

# *Exploration on the Pathogenesis and Traditional Chinese Medicine Treatment of Vulvar Sclerosing Moss Based on the Theory of "All Pain and Itching Ulcers Belong to the Heart"*

Ai Yaqi<sup>1,a</sup>, Chen Mei<sup>2,b,\*</sup>, Zhang Lan<sup>1,c</sup>, Wang Ni<sup>1,d</sup>

<sup>1</sup>Shaanxi University of Chinese Medicine, Xianyang, Shaanxi, 712046, China

<sup>2</sup>Affiliated Hospital of Shaanxi University of Chinese Medicine, Xianyang, Shaanxi, 712000, China

<sup>a</sup>aiyaqi422@163.com, <sup>b</sup>mmchen2009@126.com, <sup>c</sup>31836925@qq.com, <sup>d</sup>2826466527@qq.com

\*Corresponding author

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**Abstract:** Vulvar sclerosing lichen sclerosus (VLS) is a common chronic inflammatory, non-neoplastic skin lesion of the vulva. In addition to the typical hypopigmentation of the skin and recurrent pruritus, it is often associated with psychiatric disorders such as anxiety and depression. Modern medicine believes that the pathogenesis of VLS is mainly related to an abnormal immune response, chronic inflammation, and the promotion of fibroblast growth and activity, as well as abnormal metabolism of collagen. The current clinical efficacy of Western medicine in the treatment of VLS is positive, but there are still certain limitations. In this paper, we take the theory of "all pain and itchy sores belong to the heart" in Article 19 of the Huangdi Nei Jing as the starting point, and explore the etiology and pathogenesis of VLS from three aspects: the heart is a fire organ, the heart governs the blood vessels, and the heart governs the mind. "The clinical treatment was based on the principles of clearing fire from the heart, harmonizing the blood vessels and relieving depression to relieve itching.

## 1. Introduction

Vulvar lichen sclerosus (VLS) is a common lymphocyte-mediated, chronic inflammatory, non-neoplastic skin lesion of the vulva. Its main clinical manifestations are atrophy and thinning of the skin and mucous membrane of the vulva and perineum, hypopigmentation and white coloration, often accompanied by pruritus, burning sensation of the vulva, and in advanced stages, atrophy and narrowing of the vaginal opening, which may lead to difficulty in sexual intercourse [1]. In advanced stages, the vaginal opening atrophies and narrows, and difficulty in sexual intercourse may occur. The disease is more common in prepubertal and perimenopausal women [2]. The mechanism of the development of VLS is still not fully understood and may be closely related to abnormal immune response, chronic inflammation, promotion of fibroblast growth and activity, and abnormal metabolism of collagen [3-5]. However, the disease is very persistent, prone to recurrence and carries a risk of cancer, so it is important to explore ideas for the diagnosis and treatment of VLS.

In Chinese medicine, there is no record of the name of vulvar sclerosing moss, but it is often included in diseases such as "itchy yin", "yin sores" and "fox confusion" according to its location, clinical features and morphology. The theory of "all pains and itching sores belong to the heart" was proposed in the *Su Wen - Zhi Zhen Yao Da Lun* (The Great Treatise on the Supreme Truth), indicating that VLS could be closely related to the heart, thus pioneering the identification and treatment of VLS. This paper discusses the theoretical basis and treatment strategies for the prevention and treatment of VLS in Chinese medicine, based on the theory that "all painful and itchy sores belong to the heart" and taking the pathogenesis of VLS as the starting point.

## 2. Western pathogenesis of VLS

### 2.1. Susceptibility background and genetics

Studies [6-8] have shown that the proportion of first-degree relatives of patients with VLS who share the disease ranges from 5.4% to 12%, and case reports of identical or dizygotic twins with VLS also suggest that the disease can be associated with genetic factors. Human leukocyte class II antigen (HLA class II antigen) is a key factor in immune regulation and studies [9] have shown that VLS is genetically predisposed to HLA class II antigens, and studies have shown a significant positive correlation between VLS and HLA class II antigen genes, further demonstrating a genetic predisposition to VLS. On the other hand, some HLA antigens may be involved in the protection against VLS-related autoimmune diseases, with DRB1\*13 occurring significantly more frequently in VLS patients without autoimmune disease than in VLS patients with autoimmune disease [11]. Furthermore, a comparison of the genomes of VLS patients and their non-diseased relatives revealed recurrent germline variants in genes encoding proteins with immune modifying and/or tumour suppressive activity [10], such as CD177, CD200, ANKRD18A and LATS2, which may drive VLS pathogenesis. It is hypothesized that the abnormal immune response and collagen synthesis may have a genetic or epigenetic background [11-13]. In VLS, as in any multifactorial disease, genetic or epigenetic susceptibility reflects the cumulative effect of sequence and/or expression variation at multiple loci, which leads to susceptibility to disease. Disease, in turn, requires the interaction of susceptibility and exogenous factors for disease to occur.

### 2.2. Autoimmune abnormalities

Autoimmunity plays a key role in the pathogenesis of VLS. Studies [14-15] have found that Th1 autoimmune responses are aberrantly activated in diseased tissues, such as IL-1, IL-7, IL-15, IFN- $\gamma$ , TNF- $\alpha$ , IL-2 receptor (CD25), cystein 1, ICAM-1 and its ligand CD11a, and other Th1-type pro-inflammatory cytokines and immune mediators are upregulated in LS, suggesting that Th1 responses may be associated with the development of VLS. In addition, immune imbalance upregulates pro-inflammatory cytokines, which in turn leads to cell-mediated autoantigenic attack. Studies [15] have shown that T cell-mediated cytotoxicity plays a major role in the pathogenesis of LS through the chronic release of pro-inflammatory cytokines. Reactive oxygen species are thought to contribute to tissue damage [16-17]. Chronic inflammation induces the production of reactive oxygen species, which triggers oxidative stress, causing oxidative damage to lipids, DNA and proteins, and oxidative stress processes are also thought to be responsible for autoimmunity, tumourigenesis, tissue sclerosis and scar formation, and therefore for the further development of VLS disease [17]. The oxidative stress process is also thought to be responsible for autoimmunity, tumourigenesis, tissue sclerosis and scar formation, and therefore may lead to further development of VLS disease.

### 2.3. Abnormal collagen metabolism

Another key point in the pathogenesis of VLS and its sclerotic tissue formation is the promotion of fibroblast growth and activity and abnormal collagen synthesis [11]. miR-155 overexpression decreases the expression and activity of FOXO3 and CDKN1B51[12]. This promotes fibroblast proliferation leading to the formation of sclerotic tissue, while inducing autoimmunity. Growth differentiation factor-15 (GDF-15), a member of the TGF- $\beta$  distant family, promotes fibroblast activation and has a key role in the pathogenesis of fibrotic disease [18]. The study [19] found that a significant increase in GDF-15 levels was observed in fibroblasts from VLS patients compared to controls, which also suggests that fibroblasts can influence the physiopathology of VLS through multiple pathways. The interaction between matrix metalloproteins, mainly MMP-9 and MMP-2, and their inhibitors, namely tissue inhibitors of metalloproteinases (TIMPs), is essential to maintain the balance between synthesis and degradation of the extracellular matrix (ECM) [20]. The increased immunodistribution of MMP-2 and -9, as well as TIMP-1 and TIMP-2, in VLS compared to normal vulvar skin suggests that they play an important role in collagen remodelling in VLS.

### 2.4. Triggers

Although the jury is still out, it cannot be ruled out that exogenous agents can initially trigger immune activation and inflammation in a non-specific manner, especially in the long-term effects of potential triggers and in susceptible individuals, where the inflammatory process may take on the typical phenotype of LS. Therefore, if an actual etiological effect in the strict sense cannot be attributed to any particular agent, the influence of exogenous stimuli on the activation and persistence of the immune response and inflammatory state seems reasonable. Several heterogeneous factors can induce autoimmune responses through different mechanisms.

Dysbiosis was observed in the skin and gut microbiota of LS subjects [21]. Trauma and chronic irritation are also thought to contribute to the development of VLS. The Koebner phenomenon, also known as the isomeric response, has been found to occur in VLS at the site of skin injury. Causes such as friction from tight clothing, obstruction, intercourse, tissue damage during childbirth, genital jewellery and piercings, surgery, radiotherapy and scarring are often considered to be the cause of VLS [22-29].

In addition, exposure to chronic irritation from urine, as well as the occlusion formed by the male foreskin and chronic irritation from moisture, are further conditions for the development of VLS[30]. In addition to this, defects in androgen action due to low circulating levels or reduced specific receptors or medically induced inhibition can also contribute to the development of the disease [31-33]. Overweight, obesity and hypertension are more common in patients with VLS than in the general population, suggesting that metabolic disorders may also be a trigger for susceptible individuals [34].

## 3. Understanding the etiology of VLS based on the theory that "all painful and itchy sores belong to the heart"

Zhang Jingyue said: "Although the five organs have their own origin, the injury of emotion and will always originates from the heart." Professor Wang Huiwu, the first renowned veteran Chinese medicine practitioner [35]. According to Professor Wang Huiwu, the first renowned veteran Chinese medicine practitioner, "illnesses arise from the heart", emphasising that "the heart is the master of the five internal organs and the six viscera". If the heart is neglected in the course of treatment, it will be difficult to cure all diseases. If the heart is neglected in the course of treatment, all diseases will be difficult to be cured. The Women's Medical Journal quotes Yu Tianmin as saying, "All diseases in women arise from the heart. This shows that the healers of all times have paid attention to the heart.

It is evident that medical practitioners throughout the ages have focused on the significance of the heart in the occurrence and development of disease. As one of the more common clinical conditions that afflict women, itching is also inextricably linked to the heart.

### **3.1. The heart is a fire organ and it itches when it is fumigated by fire**

"Itch" is explained in the *Shuowen Jiezi* as "Itch, ulcer also." It means sores and ulcers, and is the collective name for carbuncles, furuncles, boils, and dancers. In *The Golden Guide to the Heart of Surgery*, it is said that "carbuncles and gangrene are originally born of fire and poison, and the meridians are blocked and the qi and blood are condensed." The heart is a fire, and is the main blood vessel. External sensation of the six evil spirits, or disorders of diet or emotion, or unclean living and living, can lead to internal invasion of the evil fires, which can turn into heat and inflammation, causing the heart fire to flourish. If the heart meridian is hot, the "Ying Qi is not obeyed, and the flesh is rebellious." The heart fire is so strong that it will burn the lung gold and burn the skin, and over time it will become dry and windy, resulting in itching, thickening and thickening of the skin of the vulva, and so on [36]. Therefore, it is said: "Sores and their painful and itchy symptoms are mostly diseases of the heart, the main blood vessel. Liu Yuan even changed the original text to read "All painful and itchy sores belong to the heart fire", and later medical scholars have also mostly taken the heart fire as a cause of skin diseases.

### **3.2. The heart governs the blood vessels. If the blood does not moisten the skin, it itches**

The causes of blood-related diseases can be divided into two categories, namely deficiency and real. The root cause of both is the abnormal blood flow in the vulva [37]. Both are caused by abnormal blood flow in the vulva. Zhang Jiabin said, "Blood is the essence of water and grain, and it comes from the source, but it is actually produced in the spleen and the president is in the heart". This is why it is said that "the heart is the source of blood". The *Su Wen - Theory of Impotence* says: "The heart is the master of the blood of the body", which means that the blood is driven and regulated by the heart to flow smoothly in the veins, and then perform the function of nourishing the organs and tissues of the internal organs and the organs of the body. Inadequate blood flow can cause the local skin of the vulva to show a lack of blood, and if the skin is not moistened and warmed, it will feel painful and itchy. Because women use blood, menstruation, pregnancy, childbirth and breastfeeding are all wounded by blood [38]. The deficiency of Blood generates heat and moves the wind, and when the wind and fire incite each other, it is itchy.

### **3.3. The heart is the main organ of the mind, and if the mind is disturbed, it is itchy**

In the "*Ling Shu - Tian Nian*", it is said that "the blood has been harmonized, the glory and health have been passed, the five organs have been established, and the mind has been given up to the mind", and in the "*Su Wen - Ling Lan Secret Discourse*", it is said that "the mind is the official of the ruler, and the mind comes out." The heart is the master of the gods, that is, the spiritual activities of man, consciousness and thinking are all governed by the heart and the gods, among the five gods, "the prana is the use, can move and can make, pain and itch by which to feel" [39]. According to Yu Chang, "the heart is the master of the five viscera and six bowels, and the president is the soul and the body, and the will. It is clear that the itch is also mastered by the heart. Wang Bing said, "If the heart is silent, the pain is slight; if the heart is dry, the pain is great; all the causes of the hundred ends arise from the heart; pain, itch and sores are also born in the heart." The significance of the psychological factor in itch is also discussed for the first time. The skin is also known as an organ of psychological expression, which can reflect various pathological and physiological changes in the body [40].

Modern psychology suggests that psychological and mental factors can lead to psychogenic itching [41]. Modern psychology suggests that psychological and psychiatric factors can lead to psychogenic itch, and some studies have shown that the occurrence of itch is closely related to mental and emotional factors [42]. Some studies have also shown that the occurrence of pubic itch is closely related to mental and emotional conditions. According to the author's clinical observation, patients with prolonged itching are often accompanied by anxiety and irritability.

## **4. Treatment of VLS from the heart**

### **4.1. Clearing the heart and removing fire**

Fire can be divided into two categories: deficiency fire and real fire. In *Fu Qingzhu Women's Science*, it is said that "if the kidney does not have the fire of the heart, the water will be cold; if the heart does not have the water of the kidney, the fire will be incandescent." Most of the deficiency fire is due to an imbalance between the yin and yang of the kidney. If the Heart Fire burns the Kidney Yin, the Yin will be depleted, resulting in a loss of nourishment for the Yin organs, leading to dryness and itching of the vagina and vulva. The clinical treatment of Professor Lu Su [43] is based on the principle of clearing the heart and nourishing the kidneys and relieving dampness and itchiness, and the treatment with the formula of clearing the heart and nourishing the kidneys together with external Chinese herbal lotion has achieved good results.

Li Zhongzhi's "Nei Jing Zhi Zhi Yao" notes: "The heart is the master of the transformation of heat and fire, so all painful and itchy sores belong to the heart." Therefore, in the treatment of itchy Yin caused by real fire in the Heart, one can use products that clear the Heart and relieve fire, such as gardenia, bamboo leaf, light bamboo leaf, etc., and one can use diarrhea of the Heart soup, guiding chi san, etc. In the Yin Feng's treatment of itchy Yin due to hyperactive fire of the heart, we add Guiding Chi San and a self-designed herbal formula for external cleansing to clear the heart and fire and induce heat to move downwards, with remarkable results [44].

### **4.2. Harmonizing the Blood**

VLS is divided into two categories: blood stasis and blood deficiency. For those with paralysis of the blood vessels, stagnation of qi and blood, and loss of harmony between qi and blood due to various factors, the treatment is to invigorate the blood, remove blood stasis and move qi. For those who suffer from itching due to blood deficiency, the main treatment is to nourish the blood and moisten dryness, quench the wind and relieve itching. In the Ban Xiowen's treatment of itchy Yin in elderly women, the formula uses Radix et Rhizoma Shou Wu, Radix et Rhizoma Salviae Sinensis and Radix Paeoniae Alba to nourish Blood and dispel wind, moisten restlessness and relieve itchiness, which is very effective in treating Yin deficiency and Blood deficiency, which leads to restlessness and wind [45]. In the Xu Run San's treatment of Yin itch with deficiency of Qi and Blood, he specializes in using Angelica Sinensis Blood Tonic Soup [46-47]. In this formula, Astragalus is five times more powerful than Angelica, which is in line with the way of Qi and Blood in the human body, and according to the principle that "tangible blood cannot be produced quickly, but invisible Qi should be fixed urgently", Astragalus is used to nourish Qi and nourish the source of transformation.

### **4.3. Tune the mind and relieve depression**

The *Su Wen - Treatise* on this disease: "People are sad when they worry and think", nowadays, women are facing more and more social pressure, and VLS is repeatedly difficult to heal, which makes it difficult to feel good and depressed. It is often said that "all five organs can make people

depressed, not only the liver and spleen, but also the heart is usually depressed."Repeated, severe itching of VLS can lead to anxiety and boredom. And this anxiety and depression will not only reduce the effectiveness of the treatment, but also inhibit the immune function of the body and form a vicious circle [48]. The heart is the master of the five viscera and six internal organs, and dominates the functions of the internal organs of the body, and abnormalities in the functions of the internal organs can also lead to the development or recurrence of VLS [49]. Medication, or combining with cognitive therapy or suggestion therapy [50]. In order to achieve better results, the treatment should also focus on the psychosomatic factors. In the *Su Wen - The Treatise on the Regulation of the Sutra*, it is said that "Do not release the massage, take out the needle and look at it, saying that I will be deep. If you do not release the needle, you will be able to see that I will be deeper. This is a clever use of psychological therapy, through the practitioner's words, with the cooperation of the patient, so that the essence will be submerged in the body, and the evil Qi will be dispersed on the surface of the muscle, and then by the coup de gr âce, so as to achieve the purpose of treating the disease. In ancient times, the technique of Zhuyu was also used to improve or eliminate illnesses by diverting the patient's attention through the use of psychological suggestion therapy.

In terms of drug selection, magnetite and keel can be chosen to calm the mind. The "Changsha Pharmacopoeia" says: "keel... enters the heart of Shao Yin in the hands... converges the soul and determines palpitations". For nourishing the heart and tranquilizing the mind, choose Acacia flowers, Acacia bark and sour date seeds. Studies have shown that sour date seeds are effective in treating itchy skin rashes [51]. It has been shown to be effective in treating itchy skin rashes. To strengthen the spleen and tranquilize the mind, choose Fu Shen, Lotus Heart, etc. To clear the heart and tranquilize the mind, choose Zhu Sha, Dan Shen, Lily, etc. The *Shen Nong Ben Cao Jing* says: "Zhu Sha...main body five Tibetan hundred diseases, nourish the spirit and calm the soul." Ma Yuchun [52] used Tianwang Buxin Dan with an addition to nourish the heart and calm the mind has achieved remarkable results in the treatment of chronic eczema. Dan Shen can both clear the heart and dispel irritation, and invigorate the blood to dispel stasis, invigorate the blood to speed up blood flow and promote faster flow of Qi and blood, thus regulating both Qi and blood, achieving the effect of dispelling wind and relieving itch, and calming the mind.

According to Western medicine, itch is produced through a series of nerve conduction [49]. This also coincides with the saying that "all pain and itchy sores belong to the heart". Therefore, in the treatment of pruritic skin diseases, Western medicine also focuses on psychological factors, often using antihistamines and glucocorticoids in addition to antidepressants and sedatives to relieve patients' tension, insomnia, anxiety and other emotions [49]. In contrast, Chinese medicine is more respected in clinical practice as it can make up for the lack of side effects produced by Western medicine in the treatment.

## 5. Conclusions

The idea of treating VLS from the heart originated in the *Su Wen - Zhi Zhen Yao Da Lun*, "All pains and itches belong to the heart", and later scholars and medical practitioners also had insights from the perspective of "heart fire". In the clinical treatment of this disease, most of the treatment is based on "liver and kidney yin deficiency, damp-heat infusion, and the growth of damp worms", with insufficient attention paid to the "heart". In this paper, we analyse the etiology and treatment of VLS under the guidance of the theory that "all painful and itchy sores belong to the heart". This paper argues that the treatment of itchy Yin should emphasize "the heart as the main organ of the five viscera and six internal organs" and the role of psycho-spiritual factors in the development and regression of the disease, and that the treatment process should combine methods such as clearing the heart and dipping fire, harmonizing the blood vessels, and regulating the mind and relieving depression in order

to achieve better results.

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