Gluten Associated Pathologies and their Herbal Management.

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I first became aware of the extent of the wheat/gluten problem when, as a young practitioner, I treated the first two schizophrenic patients in my clinic with a gluten free diet and nervines. Within a week both clients had stopped hearing voices! The voices recurred when gluten was re-ingested. How was it that an essentially digestive blend of herbs could affect the balance of their minds so profoundly?[1],[2]

Background to Celiac Disease Most of us are aware of celiac disease – a gluten associated enteropathy that affects up to 10% of the U.S. population.[3]

Gluten is a protein naturally occurring several grains, the most common being wheat, rye, barley, rye, spelt and kamut. Gluten content is expressed by the kinds of gliadins or glutenin present.[4]

Celiac disease is caused by genes in the HLA-DQ2 and HLA-DQ8 group[5] - any of these genes result in the production of inflammatory antibodies which may cause erosion of jejuna villi, found by biopsy. Classically defined overt disease results in serious diarrhea and other digestive disturbance, sometimes with green stools. There is variability in the response to gliadins as well, complicating presentation. Children may not gain weight well, have multiple allergies or repeat infections. Other clients have unexplained/misdiagnosed skin conditions mimicking poison ivy or eczema rashes (dermatitis herpetiformis)[6]. Crohn's disease is often associated with celiac genes [7] although other non-Crohn's ulcerations may occur in celiac. The lactose intolerance gene is often transferred with the celiac genes, but not always. Often when a GF diet is maintained the gut heals and the client can then tolerate lactose. The only way to be certain is to have the gene test.

All of these pathologies greatly increase the frequency of cancer in these individuals. These individuals are vulnerable to any disease associated with poor absorption – osteoporosis and a variety of degenerative diseases spurred by increased chronic inflammation.

Diagnosis is by a positive blood test for anti-gliadin antibodies, or heightened transglutaminase production. Unfortunately the blood test only becomes positive after villous damage has occurred – sometimes called latent celiac disease. Villous damage may not be evident for several years. If antigens

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[1] Kalaydijian AE, Eaton W, Cascella N et al 2006, The Gluten Connection: the association between schizophrenia and celiac disease *Acta Psychiatriacta Scandinavia* 113 (2) 82-90

[2] Neither had gene tests done for financial reasons.

[3] Green PHR, Jones R 2006 Celiac Disease A Hidden Epidemic. Collins, New York.

[4] Helms, S. 2005. Celiac disease and gluten-associated diseases. *Alternative Medicine Review* 10 3 172-192

[5] Lui, E et al2005, Genetic testing: who should do the testing and what is the role of genetic testing in the setting of celiac disease? *Gastroenterology* April, 128 (4 Supplement 1) S33-7

[6] Dermatitis herpetiformis is described in the medical literature as being associated with celiac disease. It does seem to occur with gluten intolerance as well. Aydogan K, Karadogan SK, Akdag I, Tunali S. 2006

HLA class I and class II antigens in Turkish patients with chronic ordinary urticaria.

Clinical and Experimental Dermatology. May31(3):424-429

[7] See FAQ's on the website www.Enterolab.com Accesses March 2011

are sampled from *inside* the small intestine (i.e. where they are produced)– 5-7.5 times more positive results are found, so s stool test is vastly superior.

Unfortunately it appears that the brain is way more susceptible to the inflammatory action of gluten than the gut, mimicking a wide variety of neurological disease including ALS, MS and myasthenia gravis with is acetyl choline receptor destruction. Sufferers may develop neuropathy or a variety of impaired mental states without having notable gut disturbance.[8]Symptoms may even mimic Lyme disease.

Other Gluten Associated Pathologies

From gene sampling it would appear that up to >35% of the US population is gluten sensitive. The HLA-DQ1 series and its alleles is responsible[9]. The celiac series attack mostly GI tissues, the DQ1 gene attacks neurological tissue causing irreversible loss of neurons. [10] Villi can – and do – grow back; not so with nervous tissue. In addition the stress of gluten ingestion may cause a localized hyperpermeability of the blood/brain barrier (BBB) and cause a number of paradoxical reactions. [11]These clients often complain that "everything bothers me"; they "can't tolerate drugs" or "things work backwards" for them. [12]

They may be right. There are nutritional and genetic reasons affecting drug clearance from the body[13] and these should be borne in mind. But if there is BBB hyperpermeability, chemicals (especially neurotransmitters) which should remain in the brain can leach out, and other chemicals (like toxins) can cross into the brain. Localized hyperpermeability is enhanced by poor glucose control, prolonged stress, toxins (haptens) , elevated homocysteine, high prostaglandins and excessive oxidation. A variety of

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[8] Keislich M, Errazuriz G, Posselt HG et al 2001 Brain-white-matter lesions in celiac disease: a prospective study of 75 diet –treated patients. *Pediatrics* 108 (2) E21
Volta U, De Giorgio R, Petrolini N, et al 2002Clinical findings of anti-neuronal antibodies in celiac disease with neurological disorders. *Scandinavian Journal of Gastroenterology* 11 (37) 1276-1281
[9] ibid.,enterolab.com

[10]van de Beek WJ, van Hilten JJ, Roep BO.1999. HLA-DQ1 associated with reflex sympathetic dystrophy. *Neurology.* Oct 12 53

(6):1350-1351

Kemler MA, van de Vusse AC, van den Berg-Loonen EM, Barendse GA, van Kleef M, Weber WE. 2000 Comment on: HLA-DQ1

associated with reflex sympathetic dystrophy.

Neurology 55 3 457-458

[11] Espositie, P. et al. 2001 Acute stress increases permeability of the blood-brain-barrier through activation of brain mast cells. *Brain Research*, 888(1): 117-127
[12] Willis A.J. 2002 The neurology of gluten sensitivity: separating the wheat from the chaff. *Current Opinions in Neurology* Oct 15, 5 519-523
[13] Nutritional status, dysbiosis, mineral deficiency, activation of the various cytochrome isozymes, expression of transporters, nuclear transcription factors, defective Phase II conjugation etc.

prescription and non-prescription drugs contribute. [14]These patients may complain of foggy thinking, poor concentration and memory, uncontrollable depression, ADD/ADHD or psychotic conditions.[15]

Depending on where gluten induced lesions occur in the brain a very wide variety of disease presentations occur as different tissues are attacked - cardiac, dermatological, immune, muscular/skeletal etc., resulting in uncontrollable hypertension, resistant arthritis, raging rashes, ADHD, IBS, interstitial cystitis and bipolar disorder for example. ***65% of these DQ1 patients do NOT have gastrointestinal symptoms.*** [16] It can be very hard to convince these patients to initially comply with a gluten free diet.

How should these patients be treated?

There is only one primary treatment – a totally gluten free (GF)diet. If gluten is stopped, and then a bite of a conventional cookie is taken, the mast cells that store up histamine against the gluten let rip and a massive reaction occurs. Compliance is better when the clients realize that they are working to save their brain cells. Educating the client is really important on sources of contamination.

For celiacs: Gut healing herbs are primary. Overcoming leaky gut is imperative and may take up to 4 months to accomplish. Probiotics to rebalance the gut flora, enhanced with Berberis aquifolium (Oregon grape root). I also use a lot of Glycyrriza glabra (licorice) for its healing as well as its adaptogenic properties. Other adaptogens are often needed as these patients have been stressed by the disease and its sequelae for sometimes decades. I also use a lot of anti-inflammatory herbs – Filipendula ulmaria(meadowsweet) is a favorite – but Curcuma longa (turmeric)and Tanacetum parthenium (feverfew) are often in the mix.

Because celiacs have had leaky gut most or all of their life, they often need nutritional supplementation, most notably Vitamin D. I will often include mineral rich herbs in a tea – Medicago sativa (alfalfa), Urtica dioica (fol) (nettle leaf), Equisetum arvense (horsetail) etc as needed. A good fish oil speeds up healing and decreases inflammation. If degenerative disease is already apparent I will add suitable herbs to the blend. Neuropathic symptoms may need Hypericum perforatum (St John's wort)(to nourish the nerves), Achillea millfolium (yarrow)(to improve oxygen delivery to the nerves) and possibly a Zanthoxylum cleva Hercules (prickly ash)/Capsicum minimum (hot pepper) blend to improve circulation.

For DQ1 patients: Nerves need good oxygen and glucose supply as well as stimulation from other healthy nerves protecting other nerves downstream from them and slowing the degenerative process.**1. Healing the BBB is primary** – without integrity at this level all other protocols will only ever be partially effective. If the cortisol levels of the patient cannot be balanced there is likely to be a rollercoaster of symptoms. The hypothalamic-pituitary-adrenal axis is powerfully disruptive to the endocrine system

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[14] Pun, P.B. et al Involvement of ROS in BBB dysfunction. 2009*Free Radical Research* 43 (4) 348-64 Epub 2009 Feb 24

[15] Volta, U, De Giorgio R. 2010. Gluten sensitivity: an emerging issue behind neurological impairment. *Lancet Neurology* Mar 9 (3) 233-235

[16] Hadjivassiliou, M. et al 2002 Gluten sensitivity as a neurological illness. *Journal of Neurological and Neurosurgical Pschychiatry* May 72 5 560-563

when poorly regulated. If there is permanent damage to this region in the brain management can be very challenging even with compliance to a GF diet. As the BBB is made of microglial cells, it is encouraging to know that these cells can regenerate and the hyperpermeabilty reverse. Adaptogens are needed here. Anti-inflammatory herbs are also necessary.

2. Check Endocrine function.

a) Thyroid panel. If the adrenals have been under stress for a long time, that alone can reduce thyroid function. Prolonged inflammation can induce autoimmune thyroid conditions. Poor diet and lack of sea fish and sea vegetables can cause low iodine levels. For an excellent discussion of thyroid disorders I strongly recommend "Why do I Still have Thyroid Symptoms?" by Datis Kharrazian.[17]

b)Hormone panel. Stress causes pregnenolone to be hijacked to form stress hormones, causing women to have unopposed estrogen and a variety of estrogen dominant disorders. In men testosterone is sidetracked. Adaptogens go a long towards righting this, but hormone balancing herbs like Vitex, (chaste berry) Serenoa serrulata (saw palmetto) etc may be needed. The brain is very sensitive to changes in estrogen metabolism.

3. Target inflammation. Anti-inflammatory herbs – Filipendula ulmaria (meadowsweet), Salix alba(white willow bark), Boswellia serrata (frankincense), Curcuma longa (turmeric)– there is place for all of these. I try to have my patients have their C-reactive protein measured as a guide as to how severe their inflammation level is. I also use in-house urine testing of malondialdehydes to judge how successful the care is at reducing hidden inflammation, especially with with cardiac symptoms or mental disorders. Those with arthritis or overt pain are much more aware of success as their pain goes down

4. Get blood sugars under control. Changing to a GF diet is a good opportunity to eliminate other harmful chemicals. With a whole food diet rich in vegetables and some fruit, most people's blood sugars come under control as long as they are getting sufficient protein. Removing a primary allergen like gluten reduces overall inflammation which in turn reduces the load on the adrenal glands and lowers the frequency and severity of cortisol spikes and resultant loss of sugar control.

5. Improve nervous stimulation. This a lifestyle change – according to the case history the client needs to be encouraged to have a wide range of mental stimulation – massage, art, music – active and passive –exercise, indoors and out, conversation, doing crossword puzzles, a new hobby, playing games, meaningful relationships, prayer, quiet times alone. Massage can also be helpful.

The variety of herbal treatments are illustrated by a few case histories from my own files.

Case 1. A young teenage girl with life-long digestive problems brought by her mother. Several thousand dollars had been spent on her to try and diagnose her irritable bowel issues, chronic stomach pain and feelings of malaise. After a thorough case history and examination of the diet I gave her a GF diet and

[17] Kharrazian, D. 2010 Why do I still Have Thyroid Problems? Morgan James ISBN 978-1-60037-670-2

the following herbs as a tea: Calendula offinialis (marigold), Matricaria chamomile (chamomile), Ulmus fulva (slippery elm)and Glycyrriza glabra (licorice).

Follow up: The girl is now doing well and does not need herbs currently. She is attending school without need for frequent sick days and is symptom free.

Case 2. Man (M) in his mid-forties in residential care for bipolar disorder, hypertension and severe anxiety. In the past he had been able to hold jobs but not now.M is very well read and highly intelligent and realized his medications were not improving his condition but making him less aware of his circumstances.

First visit. M appeared agitated and harassed, although quite lucid about what was happening to him.. He was medicated with Lisinopril, and Norvasc. Depakote was not tolerated well by him and Respiradol elevated his blood pressure. He refused lithium carbonate. On examination his ankles were edematous but not pitting on palpation. He was encouraged to talk to the chef and work out a GF diet high in vegetables and good protein.

He was given an adaptogenic blend of herbs, Silybum marianum (Milk thistle), and a good fish oil. I included a formula with gluten digesting herbs to help with clearance from the system.

Next Visit. M had been very compliant with his diet with the help of the chef, with a few accidents. He was feeling much better. He requested some Valeriana officinalis (valerian) when needed.

Last visit. M was given permission by his psychiatrist to leave the facility, and he was flying home to his home state initially to be with his parents. He appeared well, cheerful and was looking forward to being back in the workforce. His medications were significantly reduced.

Follow Up by telephone. M continues to do well, is living on his own and holding a job in a plant nursery which he likes. His herbs have continued much the same with the expectation that as he continues to improve his psychiatrist may reduce the medications a little more and the herbs will help him over the transition.

Case 3.

Woman in late forties presented with IBS of long duration, foul flatulence, osteopenia, menopausal hot flushes for 7 years, poor sleep since puberty and joint stiffness after sitting or in the morning. She reported some difficulty with mental recall and felt she was too young for memory loss! She was physically active, had a supportive family although she felt very stressed. Urinalysis confirmed very high oxidative stress and malabsorption, kidney stress and poor mineral status.[18] She was placed on a GF diet, recommended 8 vegetables a day for bone health. A tincture addressed inflammation and stress, kidney function and circulation to the pelvic area. Cynara scolymus (artichoke) was added to improve bile flow in IBS and Dioscorea racemosa (Mexican wild yam) to reduce peristaltic cramping.

[18] The metabolic urinalysis kit measures malondialdehydes for oxidative stress. The Indican test (indole conversion) measures elevated anaerobic bacterial overgrowth which often elevated in malabsorption.

Vitex agnus castus (chasteberry) 1:3 1ml daily to reduce pregnenolone steal, Kelp tablets 5 bid,

Vitamin D 5000IU to help with gut healing, bone health and mood, Fish oil 2tsp for inflammation,

A good probiotic for incipient dysbiosis, Digestive enzymes for gluten 2 daily until symptoms clear.

A high mineral tea should help calcium absorption.Gut healing herbs of Calendula officinalis (marigold) and Glycyrrhiza glabra(licorice) were added to the tea, 3cups daily, hot or cold. G. glabra would also be adaptogenic and moisturizing.

Follow Up

Over the next few months the pt reported less anxiety, and improved sleep. Flatulence had completely abated within a few days and the hot flushes were now very rare. Thinking became foggy and the flatulence returned as soon as 10 minutes after any gluten– so she stopped! The mental symptoms, although the least severe, were the most alarming and the most motivating– fearing dementia. Incipient headaches abated with treatment. She continues to eat 7-8 vegetables a day and has reported some needed weight loss. Bowel movements are now regular and properly formed . A DTX[19] test to measure healthy bone deposition showed she was now laying down bone although not optimally. Calcium lactate tablet and Vitamin C to encourage osteoblast activity were added. This test will be repeated. The gluten digestive blend is now only taken with accidental exposure.

Joint pain is limited to one toe (which had been injuredwith no stiffness at all elsewhere. The pt has started yoga exercises and is now hiking 10-14miles without stiffness at the end.

The tincture has been adjusted to include more liver herbs which seemed to help sleep, but sleep quickly worsens if anti-inflammatory herbs are reduced. The tea is now used intermittently and the pt does well without the probiotic. If she feels stressed she will use Valeriana prn.

Case 4.

K is an active woman in her mid-thirties. She presented with an extremely severe, non-exudative rash covering her whole upper back and midsection. All medical interventions to get rid of the rash had been unsuccessful. K was very overwrought and had difficulty sleeping due to the pain and itching. She was given the GF diet and high doses of the gluten digesting enzymes, anti-inflammatory herbs, fish oil and a strong adrenal blend. A tea of Calendula officinalis (marigold), Glycyrrhiza glabra (licorice), Stellaria media (chickweed) and Melissa officinalis (lemon balm)to be drunk and used topically for the itching as well as aloe juice to spray as needed.

Second visit. 1 week later. The rash was much improved. Herbs to improve drainage were needed – I added Galium aparine (cleavers) to her tea. Anti-inflammatory herbs were increased with nerviness.

Follow up: 1 month later. The rash abated and the patient is now doing well.

[19] DTX measures bone collagen loss and is an indicator of the rate at which bone is being reformed.

Case 5

C is a hyperactive five year old little boy with recent onset Tourette's syndrome and ADD. He was very pale, of wiry build and anxious.I suggested a GF diet accompanied with demulcent healing gut herbs.

Follow Up. The mother returned with the child a week later. C was doing famously! With just a few days on the GF diet his attention span was much better and the Tourette's symptoms had hugely reduced. The most recently occurring tics had stopped. His mother was delighted, but said she was having great difficulty getting her husband to give the child GF free foods – in fact in her opinion he was deliberately feeding high flour foods. I recommended she try and get her insurance to cover genetic testing as this

Case 6

L is an active lady in her sixties who prepares school lunches. She was of small build and ate a good diet. Her blood pressure had been difficult to control for years and she came to me for help. She started a GF diet after tracking BP and her diet. She found that there was "nothing at school she could eat"!

Follow up. She is now symptom free and no longer requires her herbs.

Conclusion.

Gluten intolerance presents in a variety of forms depending on the area of brain lesions caused by the gluten. Treatment consists in a totally GF diet, anti-inflammatory herbs, support for the key body systems affected, nutritive herbs and supplements to redress years of poor assimilation. Rebuilding adaptability to stress, general stamina and improving immunity may take some time but can go a long way to restoring the health of an affected individual. The long term effects of chronic inflammation must not be minimized and need to be monitored consistently after the more immediate symptoms are under control. Educating the patient is key to long-term success – understanding that "cheating" causes neuron loss is very motivating.

Table 1.Summary of Testing for Celiac Disease versus Gluten Sensitivity

Positive anti-gliadin antibodies **Positive HLA-DQ testing** **Positive transglutaminase** **PositiveEndomysial antibodies** **Positive fecal fat microscopy** **HLA-DQ2 positive**	**Anti-gliadin antibodies only positive with high level of damage. Negative/low with long term GF diet** **HLA-DQ 1positive**
	Transglutaminase, edomysial antibodies, fecal fat microscopy, villous biopsy will all be negative

Did you know?

Gluten Sensitive Individuals are more likely to suffer with: Multiple allergies,

Frequent infections , Auto-immune diseases (10x more likely), Secondary anemia, Spinal cord disease; demyelination, Crohn's disease, Migraines, Add/ADHD, Hearing loss, Restless leg syndrome, Autism, Chronic Fatigue Syndrome, Fibromyalgia, Dyspepsia, Diabetes, Osteoporosis, Thyroiditis, Vitamin deficiency, esp. D and K, Miscarriages, infertility, Dental enamel malformations, Arthritis, Irritable Bowel Syndrome, Colon cancer……etc.