

# Therapeutic Potential of Hirudotherapy (Irsāl-i-‘Alaq) in the Management of Plaque Psoriasis: A Case Study

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## Therapeutic Potential of Hirudotherapy (*Irsāl-i- 'Alaq*) in the Management of Plaque Psoriasis: A Case Study

### Abstract:

Psoriasis is a widely prevalent, chronic, inflammatory, disfiguring, and autoimmune skin disorder marked by intermittent exacerbations and global distribution. The prevalence is highest among Europeans and lowest among East Asians. In classical Unani literature, various terminologies are used to describe psoriasis and its manifestations, including *Qoob-i-Mutaqashshira*, *Taqashshur al-Jild*, *Talaq*, and *Qashaf al-Jild*. As per Unani understanding, the condition is believed to stem from an imbalance in bodily humors primarily an abnormal state of *Khilt-e-Sauda* (black bile) or *Safra Ghair Tabai* (morbid yellow bile), involving qualitative and quantitative disturbances that contribute to the disease pathology. This case study focuses on a 35-year-old female patient diagnosed with Plaque Psoriasis, confirmed through detailed history-taking, physical examination, and clinical presentation. She underwent weekly sessions of leech therapy (*Irsal-i-Alaq*) for eight consecutive weeks. In each session, a total of six leeches were applied—three on each leg, including two leeches at the adjacent to the affected knee site and one at the foot on the same leg. The procedure was repeated after a gap of seven days for a total of eight sittings, and the patient was subsequently followed for next two months. Therapeutic response was quantified using the site-specific Psoriasis Area and Severity Index (PASI), which showed a significant reduction from a baseline score of 22.8 to 1.1 at the end of treatment, indicating approximately 95% clinical improvement. Notably, there was complete resolution of pruritus and scaling, with marked reduction in erythema and induration. These results suggest that hirudotherapy is a safe, well-tolerated, and efficacious Unani intervention for the management of psoriasis.

**Keywords:** *Unani Medicine*, *Irsāl-i- 'Alaq* (Leech Therapy), *Da ' al-Šadaf* (Psoriasis), *Taqashshur-i-Jild*, *Ta 'līq al- 'Alaq*, *Regimenal Therapy*

### Introduction:

Psoriasis is a prevalent, chronic, disfiguring, inflammatory, and autoimmune skin disorder with a global footprint. Its prevalence is highest among European populations and lowest among East Asians. Skin disorders, including psoriasis, affect individuals across all age groups and are estimated to impact around 125 million people worldwide, with prevalence rates ranging between 30 to 70 per 10,000 individuals. The term "psoriasis" originates from the Greek words *psora* or *psorin*, meaning "itch" or "to itch," respectively.<sup>1</sup>

Globally, the prevalence of psoriasis varies widely, reported between 0.09% and 11.4% in different countries. In India, the condition affects approximately 0.44% to 2.8% of the adult population.<sup>2</sup> Some studies suggest that males are affected nearly twice as often as females, with most cases occurring during the third or fourth decade of life. Although psoriasis can manifest at any age, it is relatively rare in children under the age of five.<sup>3</sup> Clinically, psoriasis is recognized as an autoimmune inflammatory disease characterized by the presence of erythematous plaques and macules, resulting from

accelerated keratinocyte proliferation and impaired differentiation of epidermal cells. These lesions are often covered with silvery-white scales.<sup>3</sup>

From the Unani medicine perspective, psoriasis is attributed to a derangement in the body's humoral balance, particularly due to qualitative and quantitative abnormalities in *Khilt-e-Sauda* (black bile) or *Safra Ghair Tabai* (abnormal yellow bile), which are considered the root causes of the disease. The precise pathogenesis of psoriasis remains unclear; however, it is believed to result from a complex interplay of genetic predisposition and environmental triggers. Contributing factors may include psychological stress, HIV infection, skin trauma, alcohol intake, tobacco use, cold climates, dietary habits, obesity, and the use of certain medications such as interferons, lithium, beta-blockers, and antimalarial drugs.<sup>4,5</sup>

Management of psoriasis requires a multifaceted approach that incorporates both systemic and topical therapies, along with attention to the patient's physical and psychological well-being. Topical treatment options include coal tar preparations, dithranol, topical calcineurin inhibitors, corticosteroids (both topical and intralesional), analogs of vitamins A and D, ultraviolet (UV) phototherapy, and psoralen combined with UV-A (PUVA) therapy. In contrast, systemic therapies encompass drugs such as methotrexate, hydroxyurea, oral retinoids, cyclosporine, systemic corticosteroids, fumaric acid esters, and tumor necrosis factor-alpha (TNF- $\alpha$ ) inhibitors.<sup>6</sup> Despite the wide availability of oral and topical agents, the long-term management of psoriasis poses challenges for dermatologists due to the potential for adverse effects and a high rate of disease recurrence.

Classical Unani texts offer diverse terminologies and approaches for managing *Taqashshur-i-Jild* (skin desquamation). Alongside herbal and mineral-based formulations, considerable importance is given to various regimenal therapies (*Ilaj bit Tadbeer*), such as *Fasd* (venesection), *Ishaal* (therapeutic purgation), *Dalk* (massage), *Irsāl-i-'Alaq* (leech therapy), and *Hammam* (therapeutic bath).<sup>7,8</sup>

#### **Aim and objective of the case study:**

Efficacy of leech therapy in the management of psoriasis.

#### **Type of study:**

Observation study (A Case report).

#### **Study center:**

Department of Ilaj Bit Tadbeer, Ajmal Khan Tibbiya College and hospital, AMU, Aligarh, India.

#### **Case history:**

##### **History and Presentation**

A 35-year-old otherwise healthy female presented with a 10-year history of red, rough patches distributed across her body. Over time, the lesions became more localized, predominantly affecting the knees and the dorsal aspects of the feet, where they appeared as pruritic papules. The itching progressively worsened over the years. She

also reported the development of new lesions at sites of minor trauma, suggestive of the Koebner phenomenon. Additionally, the condition showed seasonal variation, with exacerbation during winter and noticeable improvement in summer.

She previously consulted a dermatologist but did not achieve significant relief. Upon dermatological examination, the lesions appeared as sharply defined, red, scaly plaques covered with loosely adherent silvery-white scales, predominantly affecting the extensor surfaces of the limbs. Scraping of the lesions revealed punctate bleeding spots. The patient denied any history of infection preceding the onset of the condition. However, she had a family history of psoriasis, as her mother was also affected.

Based on the clinical findings, the patient was diagnosed with Taqashshur-i-Jild (psoriasis). Prior to the initiation of the study, baseline investigations routine hematological investigation hemogram, LFT, KFT, bleeding time and clotting time, hepatitis B surface antigen (HbsAg) were performed to assess any underlying systemic pathology which were in normal range.

The patient had no history of diabetes, hypertension, or any other chronic debilitating condition. Subjective parameters assessed included erythema, induration, scaling, and itching. Objective evaluation was conducted using the Psoriasis Area and Severity Index (PASI) and a comparative analysis of pre- and post-treatment photographs.

#### Intervention:

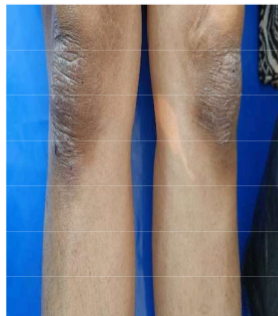
A total of eight sessions of leech therapy were administered over a period of eight consecutive weeks, with one session conducted each week. In every session, after thorough cleansing of the target area, a total of six leeches were applied near the affected regions—specifically, two leeches adjacent to the affected site of each knee and one leech near to each affected site of the foot. Over the course of the therapy, marked clinical improvement was observed. Furthermore, the patient reported significant relief from itching in the leech-applied sites.



Base line



15<sup>th</sup> day



30<sup>th</sup> day



45<sup>th</sup> day



60<sup>th</sup> day



Follow-up visit



Base line



45<sup>th</sup> day



60<sup>th</sup> day

Leeches were allowed to suck the blood for 30-45 minutes. The wounds caused by leeches were cleaned thoroughly with normal saline and dressing was done with betadine solution. An additional amount of blood (20-30ml) was lost due to slow and continuous oozing which lasted for some hours, if bleeding didn't stop by itself. No adverse effect reported.

**Duration of treatment:** Eight Weeks

**Follow-up:** Weekly follow-ups were conducted for eight weeks, followed by intermittent OPD and telephonic follow-ups over the next two months to assess any recurrence.

**Criteria for assessment**

**Psoriasis Area and Severity Index (PASI)**

This presents the classification system used to interpret PASI scores, which categorizes the condition based on clinical severity. The PASI score was determined at baseline and re-evaluated upon completion of the treatment protocol.

To quantify the therapeutic effect of *Irsal-e-Alaq* (hirudotherapy), a site-specific Psoriasis Area Severity Index (PASI) was used for bilateral knees and feet—the areas affected and treated. Each lesion was assessed for erythema, induration, scaling, and surface area involvement. At baseline, the cumulative site-specific PASI was calculated as 22.8, indicating moderate-to-severe lesion severity. Following eight weekly sessions of leech therapy, the PASI score significantly declined to 1.1, reflecting substantial clinical improvement, particularly in reduction of erythema, plaque thickness, silvery scaling, and itching and with subsequent two months follow up no recurrence reported.

#### Discussion:

Leech therapy has a long history of medicinal application dating back to ancient Egypt and is still in use in reconstructive surgery. Galen advocated the use of leech therapy as a means to restore equilibrium within the humoral system, whereas the esteemed Greco-Arabic scholar Ibn Sina recommended leeching as an effective method for extracting blood from deeper tissues of the body.<sup>(9)</sup> Psoriasis is a T cell-mediated autoimmune disorder, initiated by various environmental factors that stimulate T cells to produce cytokines. These cytokines exhilarate keratinocyte proliferation and hence engendering antigenic adhesion substances in the dermal blood vessels. These adhesion substances further stimulate T cells thus persevering the response.<sup>(10)</sup> The clinical improvement was observed more in the areas exposed to leech therapy. It may be due to local detoxification from morbid humor especially khilt-i-sauda (Atrabilious humor) from the area of leech application. Leech therapy's potential therapeutic impact could be attributed to specific enzymes known for their anti-inflammatory, antioxidant, and immune-modulating actions. Additionally, its saliva contains histamine-like elements that promote vasodilation, expediting the elimination of inflammatory substances from the treated area.<sup>(11)</sup> Furthermore, better removal of impure blood from the respective part under the influence of hirudin, hyaluronidase, amylase, collagenase, C stabilizer, factor Xa inhibitor, and carboxypeptidase A inhibitor.<sup>(12)</sup> Recent research on Studies on Malaysian leeches have identified antioxidant compounds in their saliva, which may contribute to lesion relief. This therapeutic potential is further supported by recent findings highlighting elevated levels of oxidized low-density lipoprotein in affected tissues. Moreover, psoriasis is an immune-mediated disorder, hence the immunomodulatory activity of leech saliva may play a role.<sup>(13)</sup>

#### Conclusion:

Classical Unani texts describe leech therapy as an effective remedy for various skin disorders, including psoriasis, flavus, eczema, and chronic ulcers. This case study highlights that leech therapy serves as a viable alternative for managing psoriasis. The findings of this study further confirm its effectiveness in treating the condition.

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