

Research Progress on Traditional Chinese Medicine External Treatment of Vaginitis

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Keywords: Vaginitis, Traditional Chinese Medicine, Etiology and Pathogenesis, External Treatment, Research Progress

Abstract: Vaginitis is a common gynecological disease in clinics. At present, Traditional Chinese Medicine (TCM) complements the advantages of Western Medicine through external treatment, which can quickly reduce symptoms, reduce the recurrence rate, and achieve good results. The treatment of vaginitis with TCM has become a hot topic. By analyzing the relevant pieces of literature in the past 10 years, the research progress in etiology and pathogenesis, syndrome differentiation and treatment, and external treatment of traditional Chinese medicine was summarized to expound on the advantages of traditional Chinese medicine in the treatment of vaginitis, provide a reference for follow-up research.

Vaginitis is a common occurrence in everyday clinical gynecological practice and can affect both young and old women. Epidemiological studies have shown that approximately 48.01% of women suffer from genital tract infections [1]. The main clinical manifestations are itching and pain in the pubic area, difficulty in sitting and lying down, foul-smelling discharge, and, in some cases, systemic symptoms. Modern medicine can classify vaginitis into more than 10 types based on different pathogenic microorganisms, of which bacterial, trichomoniasis and pseudomonal diseases are more common. Correspondingly, the widespread use of antibacterial medication has been accompanied by an increase in bacterial resistance, and single antibiotic treatments are beginning to have difficulty in achieving satisfactory results. Current treatment modalities, which have improved to a combination of Chinese and Western medicine or purely Chinese medicine, have achieved satisfactory results compared to single treatment modalities. Tong Xin et al[2] showed that Chinese herbal medicine is an effective method for treating vaginitis without serious adverse effects. Through fumigation, sitz baths, and vaginal medication, Chinese herbal medicine can loosen the grain of skin and the texture of the subcutaneous flesh, and open the blood channels, allowing the medicine to enter the blood vessels through the skin, thus reaching the disease directly, activating the blood, reducing swelling, relieving pain, removing blood stasis and creating new blood, detoxifying and killing worms, and reducing the re-invasion of worms and poisonous evil when washing, improving clinical efficacy. External treatment with Chinese herbs has become a popular research treatment for vaginitis. The relevant research progress in the past 10 years is briefly described to provide reference for subsequent studies.

1. Etiology and Pathogenesis

1.1 Western Medical Etiology

According to Western medicine, inflammation of the vaginal mucosa and associated tissues beneath it is known as vaginitis, and its causes include the following: disruption of the internal micro-ecological environment of the female vagina allowing pathogenic bacteria to infect the vaginal mucosa; low levels of estrogen; decreased immunity after menstruation or during pregnancy, making it easy to get infected; frequent sexual activity or lack of hygiene on one's part; lack of awareness of vaginal care; and geographical environmental factors [3-4]. Restoring a normal vaginal micro-ecological balance is fundamental to the cure of vaginitis.

1.2 Etiology and Pathogenesis in Chinese Medicine

According to Chinese medicine, vaginitis belongs to the category of "itchy yin" and "disorders under the belt". The ancient texts of the past have recorded this. The Treatise on the Sources of Diseases - Miscellaneous Diseases of Women, which considers kidney deficiency and evil offenses as the cause of the disease, records that "kidney qi deficiency is multiplied by the wind evil and the evil and the positive are connected, so the skin itches ". Fu Shan believed that leucorrhoea was due to the presence of dampness and fire, thus in Fu Qingzhu's masters of women's science - bringing down the belt, it is stated that "bringing down the belt is always a sign of dampness", and that liver depression and spleen deficiency and weakness of the spleen can't transform the glorious blood into menstrual fluid, which in turn becomes white and slippery; Xiao Xun believed that bringing down the belt is mostly due to the evil of dampness and heat that accumulates in the ramifications, and the Women's Science Classic - bringing down the belt, it is recorded that. "Yin itching in women is mostly caused by insects, and begins with damp-heat."Modern Chinese medicine scholars mostly follow the theories of famous scholars in the past, and believe that the general cause is dampness, which is also divided into internal dampness and external dampness. The weakness of the spleen qi leads to the abnormal transmission of fluids, resulting in dampness; or the stagnation of the liver qi hinders the transmission of the spleen, resulting in the downward injection of dampness; or the deficiency of the kidney yang, resulting in the lack of consolidation of the Ren Pulse and Venation, leading to the loss of semen and slippage; or living in a cold and damp place for a long time; or the internal invasion of external evil and dampness, resulting in damage to the Venation and Ren Pulse. Treatment should focus on strengthening the spleen, tonifying the kidneys, and draining the liver, taking into account the three channels of the Punch, Ren, and Zigzag, to clear heat and relieve itching, removing dampness and stopping banding.

2. Progress in Research on the External Treatment of Chinese Medicine

2.1 Bacterial Vaginosis (BV)

As the most common vaginal infection, bacterial vaginitis occurs in approximately 5% to 70% of women [5]. Most scholars believe that its pathogenesis is related to dysbiosis and microecological imbalance in the vagina [6-8]. Clinical manifestations include itching of the vulva, increased, thin discharge with a fishy odor, and abdominal pain [9]. Metronidazole is a commonly used antibiotic for the treatment of this condition and is highly effective. In addition, some researchers have also used western oral or vaginal medications such as tinidazole, clotrimazole, ciprofloxacin suppositories, clindamycin phosphate cream, and chymotrypsin suppositories to treat the disease. However, Swidsinski et al[10] found that the presence of active anaerobic biofilm adherence in the

vagina was still observed after metronidazole treatment, suggesting incomplete treatment, which may be a key reason for recurrence; Verwijs MC et al [11] found that antibiotic therapy carries the risk of exacerbating the disease, such as secondary pseudomicrobial infection, the transformation of the type of vaginitis and alteration of the vaginal microecological environment after treatment.

According to Chinese medicine, the main cause of BV is kidney deficiency and dampness, so the treatment is to tonify the kidneys and dispel dampness. According to statistics, 123 types of Chinese herbal medicines can be used to treat BV, with the main medicinal components being flavonoids, volatile oils, alkaloids, phenols, coumarins, glycosides, etc [12]. Most of the treatment uses the decoction and fumigation of Chinese herbal medicines such as Phellodendron, Serpentine, Cang Er Zi, Di Shen Zi, Bai Biao, Bai Xian Pi, Tu Fu Ling, and Bitter Ginseng, and can be supplemented with heat-clearing and detoxifying medicines and tonic medicines. Hu Gu Ling [13], Hu Yefang [14] and Zhao Liqin [15] advocate that bacterial vaginitis is based on kidney deficiency. If the kidney is deficient, the belt vein will be out of order, and then the belt will be heavy and thin; if the kidney deficiency affects the liver over time, the liver and kidney will be deficient, the yin will be deficient and there will be internal heat, the essence will be deficient and there will be less blood, and the external yin will lose nourishment. Therefore, the method of nourishing the liver and kidney, clearing heat, and stopping banding was adopted, using Liu Wei Di Huang Tang to nourish the liver and kidney, and adding the Chinese herbal formula for external cleansing (50g of Serpent's Bedside, 15g of Bitter Ginseng, 15g of Bupleurum, 15g of Bai Xian Pi and 15g of Cang Er Zi) to remove dampness, sterilize and stop itching, combining internal and external treatment and treating both symptoms and root causes. According to Wang Leiping [16], bacterial vaginitis is mostly caused by dampness invading the belt vein and turning into heat over time, with dampness and heat fighting and stagnating in the Ren vein, which gives rise to yin worms over time, thus causing yin itch. The treatment is to clear heat and dampness, kill worms and relieve itching. According to Li Li et al [17], dampness is an evil of yin and cold, heavy and sticky, and tends to go down. On the one hand, the evil of cold and dampness injures the spleen and yang, causing the spleen to decrease its function of transporting water and dampness, and on the other hand, it accumulates in the lower jiao and enters the yin, resulting in a large number of bandages and lingering and difficult to heal. Therefore, the treatment should be carried out by warming the Yang, resolving dampness, regulating qi, and resolving stasis, using the Chinese herbal external cleansing formula I (120g of Fu Ling, 50g of Huang Bai, 50g of Bitter Ginseng, 50g of Wei Ling Xian, 30g of Serpentine) and oral treatment with warming the Yang, resolving dampness and dispelling stasis. In addition, some proprietary Chinese medicines have also been used in clinical practice, such as Li Jie et al [18] using red nucleus gynecological cleansing lotion, Zhang Lu [19] using compound sea buckthorn seed oil suppositories, Liu J [20] using bitter ginseng gel, and Zhang Tian Zai et al [21] using Kang women anti-inflammatory suppositories for the treatment of BV, all of which have shown significant efficacy.

2.2 Vulvovaginal Candidiasis (VVC)

VVC is a form of vaginitis caused by *Candida albicans*, also known as mycosis fungoides. Modern studies have shown that it is mostly associated with long-term or abusive antibiotics, diabetes, low estrogen levels, low immunity, and excessive cleansing [22-23]. It presents with an itchy and painful vulva, more bean-like discharge from the vagina, and may be accompanied by painful intercourse [24]. The preferred clinical drug is clotrimazole, followed by other azoles such as ketoconazole, fluconazole, itraconazole, and miconazole, as well as nifurtimox vaginal soft capsules [25].

According to Chinese medicine, VVC mainly belongs to the evidence of damp-heat infusion,

followed by spleen deficiency and liver-kidney yin deficiency [26], and treatment is based on tonifying the liver and kidney, clearing heat, and drying dampness. The deficiency of the liver and kidney cannot protect the body from external evil, which takes advantage of the deficiency to invade the body; at the same time, the deficiency of the spleen and kidney causes the abnormal distribution of water and fluid, which accumulates in the body, and over time, dampness and turbidity are generated internally, which then turns into heat and toxicity. According to statistics, Chinese herbal medicines such as Bitter Ginseng, Plantago ovate, Serpentine, Phellodendron, Zedoary, Bai Xian Pi, and Dioscorea are commonly used as external cleansers, and after Meta-analysis, it was shown that Chinese medicine treatment of VVC can significantly improve the conversion rate of Pseudomonas, and the reduction of recurrence rate is also better than western medicine treatment, which has obvious efficacy advantages [25]. Ouyang Zhenbo[27] et al. showed that some of the symptoms of VVC may be related to the body's allergic reaction to yeast hyphae and that douching the vagina can rapidly reduce allergens and provide rapid relief of symptoms. Dong Quanfang [28] and Wang Chao [23] both used self-prepared Chinese herbal medicines to treat VVC internally with external cleansing. Internal use of Chinese herbal medicines such as Astragalus, Radix Codonopsis, Radix Bupleurum, Rhizoma Yam, Gui Zhi, Radix Paeoniae, Poria, Atractylodes macrocephala, Semen Coicis, and Zedoaria nourished the spleen and kidneys, relieving dampness and cleared heat, and external use of a decoction of Bitter Ginseng, Pepper, Bupleurum, Bai Xian Pi, Phellodendron, and Serpentine was used for fumigation to clear heat and detoxify itch, with an efficiency of 95.3% and 91.43% respectively, which proved that This proves that internal and external treatment with Chinese medicine can improve the efficacy of treatment than western medicine. Zhu Yingping [29], Zhang Yingzhong [30] and Yang Guiqing [31] concluded that this disease is mostly caused by damp-heat accumulation and infection with evil toxins. Using a formula for clearing heat and resolving dampness to fumigate and wipe the vagina (Che Qian Zi 10g, Cang Zhu 10g, Serpentine 10g, Bai Zhu 10g, Huang Bai 20g, Bitter Ginseng 20g, Bai Xian Pi 20g, Tu Fu Ling 20g) together with conventional treatment with western medicine, the vaginal micro-ecological indexes of the patients improved significantly after treatment, proving that compared to the pure western medicine treatment group, the external washing of Chinese medicine can significantly improve the efficacy of treating VVC and reduce the recurrence rate of the disease. For VVC in the elderly, Peng Huajie[32] considered liver and kidney yin deficiency as the main etiology and treated it by tonifying the kidney, strengthening the liver and benefiting yin, using Yi Yin Drying Dampness Wash (Sheng Di 30g, Huang Bai 20g, Serpentine 20g, Bai Zhi 20g, He Shou Wu 30g, Da Xue Tang 20g, Bitter Ginseng 20g, and Di Shen Zi 20g) as fumigation treatment. 15 days after stopping the treatment, the pH value was significantly lower than before treatment, the lactic acid bacteria content was significantly higher, and the recurrence rate was significantly lower than that of the control group. In addition, there are also clinical applications of proprietary Chinese medicines: Yang Jinfeng [33] used Baofenkang plugs in VVC, and the cure rate reached 89.3%, with good improvement in all symptoms; Liu Wisdom et al [34] used red nucleus feminine cleansing lotion combined with nifurtimox, showing a short course of treatment and significant effect; Niu Jinru et al [35] applied the Chinese medicine gynecological anti-furosemide effervescent tablets and nifurtimox for control, and found that gynecological anti-furosemide effervescent tablets The efficacy of the tablets was more significant and their safety was better.

2.3 Trichomonal Vaginitis (TV)

TV is a sexually transmitted disease caused by *Trichomonas vaginalis* and often occurs around the time of menstruation. Clinical manifestations include white or green vaginal discharge, increased volume, thin, purulent, foamy, or even bloody discharge, fishy odor, burning pain in the

vagina and vulva, and painful intercourse. Nitroimidazoles are commonly used in clinical treatment and have a strong antitrichomonas, amebicidal and anaerobic effect, but are also prone to drug resistance and gastrointestinal irritation [36].

According to Chinese medicine, TV is mostly caused by internal invasion of dampness and toxicity, and by the growth of insects in the long term. If you live in a wet place for a long time and feel dampness and toxicity, coupled with a deficient spleen and depressed liver, wood overcomes the spleen and earth, water and dampness stop gathering and become heat, which becomes toxic over time. If the dampness attacks the skin, it will lead to pus and blood in the lower part of the body, and if the dampness is prolonged, the rot will lead to worms, which will erode the vagina and cause itching and burning pain. At present, fumigation of the vagina with Chinese herbs can directly inhibit the growth of *Trichomonas vaginalis* or directly kill trichomonas and other pathogenic microorganisms, which has achieved good clinical results. Sun Yi [37] used Chinese herbal medicine to adjust the function of the internal organs internally, together with a self-prepared formula (Bitter Ginseng, Paeonia, Pepper, Phellodendron, Serpentine, and *Withania somnifera*) to treat 120 cases of TV externally, treating both internally and externally with a combination of symptoms and root causes, and the results showed that 106 cases were cured and 8 cases showed efficacy, with an overall efficiency of 95%. In a study on the treatment of TV with Chinese herbal lotions combined with western metronidazole, Chen Chaoqun [36] used oral metronidazole combined with bitter ginseng and yellow cypress soup (dandelion, bitter ginseng, serpentine root, dioscorea, rhubarb, cypress and ice chips) for external washing; Li Fei et al [38] used metronidazole with Fengxiang lotion (clove, dioscorea, bitter ginseng, serpentine root, cocklebur, cypress and pepper) for external washing; Cheng Hong [39] used benzoyl metronidazole dispersible tablets with the addition of fumigation with snake bed seeds; Jiang Jinli et al [40] used Chinese herbal sitz baths (bitter ginseng, cypress, groundnut, snake bed seeds, dandelion, septoria, gentian, white fresh peel, etc.) combined with metronidazole powder cervical epithelium, all with the treatment of clearing heat and detoxifying, killing worms and relieving itching, and the results observed that all symptoms improved and the total effective rate was higher than that of the western control group, showing the effectiveness of the Chinese herbal external treatment method. In addition, Wang Ying and Wan Feng [41] used the Chinese patent medicine, Skin *Scutellaria* lotion for external cleansing combined with BaiZhouJing capsule for oral administration in a multi-center setting and observed that its clinical efficacy was significant and could complement the advantages of western medicine to minimize treatment time and reduce the recurrence rate.

3. Conclusion

With the development of modern society, people's living environment and daily habits are constantly changing and the consequent vaginitis-related diseases are becoming more complex and varied. According to the basic theory of TCM, "external treatment must be based on internal treatment", the external treatment of TCM focuses on the combination of the whole and the local, and is often considered to be related to "kidney deficiency and dampness invasion", "damp-heat injection", "dampness and toxicity producing worms" and "dampness and dampness". It is often considered to be closely related to "kidney deficiency and dampness", "damp-heat infiltration", "dampness and toxicity producing insects", etc. Various medical practitioners have been treating the problem with good results by identifying the evidence and adding and subtracting specific prescriptions. Through the analysis of a large number of clinical cases, it is evident that the external treatment of Chinese medicine is effective and has a low recurrence rate, which can complement the advantages of Western medicine and is superior to Western medicine alone.

However, there are still some unresolved problems in the external treatment of TCM, such as the

more complicated operation of decoction of Chinese medicine and the lack of specific assessment criteria for TCM diagnostic typing, which to a certain extent limit the development of using TCM in the treatment of vaginitis. He et al [42] showed that patients' awareness of vaginitis was low and their compliance with vaginal douching treatment was only 63.81%. Thus, in recent years, with the advancement of Chinese medicine extraction and isolation technology, gynecological Chinese medicine film [43] and Chinese medicine in situ gel [44] have shown wide application prospects, which have the advantages of ensuring uniform distribution of drugs, allowing full contact between mucous membrane and drugs, long duration of action, precise efficacy, and avoiding foreign body infection and wastage of drugs when patients self-administer drugs, easy to use and portable, which also provide new ideas for follow-up studies [45]. It is also convenient and portable, which provides a new idea for further research [45]. Therefore, further research is needed on the selection of drugs and treatment modalities for the external treatment of vaginitis with Chinese medicine, in order to maximize the unique advantages of Chinese medicine in the treatment of this disease for the benefit of more patients.

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