

A Discussion on the Constitution Factors of Thin Endometrium Based on the Theory of Qi and Blood

Yuchun Qian¹, Rongfeng Pu¹, Jing Cai^{2*}

¹Shaanxi University of Chinese Medicine, Xianyang 712000, Shaanxi Province, China

²Affiliated Hospital of Shaanxi University of Chinese Medicine, Xianyang 712000, Shaanxi Province, China

*Corresponding author: Jing Cai, 1308843516@qq.com

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Abstract: Thin endometrium has been proven to be a key contributing factor leading to infertility and poor pregnancy outcomes. Increasing the thickness and capacity of thin endometrium seems to be one of the challenging issues in reproductive medicine. The states of qi and blood are closely related to uterine blood circulation. Constitution is regarded as an important basis for determining the incidence as well as distinguishing, preventing, and treating diseases in traditional Chinese medicine. Based on the theory of qi and blood, this paper discusses the constitution factors of thin endometrium and puts forward the prospect of using big data tools to investigate the correlation between qi-blood imbalance constitution and the incidence of thin endometrium, so as to explore new approaches for the prevention and treatment of thin endometrium by regulating qi and blood as well as improving the constitution condition.

Keywords: Theory of qi and blood; Constitution; Thin endometrium; Infertility

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1. Introduction

Thin endometrium refers to an endometrial thickness of less than 7 mm under ultrasound ^[1]. Thin endometrium is one of the important causes of infertility, assisted reproductive technology failure, and adverse pregnancy outcomes ^[2], including miscarriage, abnormal pregnancy, premature birth, and adverse perinatal outcomes. The pathophysiological basis of thin endometrium includes poor glandular epithelial growth, impaired vascular development, and increased vascular impedance ^[3], indicating that the formation of thin endometrium is associated with endometrium blood fluidity. According to a study ^[4], the increased resistance in endometrial blood flow is the initiating factor in thin endometrium, but the absolute cause is still unknown. At present, the effect of most treatments is insignificant, and some treatments, such as drugs, endometrial injury, intrauterine perfusion, and stem cells, lack conclusive data ^[5]. Therefore, extensive research into the treatment of thin endometrium is required.

In traditional Chinese medicine, thin endometrium is defined as “low menstrual amount” and “infertility.” Its treatments include tonifying the kidney and nourishing qi, promoting blood circulation and removing blood stasis, soothing the liver and nourishing the blood, tonifying the kidney and strengthening the spleen, as well as tonifying the kidney and nourishing the blood ^[6,7]. Literature has shown that TCM has obvious therapeutic effects on thin endometrium and has gradually become an important adjuvant therapy ^[8]. Chai Songyan, a master of Chinese medicine, established the academic thought of “three theories

on women,” which include the “reservoir theory,” represented by the “sea of blood” as well as yin and blood, the “land theory,” represented by the uterus, and the “seed theory,” represented by eggs. Only under the irrigation of “water” can “land” produce “seeds.” This theory reflects the nourishing effect of blood, where qi and blood are inseparable from each other. Based on the theory of qi and blood in traditional Chinese medicine, this article discusses the constitution factors of thin endometrium and puts forward the prospect of using big data tools to determine the correlation between qi-blood imbalance constitution and the incidence of thin endometrium, so as to explore new approaches for the prevention and treatment of thin endometrium.

2. The theory of qi and blood

Qi and blood are the two basic constituents of the human body that maintain human life activities and the normal physiological functions of the human body. The internal relationship between qi and blood can be summarized as “metaplasia relationship” and “bearing relationship”^[9]. The former refers to the mutual breeding of qi and blood. The orderly movement of qi is the basis for Zang Fu organs to function and for clear meridians and blood. The normal distribution of the spleen is inextricably linked to the production of blood. Blood is the prerequisite for various organs and tissues in the human body to function normally. Qi is generated on this basis. Bearing relationship, on the other hand, refers to the transportation of blood and the uptake of qi in the blood to promote the normal operation of blood in the body, and blood is considered the carrier of zhong qi. Qi and blood are interdependent of each other, which is also a prerequisite for the body to function normally.

3. The relationship between qi-blood disorder constitution and thin endometrium

3.1. Constitution

Constitution is a relatively stable trait formed by the combination of innate heredity, acquired environment, diet, and daily lifestyle, emotions, as well as other factors. Physical imbalance can explain the susceptibility of diseases and the tendency of disease transmission and progression; it can also be used to guide the prevention and treatment of diseases^[10,11]. Wang Qi believes that the constitution is relatively stable but still modifiable, allowing women to prevent or treat thin endometrium by regulating their own constitution^[12]. In traditional Chinese medicine, constitution can be classified into 9 categories: gentleness, qi deficiency, yang deficiency, yin deficiency, phlegm dampness, dampness heat, blood stasis, qi stagnation, and special intrinsic quality^[13]. The prevalence of qi-blood disorders in women is high because of psychological pressure. Therefore, based on the theory of qi and blood, this paper discusses the influence of qi stagnation, qi deficiency, and blood stasis on thin endometrium, as well as the role of regulating qi-blood imbalance constitution in the prevention and treatment of thin endometrium.

3.2. Pathological relationship between qi-blood imbalance constitution and thin endometrium

The uterus is an organ that menstruates regularly and is distinguished by its close connection to qi and blood. Professor Chai Songyan believes that endometrial blood flow would be unobstructed when yang qi is unblocked^[14]. In qi deficiency, blood cannot move smoothly due to qi stagnation, which leads to a decrease in blood flow velocity and an increase in the resistance of endometrial blood flow. In this state, the endometrial blood circulation deteriorates, and blood supply reduces prior to the formation of thrombosis. A poor flow of qi will also affect the discharge of menstrual blood. Hence, qi deficiency and qi stagnation constitution cannot discharge menstrual blood normally, thus resulting in blood stasis and preventing the formation of new blood. According to Professor He Fengjie^[15], blood stasis in the uterus is the main factor contributing to the development of thin endometrium. As blood is the carrier of zhong qi, blood stasis will affect the flow of qi in the uterus and deprive the uterus of blood for nourishment, which

will cause blood flow to be sluggish or stagnant. Secondly, the function of qi and blood in the uterus will be abnormal due to the prolonged sluggish blood flow, inadequate blood supply, and blood stasis.

The disorder in qi is often a dysfunctional disorder, whereas the disorder in blood might progress into an organic disorder^[16]. This disorder is a gradual process developing from qi to the blood. Qi deficiency and qi stagnation constitution can develop into blood stasis constitution or qi-blood disorder constitution, sluggish endometrial blood flow, increased resistance in blood flow, endometrial loss, and a higher probability of thin endometrium with mechanical trauma.

4. The therapeutic significance of improving qi-blood imbalance constitution in thin endometrium

4.1. General principles of treatment

According to Huangdi Neijing, all diseases originate from qi. The patency of qi is a prerequisite for the normal operation of blood and the function of organs. Patients with thin endometrium are considered to have organic lesions that have reached the blood. Yang Shiying asserts that the conditioning of blood should not be biased since blood does not operate if qi is obstructed^[17]. The main cause of blood syndrome, according to Tang Zonghai, is an imbalance of qi and mechanism; therefore, the treatment principles of blood syndrome are mainly by regulating qi^[18]. Several researchers suggest promoting blood circulation and activating qi while using blood circulation drugs to relieve stasis, so as to achieve the effect of regulating qi stagnation^[19]. Many clinicians believe that qi-blood regulation should be the basis of the treatment for thin endometrium.

4.2. Principles of treatment in different phases of menstrual cycle

Cycle therapy, which is based on the transformation of yin and yang as well as the changes of qi and blood in the different phases of menstrual cycle, is an important principle in the treatment of gynecological diseases. At the start of menstruation, qi and blood should be in a full state. In qi and blood deficiency constitution, qi and blood should be supplemented during this period. Qi stagnation and blood stasis constitution should be treated with qi and blood activating drugs, such as guiwei (Chinese angelica root), chishao (red peony root), and so on. In the late phase, the uterus and veins are relatively empty, so it is advisable to use e-jiao (donkey-hide gelatin), shudi (Chinese foxglove root), astragalus, and other herbs to supplement qi and blood, in addition to woody incense and orange peel, so as to ensure the normal operation of endometrial blood. The uterus, veins, and even the chongren are brimming with yang qi, yin, and blood during the intermenstrual phase, which is referred to as the “thick land” of pregnancy. During this phase, the main priority is dredging qi and blood.

4.3. Case study

During the first visit on December 24, 2020, YM, a 36-year-old female complaint of scarce menstruation for more than a year. After her second abortion in August 2019, she noticed that her period lasted only three to four days, in every 35 to 60 days. Her last menstrual period (LMP) was on December 2, 2020. Upon ultrasonography, her endometrial thickness was found to be 0.6 cm. Her present symptoms include chills, lumbosacral soreness, easy fatigue, and poor appetite on the 22nd day of her menstrual cycle. Her tongue was dark with white moss; she also had tortuous sublingual varicosis and thin string-like pulse. The TCM diagnosis was late menstruation, and the syndrome differentiation was spleen and kidney deficiency, qi deficiency, as well as blood stasis. The principle of treatment was to tonify the kidney, strengthen the spleen, tonify qi, and promote blood circulation. Guishen pills and Sijunzi decoction were used for addition or subtraction to 10 grams of shudi, 10 grams of Cornus meat, 30 grams of semen Cuscutae, 15 grams of wolfberry, 15 grams of scorched Eucommia, 15 grams of dipsacus, 15 grams of mulberry parasite, 20 grams of fried yam, 15 grams of baked Epimedium, 15 grams of Poria cocos, 10 grams of peony skin, 15 grams

of Codonopsis, 30 grams of baked astragalus, 15 grams of chicken blood vine, 9 grams of fragrant vinegar, 15 grams of bran-fried Atractylodis, and 6 grams of baked licorice. She took a total of seven doses in water.

The second visit was on January 3, 2021. After taking the prescription, the mild pain in her lower abdomen improved, along with the lumbosacral soreness and chills. This was during her premenstrual phase, where patient was in qi deficiency and blood stasis constitution. Hence, promoting blood stasis is would be appropriate. On the basis of the previous prescription, dipsacus was removed, angelica was added, along with motherwort, Sichuan achyranthes, and medicated leaven. She was given a total of seven doses, decocted in water.

The third visit was on January 15, 2021. On January 9, the patient had menorrhagia, abdominal pain, blood clots, chills, lumbosacral pain, and fatigue, with no other accompanying symptoms. This was the late phase; hence, the principle should be on tonifying the kidney and spleen, tonifying qi, and nourishing the blood. Guishen pills and Sijunzi decoction were continued, with a total of 7 doses taken in water. Her symptoms were relieved after medication.

The patient's constitution is one of qi deficiency and blood stasis, and her endometrial blood flow is sluggish. Abortion is a form of mechanical trauma, which may affect the meridian blood, thus resulting in blood stasis and uterine vein blockage. A significant etiology of thin endometrium is kidney deficiency. Repeated pregnancies may cause injuries to chongren, the loss of kidney essence due to consumption, blood to be deprived of its source, and the uterus to be deprived of nourishment, thus resulting in late menstruation and scanty periods. The clinical manifestations of kidney-yang deficiency include chills and lumbosacral soreness, while those of temper deficiency include poor appetite, easy fatigue, and performance-related symptoms. Taking a comprehensive view of the tongue and pulse, they may show signs of spleen and kidney deficiency, qi deficiency, as well as blood stasis. The treatment is mainly to tonify kidney and spleen, tonify qi, and promote blood circulation. By adjusting the constitution of qi deficiency and blood stasis in line with the menstrual cycle, good clinical effects have been achieved.

5. Conclusion

The treatment of thin endometrium, especially non-responsive thin endometrium, remains a bottleneck. Therefore, preventing its occurrence is extremely crucial. "Preventive Treatment of Disease" is an important concept of disease prevention and health care advocated by traditional Chinese medicine, and constitution is the basis for interpreting the symptoms of a disease that has not yet occurred [20]. The modifiable constitution provides a theoretical basis for regulating qi-blood imbalance constitution and preventing thin endometrium. In recent years, the research on the identification of TCM constitution has validated the scientific nature of the nine-point method of TCM constitution from the perspective of modern biomedical science, providing a basis for the objectification and quantification of TCM constitution classification [10]. This provides scientific support for regulating qi-blood imbalance constitution and preventing thin endometrium. According to the "TCM Constitution Classification and Judgment" formulated by the Association of Traditional Chinese Medicine, a classification and judgment system of TCM constitution has been successfully developed as a standardized tool for classifying TCM constitutions [21].

Using big data tools to analyze the correlation between the qi-blood imbalance constitution and the incidence of thin endometrium can provide theoretical support for the treatment of thin endometrium by improving the qi-blood imbalance constitution. The improvement of qi-blood imbalance may be an effective way to prevent and treat thin endometrium.

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