Received: 19 September 2024 | Revised: 13 October 2024 | Accepted: 21 October 2024 | Published online: 24 October 2024

International Journal of Advance in Clinical Science Research, Volume 3, 2024
https://h-tsp.com/

A Clinical Observation Report on the Use of Shengji Yuhong Ointment to Treat the Wound Surface of Livedoid Vasculitis

Jinchuan Hu[1], Yushan Xiao[1], Xuan Chen[1], Yuanyuan Shi[1], Zhi Li[2,*]

[1]Shaanxi University of Chinese Medicine, Xianyang, 712046, Shaanxi, China
[2]Xi'an Hospital of Traditional Chinese Medicine, Xi'an, 710000, Shaanxi, China
**Author to whom correspondence should be addressed.*

Abstract: ***Livedoid vasculitis is an inflammatory condition that mostly affects the skin's tiny blood vessels near the ankle. Its clinical characteristics include a grape-like plaque on the skin, a painful ulcer, and an ivory-white atrophic scar that remains after healing [1]. Summer is when the condition is most dangerous, while winter is when it is least severe. The disease's course is long and difficult to treat, making it prone to recurrence. The cause of Livedoid vasculitis is currently unknown, and there is no particular treatment. With the growth and development of traditional Chinese medicine (TCM), TCM external treatment has made steady progress in the field of promoting wound healing. Shengji Yuhong Ointment has been proven in studies to have a wide variety of clinical uses in the treatment of chronic wounds, including pressure ulcers, diabetic foot, burns, and anorectal illnesses following surgery, among others [2]. In this study, we explored the use of Shengji Yuhong Ointment in the treatment of wounds caused by Livedoid vasculitis and reported the effectiveness of one instance. The patient had multiple superficial skin ulceration in both feet, with a maximal size of 1.5*1.5 cm. After 21 days of therapy with Shengji Yuhong Ointment, patients' healing trends, good safety assessment, and considerable curative impact are projected to make it a recommended clinical medication usage.***

Keywords: Shengji Yuhong Ointment; Livedoid vasculitis; Curative effect observation.

1. Introduction

Livedoid vasculitis, also known as segmental hyaline vasculitis with white atrophy, is a rather uncommon clinical disease [3]. This sickness is more severe in the summer than in the winter. The disease's course is long and difficult to treat, rendering it prone to recurrent bouts. This condition is more frequent in young and middle-aged women, and the cause is unknown, however it may be associated to an aberrant immunological response. Clinical manifestations are pleomorphic skin lesions based on vascular lesions that may leave a white atrophic scar after healing [4]. Primary skin injury was most prevalent in the ankle, dorsum pedis, and lower part of the lower leg. It began as a light or brilliant red petechia the size of a needle, then progressed to a dark purple red ecchymosis, small ulcers with a satellite-form distribution, and lastly a black scab. These lesions can cause considerable discomfort and heal slowly, leaving an ivory-white atrophic scar. In terms of treatment, there is currently no particular medication for locus Livedoid vasculitis in clinic, however treatments such as corticosteroids, anticoagulants, and ganglion blockers may be utilized, though their efficacy and safety are widely debated. As a result, TCM has established an excellent complement to this, and it

offers certain perspectives on illness understanding and treatment that are worth investigating and promoting. Traditional Chinese medicine posits that diseases arise from the combined effects of pathogenic factors such as dampness, heat, stasis, and poison. Primarily, these are caused by external influences of dampness and heat or cold dampness, which lead to stasis in the veins and subsequent blockage of Qi and blood flow. This results in the accumulation of blood stasis, damp-heat, and poison, causing symptoms such as rashes, purpura, oozing, and pain on the skin's surface. Over time, local Qi and blood stasis, along with venous obstruction, may progress to blood septicemia and flesh rot with ulcer formation [5]. Shengji Yuhong Ointment, first documented in the 'Wai Ke Zheng Zong' compilation by the renowned Ming Dynasty physician, Chen Shigong, this preparation boasts properties that facilitate the promotion of blood circulation, detoxification, reduction of swelling, elimination of decay and ulceration, muscle regeneration, and alleviation of discomfort. Its primary constituents encompass Chinese angelica, Angelica dahurica, Radix lithospermi, Daemonorops draco, Calomel, Liquorice, White wax, Benne oil. Chinese angelica and Angelica dahurica can promote blood circulation and relieve pain. Chinese angelica enriching the blood and invigorating the circulation of blood, especially for the pain and blood stagnation of abscess, and utilize the power of pungent taste having dispersing effect of Angelica dahurica, promoting blood circulation and alleviating edema, relieve the pain. Radix lithospermi cooling blood and hemostasis, Daemonorops draco to remove blood stasis and pain relief, and regenerating tissue to heal wond. Calomel astringing dampness and converging the ulcer. Liquorice moderating the property of herbs. White wax and Benne oil can relieve internal heat or fever and moisten the skin as excipients. Relevant studies show that Shengji Yuhong Ointment can restrain the chronic wound, relieve inflammation and exudation, and promote the rebirth of granulation tissue. A patient with an ulcerated wound from Livedoid vasculitis was treated at the Xi'an Hospital of Traditional Chinese Medicine. The wound improved dramatically after the external use of Shengji Yuhong Ointment. The report is shown below.

2. Data and Methods

2.1 Patient Data

The patient surnamed Wang, male, 59 years old, was admitted to hospital on October 11, 2022 due to "multiple ulceration of both lower limbs for 1 year and aggravation for 3 months". In November 2012, the patient developed nodular erythema on the back of both feet without obvious causes, with a diameter of about 3cm, higher than the skin surface, the pressure did not fade, the skin temperature was not high, there was no local tenderness and swelling, and attention was not paid to it. Then, the legs gradually developed symmetrical scattered reticular erythema, slightly higher than the skin surface, the skin between the erythema was normal, the skin partially subsided after lying flat or fully warm, and the color deepened after activity and exposure to cold. Erythema extends to the upper legs. Then secondary ankle joint intermittent swelling pain with mobility disorders, intermittent fever, reticular erythema as before. Since 2018, he has been hospitalized in Peking Union Medical College Hospital and Xijing Hospital of Air Force Military Medical University. During this period, pathological biopsy of damaged skin showed that the epidermis was generally normal, with infiltration of perivascular lymphocytes, plasma cells and mast cells in the whole dermis, proliferation of endothelial cells in the capillary wall, and no obvious cellulose-like degeneration. The initial diagnosis was "Livedoid vascular disease" and "secondary vasculitis is possible", and the combined treatment of prednisone, methotrexate, cyclophosphamide and rosuvastatin, and the symptoms were partially alleviated. Due to the recurrence of the disease, and in order to further treat the disease with the integration of Chinese and Western medicine, the patient sought treatment and was admitted to our hospital. Physical examination showed: Local green spots were visible in the skin of both upper limbs, and multiple black blood blisters of the size of mung beans on both lower limbs. Multiple superficial

coin-like skin ulceration wounds on plantar, dorsum of foot and intertoe, with a maximal size of 1.5*1.5 cm, local redness and swelling, pinprick pain, obvious pigmentation, no obvious tortuosity and dilation of lower limb veins, no obvious local induration, low skin temperature, good pulse of femoral artery, popliteal artery, posterior tibial artery and dorsal foot artery of lower limb, good distal circulation. There was no obvious edema in both lower limbs. The initial diagnosis was as follows: Livedoid vasculitis; Rheumatoid arthritis may be. Treatment: Troxrutin was given to prevent platelet aggregation and prevent microthrombus formation and edema. Shengji Yuhong Ointment is applied externally for the purpose of detoxicating, detumescence, promoting tissue regeneration and relieving pain.

2.2 Therapeutic Method

2.2.1 The wound processing

Sterile scissors and forceps were used to clean the locally necrotic granulation tissue, followed by hydrogen peroxide rinsing. If more wounds need to be treated, multiple debridement is feasible to avoid psychological fear brought on by severe pain. Normal saline was used repeatedly to wash the wound until it was completely clean, and finally sterile cotton balls or gauze was used to dry the residual liquid from the wound. After debridement, the wound was photographed and measured for length and breadth.

2.2.2 The use of Shengji Yuhong Ointment

After cleansing, Shengji Yuhong Ointment was applied uniformly to the wound surface in an amount sufficient to cover the wound entirely, and thickness is about 2mm. The fixed ointment was then covered with vaseline gauze cut into small pieces, followed by sterile gauze for covering and dressing, with the dressing replaced once day. If there was additional exudate, the ointment slipped off, or the lesion became contaminated from exposure, the dressing was changed twice. A treatment regimen lasted 21 days. The clinical effectiveness was evaluated, and the wound alterations were documented on the photographs [6].

2.2.3 Observing indicators

① Clinical efficacy and the incidence of adverse effects. ② The value of the broken area: use the camera to record the wound, and measure the length and width of the wound with the image processing software of IMAGJ computer. ③ Change of wound base color; granulation tissue growth; degree of skin fibrosis at the wound edge. ④ Pain scores were scored by visual analogue scores. ⑤ Other situations: whether there is pus fluid, exudation, and peculiar smell and whether there is local redness and swelling on the edge of the wound.

3. Results

3.1 Wound Dressing Process

The wound state was documented every 7 days, and after 21 days of therapy, the patient's wound healing process went smoothly and successfully. No more fluid leaked from the wound surface, and the ulcer area shrank dramatically. The skin lesion's base tone was pale pink, and a new scab layer formed around it. As shown in Figure 1.

Figure 1: This image illustrates the treatment procedure of the Livedoid vasculitis wound with Shengji Yuhong Ointment throughout the patient's hospitalization, which was recorded once every seven days and photographed after each washing.

First recorded on October 11,2022: where the patient exhibited multiple superficial coin-like ulcerations on the dorsum of both feet, with the ulceration measuring up to 1.5cm×1.5cm, and was accompanied by bloody exudate. The wound was first irrigated with hydrogen peroxide, followed by a thorough cleansing with normal saline. The base color of the wound was observed to be predominantly dark red (90%) with a minor component of white (10%). The wound displayed no signs of abscess formation, foul odor, local erythema, and had a Visual Analogue Score of 5 points. Subsequently, an even application of Shengji Yuhong ointment was applied to the wound, ensuring complete coverage. Vaseline gauze was then cut into several smaller segments to envelop the ointment, and a final layer of sterile gauze was applied to cover and secure the dressing, and change the dressing once a day. (2) The second record on October 18,2022: It was observed that the ruptured wounds measuring approximately 1.3cm×1.3cm were located on the dorsum of the patient's feet. and a reduction in blood exudate was noted. The patient underwent the same rinsing procedure as before, and the base color of the wound was observed to be predominantly bright red (80%) with a minor component of white (20%). The appearance of the wound was bright red, devoid of pus and malodorous secretions; Local redness and swelling had subsided. The Visual Analogue Score was 4 points, and the edge of the wound skin exhibited incipient fibrosis. Subsequent dressing changes were continued with the application of Shengji Yuhong ointment, following the prior protocol. (3) Third Record, October 25,2022: It was observed that the ruptured wounds measuring approximately 1.3cm×1.0cm were located on the dorsum of the patient's feet. Notably, the wound displayed a diminishing trend in terms of size and depth, with signs of decreased blood effusion. The standard protocol for wound cleansing was adhered to, following which the base color of the wound was assessed to be predominantly red (80%) with a secondary component of white (20%). The appearance of the wound was pale red, devoid of pus and malodorous discharge. The Visual Analogue Score was recorded at 3, indicating a mild level of pain or discomfort. Additionally, the wound margin exhibited further fibrosis, indicating the progressive healing process. Continue to use Shengjiyuhong ointment to change the dressing as before. (4) Fourth record on 01 November 2022: It was observed that the ruptured wounds measuring approximately 0.8cm×0.8cm were located on the dorsum of the patient's feet, and the wound was significantly smaller and shallower than before. The patient underwent the same rinsing procedure as before, It was observed that the base color of the wound was almost pale pink fresh granulation tissue, and the Visual Analogue Score was 2. Most of the skin edge of the wound is white thin layer of scab skin, without

exudation or odor. Shengji Yuhong Ointment was continued to be used for dressing change as before [6].

3.2 Health Education

The patient was told to avoid scratching the ulcerated wound with his fingernail, to keep the skin clean and to avoid infection. It is recommended that patients should take high protein and rich vitamins and trace elements such as iron. Patients should avoid local bruising, abrasions, contact with known allergens and wear suitable shoes. The patient was informed that the course of the Livedoid vasculitis was usually chronic, that the lesions could recur, and that the course of the disease could be more than five years. Although the disorder may affect the quality of life of patients, it does not usually develop into organic lesions or systemic symptoms, and patients are encouraged to actively treat it.

3.3 Late Follow-up

The patient was instructed to continue applying Shengjiyuhong ointment after discharge according to the previous dressing regimen. After 35 days of follow-up observation, the ulcer incision on the dorsum of the patient's foot was nearly healed. The atrophic scar left with ivory white, uneven borders, and irregular forms, and the Visual Analogue Score was one [7]. As shown in Figure 2.

Figure 2: This image illustrates the condition of the patient's wound healing after the continuous application of Shengjiyuhong ointment for a period of 35 days subsequent to hospital discharge.

4. Discuss

Current local and foreign studies on the treatment of Livedoid vasculitis mostly rely on clinical case reports, with a dearth of multi-center and large-scale clinical trials to back them up. There are still uncertain opinions as to the etiology of this disease, and there are generally no positive results in laboratory tests. Immunofluorescence found immune complexes and C3 deposits in the capillary wall, so possibly the capillaritis caused by abnormal immune response. Histopathology also suggests that Livedoid vasculitis may be related to immunological abnormalities. Because there is little neutrophil infiltration and nuclear dust in tissue lesions, it is different from leukocytoclastic vasculitis. Pathological examination revealed epidermal atrophy and V-shaped necrosis within the epidermis and upper dermis. There was evidence of endothelial cell proliferation in the dermal capillaries, along with the proliferation of certain fine venous endothelial cells in the superficial layer of subcutaneous adipose tissue. Vascular wall thickening due to the deposition of eosinophilic substances was also observed. Fibrinoid substance deposition within the vessel wall and lumen was noted, accompanied by

transparent thrombosis within the lumen and partial or complete lumen occlusion. Perivascular leakage of red blood cells, along with lymphocytic and histiocytic infiltration, was prominent. The infiltration was predominantly composed of lymphocytes, with occasional neutrophils and nuclear dust. Mild hypertrophy, or vacuolar degeneration, and necrosis were observed in the epidermal acanthocytes. Anticoagulants, vasodilators, and immunosuppressants are now the most often used drugs in medicine, with the goal of stimulating endogenous fibrinolytic activity, inhibiting thrombosis, expanding blood vessels, increasing cell elasticity, and decreasing blood viscosity. However, due to the large side effects of drugs and recurrence after drug discontinuation, the feasibility of long-term medication is relatively low [5]. About the main ingredients of Shengji Yuhong Ointment, according to the relevant pharmacological data of traditional Chinese medicine, Chinese angelica has the impact of lowering platelet buildup and anti-blood clotting, antioxidant and free radical purification, promoting the operation of the blood formation system, and enhancing immune system function. Angelica dahurica and Radix lithospermi have effects of anti-inflammatory, antipyretic, acesodyne, and anti-pathogenic microorganisms. Daemonorops draco has anti-inflammatory, antibacterial and anti-thrombotic effects. Calomel has bactericidal properties when used externally. Licorice has similar effects to adrenocorticoid, including anti-inflammatory, anti-ulcer, anti-allergic reaction, anti-cancer, antibacterial, antiviral, regulation of immune function, disintoxication, antioxidant and other effects. According to modern pharmacological studies, Shengji Yuhong Ointment can lower the pH of damaged tissues, improve skin microcirculation around the wound, promote microvascular regeneration and tissue repair, reduce inflammatory response, and stimulate fibroblast proliferation, thereby accelerating wound healing and regulating growth factor levels to reduce scar formation [8]. In conclusion, Shengji Yuhong Ointment was given to the wounds of patients with Livedoid vasculitis in this research. It is appropriate for clinical promotion and usage due to a positive safety evaluation and considerable effectiveness. However, more research on the process at the molecular level is required.

References

[1] Zhu Yueshu. Clinical features and therapeutic observations of patients with Livedoid vasculitis [J]. Guide of China Medicine, 2016,14(30):54-54

[2] Li Gang. Clinical application and experimental research progress of Shengji Yuhong Ointment [J]. Lishizhen Medicine and Materia Medica Research, 2011,22(8):1950-1952

[3] Ye Tinglu, Lu Chun, Zhong Qili, Yu Bo, Gu Youshou, Pan Huiqing. Clinical review of thirteen cases of atrophie blanche [J]. Journal of Clinical Dermatology, 2012,41(2):69-72

[4] Wang zheng, Jia Yuxi. Diagnosis and treatment of several common cutaneous vasculitis [J]. Chinese Community Doctors, 2008,24(9):13-15.

[5] Wang Leiyong, Li Xiaoqing, An shidong, Li Shiyu, Yang Bohua. Clinical analysis of integrated traditional Chinese and western medicine in the treatment of livedoid vasculopathy complicated with ulcer [J]. Journal of Vascular and Endovascular Surgery, 2021,7(11):1319-1322.

[6] Gong Yuefeng. A case report of Shengji Yuhong ointment in treating infected wound caused by indwelling needle [J]. Clinical Journal Of Chinese Medicine, 2021,13(33):110-111115.

[7] Han Jiande, Zhang Wanpeng, Chen Wenna, Li Bin. Two cases of segmental transparent vasculitis [J]. Southern China Journal of Dermato-Venereology, 2005,12(3):248-250.

[8] Dong Xiaopeng, Yu Bo, Wang Lijuan, et al. Bioinformatics analysis of related genes in burn wound and study on therapeutic mechanism of Shengji Yuhong ointment [J]. The Chinese Journal of Clinical Pharmacology, 2020,36(10):1341-1343.