiovascular system transports blood through heart blood vessels and affects the whole body including the brain. A migraine attack, as with most pain, can cause a high blood pressure reading. In

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addition, surprising new research illustrates a connection with a heart malady. “In 2005, research was published indicating that in some people with a patent foramen ovale (PFO), a hole between the upper chambers of the heart, suffer from migraines which may have been caused by the PFO. The migraines reduce in frequency if the hole is patched.”⁽¹¹⁾

Migraines may also be caused by ecological systems (outside the body) emphasizing the interrelationship of organisms and their environment. Humans have extensive technology to control their indoor environment, although external weather changes can trigger some migraines. “Most likely to trigger a migraine were, in order:

1. Temperature mixed with humidity. High humidity plus high or low temperature was the biggest cause.
2. Significant changes in weather
3. Changes in barometric pressure.”⁽¹⁰⁾

Client approach as a massage therapist:

The main tool available to a massage therapist is touch. For migraines, massage should be employed as a gradual approach. Deep tissue massage may trigger migraines, so good communication with clients during massages (and as follow-up to massages) is important. In addition, some migraine sufferers may find relief through chiropractic care.

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An area of opportunity for relieving migraine pain via massage is possible by focusing on one small muscle. “New research shows an anatomical connection between a deep occipital-cervical muscle, the rectus capitis posterior minor (RCPMin) and the Dura Mater -- the connective tissues surrounding the spinal cord and the brain”⁽²⁾. Refer to Appendix D. RCPMin is one of the suboccipital muscles deep within the posterior neck below the trapezius, splenius capitis, and semispinalis capitis⁽²⁾. The challenge for a massage therapist is to locate this muscle in order to effect it directly. The RCPMin is bilateral (like all of the suboccipitals). Treating this area and RCPMin specifically can provide relief along this area of pain. “To outline the suboccipitals location, find the spinous process of C-2, the transverse process of C-1, and the space between the superior nuchal line of the occiput and C-2. The upper fibers of the trapezius can also be used as a marker. The lateral edge of the trapezius is the same width as the suboccipitals.”⁽²⁾ Refer to Appendix C.

After addressing RCPMin specifically, a massage therapist can relax tension in other areas of the cranial, splenius, semispinalis, levator scapula, and muscles of mastication. Remembering the mantra, “structure dictates function” and understanding the interconnectedness of muscles and bones will help a massage therapist determine patterns of tension that may indirectly effect the RCPMin (for example a tense muscle attached to the mastoid process of the temporal bone may cause counter tension in the



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suboccipitals). General massage will also help relieve tension in related muscles – helping the subject relax and reduce their blood pressure subsequently reducing vasodilatation in their brain.

Another consideration is temperature therapy employed via hydrotherapy. For example hot/cold therapy can be helpful at different stages. Warm soaks can relax muscles and relieve tension. However, during a migraine attack, warm temperatures should be avoided. Instead, a cold shower or bath can help relieve the stress of an attack. If a cold shower and drinking cold water is employed with the early signs of a migraine, the attack may be avoided all together.

Upon acceptance by the client, a massage therapist may add some scented elements to the room during therapy. The smells of incense, peppermint, and lavender have been proven to help with migraines and headaches more so than most other scents.⁽⁶⁾

Another consideration for treatment is biofeedback – which a client would pursue with doctors specializing in this field. Biofeedback is defined by Merriam-Webster dictionary as “|bīō'fēd,bak| (noun) the use of electronic monitoring of a normally automatic bodily function in order to train someone to acquire voluntary control of that function” (Merriam-Webster dictionary). Biofeedback has been “proven in independent research to reach a Level 4: Efficacious rating (the second to best rating) for treating migraines”⁽¹³⁾.

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Other considerations involve researching herbal and nutritional supplements such as Butterbur, Cannabis, Coenzyme Q10, Feverfew, Magnesium Citrate, Riboflavin, and Vitamin B12.⁽⁶⁾ For these, it is important to work with a primary care physician who considers all possibilities and takes a holistic interconnectedness approach to health. It is also wise to avoid the trigger foods “including red wine, cheese, chocolate, coffee, tea, aspartame, MSG, and any kind of alcohol.”⁽³⁾

Possible negative outcomes

A doctor should be consulted immediately if a headache is accompanied by a fever, persists for more than a few hours, or if accompanied by blurred vision.

If migraines are very frequent (weekly) or last longer than a few hours, medical attention should be sought. Neurological and other testing may be employed to rule out other (more serious) conditions. Migraine headaches may indicate or raise the risk of hypothyroidism, cortical spreading depression, trigeminal nerve problems, tumor, aneurysm, hemorrhage, infection, transient ischemic attacks, stroke or heart attacks.⁽³⁾ Most of these conditions contraindicate massage or require close involvement with a client’s health care team.

Appendix A – Rectus Capitis posterior minor Figure 1 (a) and (b)

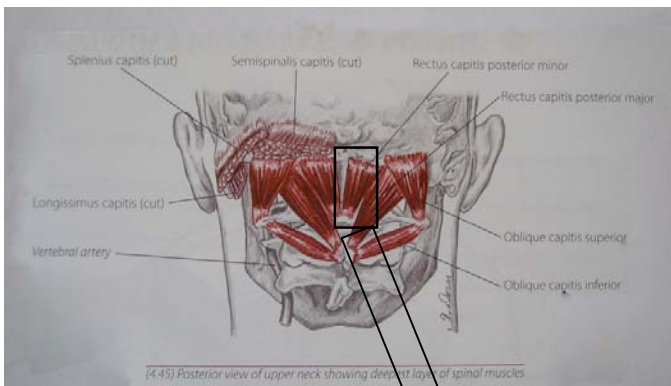


Figure 1 (a)

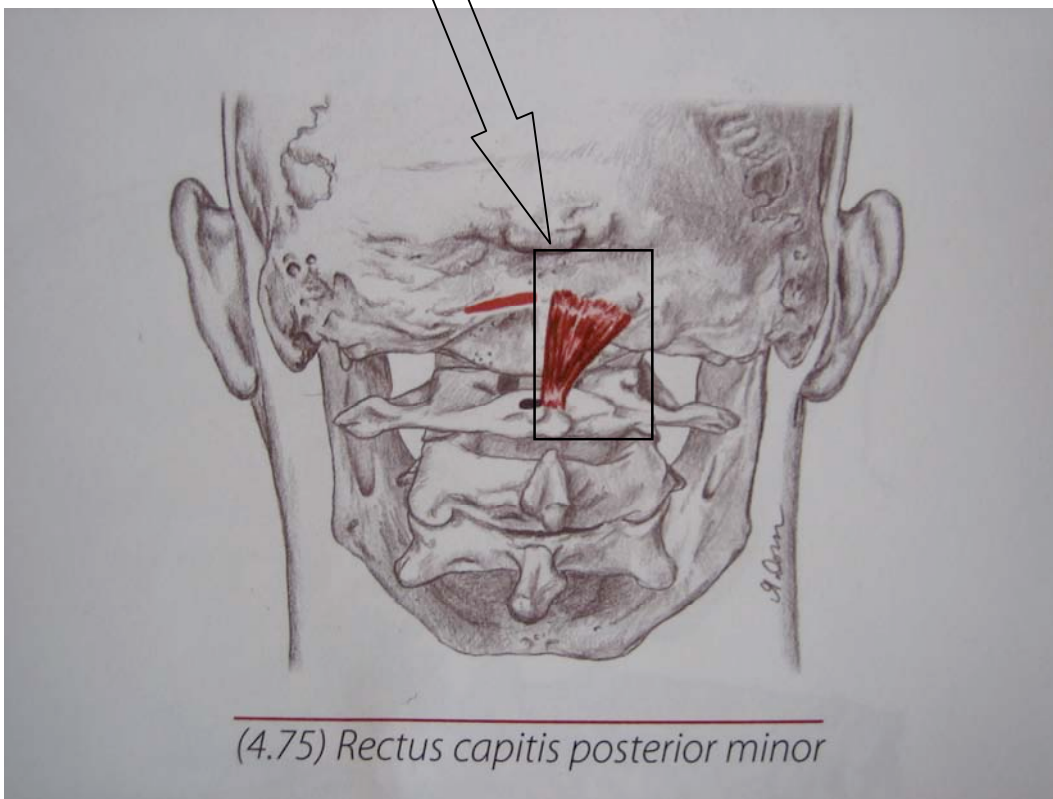
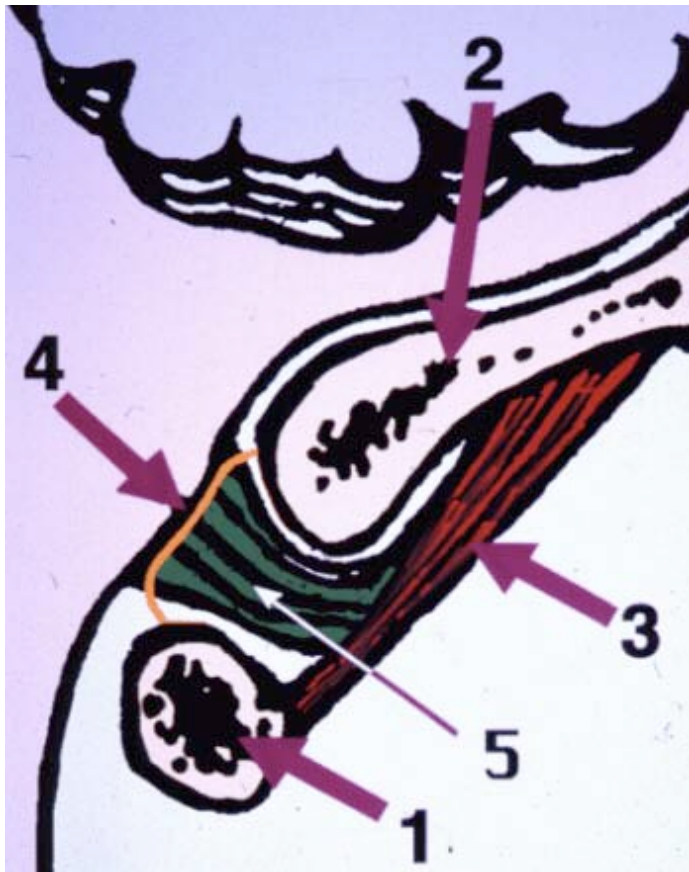


Figure 1 (b)

Figure 1 (a) illustrates a posterior view of upper neck showing deepest layer of the spinal muscles. (b) Rectus capitis posterior minor.

Andrew R. Biel (2005). *Trail Guide to the Body: How to Locate Muscles, Bones & More!* (Paperback) Boulder, CO: Books Of Discovery. Pp 198, 211

Appendix B - anatomical connection between a deep occipital-cervical muscle, the Rectus Capitis Posterior Minor and the Dura Mater:



- 1 - atlas
- 2 - occipital bone
- 3 - rectus capitis posterior minor
- 4 - spinal dura mater
- 5 - muscle-dural bridge

Hack, G.D., Koritzer, R.T., Robinson, W.L., Hallgren, R.C., Greenman, P.E.:
Anatomic Relation Between the Rectus Capitis Posterior Minor Muscle and the Dura
Mater. Spine, 20, 23, December, 1995, 2484-2486



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Resources:

Books:

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Page 1 poetry: "Blinding Thunder" by Angela Fristoe

Page 1 picture: "Migraine" by Delphine Karjala