

Treatment of Male Infertility due to Obstructive Azoospermia with Acupuncture and Moxibustion: A Case Report

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ABSTRACT

Infertility affects up to one in five couples and male infertility is a contributing factor in half of these cases. Obstructive azoospermia is an intractable form of male infertility that is difficult to treat, whether by biomedicine or traditional Chinese medicine (TCM). In recent years, assisted reproduction technology (ART) has improved the reproductive potential for patients with obstructive azoospermia, but the specific procedure remains controversial and involves a number of inherent risks. This case report documents a short course of acupuncture treatments for a 33-year-old male presenting with a ten-year history of obstructive azoospermia. The primary intervention of acupuncture utilised conventional treatment protocols, in combination with the innovative application of an eight extraordinary vessel point selection. After just three treatments, the patient and his wife conceived naturally, without further medical assistance. This outcome suggests that TCM and acupuncture in particular may be more effective treatment for azoospermia than previously thought.

KEYWORDS andrology, male infertility, obstructive azoospermia, acupuncture, moxibustion.

Introduction

Infertility affects up to 20 percent of couples worldwide,¹ and it is estimated that over 40 percent of all infertility results from male infertility.² The causes of male infertility are diverse and include environmental, congenital and psychological factors.³ Diagnostic classification is complex because individual abnormality in sperm quality, quantity or motility may constitute an infertile state.³ Obstructive azoospermia is a severe form of male infertility characterised by the complete absence of sperm in the seminal fluid, caused by blockage in the spermatic duct.⁴ Fifteen percent of all male infertility is caused by obstructive lesions in the male genital tract,⁵ which may result from genitourinary infections, iatrogenic injury from surgery, vasectomy and congenital anomalies.

AN ORIENTAL PERSPECTIVE

The history of andrology in TCM can be traced to the Mawangdui scrolls, circa 475–221 BCE, and the *Huang Di Nei Jing*, circa 150 BCE–24 CE.⁶ The treatment of male infertility with acupuncture was first documented in the Sui Dynasty text, *General Treatise on the Aetiology and Symptomatology of Disease (Zhu Bing Yuan Hou Lun)* by Chao Yuan-fang in 610 CE.⁷ Clinical research into the role of acupuncture for male infertility has produced largely positive outcomes and according to a *Journal of Andrology* review, 'Acupuncture may represent an important therapeutic modality for male factor infertility.'⁸ However, azoospermia is considered difficult to treat with TCM,⁹ and the handful of acupuncture trials that have included subjects with azoospermia have produced mixed results. Zhiyuan, for instance, reported acupuncture to be

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wholly ineffective for azoospermia,¹⁰ while Siterman et al. found that patients with post-infection azoospermia responded better to acupuncture than other male infertility types.¹¹

BIOMEDICAL TREATMENT

The primary biomedical treatment for obstructive azoospermia is epididymal or testicular sperm aspiration, followed by intracytoplasmic sperm injection (ICSI), and uterine injection. This is a relatively new procedure that has improved pregnancy rates among androgenic infertile couples, and a recent review of the first decade of its use found that up to one in five interventions resulted in a full-term birth.¹² Despite these improvements, the procedure is considered difficult, invasive, expensive, and involves significant health risks, including the increased risk of miscarriage, embryopathy and the transmission of genetic defects.^{13,14} Another shortcoming of the ICSI surgical model is an inability to correct the underlying structural problems that cause obstructive azoospermia, thereby necessitating repeated surgical interventions for each attempted fertilisation.

Case History

A 33-year-old male patient presented to the acupuncture clinic with the chief complaint of primary infertility. The patient and his wife had not conceived by natural means throughout their ten-year marriage. After three years without pregnancy, medical assistance was sought to identify the cause of the infertility. Specialists examined the couple and determined that the wife was in good reproductive health, but the husband had a nil sperm count. A semen sample was aspirated from the patient's testes and the presence of viable sperm with normal spermatogenesis indicated the presence of obstructive azoospermia. Further investigations revealed a blockage located in the epididymis, but without a history of genitourinary infection, congenital infertility, or iatrogenic surgery, the specific aetiology of the obstruction was not identified.

Further sperm samples were aspirated from the patient and sent to a lab for cryopreservation, apropos of use for ICSI treatment. Over the next 18 months, the sampled sperm was utilised for a succession of ICSI procedures. The first three interventions proved unsuccessful, but after the fourth attempt, the wife conceived and gave birth to a healthy son. Eighteen months after the child was born, the couple desired another child, and the entire process was repeated. Further sperm samples were extracted and four separate interventions performed over a twelve-month period culminated in the birth of another son.

Despite the eventual success of the interventions, the couple were uncomfortable with the ART procedures. Each sperm aspiration was followed by a painful recovery period, and both husband and wife were distressed by the invasive nature of the surgery. The patient was informed that repeated surgery

increased associated scarring and the risk of infection, and each round was marked by the reduced potential for success.

Given the couple's reluctance to continue with the western medical approach, the visit to the acupuncture clinic represented a last resort before again taking up the option of surgery. The patient was softly spoken with a pale complexion and a sensitivity to the cold, particularly in the extremities. He suffered episodic lower back pain that occurred approximately fortnightly and ongoing stiffness in the knees that was not associated with a specific injury. Back pain was worse at the end of the day and typically centred at the juncture of the L5/S1 vertebrae, occasionally radiating to the iliosacral joints. Episodes of back pain were moderate, and on a scale of one to ten, with one representing mild pain and ten excruciating pain. The patient reported pain measuring four to five out of ten. Palpation of the hips and lumbus revealed cool skin.

The patient frequently passed copious amounts of clear urine and experienced mild swelling of the feet and ankles. Signs of distension were exhibited around the midsection of the abdomen and palpation revealed cool skin and tenderness on the midline below the umbilicus, a location correlating with the point CV4 *Guanyuan*. The patient moved his bowels once per day and reported no digestive problems. His work as a construction foreman involved minimal physical work and, by his own admission, he performed insufficient exercise. He acknowledged that he had erratic eating habits, regularly missed breakfast, and overate at night. He enjoyed eight hours of uninterrupted sleep per night and generally awoke feeling refreshed. He didn't drink, smoke, or take any medication, except for paracetamol for mild headaches which occurred, on average, bi-monthly.

The patient reported a low libido, but no erectile dysfunction. The couple engaged in intercourse no more than once per fortnight, a frequency that had altered little throughout the course of the marriage. Such encounters produced a thin and watery ejaculate with a post-coital feeling of urgency emanating from the obstruction in the epididymis. The patient had suffered no serious or chronic illness throughout his life. He was the youngest child in a family of seven and his wife hailed from a similarly large family. The patient reported that his mother was in her late forties when he was conceived, and his father in his late fifties. He described himself as generally happy, but admitted to a lingering sense of inadequacy due to being infertile. He reported a close and loving relationship with his wife and children, but the couple desired more children.

During the first consultation the patient reported that his wife was just finishing her menstrual period. The pulse was deep, slow and weak, particularly weak in both kidney pulse positions. The tongue was pale with a thin white coat.

TCM Differential Diagnosis

According to TCM theory, the regulation of reproduction and sexuality in both sexes is a function of the kidney.¹⁵ The kidney is the storehouse of essence and opens into the lower orifices, including the spermatic duct.¹⁶ As such, kidney deficiency syndromes – yin, yang and *jing* – constitute the most common pathologies for male sexual disorders.¹⁷ The patient's lower back pain, stiff knees, and deep and weak kidney pulse suggested the presence of kidney deficiency. As the lumbar region is the 'palace of the kidney', kidney deficiency gives rise to lower back pain and stiffness in the knees.¹⁶ The presence of cold symptoms – cold extremities, cold skin of the abdomen and lower back and the frequent passage of copious amounts of clear urine – suggested a deficiency of kidney yang. When kidney yang is deficient, the fire in the gate of vitality fails to warm *jing* essence, which impairs reproductive function giving rise to low libido, thin, watery ejaculation, impotence and infertility.¹⁸ Another characteristic of kidney yang deficiency is a failure to control water metabolism, which causes signs of fluid accumulation, such as oedematous swelling in the lower extremities, or signs of fluid containment, such as copious voidings of clear urine.¹⁸

In TCM, ductal blockage is described like any tissue obstruction – as blood stagnation.¹⁷ The fixed nature and prolonged chronicity of the patient's spermatic obstruction supported this diagnosis. That blood stagnation can coexist or even arise from kidney yang deficiency has been identified in a number of male reproductive disorders.^{19,20} Long states, 'chronic kidney disease always involves blood stasis'.²¹ The process by which kidney yang deficiency can give rise to stasis of blood relates to the kidney's effect on qi transformation and the movement of fluids in the lower jiao. The Qing dynasty author Wang Qingren stated that sperm flow depends on kidney yang's function of qi transformation; if yang is insufficient, then qi cannot be transformed.²² Weak kidney yang also disrupts the regulation of urination and the separation of clear and turbid fluids, leading to fluid accumulation. The sum of these effects is the stagnation of fluids and qi, from which blood stagnation may easily arise.²¹

The primary causes of kidney yang deficiency are constitutional yang deficiency, loss of essence due to sexual excess, old age, and chronic illness.¹⁶ In the absence of the latter aetiologies, the patient's yang deficiency was regarded as a congenital pattern, inherited from parents who were middle aged at the time of his conception. This is a typical characteristic of kidney *jing* deficiency which, according to Lyttleton, presents alongside the majority of male infertility cases caused by kidney yang deficiency.¹⁷

Reproductive disorders are also associated with disharmony of the conception vessel (*ren mai*) and thoroughfare vessel

(*chong mai*), and aspects of the patient's presentation suggested the presence of this pathology. The *chong mai* is known as the sea of blood and is considered appropriate to treat when the proper distribution of blood is obstructed in the lower jiao. In the *Classic of Difficulties*, the *chong mai* is associated with counterflow of qi, which causes a sense of urgency or rushing.²³ The rushing sensation described in this early text resembled the patient's description of post-coital urgency arising from the blockage in the spermatic duct. The presence of this sensation strongly suggested an obstruction to the normal flow of qi and blood in the *chong mai*. Mei says, 'whenever there is this feeling, there is always a pathological imbalance of the *chong mai*, independently from which *zang* or *fu* may be affected'.²⁴

In addition to influencing reproductive health, both *chong mai* and *ren mai* are intimately connected with the function of the kidney. Kuang states, 'Kidney yang deficiency leads to deficiency of original qi and debility of the *chong* and *ren mai*'.²⁵ Wang Shu-he explains that counterflow may also originate from kidney deficiency, 'If the kidney qi is deficient, this deficiency damages the *chong mai*. The *chong mai* has rebellious qi'.²⁶ The *chong mai* originates in the gate of vitality and emerges at CV 1 *Huiyin*, the starting point of the *ren mai*²⁷ and the location of the blockage in the patient's epididymis. Thus, with the presentation of kidney deficiency causing blood stagnation, coupled with the sensation of counterflow at CV 1 *Huiyin* (the meeting point of the *chong mai* and *ren mai*); a diagnosis of blood stagnation obstructing the *chong mai* and *ren mai* was made.

TCM Diagnosis

Kidney yang and *jing* deficiency, blood stagnation obstructing the thoroughfare vessel (*chong mai*) and the conception vessel (*ren mai*)

TCM Treatment Principle

Warm and nourish kidney yang and kidney *jing*. Invigorate the circulation of qi and blood in the lower *jiao*, dispel blood stagnation in the *chong mai* and *ren mai*.

Treatment

Acupuncture for kidney yang and *jing* deficiency:

KI 3 *Taixi* (tonify), CV 4 *Guanyuan* (needle head moxa), ST 36 *Zusanli* (needle head moxa), BL 23 *Shenshu* (needle head moxa), GV 4 *Mingmen* (rice grain moxa).

Acupuncture for blood stasis obstructing the *chong mai* and *ren mai*:

Chong mai pairing – SP 4 *Gongsun* and PC 6 *Neiguan* (even method), CV 4 *Guanyuan* (needle head moxa), SP 6 *Sanyinjiao* (reduce).

Treatment Rationale

KI 3 *Taixi*, CV 4 *Guanyuan* (moxa), ST 36 *Zusanli*, BL 23 *Shenshu* and GV 4 *Mingmen* are commonly selected points for the treatment of kidney yang and *jing* deficiency, and this combination is specifically recommended for kidney deficiency male infertility.^{10,17} SP 6 *Sanyinjiao* is a powerful point to use in reproductive disorders because it has the capacity to tonify the kidney, remove channel obstruction, promote blood circulation and harmonise the lower jiao.²⁷ CV 4 *Guanyuan* has a similar versatility and, according to Zhiyuan, not only supplements the kidney and invigorates yang (with moxa), but also courses the flow of the qi and blood in the *chong mai* and *ren mai*. SP 6 *Sanyinjiao* and CV 4 *Guanyuan* are combined to reset blood circulation.²³

According to Wang Ju-Yi, in cases of chronic blockage it is often appropriate to choose eight extraordinary vessel combinations.²³ SP 4 *Gongsun* and PC 6 *Neiguan* are the master and coupled points of the *chong mai*, and are combined to impel the strong movement of qi and blood in the central core of the pelvis and genitals.²⁷ In the *Glorious Anthology of Acupuncture and Moxibustion (Zhen Jiu Ju Ying)*, Gao Wu refers to SP4 *Gongsun* as one of 'the eight therapeutic methods', which he prescribes for the treatment of qi and blood stasis below the umbilicus.²⁷ The thoroughfare vessel (*chong mai*) is also responsible for strengthening the flow of qi between the conception vessel (*ren*) and the governing vessel (*du*) at the meeting point CV 1 *Huiyin*.²⁶ For this reason SP 4 *Gongsun* and PC 6 *Neiguan* were selected to promote the flow of qi and blood to the testes and epididymis.

Methodology

The intervention consisted of a course of five acupuncture treatments over a period of seven weeks. Hwato brand stainless steel needles were used: 0.3 mm diameter by 40 mm length for points with moxa, and 0.25 mm in diameter and 30 mm length for all other points. SP 4 *Gongsun* and PC 6 *Neiguan* were needled bilaterally on their own for ten minutes at the beginning of the treatment. All other points were needled bilaterally with needles retained for an average of 15 minutes. Needle insertion for each point was performed to a depth recommended by TCM textbooks.^{16,27} Points were stimulated until *deqi* was elicited, and for specific points, CV 4 *Guanyuan* and SP6 *Sanyinjiao*, special attention was given to directing *deqi* sensation towards the region of the patient's blockage at CV 1 *Huiyin*. The same point prescription was used throughout the treatment course.

PATIENT ADVICE

In order to strengthen the patient's vitality and conserve the couple's reproductive energy for the fertile period that follows ovulation, the patient was advised to abstain from coitus until

the week of ovulation. The patient was encouraged to eat breakfast and take up brisk walking for 45 minutes, three times per week, to support general health. He was also given a simple visualisation technique to focus his attention in the region of the lower *dantien* (below the umbilicus) while breathing deeply, whenever the opportunity availed itself. This *qigong* technique was prescribed to increase the flow of qi and blood to the lower *jiao*, based on the rationale that 'where attention goes, qi follows'.

Results

After the first treatment the patient reported a sense of vitality and relaxation that had not been experienced in many years. This engendered confidence in the acupuncture treatment and gave the patient impetus to follow the advice of eating breakfast and initiating a regular exercise regime. After two treatments the colour had improved in the patient's complexion and his pulse was noticeably stronger, particularly in the kidney positions. After the third treatment, the patient was happy to report an unprecedented sense of vigour and desire in his sexual relations with his wife. He also noted the absence of any sense of post-coital urgency emanating from the blockage in the epididymis, and no back pain had been experienced since starting the treatments. The patient attended his fifth treatment and was overjoyed to report that his wife had conceived some three to four weeks previously. This timeframe suggested that conception had occurred in the week following the third acupuncture treatment.

Discussion

In contemporary TCM literature, *chong mai* treatments are widely indicated for gynaecological disorders, yet largely overlooked in male reproduction. Lyttleton puts the view that the *chong mai* has less involvement in the pathophysiology of male infertility than female,¹⁷ and this position seems to be widely accepted in TCM. There is, however, an historical basis for arguing that the *chong mai* plays a central role in male reproduction, and male fertility in particular. In Chapter 65 of the *Ling Shu*, Qi Bo provides us with the earliest pathophysiological description of male infertility, in which the disruption of the *chong mai* is the predominant pattern: 'In eunuchs, the *chong mai* is damaged with the removal of their sexual organs,' and, '[if] their insufficiency is inherited, their *chong* and *ren* channels are not flourishing, their sexual organs do not function'.²⁸ This passage highlights the intimate relationship between the *chong mai* and male fertility, and provides an explanation for why a treatment that targets the *chong mai* may work so effectively.

At the time of formulating this treatment, the use of *chong mai* points to clear a blockage in the spermatic duct seemed

an appropriate response to the presenting symptoms. Further research has confirmed that a *chong mai* treatment is applicable when there is counterflow in the lower jiao with a background of kidney deficiency. The eight extraordinary vessels represent an underemphasised principle in classical physiology and, despite having origins in the earliest TCM texts, it was not until the Ming dynasty that our current understanding of these vessels began.²³ That a *chong mai* treatment may be considered unconventional for male infertility reflects the fact that the evolution of eight extraordinary vessel theory continues in the modern era.

. The use of points to warm and tonify the kidney, in conjunction with those to promote qi and blood circulation in the *chong mai* and *ren mai*, worked synergistically to resolve a longstanding condition in a remarkably short time. Classical theory suggests that when a condition is chronic, treat the root (*ben*) and, when acute, treat the branch (*biao*). However, male infertility treatments that solely treat the root deficiency, while overlooking the expression of excess in the branch, seldom prove effective. Clavey states that many practitioners approach the treatment of male infertility as a matter of kidney deficiency alone, but a preferable strategy is to resolve the symptom of excess and then tonify, if necessary.⁹ This approach is confirmed by Guo et al., who found that tonifying the kidney while improving blood circulation in impotent males, was markedly superior to tonifying the kidney alone.²⁰ In this case study, the treatment of kidney deficiency and blood stagnation was carried out concurrently because of the understanding that blood stagnation can be difficult to remove, tempered with the presentation of a patient with significant signs of deficiency. While this may appear to entail conflicting treatment goals, the results indicate that each outcome was achieved without encumbering the other.

In conclusion, this case study demonstrates the application of TCM theory to a clinically and socially relevant problem and reinforces the notion that biomedically defined conditions can be treated effectively with a TCM problem solving approach. Given that azoospermia is considered difficult to treat, the strategy of moving qi and blood in the *chong mai*, in order to clear an obstruction of the epididymis, may provide an innovative alternative to treating this condition. This case study does not pretend to be the first to use *chong mai* points to treat male infertility, but it does demonstrate that using such points may be effective. That a man who had been unable to produce sperm for ten years was able to conceive in less than a month – after only three acupuncture treatments – attests to the powerful effect that acupuncture may have on male reproductive health. In light of the significant reservations the medical community has in regard to the safety of the conventional biomedical treatment for obstructive azoospermia, acupuncture may offer a safe and cost effective alternative to invasive surgery. While

it is impossible to read too much into the treatment of just one subject, the swift resolution of this patient's longstanding condition, suggests that further research into the effect of acupuncture on male infertility is warranted.

Clinical Commentary

In recent years acupuncture has developed a reputation for improving pregnancy rates among infertile females, but less evidence exists for the effect of acupuncture on male infertility. This case study examines a short course of acupuncture treatments for a male with a ten year history of obstructive azoospermia; a common yet intractable form of male infertility. Biomedical treatment for obstructive azoospermia involves invasive surgery for both the male and his partner and offers limited potential for success. Yet after only an handful of acupuncture treatments the patient and his wife were able to conceive naturally. This result was achieved using a simple acupuncture protocol that may be employed by any TCM practitioner.

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