

MIGRAINE HEADACHES AND COPPER TOXICITY - A CASE HISTORY

by Dr. Lawrence Wilson and William Risley, DC

© December 2009, L.D. Wilson Consultants, Inc.

All information in this article is for educational purposes only. It is not for the diagnosis, treatment, prescription or cure of any disease or health condition.

Abstract

Several researchers postulate an association between migraine headaches and excessive tissue copper. In this case history, a 38-year old woman with a ten-year history of daily migraine headaches obtained relief of her symptoms in response to a nutritional balancing program. At the time her symptoms improved, her hair tissue mineral analysis revealed a massive elimination of copper from her body tissues.

INTRODUCTION

Migraine headaches are a common and debilitating condition. They affect women more than men and result in extensive disability and discomfort. In spite of extensive research, the exact cause and cure for migraine headaches is still unknown. Treatment options remain limited.

Drs. Paul Eck, D. P. Harrison and others have written that excessive accumulation of copper in body tissues can contribute to migraine headaches. Copper concentrates in the brain, where it affects neurotransmitter levels and may irritate delicate tissues. This case history supports the hypothesis that copper accumulation in the tissues may contribute to some cases of migraine headaches.

METHODOLOGY

Mineral analyses were performed at Accutrace Laboratories, Phoenix, Arizona, a federally licensed testing laboratory with over 36 years of experience in tissue mineral analysis. Measurement was by induction-coupled plasma spectroscopy.

Hair samples were not washed at the laboratory. Research by Dr. Raymond LeRoy, DSc. and others indicate that washing hair at the mineral testing laboratory erratically removes water-soluble elements from the hair.

The interpretation of tissue mineral analysis is a complex subject. We have employed the method of interpretation pioneered by Dr. Paul C. Eck. He drew on the research of Dr. George Watson, PhD, Hans Selye, MD, Dr. Melvin Page, DDS, and many other pioneers of modern biochemistry and biological medicine.

CASE HISTORY

Mrs. H, age 38, suffered with migraine headaches on a daily basis for 10 years. She had a previous history of copper exposure. This is not necessary for copper to accumulate, but had occurred in this case, as follows.

When the headaches began, Mrs. H was using a copper intrauterine device (IUD). The device eventually became imbedded in her uterine wall and had to be surgically removed. Copper IUDs

can be an important source of copper. If the copper is not adequately excreted, it can accumulate in body tissues.

Mrs. H used Cafergot daily to control her headaches. However, she could not prevent their recurrence. A friend recommended that Mrs. H try following a nutritional balancing program to alleviate her severe head pain.

RESULTS OF THE FIRST MINERAL ANALYSIS - HIDDEN COPPER TOXICITY

The initial hair tissue mineral analysis in April, 1996, revealed several important imbalances. Among these were a low zinc level, elevated calcium and magnesium levels, and a low sodium/potassium ratio. Notably, the copper level was 1.5 mg% or 15 ppm, well within the normal range of about 1 to 2.5 mg%.

Mrs. H's mineral analysis revealed a condition called hidden copper toxicity. This means that excess copper is present in the body, but not in the hair. This occurs often because the primary storage sites for copper are the liver, brain, testes, ovaries and kidneys - not the hair.

Other tests. In this case, the hair mineral test was the only test performed to detect copper imbalance. However, in many or most cases, excess copper is not revealed on blood serum or urine tests, either. This occurs for the same reason as above, that the copper is hidden deep within the brain or liver. Ceruloplasmin, metallothionein, urine challenge tests and other blood and urine analyses sometimes used to detect copper imbalance may also be normal. A liver biopsy may reveal elevated copper, but is rarely performed in such cases, as it is more costly and invasive.

Understanding hidden copper imbalance on a hair mineral test. Research by Dr. Paul Eck indicates that when hidden copper is present, a hair mineral analysis frequently reveals other imbalances. Indicators of hidden copper toxicity are the following, provided the laboratory does not wash the hair, and provided the test is performed correctly:

- 1) Calcium level greater than about 70 mg%. The higher the calcium level, usually the more hidden copper is present.
- 2) Potassium less than 4 or 5 mg%.
- 3) Zinc less than about 13 mg% or greater than about 20 mg%.
- 4) Mercury level greater than 0.03 mg%.
- 5) Copper level less than 1.5 mg% in a slow oxidizer.
- 6) Sodium/potassium ratio less than 2:1.
- 7) Three lows or four lows pattern.

Why are these indicators accurate? Copper is required to fix calcium in the bones and for calcium mobilization from the tissues. This may account for the correlation between excess tissue copper and elevated tissue calcium.

Copper has an antagonistic relationship with zinc and potassium. This may account for low potassium and low zinc as indicators of copper toxicity.

The relationship between the hair sodium/potassium ratio and copper is more involved. Tissue

sodium levels depend on the level of aldosterone. This adrenal mineralocorticoid serves to retain sodium in the kidneys. Aldosterone is one indicator of adrenal gland activity. According to Dr. Eck's research, the adrenals may trigger the production of ceruloplasmin by the liver. Ceruloplasmin is a main copper-binding protein in the body.

Low hair levels of sodium and potassium and a low ratio of sodium to potassium have been found to correlate with adrenal weakness or insufficiency. This reduces the body's ability to produce ceruloplasmin, and thus reduces its ability to transport and remove excess copper. Low ceruloplasmin allows unbound copper to build up in the body tissues.

Mrs. H's test revealed four hidden copper indicators - elevated calcium, low zinc, a very low copper level, and a low ratio of sodium to potassium.

NUTRITIONAL CORRECTION

Mrs. H began an omnivorous diet with adequate protein, plenty of cooked vegetables, low fat and a small amount of unrefined complex carbohydrates such as whole grains and starchy vegetables. She avoided refined carbohydrates.

Adequate protein supports adrenal glandular activity, whereas excessive carbohydrates, especially simple carbohydrates, cause more stress on the adrenal glands. Animal protein contains more zinc, whereas vegetarian proteins contain more copper. So some animal protein daily is beneficial in these cases, though a lot is not required. Less fat in the diet tends to enhance the metabolic or oxidation rate, which was sluggish in this case.

Mrs. H also took nutritional supplements that furnished precise amounts of extra B-complex vitamins, vitamins A, C and E, adrenal glandular substance, manganese, zinc and digestive enzymes. The program design was based on the interpretation of her hair analysis by Dr. Eck's method.

She also made sure she got adequate rest and sleep every day and engaged in mild and gentle, not excessive exercise. For several years she had also had regular chiropractic adjustments. During the first few months on the program, Mrs. H experienced no significant changes in the frequency or severity of her headaches.

ELIMINATING COPPER

A hair analysis is an average reading of the deposition of mineral in the hair tissue over a three-month period. High readings often indicate the process of mobilization of a mineral out of tissue storage sites with elimination through the hair and other routes. Hair mineral analysis was repeated on Mrs. H every three or four months to monitor her progress and modify her diet and supplement program.

An ideal hair copper level according to Dr. Eck is about 2.5 mg% or 25 parts per million. Mrs. H's copper level was 1.3 mg% in July 1996. This is quite low, in fact. In October of 1996, a retest mineral analysis revealed a copper level of 2.8 mg%.

In March of 1997, another retest showed a copper level of 9.3 mg%. Three months later, it was 8.4 mg%. These elevated copper levels indicate an enhanced rate of elimination of copper through the hair tissue. During this time, Mrs. H noticed some mild improvement in her symptoms, though the headaches continued.

Each time the hair was retested, Mrs. H's dietary and nutrient program were revised and

adjusted. This is critical in nutritional balancing science to assure that the program is continuing to balance the body perfectly. By so doing, it allows the cellular energy production to remain at a high or optimum level, permitting deep healing to occur. It is like retuning an engine each time a repair is made, to keep the engine functioning perfectly along the way as repairs are made. Another way to understand this process is that these are mid-course corrections needed to keep Mrs. H's body on course.

A dramatic shift occurred in August of 1997. The copper level jumped to 64.2 mg%. This is over 25 times the ideal level of copper! The next test in January of 1998 revealed an even higher level of 80.6 mg%. These are unusually high readings. Soon after this test, Mrs. H reported a dramatic reduction in her migraine headaches and she has remained headache-free since.

The Mayo Clinic in Rochester, Minnesota tested Mrs. H's ceruloplasmin at this time. It was 64.6 mg/dl. The normal range is 22.4 to 43.1 mg/dl. The elevated level may reflect an active copper elimination in progress.

Copper elimination symptoms. Mrs. H reported some anxiety and rashes when her copper elimination occurred. This is not surprising, since her body was undergoing significant biochemical changes. Symptoms including rashes are common as copper is being dumped into the blood stream on its way to being eliminated.

Copper toxicity is associated with many symptoms including skin rashes, anxiety, depression, moodiness, weepiness, menstrual irregularities, fatigue, spaciness, varicose veins, many skin eruptions, weak nails, slow wound healing and infections, particularly yeast infections but others as well.

For more on these subjects, read [Copper Toxicity Syndrome](#) and [Copper Elimination Symptoms](#) on this site.

DISCUSSION

Copper and migraines. The simultaneous extreme rise in the hair copper level and dramatic alleviation of migraine headaches are worth noting. They support the notion that copper excess in the tissues may be associated with some cases of migraine headaches.

Retracing. The reappearance of acute symptoms or a shift from chronic to acute symptoms is called retracing, healing reactions or healing crises. These do not occur with suppressive therapy, but occur often with some natural therapies, including nutritional balancing science. They are signs of healing to be welcomed, although they may cause temporary discomfort. Not all symptoms, however, are healing reactions. Hair mineral analysis is an excellent way to monitor reactions and flare-ups of symptoms and guide clients through them.

The time factor in healing. This case also emphasizes the importance of staying with a program for several years in order to obtain desired results. In our experience, two years is often a minimum time needed to effect deep and lasting changes in body chemistry.

Importance of monitoring and retesting. This case illustrates the critical value of monitoring changes in body chemistry via hair mineral analysis. Symptoms alone are often not an accurate guide to deeper changes that are occurring within. Not only were the mineral tests helpful to assess subtle changes occurring in the body, but they helped guide the design of each nutrient and dietary program, and they supported the patient during healing and retracing reactions.