

# Seborrheic Dermatitis Treatment Using a Standardized Medical Insurance-Approved Korean Medicine: a case report

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**Background:** Conventional treatments for seborrheic dermatitis often lead to a recurring cycle of symptom improvement and worsening, resulting in chronic conditions. Thus, safer and more effective alternatives are needed. In Korean medicine, Hwangryunhaedok-tang tablets, targeted at treating the fire-heat syndrome, offer a more fundamental approach to manage seborrheic dermatitis.

**Clinical Features and Outcomes:** In this study, we monitored the changes in the symptoms of two patients with seborrheic dermatitis who were treated with Hwangryunhaedok-tang tablets. The patients were administered this medication during the treatment period. The effectiveness of the treatment was assessed by visually recording changes in the affected skin areas using photographs and evaluating symptoms such as heat, itching, and stinging in these areas using a visual analog scale (VAS). Visible improvements in the patients' skin conditions were observed after taking Hwangryunhaedok-tang tablets. Following treatment, VAS scores for subjective symptoms such as heat sensation, itching, and stinging in the affected areas decreased.

**Conclusion:** This study offers evidence of a potential alternative approach for treating seborrheic dermatitis using Kyungbang Hwangryunhaedok-tang tablets. However, it highlights the necessity for further research on the appropriate dosage, side effects, and long-term effectiveness of this treatment.

**Keywords:** Hwangryunhaedok-tang, Korean medicine, medical insurance, seborrheic dermatitis

## INTRODUCTION

Hwangryunhaedok-tang, a traditional Korean herbal formulation of *Coptis chinensis*, *Scutellaria baicalensis*, *Phellodendron amurense*, and *Gardenia jasminoides*, is recognized for treating fire-heat syndrome [1]. This medicine, with a clinical history of more than 2,000 years, traces its origins to Ge Hong's "Zhouhoubeijifang" [2]. Recent studies have shown that oral administration of Hwangryunhaedok-tang can reduce inflammation and itchiness in patients with atopic dermatitis [3-5] while topical application can improve skin lipid barrier regeneration, suppress inflammation, and promote skin regeneration

in patients with atopic [6] and contact dermatitis [7]. Although cases of seborrheic dermatitis treatment involving acupuncture with Hwangryunhaedok-tang or its modified prescriptions have been reported [8], studies demonstrating symptomatic improvement with standardized [9] insurance-approved Hwangryunhaedok-tang tablets (referred to as HC) are still lacking.

In this case report, we describe the case of two patients with seborrheic dermatitis whose condition improved significantly following treatment with HC.

## CASE PRESENTATION

### 1. Hwangryunhaedok-tang tablet (HC)

The Hwangryunhaedok-tang tablet (HC) (Kyungbang Pharmaceutical Co., Ltd) one of the fifty-six standardized Korean herbal medicines covered by South Korea's National Health Insurance, was administered to two patients. As shown in Fig. 1, the tablet was yellow-brown, oblong, and contained a mixture of concentrated extracts of specified herbs. Each tablet weighed 880 mg, and the recommended dose was two tablets (Table 1). Each dose was equivalent to 1.56 g of *Gardenia*, *Scutellaria*, *Coptis*, and *Phellodendron* in the form of dried aqueous extracts [10].

### 2. Case 1

A 38-year-old female visited Kyunghee Yeonkyoung Korean Medicine Clinic on June 16, 2022. She started intense exercise and replaced her regular meals with chicken breast meat in April 2022. One week into this new routine, she began to experience heat and stinging sensation on her face. On April 18, 2022, she was diagnosed with seborrheic dermatitis. Despite using oral and topical corticosteroids, her condition persisted and did not improve.

On her first visit to our clinic, her initial ratings for heat sensation, stinging, and itching were visual analog scale (VAS) 9, VAS 4, and VAS 3, respectively. Also, the considerable redness of her skin caused significant psychological stress in social settings.

From June 16 to June 27, 2022, the patient took HC three times a day, 30 min after meals. This regimen led to a notable reduction in the severity of her symptoms, with her VAS scores

for the sensation of heat, stinging, and itching decreasing to 4, 2, and 1, respectively. As shown in Fig. 2, a reduction in facial erythema was also observed.

As her condition improved, the HC dose was reduced to twice daily from June 28 to July 4, 2022. However, she stopped taking HC for 3 weeks because of COVID-19. During this interruption, her skin symptoms remained stable and did not worsen.

After her COVID-19 symptoms completely disappeared, she resumed taking HC tablets twice a day from August 6, 2022. At the time of her follow-up visit on August 30, 2022, her skin heat sensation had reduced to VAS 1, with no further complaints of stinging or itching. In addition, there was a visible improvement in the redness of the skin lesions, leading to the conclusion of her treatment (Figs. 2, 3).

### 3. Case 2

A 33-year-old male was presented for treatment on May 18, 2022, at Kyunghee Yeonkyoung Korean Medicine Clinic. His symptoms appeared in March 2022 following the topical application of a new moisturizing cream to his face, which led to sensations of heat and itching. On April 18, 2022, he was diagnosed with seborrheic dermatitis; however, even after 2 weeks of treatment with topical and oral corticosteroids, his condition showed no substantial improvement.

On his first visit, he reported sensations of heat, stinging, and itching on his skin, rated on a VAS score of 5, 6, and 4, respectively. His skin was visibly red and contained papules. From May 18 to June 17, 2022, he took HC thrice a day, 30 min after meals.

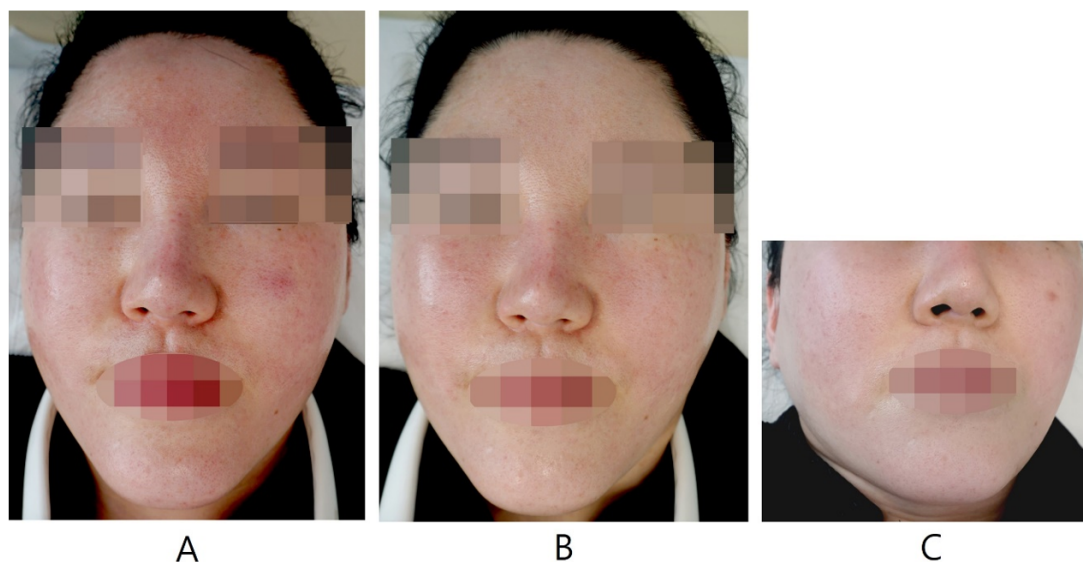
Following HC treatment, the self-reported VAS scores for the



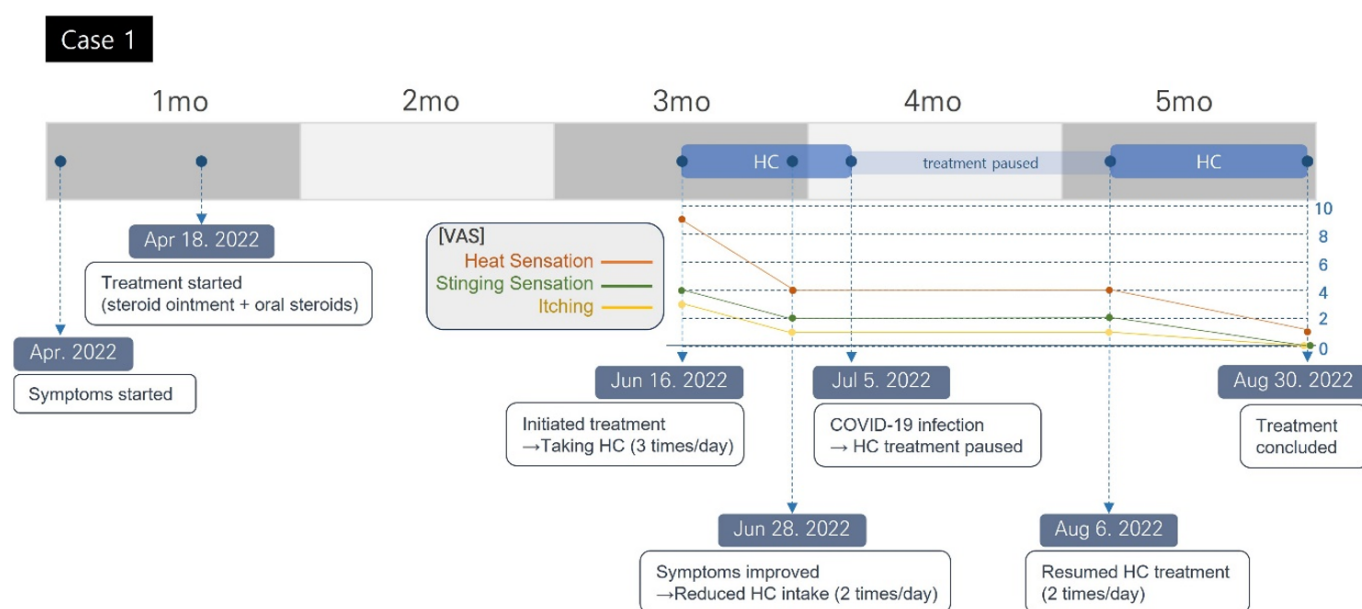
Figure 1. Photograph of Hwangryunhaedok-tang tablet (HC).

Table 1. Composition of Hwangryunhaedok-tang tablet (HC)

| Hwangryunhaedok-tang tablet ingredients | Name of extract                    | Quantity of herb (g) | Weight of extract (mg) |
|---|------------------------------------|----------------------|------------------------|
| Gardenia                                | Concentrated Gardenia extract      | 1.56                 | 368.94                 |
| Scutellaria                             | Concentrated Scutellaria extract   | 1.56                 | 524.63                 |
| Coptis                                  | Concentrated Coptis extract        | 1.56                 | 206.39                 |
| Phellodendron                           | Concentrated Phellodendron extract | 1.56                 | 389.84                 |



**Figure 2.** Progression of skin condition in case 1 throughout the treatment period (A: June 16, 2022; B: June 28, 2022; C: August 30, 2022).

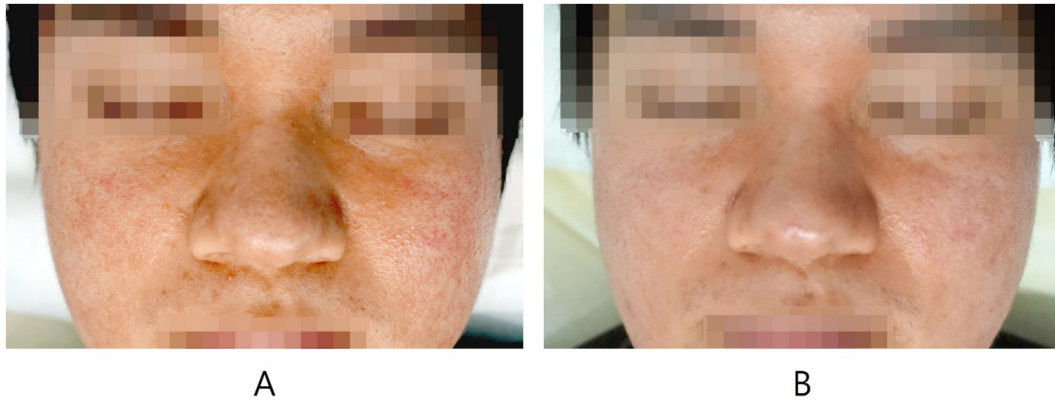


**Figure 3.** Timeline of case 1.

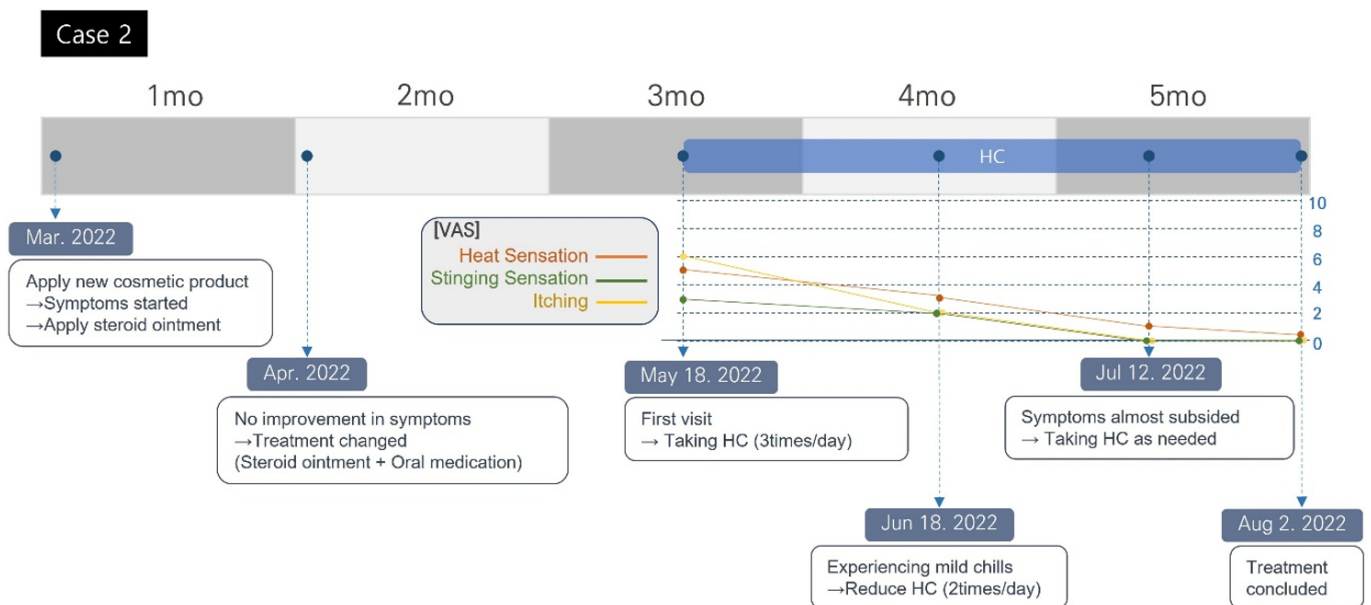
symptoms of heat, stinging, and itching decreased to 3, 2, and 2, respectively. However, no significant changes were observed in the visual appearance of the skin (Fig. 4). Unexpectedly, the patient experienced mild chills as a side effect, prompting a reduction in the HC dose to twice a day from June 18 to July 11, 2022.

Following dosage adjustment, the VAS scores of the patient's heat sensation, itching, and stinging improved significantly to 1, 0, and 0, respectively, and as shown in Fig. 4, there was a no-

table improvement in the appearance of the skin. However, he continued to experience abnormal heat sensations during exercise. Consequently, from July 12 to August 2, 2022, he took HC occasionally, amounting to five additional doses whenever he experienced heat sensations. This tailored treatment approach led to a substantial improvement in his condition, allowing him to return to normal daily activities, thereby concluding the treatment.



**Figure 4.** Progression of skin condition in case 2 throughout the treatment period (A: May 18, 2022; B: July 12, 2022).



**Figure 5.** Timeline of case 2.

## DISCUSSION

Seborrheic dermatitis, a persistent inflammatory skin disorder, commonly affects the face, scalp, and the upper body [11]. Although the precise causes of seborrheic dermatitis are unclear, excess sebum production, fungal infection, irregular neurotransmitter metabolism, aberrant epidermal growth, environmental factors such as temperature and humidity, and stress are all recognized contributing factors [10, 12]. This condition frequently appears in body regions with a high density of sebaceous glands [13]. Characterized by erythema, scaling, and itching, seborrheic dermatitis typically exhibits a pattern of episodic worsening and improvement. Notably, the face, particularly the cheeks, nose, and forehead, is prone to papular rashes

in patients with seborrheic dermatitis [11-13].

Topical ointments are the primary treatment approach, encompassing antifungal agents against *Malassezia*, anti-inflammatory drugs, and corticosteroids [14], particularly for the treatment of facial areas [11]. Although frequent use of antifungal medications is generally safe, the main concern is the risk of developing contact dermatitis due to their long-term use. Topical steroids are often used in combination with antifungal medicines; however, their extensive use can cause skin atrophy and hypertrichosis, thus, requiring judicious application [13]. Moreover, symptom recurrence and resistance following steroid discontinuation often necessitate the use of higher steroid doses or increased application frequency, adding complexity to the treatment [15, 16]. Calcineurin inhibitors that have immuno-



modulatory and anti-inflammatory properties can reduce skin inflammation, but their prolonged use is associated with the risk of developing skin cancer and lymphoma [11-13]. Despite the availability of these treatments, recurrent and chronic progression of seborrheic dermatitis underscores the need for safer and more effective approaches.

Our patients diagnosed with seborrheic dermatitis at dermatology clinics experienced no improvement with conventional treatments and thus sought alternative options. They reported symptoms such as itching, heat sensation, stinging, and visible red papules on the skin. In Korean medicine, these symptoms are categorized as fire-heat syndrome and are treated using the approach of “draining fire and resolving toxins.” Hwangryunhaedok-tang, a primary formulation for this treatment method [17], was administered to our patients in tablet form (HC).

During the treatment, the second patient experienced chills as a side effect due to the “draining fire and resolving toxins” effect of HC, although both patients displayed significant improvements in their self-reported symptoms and the observable state of their skin lesions.

Several studies have investigated the mechanism of action of HC in skin inflammation. In rats with dermatitis, oral administration of HC significantly lowered serum IgE levels and reduced epidermal thickness [7]. In animals with induced atopic dermatitis, HC suppressed Th-2 cell differentiation by reducing IL-3 and IL-4 levels [3, 6], exhibited anti-inflammatory effects by decreasing p-IkB and iNOS levels, and enhanced the regeneration of the skin lipid barrier by increasing loricrin and filaggrin levels [6]. HC also improves atopic dermatitis symptoms by inhibiting the MAPKs and Nf-kB pathways, thus reducing epidermis thickness [5]. Additionally, it suppresses histamine release from rat peritoneal mast cells, thereby alleviating itching, reducing leukocyte infiltration, and improving swelling due to inflammation [18].

These findings indicate that HC possesses anti-inflammatory, skin barrier protective, and regenerative properties. Given that existing treatments for seborrheic dermatitis, such as the use of anti-inflammatory drugs, corticosteroids, and calcineurin inhibitors, have similar effects, HC could be an alternative and effective drug for this condition.

HC used in this study is one of the fifty-six standardized Korean herbal medicines approved for health insurance coverage in South Korea. The use of this standardized medicine ensures consistency and enhances the reliability of our study since it negates the variations that could arise during the manufacturing

process. Also, the inclusion of HC in health insurance coverage makes it an economical treatment option. A single dose of HC costs approximately 333 Korean Won, reducing the financial burden on patients.

Our study has several limitations. This study was conducted in a primary care setting where long-term follow-up of patients is challenging. Therefore, it is difficult to assess the treatment efficacy of HC. Moreover, while HC is designed to “drain fire and resolve toxins” as per Korean medical principles, it could exhibit unintended side effects such as chills in some patients. Nevertheless, this study is the first to document improvements in seborrheic dermatitis symptoms following HC administration, highlighting the need for further research on its appropriate dosage, potential side effects, and effectiveness.

## CONCLUSION

HC is effective in the treatment of symptoms in patients with seborrheic dermatitis. However, further studies are needed to standardize the treatment approach and control the side effects of HC.

## PATIENT PERSPECTIVE

### 1. Case 1

“I struggled with intense heat on my face and nightly itching and stinging, which made sleeping difficult. Despite initial concerns about the cost of herbal treatment, taking HC, which benefits from health insurance coverage, allowed me to affordably alleviate my discomfort.”

### 2. Case 2

“Being new to herbal treatments, I was satisfied with the visible improvement in my skin’s brightness and texture. The unexpected experience of chills during the treatment emphasizes the strength of herbal medicine, making it a surprising and enlightening experience.”

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## ETHICAL APPROVAL

This study was reviewed and approved by the Institutional Review Board of Pusan National University (Reference No. PNU IRB/2022\_179\_HR). Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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