

# Oriental Medicine and Orthomolecular Medicine: Six Lyme Disease Cases Examined from Both Perspectives

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## Abstract

*Interconnection and cross-cultural learning is as important in modern medicine as it is in the rest of contemporary life. This case study documents six chronic Lyme disease cases as observed through both Orthomolecular and Oriental Medicine approaches. These two medical paradigms were cross-referenced and both found disorders of microcirculation with blood coagulopathy. A cross-cultural review demonstrates that Oriental Medicine provides a more specific treatment to address blood coagulopathy than does Orthomolecular Medicine.*

## Introduction

The Chinese have taken most of the credit for the development of acupuncture and herbal therapies. After the Cultural Revolution in 1959, acupuncture and its related therapies were modernized and named Traditional Chinese Medicine or TCM. Many of the more ancient principles, which were associated with alchemical elements and religious disciplines, were then banned in China, with dire consequences for those who made any attempt to preserve these philosophies. However, in adjacent regions such as the Japan, Korea, India, and Taiwan, acupuncture and its related therapies continued to flourish and were not affected by the restrictive political and intellectual climate of China. Acupuncture and its related therapies in these countries maintained a combination of ancient techniques and modern methods of application. Recognition in these countries outside China of this combination of old and new acupuncture-

associated traditions resulted in what is now termed Oriental Medicine (OM).

OM practices date back as far as 2000 B.C., but the West has imported and developed these therapeutic principles and techniques only in the past 30 years. OM is not standardized, either within Asia or the West, and styles of acupuncture and its application vary as much as any other medical specialty.

In the United States, although there are no standardized care protocols, there are national standardized credentialing requirements for licensed acupuncturists. There are 36 accredited educational programs, which demand from 2,500 to 3,000 hours of training, extended over three to four years of full-time study. In California, acupuncturists are required to undergo 3,000 hours of training because they are classified as primary-care providers.

There are approximately 20,000 licensed acupuncturists in the United States with licensure in all but two states.<sup>1</sup> There is a national board exam and Continuing Education Units (CEUs) required biannually to maintain licensure. In certain states, a state board exam is also required. A Doctor of Acupuncture and Oriental Medicine (DAOM) is the highest formal education credential available in the field of acupuncture in the United States. There are currently three nationally-accredited DAOM programs; these require 1,200 hours of graduate didactic and clinical training beyond an existing state acupuncture license.

Additionally, the American Medical Acupuncture Association offers a 300-hour Continuing Medical Education (CME) program offered only to medical

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doctors who are interested in studying acupuncture. This program does not result in a special license or a required board exam. Also, it is not required to accrue ongoing continuing education in order to practice acupuncture. There are approximately 5,000 medical doctors in the U.S. who have completed this program.<sup>2</sup>

### Validating OM with Western Measurement

With the growth of acupuncture as an increasingly mainstream medical specialty in the United States it not surprising that the National Institute of Health (NIH) has taken considerable interest in this medical specialty.

As long ago as 1999, the NIH and its Complementary and Alternative Medicine (CAM) division allotted ninety million dollars to perform acupuncture research.<sup>3</sup>

Investigational studies have continued to be funded by the NIH. Billions of dollars have been spent researching OM in an effort to verify that the ancient healing principles of the East have statistical validity. Scientific studies have cross-referenced Western medical findings with those indicated by acupuncture. Functional MRI (fMRI) brain imaging has demonstrated cortical tissue response that maps one medical tradition

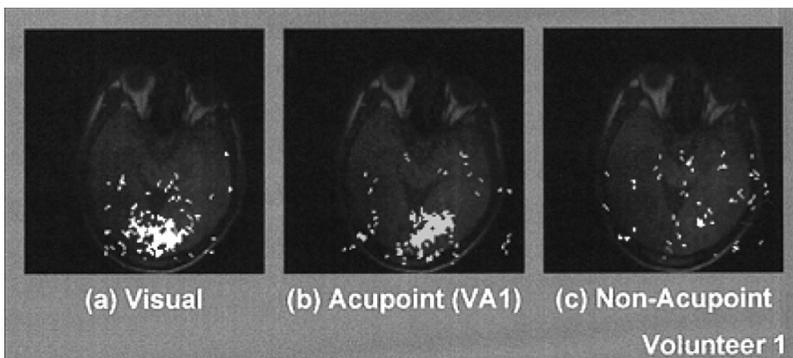
to the other. The goal of these investigative studies that cross-reference practices of OM with diagnostic imaging is to reveal after thousands of years of clinical use how OM actually works.

The application of state-of-the-art medical technology to the low-tech, millennia-old practice of acupuncture seems at first to represent scientific overkill, but several preliminary explorations in this “West meets East” field of inquiry have yielded extremely promising results. Just as brain imaging is used on acute ischemic stroke patients to assess the need for administering so-called clot busting drugs, research is being conducted to look more closely at how diagnostic imaging can elucidate where acupuncture impacts the brain.

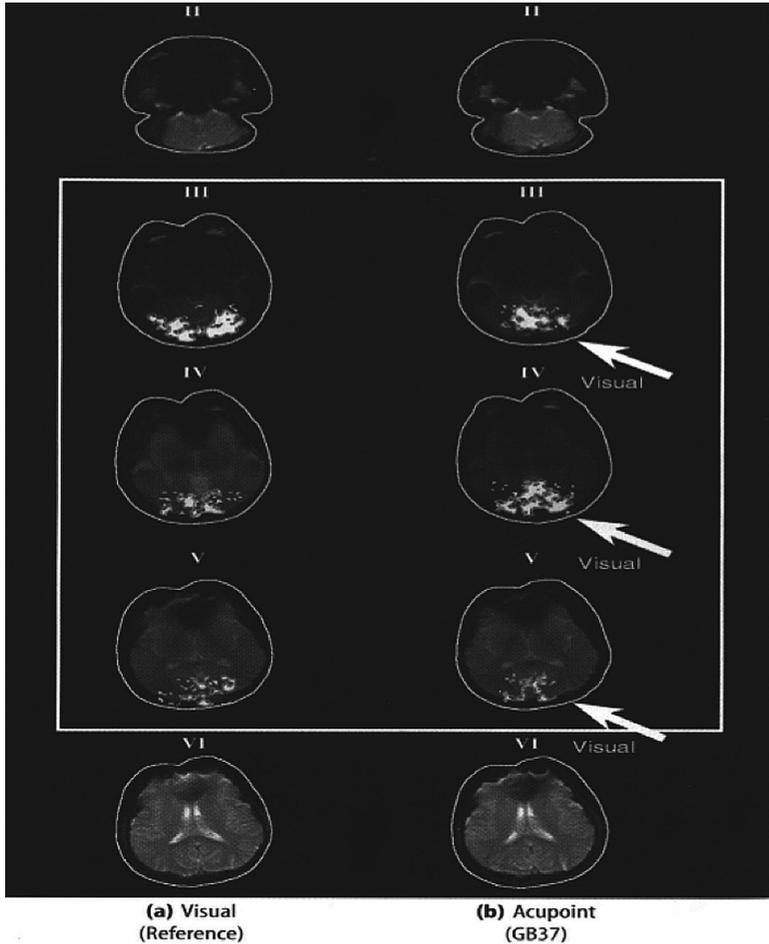
A collaborative study between the University of California-Irvine and university medical centers in Seoul, Korea used fMRI to observe the correlation between traditional acupuncture points for the treatment of eye disorders and the corresponding brain localization for vision. This was a small study of 12 volunteers.<sup>4</sup>

Stimulation of the prescribed acupuncture point activated the occipital lobes seen in the center of this fMRI (Figure 1, below). On the left is a depiction of

**Figure 1.** MRI showing stimulation of prescribed acupuncture point activating the occipital lobes.



**Figure 2.** Cortical-activation map shows the result of acupuncture stimulation on another vision-related acupuncture point on the Gall Bladder channel (GB.37).



the occipital lobes when the eye had been stimulated by an eight-Hz flash stimulator. The results showed similar activation in both occipital lobes regardless of the source of stimulation.

As a control, acupuncture points were stimulated 2-5 cm away from the vision-related acupuncture points. These control acupuncture points did not activate the occipital lobes, as shown on the fMRI on the far right; compare to the visual-cortex activation as initiated by the

vision-related acupuncture points and the light stimulator.

The acupuncture points used in this study were located on the Urinary Bladder channel. They were named here as VA1 thru VA8. The Urinary Bladder is unique because it is the longest meridian of the body and includes 67 specific points. This meridian follows the vertebral column. There, it connects to each of the intra-thoracic body organs, enters the intrathecal space and brain, then doubles back and

extends more superficially down the leg to the outer foot and 5th toe metatarsal where the points in this study were stimulated.

A separate cortical-activation map (Figure 2, p. 93) shows the result of acupuncture stimulation on another vision-related acupuncture point on the Gall Bladder channel (GB.37). The observations from this fMRI showed visual-cortical activation from both direct retinal stimulation from a flashing light (shown in column a) and acupuncture application to another vision-related point GB.37 (shown in column b). Cortical stimulation looks comparatively the same in both groups.

This research shows that physiological effects initiated by the ancient modalities of acupuncture can be documented by modern Western technology. Despite these physiological parallels, the medical terminology used to describe functions within each of these medical paradigms is not so neatly equivalent. The lack of common descriptive terminology prevents cross-referencing of common medical findings and hinders coherent communication between these medical paradigms.

**Translating between OM and OMM**

Figure 3 (below) shows a correlation of OM therapeutic language with the physiological goals as described by Orthomolecular Medicine (OMM) terminology.

These descriptions demonstrate the

distinctly different languages used by the two medical paradigms. Bearing essentially the same message, both medical paradigms support ideal regulatory function or balanced homeodynamic physiology. In OM, this same healing philosophy is articulated as the intent to enhance and maintain uninterrupted Qi flow and promote micro-circulation to the central nervous system and all organ tissues.

The best description of Qi (pronounced “chee” by the Chinese, or “key” by the Japanese) is that it is the vital impulse that keeps the heart beating. It might be understood as the life force itself. Similar concepts in other cultures would be “spiritus” in Roman mythology or Christianity, or “mana” in Polynesian mythology. It is measured only in its detriment—otherwise it is taken for granted that it is present in adequate amounts. Put in Western medical terms, the Qi function keeps mitochondria healthy enough to manufacture adequate ATP for life-sustaining activities.

Both OMM and OM see illness as an opportunity to change and improve health. Both emphasize prevention and early intervention.

**Treatment Goals in OMM**

- Improve detoxification pathways
- Support the immune function
- Reduce inflammation
- Balance hormones
- Correct nutrition

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**Figure 3.** Oriental Medicine therapeutic language with the physiological goals as described by Orthomolecular Medicine terminology.

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OMM deals with the body’s regulatory functions	OM deals with the body’s innate qi status
Serious illness can be prevented by good regulatory system functioning	Serious illness can be prevented by reinforcing adequate measurements of qi flow
Goal: Sound cellular metabolism and mitochondrial respiration	Goal: Uninterrupted qi and blood flow to all body tissues and organs

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### **Treatment Goals in OM**

Regulate and circulate the flow of Qi  
Warm and remove cold from the body  
Enhance microcirculation  
Control the regulation of the interior and exterior

OMM and OM may appear to have different treatment goals, given the differences in language.

In OMM, treatment goals focus on methods of detoxification and, for example, look to the enhancement of methylation, glycation, and glucoronidation pathways.

The treatment goals of OM, however, focus on a process of regulating the flow of vital life force or Qi, removing the constrictive effects of cold, and enhancing effective microcirculation. Controlling both the body's interior and exterior implies the importance of its largest organ, the skin. The skin's multifunctional structures and layers, along with its enormous protective and regulatory function of blood and lymph circulation, is all but ignored in the Western biomedical paradigm but is of paramount importance in OM.

### **Treatment Modalities of OMM**

Laboratory testing  
Physical exam  
Kinesiology  
Nutrient Therapy

### **Treatment Modalities of OM**

Abdominal and body palpation  
Pulse analysis  
Tongue analysis  
Acupuncture techniques  
Herbal therapies

Obviously, OMM and OM use dissimilar diagnostic and treatment methods. OMM relies primarily on a reductionist approach that analyzes objective findings and treats with countering replacement nutrients. OM relies on more of a holistic dynamic that simultaneously observes and

treats multiple systems and includes herbal therapy as a whole foods approach.

### **Comparison between OM and OMM in Lyme Disease (Figure 4, p. 96)**

Bearing these complementary medical paradigms in mind, I conducted a small retrospective clinical study in my medical practice with six Lyme disease patients.

As a brief review, Lyme disease is known as the fastest-growing vector-borne disease in the United States today. By 2006, the Centers for Disease Control has reported more than 19,000 cases annually.<sup>5</sup> These are primarily acute cases, with vast numbers of chronic disease cases remaining uncounted. Lyme disease is recorded in almost every state, with highest concentrations on the two coasts and in the Great Lakes region.

Although standardized treatment protocols are designed either for prophylaxis or for early recognition of acute Lyme disease, Johns Hopkins University online patient-education pages list Lyme disease in three stages:<sup>6</sup>

*Early localized disease:* skin inflammation.

*Early disseminated disease:* heart and nervous system involvement, including palsies and meningitis.

*Late disease:* motor and sensory nerve damage, brain inflammation and arthritis.

Accumulated resources summarize common symptoms and observations which include:

Erythema migrans—less than 50%

Fever—30-40%

Fatigue—60%

Flu-like symptoms—50%

Headache—40-50%

Stiff neck—30-40%

Myalgias—40-50%

Polyarthralgias—40-50%

Complications in the disease progression include:

Peripheral Neuropathy

Radiculoneuropathy  
Atrioventricular nodal block  
Pericarditis  
Eye symptoms–Optic neuritis  
Meningitis  
Encephalopathy

Treatment protocols initiated by Lyme experts consist of multiple rotating antibiotics and symptomatic treatment. Periodic laboratory and diagnostic testing monitors the treatment course, which may last from months to years.

OMM strategies target nutritional deficiencies and the disorders of various detoxification pathways that interfere with eradication of the Lyme bacteria and its related pathogens.

OM's holistic approach offers restorative treatments that target the core constitutional imbalance.

Clinical observations of Lyme disease patients in my practice showed three subtypes of symptom complaints. These groups included:

*Dizziness and Disequilibrium (D)*: Symptoms of vertigo, unsteady gait, woozy feeling, depth perception disorder

*Arthralgias (A)*: Large and small joints unilateral or bilateral

*Fatigue (F)*: Leading to cognitive decline and disability

These symptom categories were not

mutually exclusive although each symptom category constituted a primary set of complaints.

### Biomedical Laboratory Markers

Several laboratory markers were tracked throughout the course of treatment. Most observable were contributable factors to blood coagulopathy or haemorheology. The clinical intent was to monitor coagulation markers and genetic influences that change the course of optimal blood fluidity. Research has shown that changes in the blood and its constituents (for example, blood viscosity, blood viscoelasticity, blood plasma viscosity, erythrocyte and platelet aggregation and adhesion) all play a very important role in the appearance and development of many dangerous and chronic diseases associated with microcirculation.<sup>7</sup> Biomedical conditions such as cardiovascular disease, diabetes, renal failure, and apoplexy are more obvious conditions stemming from coagulopathy. There appears to be a direct connection between the scope of haemorheologic changes and the gravity of most critical conditions and their prognosis.

More recently, evaluation of chronic diseases like Lyme disease, fibromyalgia, and chronic fatigue, have shown evidence

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**Figure 4.** Summary of a retrospective analysis comparing six patients with chronic Lyme disease.

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#### Background:

Current treatment protocols of Lyme disease are standardized regardless of each patient's health status

#### Objective:

Observe for subtypes in symptom patterns

Observe course of illness using OM; Compare biomedical and OM markers

#### Results and Conclusion:

Integrated medicine shortens the course of treatment and prevents illness progression

Microcirculation disorders are a common finding in both the OM and OMM.

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of abnormal blood coagulopathy indicators. In a cohort study of 54 patients with Chronic Fatigue Syndrome and 23 controls, 92% of the patients had a demonstrable hypercoagulable state or low-level activation of coagulation.<sup>8</sup>

In this retrospective study of six Lyme disease patients, the following coagulation markers were measured periodically throughout the course of treatment.

**Fibrinogen:** Although it is a variable marker, fibrinogen is a major contributor to the accumulation of fibrin by the action and influence of thrombin production. Fibrinogen was repeatedly measured and averaged throughout the course of treatment.

**Lipoprotein A (LpA):** A highly heritable marker, Lipoprotein A is related to an increase risk of atherosclerosis and thrombosis. Its structure is similar to plasminogen and tPA (tissue plasminogen activator) and competes for binding sites leading to reduced fibrinolysis.<sup>9</sup> LpA additionally stimulates PAI-1, which is a contributing factor to thrombogenesis.<sup>10,11</sup>

**MTHFR (methylenetetrahydrofolate reductase):** MTHFR is considered one of the many polymorphisms that can be measured and expressed as a heterozygous or homozygous heritable mutation. This mutation prevents a crucial link in converting homocysteine to methionine. Elevated homocysteine is a leading cause of increased risks of blood clotting and thrombosis.<sup>12</sup>

A model which looks to the influence of coagulation defects in the presence of chronic pathogens predicts that fibrin will be deposited and blood viscosity increased. In this model, chronic disease such as Lyme disease can become exacerbated and resistant to treatment.<sup>13</sup>

### Patient Laboratory Results

Over the course of five years, as I treated six patients diagnosed with Lyme disease, I followed their contributory coagulation markers. The results revealed (Figure 5, below):

Patients with disequilibrium (D) showed elevated fibrinogen and LpA.

Patients with arthritis (A) showed consistently elevated fibrinogen and a heterozygous MTHFR.

Patients with fatigue and cognitive decline (F) showed less coagulation defects but showed one homozygous positive MTHFR mutation.

Patient summary of coagulation indicators suggest a strong link between hypercoagulopathy and the chronicity of Lyme disease.

### OM Diagnosis

In OM, a diagnosis is based upon a combination of physical signs and symptoms unique to its medical methodology. Although each individual's clinical presentation may vary from visit to visit, the core constitutional diagnosis remains the same. This constitutional diagnosis is what long-term treatment is based upon.

The medical term "blood stasis" is

**Figure 5.** Patient summary of coagulation factors.

	D1	D2	A1	A2	F1	F2
Fibrinogen	High	High	High	High	Low	normal
MTHFR	Negative	+/-	Negative	+/-	Negative	positive
LpA	High	High	High	Normal	Normal	normal

commonly used in OM and implies biomedical pathology described as agglutination of RBCs, increased intracellular viscosity, or decreased plasticity of erythrocytes. In advanced blood stasis there may be increased fibrinogen, thrombogenesis, or increased hematocrit.<sup>13</sup> The accumulative effect of these leading pathologies contributes to and results in symptoms of blood stasis.

Notable physical signs related to blood stasis (or, in OMM terms, hypercoagulopathy), include a radial pulse that is considered “choppy” or has a feeling of discontinuity. The pulse may also feel deep or hard as though the blood flow is impeded. The tongue may appear with a darker color or be slightly purple. The abdomen may feel tight and mildly tender, especially in the mid-epigastric area.

The primary and secondary diagnosis pattern for each of the six Lyme disease patients is outlined in **Figure 6** (below).

Based on these OM diagnoses, there is evidence of pathology related to the insufficiency of core organ systems. These core imbalances directly influence blood circulation and regulate its coagulation pathways.

### OM and the Use of Chinese Herbs to Treat Blood Stasis

For millennia, Chinese herbs provided the basis for most treatment modalities practiced in China. This held true until Western medicine was introduced.

Hundreds of herbs have been observed, researched and studied for every condition imaginable. In the past 25 years, these herbs have been imported into the Western hemisphere, where they have been used according to ancient principles. There are now strict growing and manufacturing processes that make Chinese herbs a safer alternative than in earlier days of their importation. Various sources of organic herbs are now also available. American and European collaborations with the Chinese have been instrumental in ensuring that herb quality now meets standards of good manufacture and processing.

The category of Chinese herbs classified as blood vitalizing or blood circulating herbs are of interest in the treatment of blood hypercoagulopathy.

One of the most commonly-known herbs in this category is *Salvia miltorrhizae*. The root of this common sage plant by chance is a deep red color. Its primary metabolite is a diterpene, most notably studied in the Pacific yew tree. The yew tree is best known for its extract originally developed by Bristol-Meyers Squibb to manufacture Paclitaxel or taxol. It is used as one of the most commonly prescribed chemotherapy agents in the treatment of breast cancer, classified as an anti-angiogenesis agent.

Additional blood anticoagulants found in *Salvia miltorrhizae*, also known as *dan shen* in Chinese pinyin terms, is salvianolic acid. In research studies salviol (or salviano-

**Figure 6.** Oriental Medicine diagnosis based on system patterns.

	Primary Diagnosis	Secondary Diagnosis
D1	Spleen qi deficiency	Damp heat in the gallbladder
D2	Stomach and kidney yin deficiency	Deficient heat rising
A1	Spleen qi deficiency	Damp bi and blood stasis
A2	Spleen qi deficiency	Stomach and gallbladder heat with shen disturbance
F1	Yin and yang deficiency	Damp heat toxin
F2	Spleen and kidney deficiency	Liver qi stagnation with wind symptoms

lic acid) has been demonstrated to inhibit platelet aggregation as a thromboxane inhibitor. Salviol increases cerebral blood flow after ischemia and has shown to increase the production of a potent vasodilator, nitric oxide (NO).<sup>14</sup> Additional chemical constituents such as tanshinones, also derived from *dan shen*, are protective against myocardial ischemia and reperfusion. Tanshinones have been found to increase the proteolysis of fibrinogen to fibrinogen degradation products.<sup>15</sup> There are also anti-inflammatory effects associated with its pharmacological activity.<sup>16</sup>

Numerous clinical trials have been performed in China using the herb *dan shen* orally and intravenously. Although some of these research studies would not match the standards of research methodology in the West, taken as a whole, these multiple clinical trials make compelling evidence of its beneficial effects as an anti-coagulant.

## Conclusion

The parallels between different medical paradigms are evidence of conjoined practice principles. While Eastern and Western medical traditions demonstrate disparate cultures, language, and modalities, it is significant that blood stasis or hypercoagulopathy is becoming better known as a condition in the West but is an ancient remedied treatment in the East.

Recognizing subtypes in Lyme disease can help to identify more difficult-to-diagnose cases in the absence of definitive findings. These subtypes may assist in a more precisely guided, quickly implemented treatment protocol.

The evaluation of the pathophysiological and therapeutic implications of blood coagulopathy can influence a better prognosis and outcome of chronic disease.

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