

# *Research Progress of Acupuncture Treatment of Melasma*

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**Abstract:** Melasma is a type of facial skin pigmentation that commonly occurs in middle-aged women. This condition not only significantly impacts facial aesthetics but also affects patients' mood, potentially leading to anxiety, depression, and other psychological disorders. In recent years, with the improvement of social material standards and the increasing pursuit of quality of life, the demand for melasma treatment has also grown. Based on recent developments in the field of traditional Chinese medicine, the author reviews the research progress of acupuncture therapy and its combination with other traditional Chinese medicine therapies for treating melasma, aiming to provide insights and methods for acupuncture treatment of this condition. This review aims to provide insights and methods for acupuncture treatment of melasma.

## 1. Introduction

In traditional Chinese medicine, chloasma is referred to as "black spots" and is classified as a type of "facial dust." It is characterized by small brown plaques caused by skin pigmentation on the face. These plaques are usually symmetrically distributed, varying in size and irregular in shape. Melasma typically does not present with other symptoms, but exposure to sunlight can exacerbate the condition. Surgical Authenticity is the first book to mention the name of this disease. Traditional Chinese medicine believes that chloasma is closely related to the liver, spleen, and kidney, and attributes its occurrence primarily to an imbalance of qi and blood. It can be divided into four types: liver depression and qi stagnation, liver and kidney deficiency, spleen deficiency with dampness accumulation, and qi stagnation with blood stasis. The development of chloasma is closely associated with the six yang meridians around the face. In clinical treatment, tendon nodes along the meridians of the head, waist, back, chest, and abdomen are selected as acupuncture treatment sites [1]. This article reviews the recent research progress on acupuncture treatment for chloasma.

## 2. Understanding of the Mechanism of Chloasma in Chinese and Western Medicine

### 2.1. TCM Etiology and Pathogenesis

The understanding of chloasma in traditional Chinese medicine (TCM) can be summarized from the following perspectives: (1) Treatment from the Liver: According to TCM theory, the liver stores

blood and governs the free flow of qi. The liver prefers smoothness and dislikes stagnation. If liver depression and qi stagnation occur, it may lead to the generation of internal fire, disturbance of the meridians, and burning of the blood collaterals. This can result in the appearance of chloasma on the head and face. (2) Treatment from the Spleen: The spleen governs transportation and transformation. Irregular diet, excessive worry, or overwork can impair the spleen and stomach's function of transportation and transformation. When the spleen and stomach's central function is abnormal, clear qi fails to rise, and turbid yin fails to descend. Spleen deficiency leads to dampness, and damp-heat accumulates internally, rising to the surface and causing black spots [2]. (3) Treatment from the Kidney: The kidney stores essence, and the liver stores blood. The liver and kidney share a common origin, meaning liver blood and kidney essence nourish each other, also known as "essence and blood homology." These two organs interact physiologically and pathologically. If liver and kidney deficiency occurs, qi and blood become imbalanced, and the Chong and Ren meridians are disrupted. This can lead to a dull complexion and the formation of black spots. Additionally, the kidney corresponds to the color black, so kidney deficiency may manifest as a dark complexion [3]. (4) Treatment from Blood Stasis: Chronic illness often leads to blood stasis. Disharmony between Ying and Wei, as well as disorders of qi and blood circulation, can result in the development of chloasma on the face. Therefore, the treatment of chloasma in TCM is based on the principles of soothing the liver, removing blood stasis, invigorating the spleen, and resolving dampness. The treatment of chloasma in TCM emphasizes a holistic approach, addressing the root causes of liver stagnation, spleen deficiency, kidney deficiency, and blood stasis.

## 2.2. Western Medicine Pathogenesis

Melasma is a common skin condition characterized by hyperpigmentation, primarily affecting the face and significantly impacting skin aesthetics. It falls under the category of pigmentary disorders, which also include conditions such as chloasma, freckles, and flat warts [4]. Western medicine views melasma as an acquired hyperpigmentation disorder, and its pathogenesis is influenced by a combination of genetic, environmental, and hormonal factors. The primary causes and contributing factors are as follows: (1) Genetic Factors: Studies have shown that genetic predisposition plays a significant role in the development of melasma. Research indicates that approximately 50% of melasma patients have a family history of the condition, suggesting a hereditary component [5]. (2) Ultraviolet (UV) Radiation: Exposure to UV light is one of the most common triggers for melasma. UV radiation stimulates melanocytes to produce excess melanin, leading to hyperpigmentation. This is why melasma often worsens during periods of increased sun exposure [6]. (3) Sex Hormones: Melasma is more prevalent in women, particularly during periods of hormonal fluctuation such as pregnancy, oral contraceptive use, or hormone replacement therapy. Estrogen and progesterone play key roles in its development. Estrogen promotes the proliferation of melanocytes, while progesterone enhances the transport and diffusion of melanin. The combined action of these hormones contributes to the formation of melasma [7]. (4) Inferior Cosmetics: The use of low-quality cosmetics containing heavy metals can lead to their deposition in the dermis through hair follicles and sebaceous glands. This damages the skin barrier and induces melanin deposition, exacerbating hyperpigmentation. (5) Psychological and Emotional Factors: Patients with melasma often exhibit higher levels of anxiety and stress. Conditions such as chronic anxiety, insomnia, and excessive stress can stimulate the hypothalamus-pituitary axis to secrete melanocyte-stimulating hormones (MSH), which in turn promote melanin production and deposition [8]. Currently, the exact pathogenesis of melasma remains incompletely understood. However, it is widely accepted that multiple cell types, including melanocytes, fibroblasts, mast cells, and sebaceous gland cells, are involved in its development. The primary mechanisms include increased melanin synthesis, impaired melanin transport, vascular

hyperplasia in the affected skin, poor blood circulation, and inflammatory responses [9]. These factors collectively contribute to the complex pathophysiology of melasma.

### 3. Clinical Research

#### 3.1. Ordinary Acupuncture

Chloasma is primarily caused by an imbalance of qi and blood in the liver, spleen, and kidney, leading to a loss of nourishment to the face. Acupuncture, a cornerstone of traditional Chinese medicine (TCM), is known for its ability to dredge meridians, activate collaterals, harmonize yin and yang, strengthen the body, and dispel pathogenic factors. TCM emphasizes the principle of "treatment based on pattern differentiation", which tailors therapy to the individual's specific condition. The back-shu points, located on the back, are particularly significant in TCM. These points correspond to specific internal organs and often exhibit abnormal reactions when visceral disorders occur. Stimulating these points can effectively treat related internal diseases. As stated in the Yellow Emperor's Classic of Internal Medicine (Huangdi Neijing), "When women reach the age of 35, the Yangming meridian begins to decline, leading to a withered complexion and hair loss." This highlights the close relationship between the rise and fall of qi and blood in the Yangming meridian and the development of facial chloasma. Cao Qing conducted a clinical study focusing on the Yangming meridian. He selected Hegu (LI4), Tianshu (ST25), and Zusanli (ST36) as the main acupoints. For patients with qi and blood deficiency, additional points such as Pishu (BL20) and Shenshu (BL23) were used to tonify the spleen and kidney. For patients with qi stagnation and blood stasis, Geshu (BL17) and Xuehai (SP10) were added. For those with internal heat in the Yangming meridian, Quchi (LI11) and Neiting (ST44) were used to clear heat. Treatment was administered once daily, with two treatment courses separated by a one-week interval, designated as the treatment group. A control group received only oral vitamin C and topical 3% hydrogen peroxide cream. The results demonstrated that the treatment group showed significantly better outcomes than the control group [10]. In another study, Fan Hongmei et al. divided 94 chloasma patients into a control group and a treatment group. The control group received traditional Chinese herbal medicine, while the treatment group underwent acupuncture and moxibustion. Key acupoints included Waiguan (SJ5), Quchi (LI11), Hegu (LI4), Taichong (LR3), and Sanyinjiao (SP6). For patients with middle energizer deficiency, additional points such as Fenglong (ST40), Zhongwan (CV12), and Pishu (BL20) were used. For kidney deficiency, Taixi (KI3) and Shenshu (BL23) were added. For qi stagnation, Neiguan (PC6) and Xingjian (LR2) were included. Each session involved needle retention for 30 minutes, and treatment continued for three months. The study concluded that TCM acupuncture therapy significantly improved clinical outcomes for chloasma patients [11]. Acupuncture treats chloasma by stimulating the flow of qi and blood through the meridians, achieving both internal regulation and external treatment. This holistic approach addresses the root causes of the condition while alleviating its symptoms.

#### 3.2. Combined Surround Needling

The encircling needling method evolved from the ancient lifting needling technique. By surrounding the affected area with multiple needles, this method promotes qi and blood circulation, expels pathogenic factors, and dredges collaterals, making it particularly effective for refractory conditions. Compared to single-needle acupuncture, it provides a broader stimulation range and greater intensity, rendering it more suitable for localized body surface disorders [12]. The triple energizer serves as a pathway for the flow of qi, blood, and vital energy. Its smooth functioning significantly influences human physiological processes: The upper energizer regulates lung qi and

harmonizes qi movement. The middle energizer facilitates spleen and stomach functions, ensuring adequate qi and blood production. The lower energizer nourishes the liver and kidneys while regulating the thoroughfare and conception vessels. Building on the pathogenesis of chloasma, Professor Ni employs triple energizer adjustment to address the root cause. This approach combines percutaneous acupuncture and moxibustion to disperse nodules and eliminate spots, tailoring treatment to individual cases for precise efficacy. By emphasizing the lower energizer, Professor Ni developed a unique acupuncture protocol targeting core acupoints such as Danzhong (CV17), Zhongwan (CV12), Tianshu (ST25), Guanyuan (CV4), Qihai (CV6), Shuidao (ST28), and Guilai (ST29). When combined with facial encircling acupuncture, patients exhibit reduced spot boundaries and improved facial complexion post-treatment [13]. In a study by Huang Xiaofei et al. , 60 chloasma patients were divided into two groups. The control group received local surround needling alone, while the observation group received additional dialectical acupoint selection: Taichong (LR3) and Xingjian (LR2) for liver qi stagnation. Yinlingquan (SP9) and other points for spleen deficiency with dampness accumulation. In both groups, needles were retained for 30 minutes after insertion. Treatments were administered three times weekly for one month. Results demonstrated improvement in skin lesions across both groups, with the observation group achieving significantly superior clinical outcomes [14]. Despite these findings, recent studies on surround needling for chloasma remain limited, highlighting ample scope for future research.

### 3.3. Combined Auricular Points

The auricular point pressing bean method involves pasting a circular particle at the auricular point location, pressing it, and stimulating the point to prevent and treat diseases. Compared to traditional acupuncture, this method offers several advantages, including minimal pain, prolonged stimulation, and ease of adherence to treatment. As stated in the Huangdi Neijing: "The ear is the gathering place of the pulse. " The ear is closely connected to the five internal organs and the limbs [15]. In a study involving 56 patients with chloasma, Gongjia utilized acupuncture combined with auricular point stimulation. The treatment included selecting facial acupoints such as cheekbones and Yingxiang, as well as other commonly used acupoints for this condition. Based on the dialectical classification, corresponding acupoints were chosen, and needles were retained for 25 minutes per session. Acupuncture was performed every other day, with one month constituting a treatment cycle, totaling three cycles. The selected ear acupoints included the projection points of the five zang organs and endocrine points. Stimulation was achieved using the pressing pill method, where Chinese medicine seeds were affixed to small square tapes and applied to the correct positions. Patients were instructed to press and knead the area themselves, with slight pain as the desired level of stimulation, while maintaining hand hygiene. Only one ear was treated at a time, with the opposite ear being treated after three days. After three treatment cycles, the data revealed a total effective rate of 100%, including cured, markedly effective, and effective cases [16]. Based on the holographic theory of syndrome differentiation and the auricular acupressure bean method, combined with the specific condition of syndrome differentiation and treatment, Vaccaria seed ear stickers were used to apply pressure for overall conditioning [17]. In a study conducted by Mana and colleagues, 68 patients diagnosed with chloasma were randomly divided into two groups. One group received oral vitamin C and vitamin E as the control group, while the other group underwent experimental treatment combining acupuncture with auricular acupuncture. The acupuncture points selected included the five zang-organs shu and ge-shu, while the auricular points included endocrine, genitals, and the five zang-organs. After one treatment cycle, the results showed that the effective rate in the experimental group was 88.23%, significantly higher than that of the oral medication group (61.76%) [18]. Therefore, it is evident that stimulating and pressing the corresponding auricular points can yield better therapeutic

effects in the treatment of chloasma.

### **3.4 Combined with Traditional Chinese Medicine**

#### **3.4.1. Combined with Oral Administration of Traditional Chinese Medicine**

Oral administration of traditional Chinese medicine (TCM) is a widely used treatment method in clinical practice, known for its efficacy in managing various diseases. In a study conducted by Li Yanmei, 126 patients with chloasma caused by qi stagnation and blood stasis were divided into three groups: an acupuncture group treated with neck three-needle therapy, a Chinese medicine group treated with Sihong Quban Decoction, and a combination group receiving both acupuncture and oral TCM. After one treatment cycle, the effective rates were analyzed. The combination group achieved an effective rate of 92.86%, significantly higher than the acupuncture group (71.43%) and the Chinese medicine group (73.81%). Furthermore, the combination therapy demonstrated superior outcomes in reducing the area and pigmentation of skin lesions while improving skin elasticity and moisture compared to either treatment method alone [19]. These findings suggest that combining oral TCM with acupuncture not only alleviates skin lesions but also enhances overall skin condition, offering a more comprehensive therapeutic effect.

#### **3.4.2. Combined with External Use of Traditional Chinese Medicine**

Since chloasma primarily affects the superficial layers of facial skin, topical treatments such as TCM-based masks or ointments offer the advantage of directly targeting the affected area. In a study by Cai Donghua et al. , 200 patients with chloasma were randomly assigned to three groups: one treated with acupuncture alone, another with a self-made TCM mask, and a third with a combination of acupuncture and the TCM mask. After a period of observation, the combination group exhibited a higher effective rate and a lower incidence of adverse reactions compared to the control groups [20]. Similarly, Zhao Qiongnan et al. conducted a study involving 60 chloasma patients, dividing them into two groups. The control group was treated with an external application of Xiaoban Powder, a traditional Chinese medicine, for 30 minutes per session. The observation group received the same topical treatment combined with acupuncture at the Hegu (LI4) point. Each treatment course lasted 28 days, followed by a 2-day rest period before the next course. After two treatment cycles, the chloasma area and severity scores were compared. The results revealed that the observation group had a significantly higher total effective rate than the control group [21]. These studies highlight that combining acupuncture with topical TCM treatments not only enhances treatment efficacy but also reduces the likelihood of adverse reactions. This integrated approach provides a more effective and safer alternative to single-modality treatments for chloasma.

### **3.5. Combined with Moxibustion**

Moxibustion is a traditional Chinese medicine (TCM) therapy with a broad range of clinical applications and proven efficacy. In cases where acupuncture and medication alone are insufficient to address certain conditions, moxibustion can serve as a complementary treatment. Moxibustion is particularly effective in warming yang qi, promoting the flow of qi, and dredging meridians, making it a valuable addition to integrative therapies. In a study conducted by Lin Baozhen et al. , 100 patients with chloasma were randomly divided into two groups. The control group received conventional Western medicine treatment, including oral administration of vitamin C and vitamin E. The study group, on the other hand, was treated with thunder-fire moxibustion combined with acupuncture. Specific acupoints were selected for treatment, including local Ashi points, Quchi (LI11), Xuehai (SP10), Sanyinjiao (SP6), and Hegu (LI4) on the upper and lower limbs. Both groups underwent



treatment for 12 weeks. The results demonstrated that the combination of thunder-fire moxibustion and acupuncture was significantly more effective than Western medicine alone in treating female chloasma. This combined approach not only regulated qi and blood but also warmed and dredged the thoroughfare and conception vessels, leading to improved clinical outcomes [22]. In another study, Dou Zhongwei selected 60 patients with chloasma characterized by qi stagnation and blood stasis syndrome in TCM. These patients were evenly divided into two groups. The first group received acupuncture alone, while the second group was treated with a combination of acupuncture and moxibustion at the Shenque (RN8) point. The moxibustion preparation included herbal ingredients such as Radix Bupleuri, Cortex Citri Reticulatae, and Borneol. After 1.5 hours of moxibustion, the herbal mixture was retained in the navel for 6 hours. Acupuncture was performed 30 minutes after moxibustion, with common acupoints selected for routine operation. The study group underwent treatment twice a week for a total of 8 weeks, while the control group received treatment three times a week for the same duration. The final analysis revealed that the group receiving combined acupuncture and moxibustion therapy achieved significantly better results compared to the acupuncture-only group [23]. These studies highlight the synergistic effects of combining moxibustion with acupuncture in the treatment of chloasma. By integrating these therapies, practitioners can enhance the regulation of qi and blood, improve meridian function, and achieve superior clinical outcomes compared to single-modality treatments. This approach not only addresses the symptoms but also targets the underlying imbalances, offering a holistic and effective solution for patients with chloasma.

#### 4. Summary

Currently, there are various methods available for treating melasma, each with its own advantages and limitations. While acupuncture alone has demonstrated efficacy in managing melasma, combining acupuncture with other traditional Chinese medicine (TCM) therapies—such as auricular acupuncture, moxibustion, and internal and external herbal medicine—often yields superior results. These integrated approaches not only enhance therapeutic outcomes but also reduce the incidence of side effects, making them increasingly popular among patients and practitioners alike. However, several challenges and limitations remain in the current research and clinical practice of melasma treatment: (1) Limited Comparative Studies with Western Medicine: Most existing studies focus on comparing acupuncture with other TCM modalities, while there is a notable lack of research comparing the efficacy of TCM treatments with Western medical approaches. This gap makes it difficult to evaluate the relative strengths and weaknesses of TCM in the context of modern medical practices. (2) Incomplete Integration of TCM Principles: Current clinical evaluations of melasma treatment primarily rely on the improvement of localized skin lesions, such as changes in pigmentation and lesion area. However, these assessments often overlook the holistic principles of TCM, which emphasize the importance of analyzing systemic factors such as tongue appearance, pulse diagnosis, spirit (shen), and the balance of qi and blood. Integrating these TCM diagnostic criteria into clinical evaluations could provide a more comprehensive understanding of treatment efficacy. (3) Small Sample Sizes and Heterogeneous Syndromes: Many studies investigating melasma treatment involve relatively small patient populations and cover a wide range of TCM syndromes (e.g., qi stagnation, blood stasis, spleen deficiency, etc.). This heterogeneity makes it challenging to draw clear conclusions about the effectiveness of specific herbal formulations or combined therapies for particular syndromes. Larger, more targeted studies are needed to address this issue. (4) The above points highlight the need for future research to address these gaps and refine the application of acupuncture and TCM in melasma treatment. Key directions include conducting more comparative studies between TCM and Western medicine, incorporating holistic TCM diagnostic

criteria into clinical evaluations, and expanding the scale and specificity of research to better understand the effects of combined therapies for specific syndromes. By addressing these challenges, researchers and clinicians can further optimize the integration of acupuncture and TCM for the treatment of melasma, ultimately improving patient outcomes.

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