

# Analysis of the Characteristics of External Treatment of Skin Ulcer with Chinese Medicine

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**Abstract.** Ulcer is difficult to heal. Although it can not quickly endanger the life of patients, it causes great harm to the quality of life and work of patients because it occurs on the surface of the body and has a long course of disease and many complications. By sorting out the literature, this paper explores the mechanism and main therapies of external treatment of ulcer in Chinese medicine, and screens 124 periodicals published in China from January 2013 to September 2018 with the theme of "ulcer, external treatment", and makes a corresponding analysis of the various external treatment methods of Chinese medicine involved in the literature.

## 1. Introduction

Skin ulcer is one of the most common chronic injuries. It refers to skin and mucosa ulceration, tissue necrosis, or bone injury caused by a series of injuries and diseases, and diseases with different degrees of infection, including venous ulcer, diabetic ulcer, burn, skin infection, bedsore, etc.<sup>[1]</sup>This disease belongs to the category of "ulcer" in Chinese medicine, which has a long history of treatment. Especially, external treatment of Chinese medicine plays a unique role in the treatment of chronic and refractory wounds. In order to promote the further development of Chinese medicine in the treatment of ulcers, this paper analyzed the external treatment methods and characteristics of Chinese medicine for ulcers through collating the literature.

## 2. Understanding and Treatment Principles of Ulcer in Chinese Medicine

Chinese medicine believes that the main pathogenesis of chronic skin ulcer is chronic disease, deficiency of vital energy and blood, obstruction of camp and defence, skin dystrophy and re-exposure to pathogenic toxins. Therefore, the treatment of ulcers also follows the procedure of differentiation of symptoms and signs, according to principles, methods, prescriptions and medicines. Similarly, the principles of the Internal Classic are "the cold is hot, the hot is cold", "the declining is supplemented" and "the strong is purged". In Chinese medicine, skin ulcers and ulcers are called ulcers. In ulcer stage, ulceration, purulence and tissue damage are the main symptoms.<sup>[2]</sup>Ulcers are mostly caused by exogenous and internal injuries, such as Qi and blood stagnation, blockage of meridians and collaterals, accumulation of evil toxins and pus. The production of pus is from heat to boil blood and flesh, and even to rot meat into pus, that is, the "hot victory is rotten" as stated in the Internal Classic. There is no obvious boundary between them. Some or most of the facial pus tissue has fallen off and some of the new granulation tissue exists at the same time. If purulent and decay-removing drugs are used alone, the new granulation tissue will be damaged and the healing will be delayed. The sole use of Muscle-Generating adduct will cause residual toxicity on sore surface and even cause dangerous syndromes such as internal attack of persecution. Therefore, it is advisable to dispel decay and Muscle-Generating in the treatment; Professor Tang Hanjun put forward the theory of "eliminating blood stasis and generating muscle". He believed that blocking blood stasis was the basic contradiction of ulcer formation and prognosis. It was the concrete manifestation of this basic contradiction in different stages of ulcer and different syndromes of different individuals. Therefore, the principle of treating chronic skin ulcer should be based on removing toxin and generating muscle, removing decay and generating muscle, removing blood stasis and generating muscle.<sup>[3]</sup>

## 2.1. The Main Mechanism of External Treatment of Ulcer with Chinese Medicine

**2.1.1. Skin Absorption.** "Medical Origin and Development" contains: "To make the nature of medicine from the skin like mushroom, through the meridians, more powerful than taking medicine, this is the most wonderful method. Skin absorption method is to apply the drug to the active site and make use of the transdermal absorption of the drug to make the active ingredients reach the corresponding tissue cells or enter the blood circulation through the skin, so as to exert the analgesic effect. Common administration methods include external application, fumigation and scrubbing.

**2.1.2. Sensing of Acupoints and Meridians.** The mechanism of acupoint and meridian sensing is mainly to inject drugs directly into the acupoints of the patients or to apply cupping or acupuncture therapy at the acupoints, and to exert analgesic effect through local or integral treatment of acupoints or meridian conduction. The commonly used medication methods of this mechanism include acupuncture, acupoint injection, acupoint catgut embedding, etc.

## 2.2. Major Therapies of External Treatment of Ulcer with Chinese Medicine<sup>[4-7]</sup>

**2.2.1. External application External Application of Chinese Medicine is Administered on the Surface of the Body.** The drug is directly contacted with the skin and absorbed through the skin. It bypasses the first-pass effect of the liver and reaches the hospital directly. The effect is rapid, the duration is long and the side effects are small. Shengji Yuhong Ointment (composed of Angelica dahurica, Lithospermum, Licorice, Angelica sinensis, Dragon's Blood and Light Powder) is a external medicine of Chinese medicine for treating chronic surface ulcer. Its efficacy is "promoting blood circulation and removing rot, detoxifying and analgesic, moistening skin and generating muscle", "Chinese Medicine Surgery" records that this medicine can be used for all sores, ulcers, ulcers, pus, pain, new muscle dysplasia; Shengdan is a common purulent and decay eliminating medicine in Chinese medicine surgery. It can expel sepsis from ulcers and ulcers as soon as possible, and the decayed flesh will fall off quickly. It is suitable for ulcers without dissolving pus emboli, decayed flesh, or unclean pus and new flesh.

**2.2.2. Acupoint Therapy.** External therapy of acupoint Chinese medicine is based on acupuncture, injection and iontophoresis of certain Chinese medicine at corresponding acupoints, in order to achieve the purpose of treating ulcers. This therapy plays a dual role of acupoint stimulation and medicine. Points such as Zusanli, Shangjuxu, Fenglong, Jiexi, Yinlingquan, Geji, Sanyinjiao, Zhaohai, Rangu, Yinbai and Yongquan were selected to treat diabetic foot ulcer. Install the lighted moxa stick into the moxibustion massage machine, locate the acupoint area according to the prescription, and roll the massage machine forcefully, the range is not more than 3-4 cm. Acupoint area moxibustion massage to skin redness is transferred to another acupoint area, alternating 2 to 3 times to ensure the effect of massage. Moxibustion and massage can effectively treat foot ulcer caused by diabetes mellitus.

## 2.3. Analysis of Characteristics of External Treatment of Ulcer with Chinese Medicine<sup>[8-12]</sup>

The principle of external treatment, that is, internal treatment, has a long history of external use of Chinese medicine, which is a unique treatment for ulcers. In this paper, we input "ulcer" and "external treatment" through HowNet, and set the search keyword as "theme". According to 124 journal documents from January 2013 to September 2018, we analyzed the characteristics of TCM ulcer treatment as follows.

**2.3.1. Analysis of the Characteristics of External Treatment of Ulcer with Chinese Medicine.** Ulcer external treatment of Chinese medicine uses drugs of detoxification, removing blood stasis, activating blood and promoting muscle. External treatment of Chinese medicine avoids the inactivation of drugs through multiple links of digestive tract and the effect of drug metabolism on liver and kidney function by applying drugs outside and inside. Its main treatment is "decomposition and activating muscle". Drugs are usually used to detoxify saprophytic muscles, mainly through transdermal absorption to make drugs play a therapeutic role. The 124 Chinese medicines in the literature were analyzed. Among them, the Chinese medicines are characterized by

multi-temperature and multi-xin, mainly attributed to the liver and lung meridians. The commonly used drugs with strong penetration of promoting blood circulation and removing blood stasis are *Phellodendron amurense*, frankincense, myrrh, Dragon's blood, *Ulmus pumila*, *Notoginseng*, *Platycladus orientalis* Leaf, *Cortex Moutan*, *Borneol*, Safflower, etc. Among them, borneol can clear away heat, detoxify toxins, preserve muscles and has strong transdermal effect. It can treat sores, sores, sores and astringencies after ulceration. Modern research has confirmed that this product has bacteriostatic and anti-inflammatory effects; Frankincense invigorates blood circulation and generates muscle, myrrh disperses blood and generates muscle. Both drugs are used to treat all sores, sores and pains. The Compendium of Materia Medica records "Dispersing Blood and Dissipating Swelling, Dingtong and Generating Muscles"; It has the functions of removing blood stasis and stopping bleeding, promoting blood circulation and alleviating pain, stopping bleeding and generating muscle, and removing blood stasis and removing sores. Modern studies have reported that this product has anti-inflammatory, blood flow and thrombosis, can accelerate wound healing; *Sanguisorba officinalis* is sour and astringent in taste, which is used for surgical sores, sores, swellings and pains. Modern studies have reported that this product can reduce exudation, edema, protect wounds and control infection.

**2.3.2. Comprehensive Application of Various External Therapies.** Chinese medicine emphasizes that the treatment of ulcer should focus on both inside and outside, so as to achieve the effect of muscle regeneration. Chinese medicine emphasizes the treatment concept of syndrome differentiation and holistic treatment. Ulcer involves complications of different types of diseases, which can not be solved by single Chinese medicine, while the comprehensive application of multiple external treatment methods of Chinese medicine can be better applied to such situations. Among 124 literatures on external treatment of ulcer, 8 were related to the comprehensive application of external therapy, accounting for 6.4%; 18 out of 49 clinical studies were included in the comprehensive application of external treatment, accounting for 14.5%. There are many ways to treat ulcer by external therapy: tincture or ointment, simultaneous microwave, combined with acupuncture and moxibustion, acupoint catgut embedding combined with powder external application, acupuncture combined with auricular point therapy, Chinese medicine fumigation combined with acupoint massage, smear combined enema, external application combined with acupuncture and moxibustion, etc. Based on the analysis of the combined application of different external therapies involved in the literature, TCM does not define the specific combination of different therapies, but treats them according to illness. The combination of various therapies is flexible and diverse. The drug formulation has developed from plaster, powder, tincture to cataplasm and other new formulations.

### 3. Expectation

From the literature in recent years, TCM treatment of chronic refractory wounds has made rapid progress. In the long-term clinical treatment of chronic refractory wounds, physicians around the world have accumulated a lot of external treatment experience of TCM, which has significantly shortened the healing time of wounds and improved the cure rate. Simple, convenient, inexpensive and experienced external treatment of Chinese medicine has unique advantages, which meets the needs of modern green medicine and has been widely used.

With the deep application of therapies and dosage forms, the corresponding problems are constantly emerging. For example, there are too few cases, lack of multi-center, large-sample randomized controlled trials, lack of rigorous scientific design of safety evaluation, lack of in-depth study on the etiology and mechanism of external treatment of ulcers in Chinese medicine, and different evaluation criteria. In addition, there are some problems in the application of TCM external therapy to patients: External ointment is not easy to preserve and most of them have strong irritating odor, which makes it difficult for patients to accept; Tincture is easy to leave pigmentation on the skin, the solvent used is easy to volatilize, and it needs to be rubbed on the same part for many times to ensure the efficacy of the tincture; Acupuncture and moxibustion have a tingling

sensation and are susceptible to infection at the pinhole. Patients with fainting needle have poor tolerance; Ion implantation, Catgut Embedding at acupoints and acupoint injection are complicated to operate, which may lead to pain site infection and burns in patients; The inappropriate temperature of fumigation therapy can cause a series of problems such as scald.

External therapy of Chinese medicine plays an irreplaceable role in the treatment of ulcer with its unique physiotherapy system of syndrome differentiation and treatment and holistic concept. In order to make it better applied in medicine and accepted by patients, the following efforts should be made to solve the above problems: In future clinical research, we should set up control group observation and formulate unified criteria for judging curative effect; In drug production, pastes, tinctures and new formulations which are easy to preserve, difficult to volatilize should be prepared. When using various therapies, the operation should be standardized and rigorous, and be treated by professionals. Therefore, clinical research should be standardized, standardized and systematic; To optimize the original drug dosage forms, develop new drugs for external use, and control the quality of acupuncture and moxibustion equipment; At present, it is urgent to standardize the operation process of various external treatment methods and improve the employee's ability.<sup>[13-16]</sup>

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#### 5. Reference

- [1] Du Juanjiao, Tension, Li Jiehui, Huang Xin. Research progress on external treatment of chronic and refractory wounds [J]. Guangxi Chinese Medicine, 2014, 37 (02): 1-4.
- [2] Application of Professor Zhang Chaohui, Xu Qiang and Li Jing's theory of removing rot and generating muscle in the diagnosis and treatment of sores and ulcers[J].Hunan Journal of Chinese Medicine, 2011,27(05): 30-31.
- [3] Wu Xueqing, Tang Hanjun. Tang Hanjun's Academic Viewpoint on the Treatment of Ulcers [J]. Liaoning Journal of Chinese Medicine, 2016, 43 (03): 511-514.
- [4] Guo Zhonghua. External treatment of sores and ulcers in Chinese medicine is effective [N]. Family Doctor, 2018-05-14 (007).
- [5] Yang Haina, Li Dayong. Study on External Therapy of Diabetic Skin Ulcer [J]. Journal of Clinical Chinese Medicine, 2017, 29 (05): 613-616.
- [6] Ningxing, Gong Xiaohong, Kuang Lin. Research progress of external treatment of bedsore [J].Hunan Journal of Chinese Medicine, 2016,32(05): 214-216.
- [7] Wu Xueqing. Tang Hanjun: Internal and External Therapy for Ulcers [N]. Chinese Medical Journal, 2016-04-14 (004).
- [8] Kong Lidan.External treatment of diabetic foot with Chinese medicine[J].Research on TCM-WM knot,2015,7(06): 320-322.
- [9] Tang Hanjun. Outline of External Therapy of Chinese Medicine (Part II) - Discussion on the Mechanism of External Therapy of Chinese Medicine and Knowledge of Syndrome and Treatment [J]. Journal of External Therapy of Chinese Medicine, 2014, 23 (05): 6-8.
- [10] Cao Bailong, Miao Guizhen, Miao Juan, Wang Liqiang, Cui Zhaoli, Du Qiming, Jinjian, Wang Wencai, Guan Jing, Zhang Jianmin, Tong Lifen, Jing Zhenlong, Yang Jianyu, Sun Guangrong. The theory and practice of the development of Chinese medicine ointment for diabetic foot ulcer [J]. Modern distance education of Chinese medicine, 2014, 12 (14): 114-115.

- [11] Lu Ziying, Wang Lixiang, Liu Guobin. Clinical review of the treatment of diabetic foot with characteristic techniques of Chinese medicine surgery [J]. Journal of Zhejiang University of Chinese Medicine, 2014, 38 (05): 664-666.
- [12] Du Juanjiao, Tension, Li Jiehui, Huang Xin. Research progress on external treatment of chronic and refractory wounds [J]. Guangxi Chinese Medicine, 2014, 37 (02): 1-4.
- [13] Zhou Tianlin, Baiguang. Treating ulcerative colitis with sores and ulcers [J]. Hunan Journal of Chinese Medicine, 2016, 32 (10): 152-153.
- [14] Li Jiehui, Zhang Chunxia, Di Potassium Pian, Xunfeng, Li Ying, Malin Feng. Clinical Study of External Moxibustion for Venous Ulcer of Lower Limbs [J].Chinese Medicine Bulletin, 2016, 22 (10): 61-63.
- [15] Wang Lei. Treatment of obstinate lower limb congestive ulcer with integrated Chinese and Western medicine [J].Inner Mongolia Chinese Medicine, 2014, 33 (11): 24-25.
- [16] Hu Xiaoming, Liu Guobin. External treatment of eczema [J]. Chinese Journal of Integrated Chinese and Western Medicine Surgery, 2010, 16 (06): 714-715.