

# Effect of Korean medicine as add-on therapy to phototherapy for psoriasis

## Two case reports

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### Abstract

**Rationale:** Psoriasis is a common chronic, immune-mediated inflammatory skin disease. Here, we describe 2 patients who presented with psoriasis to illustrate the potential efficacy of Korean medicine treatment combined with phototherapy.

**Patient concerns:** A 33-year-old female (Case 1) and a 37-year-old male (Case 2) presented at the clinic with symptoms of itching, erythema, and scaliness.

**Diagnosis:** Both patients were diagnosed with psoriasis based on the locations of erythema, as well as the appearance of circumscribed scaly papules and plaques.

**Interventions:** Patients underwent 5 months (Case 1) and 8 months (Case 2) of treatments with acupuncture, herbal medicine, probiotics, and phototherapy.

**Outcomes:** After treatment, the patients improved in Psoriasis Area and Severity Index score from 7 to 1.2 (Case 1), and 23.2 to 2.2 (Case 2).

**Lessons:** These outcomes suggest that Korean medicine therapies combined with phototherapy may be effective for resolution of psoriasis; however, further research is needed to confirm these findings.

**Abbreviations:** PASI = psoriasis area and severity index, VAS = visual analogue scale.

**Keywords:** acupuncture, herb medicine, Korean medicine, phototherapy, probiotics, psoriasis

## 1. Introduction

Psoriasis is a common chronic, immune-mediated inflammatory skin disease. It ranges in severity from a few scattered red, scaly plaques to involvement of virtually the entire body surface.<sup>[1]</sup> Estimates of the worldwide prevalence of psoriasis range from 2% to 3%.<sup>[2]</sup> Similarly, psoriasis is estimated to affect approximately 1.5 million individuals in South Korea, with an

increasing yearly prevalence.<sup>[3]</sup> Although it is generally not life-threatening, psoriasis can have a profound impact on physical, psychological, and social well-being,<sup>[4]</sup> currently, there is no curative treatment. Conventional medications, such as methotrexate, steroids, acitretin A, and cyclosporine, are restricted for long-term use, due to limited efficacy and/or various potential side effects.<sup>[2]</sup> Phototherapy alone has some undesirable side effects, including erythema and pruritus.<sup>[5]</sup> Therefore, complementary and alternative medicine use is common among psoriasis patients, with prevalence estimates varying between 42% and 69%.<sup>[6]</sup> Similarly, Korean medicine therapies, which include acupuncture and herbal medicine, have been widely used as an important approach for treatment of psoriasis in South Korea.<sup>[7–9]</sup> In addition, a previous study reported that Chinese herbal medicine combined with phototherapy was superior to phototherapy alone in the treatment of psoriasis.<sup>[5]</sup> Here, we report 2 cases in which patients with psoriasis were successfully treated using Korean medicine therapies combined with phototherapy.

## 2. Case presentation

This study included 2 patients with psoriasis who were treated at the Haneul Maeum Korean Medicine Clinic (Seoul, South Korea). The Institutional Review Board of the Korean Institute of Oriental Medicine approved this study (KIOM I-1708/001-004-01), and informed written consent was obtained from the patient for publication of this case report and accompanying images.

### 2.1. Case 1

A 33-year-old female presented at the clinic with a diagnosis of psoriasis, with symptoms of itching (visual analogue scale, VAS

Editor: N/A.

S-RL and SK contributed equally to this work.

This work was supported by a grant from the Korea Institute of Oriental Medicine (K18121).

The authors have no conflicts of interest to disclose.

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Medicine (2019) 98:11(e14526)

Received: 25 September 2018 / Received in final form: 12 January 2019 /

Accepted: 23 January 2019

<http://dx.doi.org/10.1097/MD.0000000000014526>

**Table 1**

**Clinical profile of patients with psoriasis.**

Case no.	Age/sex	Duration of the disease (year)	Progression (year)	Smoking	Treatment period (months)	Heat or Cold symptoms
1	33/F	7	2	-	8	Sensitive to cold, prefer to drink warm water, less sweat
2	37/M	4	Unknown	+	5	Sensitive to hot, normal sweat.

F=female, M=male.

7), erythema (VAS 7), and scaliness (VAS 7) (Table 1, Fig. 1). Approximately 7 years prior, erythema had begun on her chest; it gradually expanded to the whole body, including the arms and legs. She had taken betamethasone for an extended period of time, but experienced no effects from that treatment. She liked to eat meat, bread, noodles, and junk food, and preferred to drink warm water. She exhibited minimal perspiration. She defecated once per day, and her stool was solid. Her forehead and hands were warm, indicating upper body heat.

She underwent treatments with acupuncture, herbal medicine, probiotics, and phototherapy. All prescriptions were prepared and administered by a Korean medicine doctor with 20 years of experience.

She was diagnosed with “blood heat syndrome,” a pathological change in which exuberant heat or fire enters the blood; this manifests as redness, solid stool, and upper heat sign.<sup>[10]</sup> Yangdokbagho-tang, a heat-clearing and blood-cooling medicine, was prescribed (Table 2). The dose prescribed was dependent on the degree of redness, as well as cold and heat symptoms (Table 1). The Herbs were administered 3 times per day, after each meal.

Acupuncture needles (0.25 mm diameter, 30 mm length; Dong Bang, Gyeonggi-do, South Korea) were manually inserted intramuscularly on CV12, CV4, and both sides of LI4, LR3, and ST25. Acupuncture treatment was provided twice per week; needle retention time was 15 min. Probiotics were prescribed daily to improve gastrointestinal function and intestinal permeability (Table 3).

Phototherapy (Photo Therapy Unit, UV 990 NB, Choyang-medics, South Korea) was used 1 or 2 times per week. Phototherapy was applied to the whole body. Initially, only a 45-second exposure was used; this was gradually increased to 2 to 3 minutes, using increments of 5 seconds. If the patient

experienced discomfort after phototherapy, including skin rash or tingling, the duration of exposure was readjusted. For diet, organic meats, fish, and tofu were recommended, and processed food was forbidden.

The patient stopped taking steroids after starting Korean Medicine treatment. Due to the rebound effect of the drug, her psoriasis symptoms were aggravated after 1 month. After 2 months, although the area of redness had increased, the degree of redness had improved (Figs. 1 and 2).

To assess the efficacy of the treatment(s), the severity of psoriasis was evaluated by a blinded assessor using the Psoriasis Area and Severity Index (PASI), which is a measure of overall psoriasis severity and coverage that assesses body surface area involved in the disease, as well as the extent of erythema, induration, and scaliness.<sup>[11]</sup>

After treatment, symptoms of erythema, scaliness, itching, and oozing resolved. The PASI scores of the patient decreased after treatment from 7 to 1.2 (Fig. 1); photographs of psoriasis before, during, and after treatment are shown in Fig. 2.

To assess the safety of the treatment, liver function tests were performed, including assessment of aspartate aminotransferase (glutamic-oxaloacetic transaminase) and alanine aminotransferase (glutamic-pyruvic transaminase). Normal liver function values were confirmed before, during, and after treatment; the results are summarized in Table 4.

**Table 2**

**Composition of herbal medicines: Yangdokbagho-tang.**

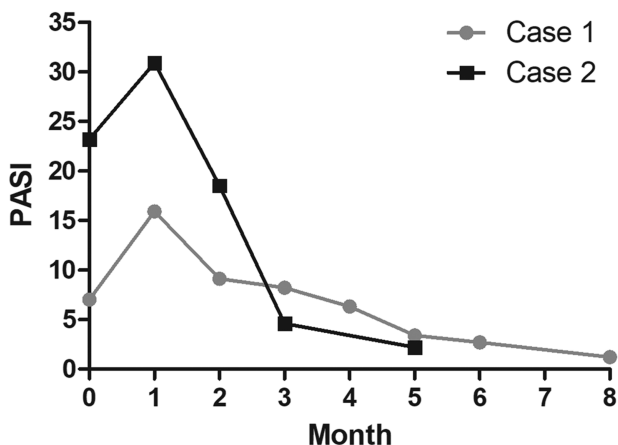
Latin name	Dose (g) <sup>*</sup>	
	Case 1	Case 2
<i>Gypsum Fibrosum</i>	100	200
<i>Rehmanniae Radix Crudus</i>	80	160
<i>Anemarrhenae Rhizoma</i>	40	80
<i>Schizonepetae Spica</i>	20	40
<i>Saposhnikoviae Radix</i>	20	40
<i>Arctii Semen</i>	20	40

<sup>\*</sup> The indicated dose is the weight of each herb to be taken by an adult per month.

**Table 3**

**Probiotics used in this study.**

Probiotic
<i>Lactobacillus casei</i>
<i>Lactobacillus rhamnosus</i>
<i>Enterococcus faecium</i>
<i>Bifidobacterium animalis ssp. lactis</i>
<i>Bifidobacterium longum</i>
<i>Lactobacillus gasseri</i>
<i>Lactobacillus acidophilus</i>



**Figure 1.** Changes in psoriasis area and severity index (PASI).



**Figure 2.** Psoriasis of the patient in Case 1 before, during, and after treatment. A, Before treatment, psoriasis area and severity index (PASI) was 7. B, After 1 month of treatment, PASI was 15.9. C, After 2 months of treatment, PASI was 9.1. D, After 3 months of treatment, PASI was 8.2. E, After 4 months of treatment, PASI was 6.3. F, After 5 months of treatment, PASI was 3.4. G, After 6 months of treatment, PASI was 2.7. H, After 8 months of treatment, PASI was 1.2.

**2.2. Case 2**

A 37-year-old male presented at the clinic with a diagnosis of psoriasis, with symptoms of itching (VAS 5), erythema (VAS 10), scaliness (VAS 10), and oozing (VAS 5) (Table 1, Fig. 3). Approximately 4 years prior, erythema had begun on his knee and chest; it gradually expanded to the whole body, including the penis, except the face. He took steroids for 1 year, but discontinued them because of the lack of response. He was unable to sleep well due to the itching. He drank both warm and cool water, and his perspiration was normal. He defecated once per day, and his stool was solid. His forehead was warm, indicating upper body heat (Table 1).

As in Case 1, this patient was diagnosed with “blood heat syndrome”; received acupuncture, herb medicine (Yangdokbagho-tang), probiotics, and phototherapy in the same manner as the patient in Case 1 (Tables 2 and 3).

He had difficulty in sleeping due to the itching for the first month of treatment. After 2 months, he was able to sleep well, and the degree of redness improved, although its extent increased slightly. He experienced no difficulties after 3 months of treatment. After treatment, he showed improvement of itching,

erythema, scaliness, and oozing. The PASI scores of the patient decreased from 23.2 to 2.2 (Fig. 1); photographs of psoriasis before, during, and after treatment are shown in Fig. 3. Liver function test values were normal before and after treatments (Table 4).

**3. Discussion**

We have described 2 cases in which patients demonstrated improvement in psoriasis after treatment using Korean medicine therapies combined with phototherapy. In Korean medicine, many symptoms of psoriasis are attributed to “blood heat syndrome.” The herbal drug Yangdokbagho-tang is a heat-clearing and blood-cooling medicine that has previously been reported to provide benefits in patients with chronic, inflammatory skin diseases, including psoriasis<sup>[12]</sup> and atopic dermatitis<sup>[13]</sup>; moreover, it has demonstrated inhibitory effects on immune hypersensitivity reactions in skin-transplanted mice.<sup>[14]</sup> In addition, *Rebmanniae Radix Crudus* is prescribed to eliminate pathogenic heat from the blood, and *Saposhnikovia Radix* is prescribed to relieve exterior syndrome by dispersion; these are among the most frequently used herbs in nourishing yin

**Table 4**  
Liver function test values before and after treatment(s).

Patient	Before treatment		After treatment	
	AST (GOT) <sup>*</sup> (IU/L)	ALT (GPT) <sup>†</sup> (IU/L)	AST (GOT) <sup>*</sup> (IU/L)	ALT (GPT) <sup>†</sup> (IU/L)
1	19.3	16.2	26.1	26.1
2	25.9	19.5	24.1	19.2

ALT = alanine aminotransferase, AST = aspartate aminotransferase, GOT = glutamic-oxaloacetic transaminase, GPT = glutamic-pyruvic transaminase.

<sup>\*</sup> Normal range: male < 40, female < 33.

<sup>†</sup> Normal range: male < 41, female < 32.



**Figure 3.** Psoriasis of the patient in Case 2 before, during, and after treatment. A, Before treatment, psoriasis area and severity index (PASI) was 23.2. B, After 1 month of treatment, PASI was 30.9. C, After 2 months of treatment, PASI was 18.5. D, After 3 months of treatment, PASI was 4.6. E, After 5 months of treatment, PASI was 2.2.

treatment for skin disease.<sup>[15]</sup> Interestingly, the PASI of both patients increased at 1 month after treatment began, but decreased with continued treatment. We speculate that this was a result of the rebound phenomenon after discontinuation of steroids,<sup>[16]</sup> and the process of dispelling heat.

The effectiveness of acupuncture for psoriasis has been demonstrated in previous studies.<sup>[17]</sup> In a review article, Coyle et al<sup>[18]</sup> reported promising evidence supporting the efficacy of acupuncture for psoriasis; notably, an increasing number of individuals have achieved clinically significant and statistically significant improvement. Recently, intestinal permeability has been suggested as a primary factor in the pathogenesis of psoriasis.<sup>[19]</sup> In this hypothesis, thinning of the walls of the intestine enables toxic products to leak from the intestinal tract into the circulation; these toxic products then elicit a systemic immune response that results in psoriatic lesions.<sup>[20]</sup> Acupuncture has the potential to improve gastrointestinal function by regulating gastrointestinal motility, the gastrointestinal barrier, and visceral sensitivity.<sup>[21]</sup> Thus, acupuncture may be beneficial for treatment of psoriasis.

Probiotics and wholesome foods are known to be effective in patients with psoriasis. Importantly, patients with psoriasis exhibit

increased bowel permeability and abnormal intestinal mucosal structure.<sup>[19]</sup> The live microorganisms in probiotics confer health benefits to the host, including reinforcement of the barrier function of the epithelium and regulation of immune responses.<sup>[22,23]</sup> In addition, a previous study reported that special diets may be effective in patients with psoriasis<sup>[20]</sup>; Pagano<sup>[24]</sup> suggested that wholesome diets may laid in healing of the intestine.

There were limitations in this case series. We used combined therapies, including a complex formulation of herbs, acupuncture, probiotics, and phototherapy. It is difficult to determine which therapy provided the greatest contribution. Nevertheless, this study is the first case series involving psoriasis patients treated with Korean medicine therapies combined with phototherapy. Our findings suggest that it would be worthwhile conducting further studies regarding the effects of Korean medicine therapies for psoriasis.

#### Author contributions

**Conceptualization:** Sam-Ro Lee, Jun-Hwan Lee, Dong-Hyo Lee.  
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**Supervision:** Jun-Hwan Lee, Dong-Hyo Lee.

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**Writing – review & editing:** Sungha Kim, Chul-Eun Park, Jun-Hwan Lee, Dong-Hyo Lee.

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