

The Management of Lyme Disease with Traditional Chinese Medicine: A Clinical Study

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Abstract

The number of reported and confirmed Lyme disease cases has been increasing year after year since its first diagnose in Old Lyme, Connecticut, USA, in 1975. In both acute and chronic cases, Lyme has a heavy impact on patients' health and lowers their quality of life. Conventional approaches to treatment are often not fully satisfying for chronic patients. In Traditional Chinese Medicine (TCM), pattern differentiation for Lyme disease varies according to the duration of the infection and the stage it has reached, while the basic strategy of replenishing qi and tonifying blood runs through the entire treatment like a thread. For optimal results, besides regular treatments that constantly adapt to the evolution of the patient's condition, the patient's involvement and effective communication with other healthcare professionals are also needed. This article presents a clinical case study of TCM treatment of post-Lyme disease syndrome with positive results. Further research needs to be carried out and clinical studies need to be documented, analysed and discussed in order to establish the most effective TCM approaches to Lyme disease and benefit more patients.

Introduction

Initially mistaken for juvenile rheumatoid arthritis, Lyme disease was later recognised as an infectious disease caused by bacteria of the *Borrelia* family and spread by ticks. American scientist Wilhelm Burgdorfer discovered one of the tick-borne spirochetes that causes it in 1981. *Borrelia burgdorferi* and *Borrelia mayonii* are the strains to be found in North America.¹ In the U.S.A., the total number of confirmed and suspected cases has been rising since the first mention in 1975, with 95 per cent of cases reported in 2015 being concentrated in the New England and Middle West areas.² The disease is also on the rise in other continents, such as Africa, Europe and South America, with various incidence rates. According to the World Health Organisation (WHO), Lyme is now the most common tick-borne disease in the northern hemisphere beside anaplasmosis, babesiosis, hepatozoonosis, rickettsiosis and tick-borne encephalitis.³

Lyme disease affects multiple body systems, producing a wide range of symptoms. Not all patients present with all symptoms. The incubation period is on average three to 30 days, after which the bacteria migrate to the skin, lymph nodes and other body systems. After this time, the first sign to appear is a

circular, outward-expanding, burning rash at the site of the bite, known as a 'bull's eye'. This classical sign of early localised Lyme infection appears in 70 to 80 per cent of infected people. However, those few patients who, after a tick bite, do not display this signature rash must not be overlooked, due to the possible risk of a future break-out of the illness.^{4,5}

Other early signs and symptoms include a localised infection, headache, muscle soreness, fever and fatigue. Within days to weeks, *Borrelia* bacteria spread via the bloodstream throughout the body, and may cause facial palsy, neck stiffness, arrhythmia, light sensitivity, poor memory, insomnia, anxiety and mood changes. Without adequate treatment, patients may further develop chronic symptoms that affect multiple parts of body, such as shooting pains all over the body, numbness and tingling in the hands or feet, depression, severe anxiety, cognitive impairment, brain fog, migraines, poor balance and vertigo, amongst others.

Conventional treatment of Lyme disease consists of antibiotics. For most people with early localised infection, oral administration of doxycycline is widely used as first treatment. Other antibiotics can also be used as an alternative. Treatment regimens last from one to four weeks depending on signs and symptoms,

and are generally successful in controlling the symptoms of the acute phase.

Traditional Chinese Medicine perspective

In traditional Chinese medicine (TCM), there is no specific disease that corresponds exactly to Lyme; the first Lyme cases were diagnosed in 1975 in Connecticut and the bacteria responsible for it were only identified in 1981. However, it is possible to analyse the signs and symptoms of the disease in terms of TCM pattern differentiation.

Li Hui summarised and analysed 292 Lyme cases and documented a total of 33 signs and symptoms; those that appeared in more than 20 per cent of the reports are here listed in descending order of frequency: pain in multiple joints, lethargy, poor memory, lack of concentration, non-specific headache, dizziness, light-sensitivity, numbness of the limbs, profuse sweating, palpitations, muscle weakness, aversion to cold, nasal congestion, tremor, skin rashes, fever, insomnia, shortness of breath and tinnitus. The author of this study also lists the TCM terminology used to describe the disease: 64.9 per cent were categorised as bi syndrome, 10 per cent as poor memory and, in descending order of frequency: fatigue, headache, fever from a pattern of damp-heat, and heat in the nutritive phase.⁶

The signs and symptoms commonly seen at the outpatient TCM clinic where the author works are: skin discolouration from past tick bites, palpitations, irregular heartbeat, anxiety, overall soreness and aches in muscle and joints, shooting and burning sensations in the body of mild to moderate intensity level, numbness and tingling sensation in the hands or feet, fatigue, brain fog, problems with short-term memory, poor sleep, headache and GERD (gastroesophageal reflux disease). The length of time from the initial tick bite to presentation in clinic ranges between six months and eight years.

Whilst in conventional medicine Lyme disease is an infection caused by tick-borne *Borrelia*, in the author's perspective its pathogenesis in TCM terms may be described as follows: externally contracted xie (evil) qi penetrates the body's wei (defensive) qi and defeats it. Without prompt treatment, the wei qi is further weakened, while the xie qi spreads and lodges inside the body. The xie qi then consumes the body's qi leading to qi and blood deficiency (as qi is the source of blood production), followed by accumulation of brewing dampness and a weakening of the yuan (original) qi. This develops into long-term health issues, as progressively more and more organs and channels are affected, leading to imbalances in all aspects of qi, blood, yin and yang.

Case study

A 54-year-old Caucasian male who had been diagnosed with Lyme disease in April 2008 was driven by his wife to our TCM clinic in August 2014. He was 5 foot 5 inches in height, 237 pounds in weight, and since the diagnosis

jobless and on disability benefits. He looked tired and drowsy, his skin lacked lustre, and during his initial 20-minute consultation he even fell asleep a few times. His wife mentioned that he had to take a three-hour nap every afternoon in order to stay awake for the rest of the day, was unable to drive due to poor concentration and disorientation, and also constantly complained of body aches.

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As listed in his medical report from the same year, his symptoms and biomedical diagnosis were: 'extreme fatigue, headache, muscle and joint pain, depression, memory loss, inability to perform simple math, difficulty concentrating, easy distractibility, inability to follow directions, losing train of thought, difficulty articulating thoughts, challenges with writing and expressing thoughts in writing.' Based upon his blood test and symptomatology, he had been diagnosed with Lyme disease and co-infections with Babesiosis and Bartonella, as well as fibromyalgia, chronic fatigue, non-restorative sleep, mood disorder and depression. He had been treated with a variety of oral, intravenous and intramuscular antibiotics, along with other medications for at least 28 weeks in the year 2011.

By the time he came to our TCM clinic in 2014, his presenting symptoms were: an overall feeling of heaviness in the body and ache in muscle and joints (six in severity on a scale of one to 10), intermittent sensations of burning and tingling in the limbs, abdominal distention and bloating, gurgling sounds in the abdomen, watery diarrhoea two to three times per day, occasional fresh blood in the faeces [not induced by his haemorrhoids], hiccups, intense acid reflux, nausea, gagging, restless sleep, low energy, headache, brain fog, lethargy, inability to concentrate, vertigo and left ear mucus congestion. His tongue body was pink with a thick white coating and teeth-marks; his pulse was slippery and full. In terms of medication, he had been taking anti-acids for eight years, medication for neurological pain for seven years and antidepressants for two years.

TCM diagnosis and pattern differentiation

The TCM diagnosis was bi syndrome and the pattern differentiation was Spleen deficiency with excess damp-cold trapped in the channels along with qi and blood deficiency.

The digestive symptoms, the appearance of the tongue and the pulse reflect a Spleen deficiency pattern; the occasional bleeding during bowel movements is due to weakness of the Spleen not the controlling blood. A

deficient Spleen cannot transform dampness, which brews causing overall body heaviness, brain fog and mucus congestion. Qi and blood deficiency lead to lethargy and inability to concentrate. Damp-cold further weakens the Spleen, with diarrhoea, bloating and lack of energy worsening over time.

The patient's energy levels increased and he was able to drive himself from home to the clinic.

Treatment principles

Tonify the Spleen, dispel dampness, replenish qi, tonify blood and warm yang.

Acupuncture treatment

Based on the aforementioned pattern differentiation, the acupuncture treatment was devised as a patient-specific plan, rather than being based on a general one-fit-all protocol.

Points that tonify qi and blood (Group 1) were crucial to the treatment and were used each time. In addition, various groups of acupuncture points were applied based on the patient's signs and symptoms at the time of consultation, with one or more groups being used in combination:

Group 1: Predominant symptoms: heaviness in the body, soreness all over the body, low energy (three out of 10 as judged by the patient), poor appetite and lethargy: Yinlingquan SP-9, Zusanli ST-36, Fenglong ST-40, Taibai SP-3, Taiyuan LU-9, Quchi LI-11, Hegu LI-4, Tianshu ST-25, Daheng SP-15, Guanyuan REN-4, Qihai REN-6, Baihui DU-20, Pishu BL-20, Feishu BL-13 and Shenshu BL-23.

Group 2: For watery diarrhoea with occasional fresh red blood: Yinbai SP-1, Diji SP-8, Xiajuxu ST-37, Jiexi ST-41 and Zhongwan REN-12.

Group 3: For acid reflux, gagging, burping, burning sensation in the joints of shoulders, knees and hips: Gongsun SP-4, Neiguan P-6, Sanyinjiao SP-6, Neiting ST-44, Zhongwan REN-12, Shangwan REN-13 and Weishu BL-21.

Group 4: For distending sensation bilaterally over the ribcage, liver pain upon pressure, heartburn and gagging: Zhangmen LIV-13, Qimen LIV-14, Xingjian LIV-2, Taichong LIV-3, Yanglingquan GB-34, Qixu GB-40, Waiguan SJ-5 and Zhigou SJ-6.

Herbal medicine

Variations of the traditional formula *Shen Ling Bai Zhu San* (Ginseng and Atractylodes Formula) were used as a herbal formula. For the first prescription, the formula was modified with the following additions: Cang Zhu (Black Atractylodes Rhizome), Chai Hu (Radix Bupleuri), Da Zao (Fructus Jujube), Sheng Jiang (Fresh Ginger Rhizome), Mu Xiang (Radix Aucklandiae), Ban Xia (Pinellia Rhizome), Chen Pi (dried Tangerine peel), Wu Wei Zi (Schisandra chinensis) and honey-fried Gan Cao (Radix Glycyrrhizae). The dosage of the ingredients was modified at each visit according to the patient's signs symptoms and signs,

Treatment progression

The treatment lasted six months in total and combined acupuncture and a customised herbal formula, together with dietary recommendations such as avoiding sugar, dairy products, red meat, raw and uncooked vegetables and iced drinks, while adding some warm spices to home-cooked meals (fresh ginger, black pepper, cinnamon and nutmeg). The patient was also encouraged to do low-to-moderate levels of exercise on a weekly basis.

Half a month into the treatment, the patient no longer experienced watery diarrhoea with fresh blood, although loose stools occasionally recurred, while the intensity and frequency of the acid reflux and gagging decreased from daily to every other day. One and a half months later, the soreness in the joints and the feeling of heaviness in the body decreased from six to three out of 10. The patient's energy levels increased and he was able to drive himself from home to the clinic.

Currently, four years after the initial visit, the patient's symptoms have further improved: he has no burning sensation nor sense of heaviness in the body; there is no acid reflux, no watery diarrhoea, no bleeding with bowel movements, although a moderate distending sensation bilaterally in his ribcage area persists. Brain foginess has resolved and there have been no further episodes of vertigo. The patient also reports a further improvement in energy levels with no lethargy; he is able to run errands and drive for longer distances and reports that the quality of his life has greatly improved.

The direction of his future treatments will be to move and disperse qi and blood stagnation, soothe the Liver and strengthen the Spleen. Replenishing qi and blood can slow down their flow and lead to stagnation, which we want to prevent. The disharmony between Liver and Spleen could lead to further qi and blood stagnation manifesting in restless, irritability, insomnia, acid reflux and bloating, which in turn would prolong the recovery time.

Discussion

Without proper and timely primary care, Lyme disease can be life-threatening. The pathogen can travel to the organs and the nervous system and cause major medical issues

such as pericarditis, pericardial effusion, palpitations, facial palsy and severe arthritis. At the initial stage, when patients present with a localised infection right after a tick bite, it is highly recommended that they promptly seek conventional medical treatment to prevent the pathogen from disseminating within and damage the body.

Patients can benefit from TCM treatment when acute symptoms are under control and laboratory reports show they have reached the normal range of Lyme-specific testing assays. The core principle in the TCM treatment of Lyme disease is to improve the body's own healing ability so that it can reach a state of balance in which the suffering is reduced, although the disease may not be cured. In other words, it aims to boost qi, including wei qi, zong (gathering) qi and yuan qi: the vital life forces that prevent the xie qi from spreading within the body and attacking the channels and organs. The qi and blood, predominantly gained from Spleen and Stomach in the TCM perspective, are the acquired resource to supplement the body's own healing ability. We gain energy and nutrients from having healthy and good quality food and digesting it well. Meanwhile, the Spleen also plays an important role in the formation or transformation of dampness and phlegm in the body. If dampness forms and accumulates in the body, the symptoms are predominantly those of general heaviness, brain fog, muscle fatigue, joint soreness and diarrhoea; in such cases the tongue changes into the typical Spleen deficiency presentation, with a thick white coating and obvious teeth-marks.

Some patients may be co-infected with other pathogens such as other strains of bacteria, fungi and/or viruses, which may complicate and aggravate their existing symptoms, as well as slow down their recovery. Effective and open communication, including a referral system, need to be established with other healthcare professionals to manage other unrelated illnesses beside Lyme disease. Appropriate lifestyle changes should also be suggested to help with recovery.

Conclusions

Lyme disease is the most common tick-born bacterial infection and one that impacts extensively on people's health and life quality. TCM is an alternative option to conventional medical modalities for patients in the non-acute phase of this disease. Its focus is to replenish and tonify the body qi and blood as well as strengthen the function of the internal organs, rather than just targeting each individual symptom. As this case study shows, positive results can be achieved through a combination of acupuncture, herbal medicine and lifestyle adjustments. This approach needs to be highly individualised to fit the patient's signs and symptoms, with pattern differentiation and treatment devised for each patient instead of using a general protocol. More clinical studies and treatments need

to be collected and discussed to form a basic standards or protocols in TCM management of Lyme disease.

Tianying Sun earned her master's degree in Acupuncture and Oriental Medicine from Texas Health & Science University in the United States in 2014; she is certified by NCCAOM as a diplomate of Oriental Medicine and is an active TCM practitioner licensed in Rhode Island as Doctor of Acupuncture and Oriental Medicine. She currently works at a TCM-oriented integrative medicine centre.

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