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Improvement in Long-COVID Symptoms Using Acupuncture: A Case Study

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ABSTRACT

Background: The long-COVID syndrome (LCS), defined by residual symptoms from acute COVID-19 for <60 days, affects about one-third of all COVID survivors and is an emerging public health challenge. Empirical data about the range of symptoms or the utility of acupuncture alone for the LCS are very limited.

Case: This observational case study of a 46-year-old male with LCS was conducted to preliminarily define the range of symptoms, a Traditional Chinese Medicine (TCM) diagnostic structure, and evaluate the potential utility of prescribed acupuncture for LCS.

Results: The primary TCM diagnostic patterns from this patient's LCS presentation included Lung Qi and Yin Deficiency, Qi and Blood Stagnation, and Spleen Qi Deficiency with dampness. Acupuncture for this patient was associated with reduced symptoms and signs of LCS.

Conclusion: A preliminary TCM diagnostic structure for LCS was defined. Acupuncture appears to have been helpful for a patient with LCS. Further research is needed to demonstrate the efficacy of acupuncture and/or other TCM modalities for LCS.

Keywords: COVID-19, acupuncture, long-COVID syndrome, postviral treatment, tongue assessment

INTRODUCTION

LONG-COVID SYNDROME (LCS) is an emerging health care crisis. An early study reported 87% of COVID-19 survivors had at least one persistent symptom 60 days after initial infection while 44% reported a lower health-related quality of life.¹ The Centers for Disease Control reported that 35% of survivors had not returned to their usual state of health 14–21 days postinfection.² Recent study reported persistent symptoms in 61.9% at 3 months³ and 30% at 9 months postinfection.⁴

There are currently no best-practice interventions for LCS. Given the high morbidity and lack of effective treatments for LCS, it is urgent to better understand symptom profile and develop treatment to alleviate symptoms and improve quality of life. Extant data suggest that COVID-19 infection stimulates an inflammatory response/cytokine release syndrome that, while meant to protect may also be a major cause of disease severity and persistent symptoms.⁵

We hypothesized that, since acupuncture has been shown to modulate the vagal dopaminergic anti-inflammatory pathway in patients with sepsis,⁶ it may modulate long-term

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effects of the “cytokine storm” seen in COVID infection and restore autonomic nervous system and hypothalamic-pituitary axis homeostasis, thereby enhancing their immune response, sleep quality, and feelings of well-being.⁷ Jania reported reduction of gastrointestinal symptoms in an adult female COVID-19 survivor using acupuncture and Chinese herbs.⁸

This observational case study reports possible benefit of acupuncture and pilot development of a Traditional Chinese Medicine (TCM) diagnostic pattern for LCS. The patient provided written consent for care and for publication.

CASE HISTORY

Mr. C is a 46-year-old male combat Veteran receiving care at the Long Beach VA Medical Center for diabetes mellitus, asthma, and post-traumatic stress disorder. He had infrequent asthma attacks before COVID-19. On July 20, 2020 he reported to the emergency department a “scratchy throat, lightheadedness and low-grade fever” of 99F–100.3F (home forehead scanning) for 3 days. He also reported poor appetite, mild intermittent nausea, and headaches. He did not have cough, dyspnea, chest pain, runny nose or congestion, loss of smell or taste, or knowledge of exposure to someone known to have COVID-19.

Family history was noncontributory. He had not been taking prescribed Metformin for about 1 week. Pulse oximetry showed 96% saturation, temperature 98.6, pulse 93/min, respiration 16/min, and blood pressure 132/86 and 144/90 from the right arm at separate times. Physical examination was without significant findings. Laboratory studies were significant for mild hyponatremia (132 mEq/L), hyperglycemia (331 mg/dL), and elevated liver enzymes (alanine transaminase 76 IU/L, aspartate transaminase 57 IU/L), which had been noted prior, and slightly elevated monocytosis (13.0%).

He had a positive antigen test for the SARS-CoV-2 virus and was diagnosed with COVID-19. He quarantined at home and was followed by the VA COVID-19 phone service daily through August 15 showing improvement. He was, however, seen and diagnosed with post-COVID syndrome in primary care on September 28. On November 9, during a posttraumatic stress disorder (PTSD) clinic visit he reported continued intermittent cough, headaches, “stinging” bilaterally in the second and fifth fingers, joint pains, increased anxiety, fatigue, poor sleep, and more nightmares and daytime illusions.

Aripiprazole 2 mg at night was added. On December 10, 2020 his sleep had improved to 6 hours/night from 4/hour with slightly fewer nightmares. On February 2, 2021, he continued to experience pain and burning in his fingers and joints, headaches, cough, anxiety, and mild confusion he called “brain fog.” He had discontinued aripiprazole. One of the authors (M.H.) diagnosed LCS and discussed treatment options with him. He was referred to our team’s acupuncture research service as a clinical patient and was treated from February 9 to June 26, 2021.

RESULTS

TCM Presentation, Diagnoses, and Treatment Protocol

Mr. C. described chest pain on inhalation similar to an asthma attack, with “tired” lungs and “forced” breathing. Dyspnea and chest pain were near-constant, necessitating pauses while walking. The daily intermittent stinging pain around the second and fifth finger cuticles and fronto-occipital headaches several times a week (infrequent before infection) along with “brain fog” continued. He had dry nasal passages, dry pruritic skin, dry eyes (the first long-COVID symptom experienced), joint pain—primarily his knees—worsened significantly after infection and severe fatigue and sensation of heaviness in his body.

TCM examination showed his tongue to be dusky pale, swollen, large, with deeply scalloped sides and tip, deep red bilateral cracks in lung area, and a thick white greasy coating at root and scant at tip. Pulse was choppy. The primary TCM diagnostic patterns from LCS presentation included Lung Qi and Yin Deficiency, Qi and Blood Stagnation, and Spleen Qi Deficiency with dampness.

The treatment protocol, shown in Table 1, was administered once or twice a week to address symptoms in the context of diagnostic patterns. Each session consisted of tongue and pulse evaluation, symptom report, updated diagnosis and treatment protocol if warranted, and a 30-minute session. Needles were inserted and manually stimulated to bring De Qi.

Clinical Outcomes

Outcome endpoints included tongue (color, shape, size, moisture, movement, and coat) and pulse observations (rate, strength, and quality) and symptom ratings on a 0 (none) to 10 (severe) scale (Table 2).

In session #2, Mr. C. reported relaxation from the first session with no improvement in symptoms. His tongue examination was unchanged. The pulse was slippery and thready.

In session #3, Mr. C. reported reduction of eye dryness, brain fog, and headache. His tongue had reduced redness in the cracks in lung area and at the tip and emergent paleness noted in liver region. The coat remained unchanged. The pulse on the left was thready and on the right was soft.

In session #4, Mr. C reported reduction of dyspnea, chest pain, dreaming, and pruritus, and continued reductions of eye dryness, brain fog, and headache. His tongue was dusky pale swollen, large, and scalloped at sides and tip. Bilateral cracks in lung area and tip exhibited further reductions in redness, and the color was more uniform, although paleness in liver area was still noted. The coat had a more even distribution of moisture. The pulse was thready on the left and soft on the right. SP9 was added to treatment because of

TABLE 1. POINTS USED WITH DIRECTION, DEPTH OF PLACEMENT, AND TARGETED SYMPTOMS AND PATTERNS IN THIS CASE

<i>Point^a</i>	<i>Direction</i>	<i>Depth (cun)</i>	<i>Symptom(s) target</i>	<i>Pattern target</i>
Yin Tang	Transverse inferior	0.3–0.5	Frontal HA, dry nasal passages, insomnia, and anxiety	Qi Stagnation
SP 10 Sea of blood	Perpendicular	1–1.5	MS pain and skin dryness	Blood Stagnation
LU 7 Luo point, exit point	Transverse distal	0.5–1	Tired lungs, forced breathing, fatigued, and second digit pain	Lung Qi Deficiency
KD 6 Confluent point of yin motility vessel	Oblique superior	0.3–0.5	Dry throat, dry eyes, and insomnia/nightmare	Yin Deficiency Rising Upward, Yin Deficient Heat
LI 4 Yuan-source point, entry point	Perpendicular	0.5–1	MS pain, shortness of breath, tired lungs/forced breathing, and HA	Lung Qi Deficiency, Qi Stagnation
LR 3 Yuan-source point of liver	Toward KD 1	0.5–1	MS pain (knee pain), throat pain, dry eyes/dry skin, and HA	Qi Stagnation, Yin and Blood Deficiency
ST 36 Horary earth point	Perpendicular	1–1.5	Fatigue, dyspnea, and knee pain	Spleen Qi Deficiency
SP 6	Perpendicular	1–1.5	Fatigue, brain fog, and heaviness of limbs	Spleen Qi Deficiency + Damp Accumulation
LR 8 (water on wood)	Perpendicular	1–1.5	Knee pain	Yin Deficiency, Blood Stagnation
TH 5 Luo point, master point of yang linking vessel	Slightly oblique	0.5–1.5	Fatigue, dyspnea, insomnia, and anxiety	Qi Deficiency, Qi Stagnation
GB 41 Horary wood point, confluent point of girdling vessel	Perpendicular	0.5–1	Fatigue, shortness of breath, and brain fog	Qi Stagnation, Lung Qi Deficiency
HT 7 Yuan source point, earth on fire	Perpendicular/ slightly distal	0.3–0.5	Anxiety, insomnia, nightmares, chest pain, throat pain, and shortness of breath	Blood Stagnation, Qi Deficiency/ Stagnation
SP 9 ^b Water on earth	Perpendicular	1–1.5	Heavy limbs	Damp Accumulation

Smart needles 0.20 width (36 gauge) were always used.

^aAll points were placed bilaterally except Ying Tang.

^bSP9 was added to protocol at session 4.

GB, gall bladder; HA, headache; HT, heart; KD, kidney; LI, large intestine; LR, liver; LU, lung; MS, musculoskeletal; SP, spleen; ST, stomach; TH, triple heater.

continued swollen/scalloped tongue to provide additional support in resolving a degree of dampness unresponsive to Spleen tonification alone.

In sessions #5 and #6, Mr. C. reported continued improvement in symptoms reported in session 4. His tongue remained dusky pale, swollen, large, with scalloped sides and a less scalloped tip, with continued reduced redness and depth of cracks in lung area. The coat was unchanged as were bilateral pulses. See Figure 1 for tongue changes. Treatment was unchanged.

Six subsequent sessions were provided approximately once a week with continued reduction of all symptoms and further reduction of knee and finger pain. He stopped treatment on June 26, 2021 after 12 sessions due to improvement and personal schedule.

Symptoms

Extant published studies and anecdotal reports suggest that LCS symptoms are broad with variable presentations.⁹ Symptoms assessed during the clinical course in this case were his primary identified complaints. Our team is developing a checklist from clinical cases combined with other commonly reported symptoms from our literature review. We have preliminarily identified 29 symptoms across a range of body systems that are likely part of LCS.

Patient's Perspective

Mr. C. was seen for a clinical visit on November 18, 2021. He stated, "That worked great. It wasn't instantaneous, but I

TABLE 2. COMPARISON OF SYMPTOM SEVERITY ON A 1–10 SCALE BETWEEN SESSIONS 1, 5, AND 6

Symptom	Session 1 ^a	Session 5	Session 6	Change ^b
Chest pain	8	0	4	–4
Shortness of breath	9	6	3	–6
Eye dryness	7	4	1	–6
Brain fog/memory loss	8	6	4	–4
Headaches	7	3	3	–4
Knee pain	9	9	9 ^c	0
Finger pain	8	8	8 ^d	0
Fatigue	8	7	7	–1

^aRetrospectively rated symptoms on February 26, 2021, 2 weeks postsession.

^bChange from sessions 1–6.

^cKnee pain as severe, but occurring less frequently.

^dFinger pain as severe on left hand, right hand improving.

would notice the day after treatment the brain fog was improved and the joint pain lessened and finally the stinging pain went away. My PTSD symptoms were still there, but I could control them better. The stinging pain has come back in my little fingers a bit, but it is 80% better. I don't have any joint pain now and the brain fog is much better. Headache is gone and fatigue is almost gone.” He further commented that the treatment sessions were ...”so relaxing and I almost fell asleep each time. I was able to let go and allow it to work.”

DISCUSSION

This case suggests potential benefit of acupuncture for LCS. Mr. C's reported improvement after six sessions was

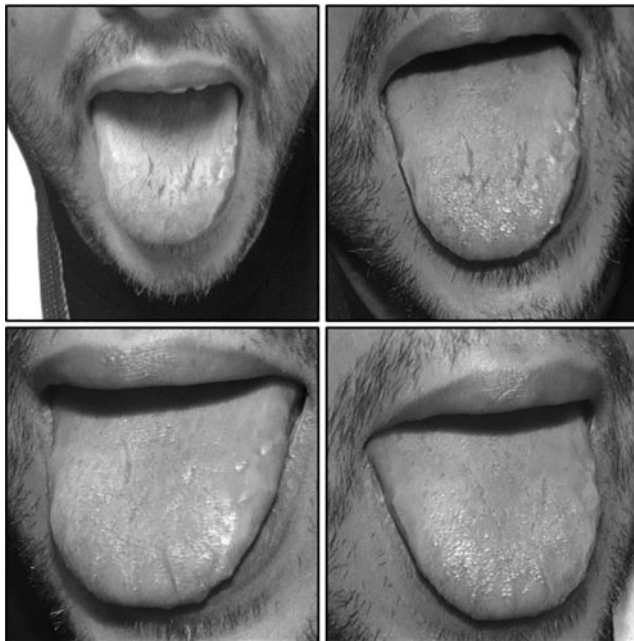


FIG. 1. Tongue change session #2 to #6.

maintained or improved with maintenance treatment. His tongue changes showed clearing of heat and improvement in the severity of Yin Deficiency. The pulse demonstrated resolution of Blood Stagnation and some improvement in dampness.

The primary TCM diagnostic pattern was Lung Qi and Yin Deficiency. Yin Deficiency, characterized by dry mouth, nasal passages, throat, and skin, is often the result of underlying Qi Deficiency, which is characterized by a weak cough and dyspnea, especially upon exertion, as well as tendency to catch colds, aversion to cold weather, and spontaneous sweating.¹⁰ Both patterns are known to arise from viral illness.¹¹

One secondary diagnostic pattern was Qi Stagnation, which is implicit in Blood Stagnation and characterized by fixed, sharp pain anywhere in the body resulting from acute internal or external injury or from chronic dysfunction impairing circulation.¹⁰ Chest pain due to scarring in the lungs from COVID-19 infection may be an example of this pattern. Another secondary diagnostic pattern was Spleen Qi Deficiency with dampness, a common pattern associated with fatigue, digestive complaints, and subjective heaviness in the body.

Many conditions can contribute to the development of this pattern, including viral illness. Further research aimed at understanding TCM and medical diagnostic overlap will be important if multiple approaches are to be utilized for LCS. The multiple symptoms identified likely arise from broad physiologic effects of LCS, which suggests the need for a holistic approach to assessment and treatment.^{1,12}

Research about LCS is early in describing phenomenology and mechanisms of action implying treatment needs. Long-COVID affects multiple body systems with predominant inflammatory and immune-based pathology.^{13–15} TCM has clinical guidelines for the treatment of infectious diseases and postviral illness from past epidemics,¹¹ which may be applied to LCS. Acupuncture has positive effects on inflammation and immunity that may be operative in LCS,¹⁶ although no research specific to COVID-19/LCS has been reported. High-quality clinical trials are warranted to assess the effectiveness of acupuncture for improving symptoms and physiology of LCS.

The limitations to data interpretation are that this is one case and, as with all case reports, the diagnostic patterns, treatment outcome, and the symptoms may not generalize to others or populations with LCS. It is possible that Mr. C. improved by natural history, although the current literature is not clear about the natural history of LCS.

CONCLUSION

Acupuncture may be useful for treating the broad symptoms and pathophysiology of the LCS. More research is needed to better understand the syndrome, develop useful interventions, and investigate the mechanism(s) of action of LCS and interventions.

AUTHOR DISCLOSURE STATEMENT

No competing financial interests exist.

FUNDING INFORMATION

This case study was not funded by a specific grant.

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