

TRADITIONAL CHINESE MEDICINE: A COMPLEMENTARY APPROACH TO TREATING CERVICAL INTRAEPITHELIAL NEOPLASIA

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Abstract: Vector calculus is a foundational mathematical tool extensively utilized in the natural sciences. While it has proven to be a robust and practical framework, the question of its absolute validity remains open. The foundations of vector calculus demand formal-logical scrutiny to establish a more comprehensive understanding. This work explores the critical analysis of vector calculus within the integrated framework of formal logic and rational dialectics. It offers an essential reevaluation of the foundations of vector calculus, emphasizing the necessity for a structured and logical basis. The unity of formal logic and rational dialectics provides a methodological foundation for this analysis. By doing so, this research contributes to a more profound comprehension of the theoretical underpinnings of vector calculus, ensuring its robustness and applicability in scientific practice.

Keywords: Cervical intraepithelial neoplasia, traditional Chinese medicine, TCM syndrome differentiation, holistic approach, disease progression

1. Introduction

Cervical intraepithelial neoplasia is classified as "Daixia disease" in traditional Chinese medicine according to the condition of increased vaginal discharge or clinical manifestations with odor, and treatment mainly starts from "Daixia disease" ^{[1][2]}. It is characterized by high incidence, high recurrence rate, changes in the quality of life of patients, and can develop into cervical cancer in severe cases ^[3]. Therefore, it is of practical significance and exploratory value to treat CIN and achieve the best efficacy.

Modern medicine divides cervical squamous epithelial dysplasia into CIN I, CIN II and CIN III grades according to the degree of cervical squamous epithelial dysplasia^[4], and there are corresponding treatment methods according to its classification. However, the specific situation of the disease in patients during treatment is complex and variable, and the disease can only be treated for the patient's symptoms, but cannot be treated for the cause, eventually resulting in easy recurrence of the disease. In contrast, according to different stages of disease development, TCM syndrome differentiation and treatment, supplemented by oral administration of TCM and external treatment of TCM, can enhance the therapeutic effect and improve the quality of life of patients ^[5].

Combined with relevant literature research and clinical treatment experience, this paper discusses the TCM treatment of cervical intraepithelial neoplasia, providing some reference and reference for clinical treatment.

2. TCM understanding of CIN

According to the relevant literatures, the author found that the incidence of the Leucorrhea disease was mainly due to dysfunction of viscera, dampness-heat toxin and blood stasis, and unfirmness of Ren pulse. The basic etiology and pathogenesis were positive deficiency and evil excess, positive deficiency was mainly due to dysfunction of the three viscera of liver, spleen and kidney, and evil excess invaded the body mainly due to dampness and evil, and another main etiology was due to the loss of stability of Ren pulse and loss of Dai pulse.

2.1 Dysfunction of Liver, Spleen and Kidney

Spleen dysfunction is transported and lost, resulting in stagnation and accumulation of dampness and turbidity, flow into the lower coke; liver qi stagnation, damage to the temper, resulting in spleen deficiency and dampness, dampness and heat stagnation, hot and humid betting; kidney yang deficiency is gasification dysfunction, resulting in water dampness betting, or kidney qi is not solid, resulting in failure of sealing function, Yin fluid slippage. These three aspects will eventually lead to Ren belt injury and develop into Leucorrhea disease.

2.2 Dampness is caused by

Modern Chinese medicine extends on the basis of ancient physicians' understanding. Wang Qingxia pointed out that the etiology of the Leucorrhea disease is mostly invasion by dampness pathogens, the pathogenesis is dampness pathogens betting, and Ren belt is not solid^[6]; Zhang Yali believes that dampness pathogens are the key, dampness pathogens have internal and external differences, and internal dampness is caused by liver and spleen dysfunction; external dampness is exogenous six evils dampness and heat, such as feeling the evil of cold and dampness when wading water during menstruation so that Ren belt is damaged^[7]. The Leucorrhea disease is mainly caused by dampness evil, whether due to dysfunction of viscera caused by dampness evil endogenous, or external dampness evil invasion of the door, can cause the Leucorrhea disease.

2.3 Loss of stability of Ren pulse and loss of Dai pulse

Ren pulse can regulate Yin qi and essence blood, and Ren pulse injury will lead to water metabolism disorders, making water wet flow into the lower coke and disease; with the Dai pulse restraint longitudinal meridians, the main division under the belt, if Dai pulse is damaged, so that the meridians cannot be restrained and develop into disease^[8]. Whether the meridians alone cause disease, or liver, spleen and kidney dysfunction, dampness evil for the affliction, over time can cause Ren pulse injury, that is, the occurrence of the Leucorrhea disease is related to Ren pulse injury.

3. TCM diagnosis of CIN

TCM gynecology divides the diseases under the belt into five types of syndromes: spleen deficiency, kidney yang deficiency, yin deficiency with dampness and heat, dampness and heat betting, and dampness and toxin accumulation^[9]. Qu Xiaohui et al. explored the distribution rule of TCM syndrome of CIN and concluded that CIN grade I was mainly spleen deficiency and dampness, followed by kidney yang deficiency; CIN grade II was mainly kidney yang deficiency, followed by dampness and heat; CIN grade III was mainly dampness and heat accumulation, followed by yin deficiency and dampness and heat toxin accumulation^[10]. However, there are some limitations in TCM diagnosis, and intermenstrual bleeding or leakage, white turbidity and other diseases with a large amount of bleeding and abnormal color and taste as the main symptoms are differentiated from the Leucorrhea disease, so in this case, TCM can quickly obtain a clear cause, rapidly rule out some related differential diagnoses, and obtain the final diagnosis with the help of modern examination techniques. Modern testing

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technology is a supplement and extension to the clinical practice of TCM and will also play a role in modernizing TCM^[11].

CIN has no specific manifestations, and it is difficult to rapidly diagnose CIN by virtue of clinical symptoms and examinations. At present, it is often used in combination with auxiliary examination methods such as liquid-based thin-section cytology (TCT), HPV detection, colposcopy and microscopic biopsy, and finally CIN is diagnosed by cell or histopathological examination, followed by TCM diagnosis of the disease with it.

4. TCM treatment of CIN

Traditional Chinese medicine (TCM) achieves the purpose of treatment mainly through internal and external treatment. Internal treatment is mainly through oral Chinese medicine conditioning the viscera of the human body, enhance the body immunity; external treatment mainly acts on the local cervical lesions, can effectively enhance the absorption of efficacy, and promote the recovery of local lesions. Internal and external treatment acts both globally and locally, with better results^[12].

4.1 Internal Treatments

Internal treatment, that is, traditional Chinese medicine decoction for decoction, or system for pills, patients orally, which is the most important traditional Chinese medicine treatment. Traditional Chinese medicine (TCM) prescription is a treatment after syndrome differentiation and treatment by physicians, and the use of drugs and drug compatibility in the prescription are particularly important. Dr. Yang Han collected relevant literatures on the treatment of CIN by traditional Chinese medicine (TCM) and used modern data mining techniques to analyze and summarize the regularity of TCM prescription medication in the treatment of CIN. He found that there were 17 relevant prescriptions in 89 literatures, and the drugs with frequency ≥ 10 times (see "Table 1")^[13].

Table 1: Frequency statistics of prescription use

Serial TCM Number	name Category	Frequency	Serial Number	TCM name	Frequency	Category
1	Phellodendron amurense	29	10	Licorice root	17	Buzhong Yiqi Drugs
2	Borneol	26	11	Dandelion	15	Heat-clearing and detoxifying drugs
3	Poria cocos	24	12	Atractylodes	13	Humidifying agent
4	Coix seed	23	13	Comfrey	13	Heat-clearing and blood-

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		dampness-removing drug				cooling drugs
Hedyotis 5 diffusa	22	Heat-clearing and detoxifying drugs	14	Cnidium monnieri	12	Detoxifying insecticide
Sophora 6 flavescens	22	Heat-clearing and dampness-removing drugs	15	Radix Codonopsis	11	Invigorating qi
7 Astragalus	21	Invigorating qi and elevating yang	16	Heavy building	10	Heat-clearing and detoxifying drugs
8 Curcuma	21	Blood-breaking drugs	17	Radix Isatidis	10	Heat-clearing and detoxifying drugs
Atractylodes 9 macrocephala Koidz	20	Invigorating qi and invigorating spleen				

Because liver, spleen and kidney viscera dysfunction, or dampness evil for suffering, injury to Ren pulse caused by the disease, so the choice of traditional Chinese medicine treatment of traditional Chinese medicine drugs are mostly to regulate viscera function, dryness and dampness or dampness of traditional Chinese medicine. Ren pulse injury is mainly caused by wet turbid flow injected into the lower coke, so the treatment leads to wet evil betting factors, any two pulse will not be injured. Combined with etiology and pathogenesis, the main drugs in "Table 1" can be divided into two categories, namely, drugs to regulate viscera function and drugs to remove dampness.

Regulating viscera function drugs: Astragalus, licorice, Codonopsis: tonifying the spleen; comfrey, heavy building: into the liver meridian, antipyretic. Eliminating dampness medicine: Smilax glabra, Hedyotis diffusa, Dandelion, Phellodendron amurense, Sophora flavescens. Regulating the function of viscera and eliminating dampness drugs: Coix seed, Atractylodes macrocephala, Atractylodes lancea, Cnidium monnieri.

In addition to the efficacy of the drug itself, the combined use of the drug plays a more significant role. Drugs used in combination with each other can have a certain effect, which can enhance the original efficacy and weaken toxic side effects.

Phellodendron amurense and Atractylodes lancea compatibility: Phellodendron amurense heat dry wet detoxification, good Qing lower coke hot and humid. Modern studies have antitumor and bacteriostatic effects^[14]. Atractylodes lancea has the effect of invigorating the spleen and dampness, this product Xin San bitter dryness,

longer than dampness. Combined with the two, form Ermiao pills, play a total of dryness, dampness and heat effect, attending hot and humid betting syndrome.

Atractylodes macrocephala Koidz combined with *Glycyrrhiza uralensis* can invigorate qi and invigorate spleen. Modern studies have shown that the spleen and stomach of young and middle-aged people are easy to injure, spleen and stomach disorders are all diseases^[15], invigorating qi and invigorating spleen is one of the basic therapeutic principles for the treatment of this disease and other diseases, *Atractylodes macrocephala* Koidz combined with *Atractylodes macrocephala* Koidz drugs can enhance the effect of invigorating the spleen and qi. Compatibility of *Radix Astragali* and *Radix Codonopsis*: *Radix Astragali* is an essential drug for tonifying spleen and invigorating qi, and *Radix Codonopsis* is a good medicine for tonifying qi. *Astragalus* and *Codonopsis* use together, can replenish qi and blood, support vital qi to expel evil out.

Many physicians choose the above drugs and drug compatibility in the treatment of CIN, the effect is significant. When Dr. Lan Hongjiang applied Simiao Yong'an Decoction to treat CIN based on syndrome differentiation, *Phellodendron amurense* was added to treat dampness-heat betting type, and the clinical efficacy of the treatment group was better than that of the control group^[16]. Professor Liu Guilan used Qiling Yiliu Recipe as the basic prescription for syndrome differentiation and addition treatment, in which the compatibility of *Astragalus membranaceus* plus ginseng was used to enhance human immunity, and people participated in *Codonopsis pilosula* with similar efficacy, even stronger than *Codonopsis pilosula*. Qiling Yiliu Decoction can regulate the overall physical fitness of patients, the effect is significant^[17].

4.2 External treatment

External treatment is one of the characteristic therapies of traditional Chinese medicine (TCM) that acts on the local lesion by directly contacting the prepared TCM preparation to the affected area, with vulvar fumigation, vaginal douching, and vaginal administration as the main ways. Patients can self-medicate, simple and easy, can effectively promote the recovery of local lesions. External treatment is another new way of TCM treatment, which can reduce the side effects of drugs on gastrointestinal liver and kidney.

Vulvar fumigation can promote drug penetration and absorption through the warm effect of the liquid medicine, to achieve the purpose of clearing away heat and toxic substances, and vaginal douching is to clean the vagina while making the liquid medicine directly act on the vagina to achieve the purpose of treatment. The traditional Chinese medicine formula selected by external treatment is also the same as the internal treatment, which is the drug formula after syndrome differentiation and treatment. The commonly used drugs are *Phellodendron amurense*, dandelion, *Sophora flavescens*, *Hedyotis diffusa*, comfrey, etc., which mainly act as clearing away heat and toxic substances, removing dampness, dredging collaterals and relieving pain, and can effectively relieve the symptoms such as large amount leucorrhea, yellow color or purulent, foul smell, or postoperative pain, with good clinical treatment results. Ma Xiaoying used traditional Chinese medicine to treat CIN patients and washed the cervix with decoction and found that many patients returned after treatment and their symptoms improved significantly^[18].

Vaginal drug delivery is also common in the treatment of gynecological diseases, generally suppositories, of which Baofukang suppositories are particularly common. Borneol and zedoary turmeric oil are the main components of Baofukang suppository. Doctors such as Siyuanyuan applied Baofukang suppository to treat patients with CIN after operation, with obvious therapeutic effect, effectively improving the postoperative clinical symptoms of patients and improving the cure rate of CIN^[19].

4.3 Other Treatments

Acupuncture can also treat the disease. Loss of firmness of any pulse and loss of pulse are the core pathogenesis of this disease. Therefore, fixation of pulse is the basic treatment for this disease. Generally, extreme, Sanyinjiao, pulse and Baihuanshu are selected as the main points, and then the points are selected for syndrome differentiation. The middle pole is the intersection point between the Ren meridian and the Sanyin meridian of the foot, which can clear the lower coke and dampness, invigorate the spleen and kidney, invigorate the Sanyinjiao and invigorate the spleen and dampness, regulate the liver and kidney to stop the belt, and the belt point is the intersection point between the Shaoyang meridian of the foot and the belt, which can fix the belt pulse. Baihuanshu belongs to the Bladder meridian and can assist bladder gasification and benefit the lower coke and dampness. This disease is treated with acupuncture and moxibustion, combined with other treatments, and the effect is obvious. Duffy believes that acupuncture and moxibustion can inhibit tumors, and antiviral effect is also effective^[20]. Jin Zhe believes that acupuncture and moxibustion treatment of this disease is currently one of the commonly used clinical treatments^[21].

5. Typical case

Qiu, female, 32 years old, was admitted due to "cervical lesion found by physical examination for 1 month". On April 3, 2021, the patient received physical examination in Maternity and Child Health Care Hospital. Routine examination of leucorrhea showed cleanliness grade III. Cervical cytology showed low-grade squamous intraepithelial lesion, HPV type 16, 52, 55 and 61 were positive. On April 18, colposcopy + cervical biopsy was further performed in our hospital. The results showed CIN grade III, involving the glands. Today, the patient sought systematic diagnosis and treatment, and was admitted due to "cervical intraepithelial neoplasia grade III". On admission, he complained of moderate amount of leucorrhea, white color, no yin itching, slight odor, no dull pain in the lower abdomen, occasional lumbar pain and discomfort, good spirit, general sleep, and fair urination and defecation. The tongue was pale red, the fur was thin yellow, and the pulse was slippery. Diagnosis on admission: TCM: belt-down disease (dampness-heat betting syndrome), Western medicine: (1) CIN grade III (2) vaginitis. Western medicine under combined spinal-epidural anesthesia cervical cold knife conization, resection of tissue sent for pathological examination and postoperative ceftizoxime + ornidazole intravenous drip anti-infection, lansoprazole stomach protection and other symptomatic treatment, preoperative vaginal lavage on the drug II formula, postoperative vaginal IV formula packing. The patient had symptoms of constipation and hemorrhoids, and was treated with invigorating qi and strengthening vital energy, clearing away heat and toxic substances, and moistening the intestines and defecating, with a formula of 30 g each of Astragalus membranaceus and Atractylodes macrocephala; 15 g each of Codonopsis pilosula, Hedyotis diffusa, Ulmus officinalis, Cistanche deserticola, Vine pear root, bergamot, Bai Ziren, and Jianqu; 10 g each of Magnolia officinalis, Angelica sinensis, Citrus aurantium, Hemp seed, Muxiang, and Poria cocos peel; 12 g each of Scutellaria baicalensis and Citrus sinensis After discharge, Kangfu gel was applied externally to the vagina.

According to: the patient was admitted due to "cervical lesions found by physical examination for 1 month", which belongs to the category of "Daixia disease" in traditional Chinese medicine. It is the factor body damp-heat mutual junction, invasion of the lower coke, hair for this disease, the disease is true, and the tongue and veins can be confirmed. Astragalus and Atractylodes macrocephala Koidz invigorate qi and invigorate the spleen, Astragalus membranaceus to support toxin and generate muscle, Atractylodes macrocephala Koidz dry and wet water; bergamot qi dry and wet; vine root clearing away heat and toxic substances; Scutellaria baicalensis longer than clear heat and heat, Hedyotis diffusa Koidz heat and dampness; Magnolia officinalis, cardamom has the effect of dampness, Poria cocos water, Tongcao diuresis Tonglin; for patients with constipation, hemp seed,

cypress seed kernel and Cistanche deserticola laxative, tangerine peel, Citrus aurantium II formula is mainly used to treat vaginitis and cervicitis, which can promote good recovery when there are local minor lesions in the vagina and cervix.

6. Conclusions

The TCM treatment of CIN mainly starts from "taking down the disease" to carry out syndrome differentiation and treatment, which is mainly caused by the imbalance of the viscera of the three viscera of the liver, spleen and kidney, dampness and evil as well as the loss of firmness of the Ren pulse and the loss of the Dai pulse. The TCM diagnosis of this disease should be combined with modern examination techniques and pathological examination to make the final diagnosis. The treatment of this disease should be based on righting and eliminating pathogenic factors as the basic therapeutic principle, according to the specific circumstances of patients with syndrome differentiation and treatment, so as to carry out treatment. The treatment methods include internal treatment, external treatment and other methods. Clinically, oral administration of traditional Chinese medicine combined with external application is often the main treatment, oral administration of regulating viscera, restoring vital qi; external treatment enhances the ability to expel pathogens, promotes the healing of lesions, and has a better clinical therapeutic effect. Whether it is clinical research or theoretical research, the research on the treatment of CIN by traditional Chinese medicine continues to develop, and can also be used as a supplement to modern medicine and an alternative to the common treatment of CIN, which can effectively control the incidence of cervical cancer, and also looks forward to traditional Chinese medicine providing reference and reference for clinical prevention and treatment of CIN.

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