



bi-monthly newsletter focusing on migraine awareness and education.

July 2007

HEADquarters Migraine Management Newsletter

Empowering headache sufferers to help themselves

Our mission is to promote the patient-centered care of headache and migraine, to promote migraine awareness, and to remove barriers to the self-management of migraine as a life-long disorder.

CT, MRI, or ?

When Do You Need Diagnostic Imaging?

Everyone knows, of course, when there is any sort of problem that "you should have had an MRI". But how true is this?

Not everyone with headache requires diagnostic imaging. And, in fact, there are reasons-aside from the obvious cost issues-that not everyone should have diagnostic imaging. CT (computed tomography) scans are performed by taking a series of x-ray views, which can be put together to construct multiplanar or three-dimensional views. This involves exposure to radiation. Fortunately, head CT scans involve far less radiation than do chest or abdominal CT scans. MRI scans (magnetic resonance imaging) do not use radiation to achieve the images obtained. If you want to know more, refer to this: [http:// health.howstuffworks.com/mri1.htm](http://health.howstuffworks.com/mri1.htm)

The risk of developing cancer from a single abdominal CT scan is one in 2000; the amount of radiation received is equivalent to 500 standard chest x-rays. By comparison, the amount of radiation in a head CT scan is equivalent to 100 chest x-rays. (See this article if you want all the technical details: <http://www.fda.gov/cdrh/ct/risks.html>) Did you know that you are exposed to more radiation when you fly on a plane than when you are on terra firma? Not to worry-a chest CT scan is 300 times the radiation of a coast-to- coast flight.

Compare this to the likelihood that you will have an abnormality: a comprehensive review of the medical literature regarding diagnostic imaging in non-acute headache has determined that there is a 0.2% prevalence of significant intracranial abnormalities in migraine patients with normal neurologic examinations. No imaging abnormalities were found in tension-type headache or cluster headache patients, again with normal neurologic examinations.

The notable exceptions were cough headache, exertional headache, and sex-induced headache. These conditions were more likely to be associated with structural abnormalities on imaging studies.

The US Headache Consortium, after reviewing the literature, concluded that the

available studies of headache were insufficient to conclude whether CT or MRI were superior as a diagnostic technique *on the basis of the studies done in headache*. This, however, does not mean that there are not many studies available discussing the relative advantages and disadvantages of each imaging technique in general.

The Headache Consortium has recommended, based on the evidence at hand, that imaging should not be performed if it will not change the management of the headache, or if the individual is not significantly more likely than anyone else in the general population to have a significant abnormality. (If anyone wishes to wade through this [25 page document](#), feel free.

Imaging may also be advantageous to allay worry that cannot be otherwise put to rest.

Can imaging make the diagnosis of migraine? No. It cannot. As yet, we have no diagnostic test that tells us you absolutely do or do not have migraine, or cluster, or tension-type headache. These are clinical diagnoses, based on your symptoms and on your neurologic examination.

What **can** imaging tell us? It can tell us when you have a sinus infection, which can be important, as this can be confused with migraine at times. (See this previous article <http://www.migrainesurvival.com/Newsletters/NewsletterDecJan0506.pdf> for more information.)

You will notice that the Headache Consortium Guidelines discuss "non-acute headaches". In cases of acute headache, the situation changes. If there is a new headache, or an abrupt change in headache, imaging is warranted. (Switching sides from right to left is generally not a sufficiently worrisome change to necessitate imaging.) If headache pain suddenly drops you to your knees, especially if it never has before, by all means-call someone.

Does everyone with migraine need an MRI? Well, I still haven't had mine.

EVEN MY HAIR HURTS!

Have you ever had a headache so bad that it felt like your hair hurt? Guess what? It's not impossible. It has been determined that your hair can hurt-at least it can if you are a mouse. Recent research has been reported that looks into the complex relationships of pain fibers in the scalp and skull.

Conventional wisdom has been that there are no pain fibers within bone itself, but only on the outer lining of the bone. [Dr. Rami Burstein](#) at Harvard Medical School set out to discover if this was true. His findings, reported both at the American Headache Society meeting in Chicago and the recent International Headache Congress in Stockholm, showed that in mice, nerve bundles running through the scalp and on the surface of the bone sent branches off that went through holes in the skull, ending up on the meningeal linings. Other nerve bundles running through the covering of the brain known as the dura appeared to send branches across and through the bone of the skull.

Where the pain fibers were the most dense were at the sutures of the skull: where the bony plates of the skull come together and are fused. Click here for more information regarding sutures: <http://www.getbodysmart.com/ap/skeletalsys/tem/skeleton/axial/skull/additionalfeatures/sutures/animation.html>

Is this good news? It is if it broadens our understanding of headache pain and migraine pathophysiology. And it may mean that there is more than one kind of migraine-even aside from aura and migraine without aura. But you already suspected

that.

AND MY TEETH HURT, TOO.

Referred Pain and Allodynia

Ever have one of those headaches that make you want to take off your earrings and necklace, hope you don't have to talk on the phone, and wear sunglasses-except for the fact that you can't stand the *idea* of glasses resting on your face? Guys, want to rip off your tie and chance not shaving till the headache is over, no matter how many days it might take? You're not alone.



Some of us even go so far as to cut the labels out of the neckline of clothing so the prickly metallic or nylon threads won't poke us during a headache. I myself find it highly ironic when a garment has declared its 100% natural fiber goodness and superiority on a label that has been sewn in with nylon thread. Oh yeah? Then why is it stabbing me?!?

Weird sensations during a headache can occur for a couple of reasons. One is what is called referred pain, and the other is called allodynia. Referred pain means that sometimes pain is felt somewhere in a nerve's territory other than where the causative problem is. In a sense, all of migraine could be considered a form of referred pain, as the cause is in the brain, and you feel it outside the brain. That is why the findings above about the skull and scalp are so important-it is evidence of direct pain transmission, and not referred pain.

But referred pain within the trigeminal nerve pathways are important to know about, as it explains why you can feel pain in your sinuses during a migraine-and not have sinusitis. Or why your teeth can hurt during a migraine, and it doesn't mean that there is anything wrong with those teeth. Because each and every tooth has a little branch of the trigeminal nerve that supplies its sensation, and because the sinus cavities are served by branches of the trigeminal nerve as well. So, when your trigeminal nerve pathways become activated during a migraine, these areas are prone to hurting.

Allodynia means that a stimulus that would not otherwise be painful has become painful. This can occur as a migraine becomes more severe. In various studies, 32% to 80% of migraine sufferers have been identified with allodynia during attacks, with an average of about 2/3. Not everyone who gets allodynia gets it with every headache, of course. It tends to develop gradually, and as the headache becomes more severe.

While most migraineurs with allodynia experience it just in the head, some also have allodynia in other parts of the body-usually in the upper extremities or torso, but allodynia in the feet, toes, and legs has been reported. Rarely allodynia is experienced away from the head only.

What can you do about allodynia? Some studies have suggested that treating the headache early in time or when the pain is mild can help forestall the development of allodynia. Of course, finding out if you would benefit from a preventative strategy for your migraines is also essential. The fewer attacks there are to treat, the less opportunity there is for allodynia to happen.

Oh-and remember to *cut* the labels out of your clothing instead of yanking them out in the middle of a headache like a friend of mine does. It gets expensive having the

dry cleaner mend all your clothes.

Do you suffer from headaches?



If you suffer from headache or migraine, please visit our companion website,

migrainesurvi_val.com for more information regarding types of headache, trigger avoidance, treatment of headache, and other topics of interest to the headache sufferer.

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