

## Positive Effect of Acupuncture and Cupping in Infertility Treatment

Jun-Xiang Wang, MD, Yang Yang, MD, Yue Song, MD, and Liang-Xiao Ma, MD, PhD

### ABSTRACT

**Background:** Infertility is clinically defined as the failure to conceive after 12 months of unprotected sexual intercourse. Organic disorders and lifestyle factors are highly associated with infertility. Generally, acupuncture and its related methods can be applied for treating infertility, according to the theory of Traditional Chinese Medicine. Successful cases of acupuncture-treated infertility without concomitant use of any medication are rare. This article presents a case of an infertile woman having a favorable response to acupuncture treatment.

**Case:** A 39-year-old Mexican woman presented with infertility following right-side fallopian-tube obstruction. She had no significant physical feelings of discomfort apart from work-related stress. Her syndrome was first diagnosed as Deficiency of Spleen and Kidney Qi, accompanied by obstruction of channels due to accumulation of Dampness. Acupuncture, accompanied by cupping therapy, was primarily practiced for this patient.

**Results:** After 28 treatment sessions, she was finally able to conceive.

**Conclusions:** Acupuncture could help treat infertility. Further large-scale, randomized clinical trials are needed to verify the efficacy of acupuncture for treating female infertility.

**Keywords:** infertility, acupuncture, cupping therapy, infrared radiation

### INTRODUCTION

INFERTILITY IS CLINICALLY DEFINED as the failure to conceive after 12 months of unprotected sexual intercourse.<sup>1</sup> Organic disorders (e.g., ovulatory disorders, tubal disease, and endometriosis) and lifestyle factors (e.g., behaviors, circumstances, and diet) are highly associated with female infertility.<sup>2</sup> Many women are striving to conceive at older ages,<sup>3</sup> which has boosted both the development and application of assisted reproductive technology vastly.<sup>4</sup> However, considering the cost related to this technology, infertility remains an issue, especially for lower-income individuals seeking assistance from practitioners of complementary or alternative medicine, which is often regarded as lower in cost, safer, or more effective.<sup>5</sup>

As a nonpharmacologic therapy, acupuncture has a multilayered and multiphasic therapeutic effect. In particular, acupuncture has been widely applied as an infertility treatment and has achieved great progress around the world.<sup>6</sup> Studies have shown that the rate of pregnancies via

embryo transfer using acupuncture is 42.5%, while it is only 23.6% among patients not receiving acupuncture in conjunction with embryo transfers.<sup>7</sup> Acupuncture therapy is characterized by activation of self-regulating functions after nonspecific stimulation on the body with needles. This practice regulates the flow of Qi through the channels, balances Yin and Yang, harmonizes functioning of the *Zang-Fu* organs, strengthens the immune system, adjusts blood circulation further, improves the state of the endometrium, and helps to prepare the uterus fully for embryo implantation.<sup>8</sup> In addition, acupuncture is well-tolerated and should be considered as part of an effective approach to infertility management.

### CASE

A 39-year-old, infertile Mexican woman who had been trying to conceive for 3 years visited acupuncture the clinic of the Beijing Guangji Traditional Chinese Medicine (TCM)

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School of Acupuncture–Moxibustion and Tuina, Beijing University of Chinese Medicine, Beijing, China.

Hospital, in Beijing, China, from May 2013 to July 2014. Before she came to this hospital, relevant examinations of this patient's basic sex hormones—including follicle stimulating hormone, luteinizing hormone, estradiol, progesterone, prolactin, and testosterone—as well as regular gynecologic tests were performed at the Beijing Obstetrics and Gynecology Hospital. Her levels of basic sex hormones were found to be normal (Table 1). Examination of this patient's fallopian tubes showed an obstruction on the right side, although she reported having regular menstruation cycles and normal amounts of bleeding. The sperm quality and motility of her husband were normal. A Western gynecologic doctor suggested she undergo *in vitro* fertilization (IVF). However, the patient opted instead to visit the acupuncture clinic.

This patient was slightly overweight and did not have any significant physical feelings of discomfort other than work-related stress. A slightly red tongue with teeth marks; a white, greasy thick tongue coating; and a slippery and wiry pulse were noted. Based on TCM theory, her syndrome was first diagnosed as Deficiency of Spleen and Kidney Qi, accompanied by obstruction of channels due to accumulation of Dampness.

Acupuncture, cupping, and infrared lamp therapies were used simultaneously on the patient once per week for ~7–8 months in 28 total sessions. Needles for the head and face (diameter, 0.18 mm; length, 25 mm), as well as the body and extremities (diameter, 0.25mm; length, 40mm; Beijing Zhongyan Taihe Medical Instrument Co., Beijing, China) were manually inserted to a depth of 25–35 mm, depending on the locations of the points. A proper needling sensation based on patient's tolerance was supposed to be obtained during each session.

### Acupuncture Treatment

The principal points selected were GV 20, GV24, EX-HN 3 (*Yintang*), TE 5, LI 4, and *Qizhoushibian* (four points in total; 1 B-*cun* superior, inferior, and lateral to the center of the umbilicus), as well as ST 25, CV 4, EX-CA 1 (*Zigong*), ST 29, ST 36, SP 8, SP 6, KI 3, and LR 3. Except for GV 20, GV 24, *Qizhoushibian*, and CV 4, all other points were used bilaterally. Needles were retained in the skin for 20 minutes. Infrared lamp lighting was also applied to the abdomen.

TABLE 1. BLOOD LEVELS OF SEX HORMONES

Examinations	Levels	Reference ranges
FSH	8.08 mIU/mL	1.4–18.1 mIU/mL
LH	5.37 mIU/mL	1.5–9.3 mIU/mL
E <sub>2</sub>	36.03 pg/mL	0–52 pg/mL
P	0.15 ng/mL	0–0.41 ng/mL
PRL	10.85 ng/mL	2.1–17.7 ng/mL
T	6.48 ng/mL	6–55 ng/mL

FSH, follicle stimulating hormone; LH, luteinizing hormone; E<sub>2</sub>, estradiol; P, progesterone; PRL, prolactin; T, testosterone.

### Cupping Treatment

After the acupuncture treatment, cupping was applied. Flash cupping was first used on CV 8 ~ 50 times per session until the local skin turned slightly red. Then, a sliding cupping was applied around the umbilicus in a clockwise direction as well as along the belt vessel. Next, the patient turned on her stomach, and flash cupping was carried out along the first line of the Bladder channel until the skin turned slightly red; the cups were retained on BL 13, BL 15, BL 18, BL 20, and BL 23 for 5 minutes.

### Diet and Lifestyle Advice

The patient's treatment was carried out from May 19, 2013, to July 20, 2014; however, it was stopped from July 15, 2013 to August 18, 2013 due to the summer holiday. No side-effects were apparent during the treatment. She was also advised to make diet and lifestyle modifications, including eating less cold and raw food, exercising regularly, and trying to relax more. The combination of a healthy diet and lifestyle are greatly beneficial to women's health, especially for improving hormonal parameters.<sup>9</sup> This patient did not receive any conventional treatment while receiving the TCM treatments.

## RESULTS

After 28 treatment sessions, the patient's general condition improved significantly; she felt less anxiety and her sleep improved. Finally, she became pregnant naturally and gave birth to a son on August 26, 2015.

## DISCUSSION

Here, this article presented a case in which an infertile patient was principally and successfully treated with acupuncture and cupping therapy. Although the patient's age might have been older than optimal for conception, analysis of her basic sex hormone levels and her general condition suggested that she was still able to conceive. Because both the basic sex hormone test and examination of fallopian tubes were invasive, the patient was reluctant to undergo those again after receiving the TCM treatment. Therefore, an objective comparison of those tests between pre- and post-TCM treatment could not be made. Nonetheless, positive outcomes were obtained at the end of the TCM treatment as the patient was able to conceive and give birth to a healthy baby naturally.

The application of acupuncture for the treatment of gynecologic and reproductive disorders has quite a long history in China.<sup>10</sup> Numerous studies have reported the positive effects of acupuncture as an adjunct to infertility treatment, especially in the field of IVF.<sup>11–14</sup> Although there is still no universal standard in the design or application of

the treatment protocol, the outcomes of the current and most previous studies have shown that acupuncture contributes positively to infertility management. In general, a holistic, integrated, and individualized approach often acts as a prerequisite to produce good effects.<sup>15</sup>

According to TCM theory, Liver, Spleen, and especially Kidney are considered as vital organs having a close relationship with reproductive functions. Additionally, the Liver controls the free flow of Qi regulating emotion further, while the Spleen controls transportation and transformation of water and food. Therefore, the current authors identified acupuncture points according to syndrome differentiation: Deficiency of Spleen and Kidney Qi associated with Qi and Blood Stagnation. Targeting KI 3 aims to nourish the Kidney and boost Yang so as to strengthen reproductive function, while LR 3, LI 4, and TE 5 help soothe the Liver and rectify Qi. CV 20, CV 24, and EX-HN 3 can calm the mind and relieve stress, while ST 36 embraces the transformation and production of Qi and Blood and strengthens immunity. SP 8 is also good for treating gynecologic diseases, dysmenorrhea, and infertility, as well as helping fortify the Spleen and drain Dampness.

In a previous study, needling at SP 6 helped improve uterine arterial blood flow,<sup>16</sup> relieve dysmenorrhea, and minimize the influence of pain on daily life.<sup>17</sup> Points on the abdomen (*Qizhoushibian*, CV 4, ST 25, ST 29, and *Zigong*) promote discharge of oocytes and unblock the oviducts, and BL 32 is often utilized in coordination with the abdominal points to treat lumbar and sacral pain, menstrual disorders, and infertility.

Yang Qi Deficiency, particularly Kidney and Spleen, is usually considered as the fundamental mechanism of infertility in TCM. In the present case, although the patient did not experience any sensations of discomfort, her body figure, tongue, and pulse condition showed a Deficiency of Spleen and Kidney Yang Qi. Flash cupping on the umbilicus (CV 8) is conducive to activating Yang Qi in order to fortify the Spleen and Kidney Yang. Slide cupping along the belt vessel also helps restrain all channels and consolidate the lower *Jiao*. It should be noted that the entire process of needling should be accompanied by infrared lamp lighting on the abdomen in order to warm the channels and collaterals. In addition, flash cupping along the first line of the Bladder channel and retaining cups on the back *Shu* points of the five *Zang* organs (BL 13, BL 15, BL 18, BL 20, and BL 23) helps invigorate Yang Qi and reconcile the five-*Zang* organs. Slide cupping around the umbilicus in the clockwise direction can rectify Qi movement and promote digestion. As a method of external stimulation, cupping causes changes in the microenvironment by local stimulation, leading to capillary rupture, release of large amounts of signaling molecules, and subsequent activation of the neural–endocrine–immune network to create an overall regulatory function.<sup>18</sup>

Although the mechanism by which acupuncture improves pregnancy rates remains unclear, it is feasible that acu-

puncture increases ovulation frequency and/or improves oocyte quality.<sup>19–21</sup> Acupuncture might reduce blood flow impedance of uterine arteries,<sup>22,23</sup> reduce contraction frequency of the uterine junctional zone, and consolidate embryo implantation.<sup>13</sup> In addition, acupuncture helps relieve emotional pressure and anxiety in order to enhance health and improve pregnancy outcomes.<sup>9,24–26</sup>

Acupuncture had a satisfactory effect on regulating the patient's mind and Qi, which are two major characteristics of acupuncture and/or channel-stimulating methods according to the classic theory of acupuncture. Acupuncture and cupping can also release stress and improve the environment surrounding the fallopian tubes, increasing fertility. Although the duration of this alternative treatment course is relatively longer than that of IVF treatments, the alternative treatment is less invasive and causes fewer physical and mental injuries. Moreover, because the frequency of acupuncture treatments can be as low as once a week with the possibility of breaks, patient compliance increases. The current authors' present experience suggests that, for better results, acupuncture practitioners should encourage patients to persist in receiving treatment for ~6 months. Given that 6-month treatments are indeed labor intensive, a key point of a successful treatment is trying to increase patient compliance. According to the current authors' experience, quick effects of acupuncture and cupping on patient's general condition—such as good sleep, less anxiety, and improved energy—always help patients persist in receiving the treatment.

## CONCLUSIONS

The result of the present case indicates that acupuncture, accompanied by cupping treatment, can serve as a potential treatment method for infertility. The current authors hope that this case report will act as a good reference for practitioners who want to try this similar protocol for patients with similar conditions. Further, large-scale, randomized clinical trials are needed to verify the efficacy of acupuncture on female infertility.

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J.-X. W. managed the case with full responsibility and wrote the article. Y.Y. practiced cupping therapy during the treatment. Y.S. was responsible for removing the needles during the treatment. L.-X.M. oversaw the treatment and revised the article.

## AUTHOR DISCLOSURE STATEMENT

The authors declare no conflicts of interest.

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Address correspondence to:

Liang-Xiao Ma, MD, PhD

School of Acupuncture–Moxibustion and Tuina  
Beijing University of Chinese Medicine

Number 11

Bei San Huan Dong Lu, Chaoyang District  
Beijing 100029  
China

E-mail: maliangxiao@vip.sina.com