

Anti Psoriatic Effect of Leech Therapy in Psoriasis - A Case Report

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Abstract

Taqashshur Jild (Psoriasis) is a common, genetically determined and inflammatory skin disorder of unknown cause which affects 1-3 percent of world's population. Despite the advancement in modern pharmacotherapy, the figure in terms of remission and recurrence of disease, withdrawal symptoms and adverse side effects grossly suggest the limitation in its management. Unani physicians have been successfully treating Psoriasis (*Taqashshure Jild*) through *Irsale Alaq* (leech therapy) since ancient times but lacks scientific documentation. Hence, it was decided to carry out a case report to evaluate the safety and efficacy of leech therapy (*Hirudinaria granulose*) in a case of Psoriasis on scientific parameters. Diagnosis was made on the basis of clinical presentation. Primary outcome measure was based on VAS and PASI. Secondary outcome measure was evaluated by VAS sub score and VAS total score during the study with photographic evidence. Leech therapy was found to have significant effect in the treatment of Psoriasis. PASI was found to be significant. Further, no side effect was observed during and after the study.

Keywords: Case report; *Irsale Alaq* (leech therapy); Psoriasis; *Taqashshur Jild*

Psoriasis is a chronic inflammatory skin disorder clinically characterized by erythematous, sharply demarcated papules and rounded plaques, covered by silvery micaceous scale. Raised patches of dead skin develop on the arms, back, chest, elbows, legs, nails, folds between the buttocks and scalp because Psoriasis causes skin cells to mature in less than a week and the body cannot shed the old skin as rapidly as new cells rise to the surface. It is often precipitated by trauma, emotional stress, winter season, infections, medication etc. (Valia et al. 2010)

Current recommendations for managing Psoriasis focus on relieving symptoms i.e pain and itching rather than cure. Treatment options for Psoriasis are non-pharmacologic therapy i.e Emollients and Balenotherapy and pharmacologic therapy i.e topical pharmacotherapy as Salicylic acid Topical Corticosteroids and Vitamin D3 Analogues (Valia et al., 2010; Wells et al., 2009). Second-line topical pharmacotherapy as Coal Tar and Anthralin (Longo et al., 2012), first-line systemic pharmacotherapy as Inflixmab and Etanercept and the second-line systemic pharmacotherapy as Acitretin, Cyclosporine and Methotrexate were used (Valia et al., 2010; Wells et al., 2009). Phototherapy as UVB (290 to 320 nm) is often used in treating Psoriasis (Longo et al., 2012). Side effect of these treatments are erythema, photoaging, dry skin and pigmentation (Khanna., 2011). Photochemotherapy i.e. PUVA which means administration of psoralens and subsequent long wave UVA radiation. Commonly used psoralen is 8-methoxy psoralen (8-MOP) in a dose of 0.6 mg/kg on alternate days or 4, 5, 8 trimethoxypsoralen (Wells et al., 2009). Side effects of this treatment are Nausea, vomiting, headache, drug fever, cataract and hepatitis (Marks, 2003). These traditional therapies are often ineffective and may cause unwanted and

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severe side effects. These disadvantages warrant for an evaluation of the risks and benefits of the therapies in comparison with a less toxic one for Psoriasis.

The term *Taqashshure Jild* may be used for Psoriasis. Unani medicine has a history of treating Psoriasis by using various drugs through regimens like *Dalk (Massage)*, *Hijamat bil Shart (Wet cupping)* and *Bila Shart (Dry cupping)*, *Takmeed (Hot fomentation)*, *Irsale Alaq (Leech)*, *Zimaad (Medicated Paste)*, *Tila (Less viscous medicated Paste)*, *Nutool (Irrigation)* etc, though these regimens are not still validated scientifically (khan et.al., 2012; Ibne Sina., 1408 Hijri).

Irsale Alaq (Leech therapy) is one of the most applicable and used therapies in Unani system of Medicine. Medicinal leeches are best known for their blood feeding habits and for their use in the art of phlebotomy i.e bleeding. Although their medicinal use is declined in Europe and America, this therapy has always occupied an important place in Unani system of Medicine to manage various ailments including Psoriasis. It is constantly being practised in India, Iran and Pakistan by the Unani Physicians. Hirudine, one of the biologically active substances in leech saliva, was identified as the most potent known natural inhibitor of coagulation. European medicinal leech, *Hirudo medicinalis* has recently been rediscovered and is used by the plastic surgeons to aid salvage of compromised venous engorged tissue, including free and pedicled flaps, amputated digit, ears and nasal tips. Besides hirudine, various anti-inflammatory substances and hyaluronidase have been found in leech saliva. Keeping the traditionally safe and effective therapeutic use of the *Hirudinaria granulose* species in India and to rationalize the idea scientifically, the study was conducted (khan et.al.,2012; Ibne Sina., 1438 Hijri).

Methodology

Being a case report study, a male patient aged 41 years, resident of Ghanteswer (Odisha), a case of Psoriasis was taken after getting written consent from him for initiation of the study. The diagnosis was confirmed on the basis of history and physical examination. The patient was subjected to comprehensive general, physical and systemic examination. A thorough clinical examination of skin was done for its colour, pallor, cyanosis, icterus, erythema, induration, scaling, vesicle, pustule, papule, exudation, site, shape, border, surface, distribution of lesion, Auspitz sign, Signe de la tache de bougie, Membrane of Berkeley and Woronoff's ring to classify the type. The type of case enrolled is Plague Psoriasis. Following investigations were carried out to exclude the patient from the study as well as part of safety evaluation of the patient undergoing the study:

- Routine haemogram to exclude the secondary infection
- Random Blood Sugar to exclude diabetes mellitus
- RFT (Blood urea, S. creatinine) to exclude renal disease.
- LFT (SGOT, SGPT, S. bilirubin) to exclude liver diseases
- S. Uric acid to exclude gout
- HIV to exclude AIDS

- VDRL to exclude syphilis
- CT, BT to exclude haemophilia and other bleeding disorders.

All the findings were recorded in the Case Report Form (CRF), designed especially for the study. The patient was not taking any medication at the time of enrolment. Both calf regions were affected. The severity of the disease activity was recorded on the basis of visual analogue score (VAS). There was no history of diabetes, Hypertension or any other chronic debility. Subjective parameters assessed were Erythema, Induration, Scaling and Itching. Objective parameters include photos of lesions and VAS Scale. Patient was kept under strict observation and advised to come fortnightly in OPD for assessment till completion of the study. Follow-ups were carried out at an interval of 15 days, i.e; on 15th, 30th and 45th day. At every visit, patient was enquired about the progression or regression in their symptoms to assess the clinical findings. Concomitant treatment was not allowed during the study. The Mizaj was assessed on the basis of *Ajinnase Ashra* proforma designed for assessment of Mizaj. The patient was of *Saudavi Mizaj*. The occupation of the patient was labour and belonged to lower economic class.

Method of Leech Procedure

Leeches were obtained from commercially registered sources. Leeches were collected a day earlier. Identification of the leech species was done (*Hirudinaria granulose*). Leeches were kept in a well labelled container containing dechlorinated water. The physician used gloves to handle leech. The part was prepared where leech was to be attached i.e on the shin of the patients. Once leech was attached it typically remained attached until fully distended. Length of time of feeding was usually from 30- 45 minutes after that they were detached spontaneously. Three to four inches long and four in number leeches were applied on each leg. A leech on an average sucked 5-20 ml depending on its size, desire of feed and site of application. 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. These bites were dusted with powdered lime, cold vinegar or some styptic like *Shib e yamani*. The area was then dressed with an antiseptic solution and tight bandaging was done (St. Vincent Hospital 2007).

The assessment of efficacy in the patient was based on both subjective and objective parameters. Subjective parameters include symptoms like erythema, scaling, induration and itching. Objective parameters were evaluated by Psoriasis Area and Severity Index (PASI) (www.pasi.corti.li) VAS scale and pre and post assessment of photographs. The grading was done on the basis of scores recorded for the patient on each visit such as 4=severe and then gradually, improvement was scored as 3, 2 up to 1. After completion of the treatment, the pre and post treatment values or scores of different parameters (subjective and objective) were assessed and subjected to comparison to evaluate the efficacy of leech. Withdrawal criteria include: Failure to follow the protocol, any adverse reaction or adverse event. It was observed that there was no any adverse event recorded during the course of study.

The case report form and consent form were properly documented and submitted to the Department of *Ilaj bit tadbeer* (Regimenal Therapy) of Regional Research Institute of Unani Medicine. Bhadrak after completion of the study.

Results

Table 1: Effect of Leech on Clinical Parameters in Psoriasis

No. of patient	Clinical parameters	Assessment day			
		0 day	15 th day	30 th day	45 th day
n=1	Itching	4	3	2	1
	Erythema	4	3	2	1

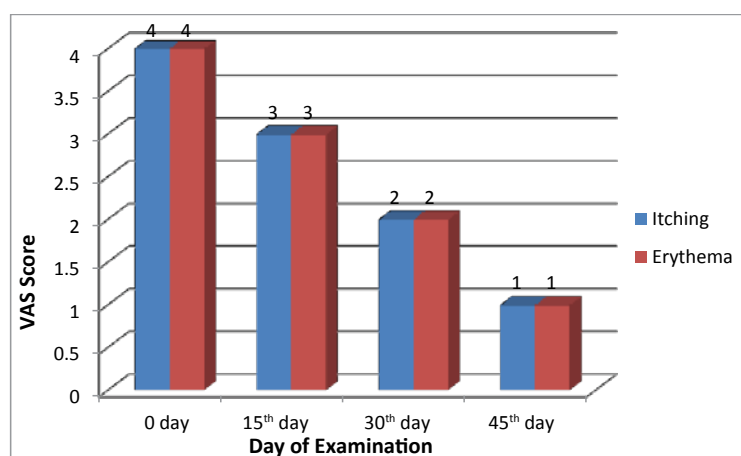


Fig 1: Effect of Leech on Clinical parameters in a case of Psoriasis

Table 2 : Psoriasis Area and Severity Index of the Case

Clinical Parameter (n=1)	Baseline	After 45 th day
PASI	14.4	3.6

PASI Score $14.4 - 3.6 = 10.8$

$10.8 \div 14.4\% = 75\%$ Improvement

Table 3: Effect of Leech on Safety Parameters in Psoriasis

Safety Parameters (n=1)	Baseline	After 45 th day
Hb%	13	12
TLC	8242	8275
Poly	58	56
Lympho	36	37
Eosi	3	3
Mono	1	2
Baso	0	0
ESR	15	17.35
RBS	91	90

Safety Parameters (n=1)	Baseline	After 45 th day
Blood Urea	24	25
S. Creatinine	0.83	0.84
S. Uric Acid	3	3
SGOT	25.85	24.55
SGPT	24	23
S. Bilirubin	0.6	0.6

Photograph Assessment



Pre-Treatment



Post-Treatment

Discussion

Psoriasis is a chronic inflammatory skin disorder affecting up to 1–3 percent of the world's population; clinically characterized by erythematous, sharply demarcated papules and rounded plaques, covered by silvery micaceous scale. The skin lesions are variably pruritic. It affects both sexes equally and occurs mostly from second to fourth decade of life. It often occurs in families and has a multifactorial inheritance. In India, prevalence of the disease is reported to be 0.7% (Neimann et al., 2006; Dogra, 2010). Being a chronic disease in nature, it causes both physical and mental agony to the patient. Furthermore, chances of recurrence also add to the stigma and agony of the sufferers.

The present case report study was undertaken to evaluate the safety and efficacy of *Irsale Alaq* (Leech) in the management of Psoriasis on modern scientific parameters. The study was conducted at Regional Research Institute of Unani Medicine, Bhadrak, for a period of 45 days from 31st August 2016 to 15th October 2016 on OPD basis. The patient was kept under strict diet restriction. The observations obtained from the trial have been depicted in tables and graphs. The finding of the study is supported by the description of *Razi, Ibn Sina, Ibn Hubul Baghdadi, Ibn Zohr and Hakeem Azam Khan* who have discussed the pathophysiological aspects of the disease in detail and concluded that *Sauda* is the most important cause for the genesis of psoriasis (Razi, 2005; Sina., 1408 Hijri; Zohr 1986; Hubul., 2007; Khan, 1289, Khan, 2006)

The patient under the study had no family history of Psoriasis. This finding is in accordance with the description mentioned by (Valia et al. 2010). The patient was a Labourer. This observation suggests that there may be relation with the

occupation of the patient but no data are available to support this finding. The chronicity of disease was two years and resisted to any kind of treatment. This finding is in accordance with the description given by Burge et al., 2011.

In the present study the patient was suffering from mild anxiety. This is in accordance with the description of Neimann et al., (2006). The sites of lesions of the patient in the study were confined to legs.

Irsale Alaq (Leech) was applied to patient for the management of Psoriasis. The patient was assessed for cure outcome on 0, 15th, 30th and 45th day. The outcome was the extent of alleviation in subjective parameters and reduction in VAS and PASI scores. PASI score shows 75% improvement.

Itching was rated with VAS scores from 0-4. Erythema was rated with scores from 0-4 as described by Valia et al; (2010). The median rating scores on 0, 15th, 30th and 45th day were 4, 3, 2 and 1 respectively. It was found that rating scores for erythema significantly (on day 30 & 45) reduced in comparison to day 0 & 15. Erythema is an important symptom of Psoriasis which subsided to a great extent in the study. The improvement in the erythema in the patient may be due to the *Muhalil* (Resolvent) and *Mudammil Qurooh* (Wound Healing) activities of *Hirudine* (A protein found in the saliva of Leech). These findings are in accordance with the description given by Khan, 2006 and Khan, 2012.

Reduction in induration is also indicative of improvement in psoriatic lesions (Burns, 2004). This improvement may be due to *Muhalil* (Resolvent), *Mudammil Qurooh* (Wound Healing) and *Murakhkhi* (Emollient) effects of the ingredients present in saliva of Leech (Khan, 2012).

All the parameters related to toxicity of drugs like SGOT, SGPT, Blood Urea, Serum creatinine, ESR, TLC, DLC and Hb% were collected on 0 and 45th day. All the parameters remained within the normal range in the patient after the treatment.

Assessment was also done on the basis of pre and post photographs of lesions which revealed remarkable improvement in the lesions.

The major known enzymes of leech saliva having different functions are as under: (Khan, 2012)

Hirudin: The most well known enzymes, a powerful anti coagulant in existence than heparin

Bdellin: A protease inhibitor thus acts as anti-inflammatory

Apyrase: A powerful platelet anti-aggregate factor thus making blood flow more fluid

Eglin: It is also an inhibitor of inflammation but at the same time it is anti-oxidant

Destabilase: This enzyme has very powerful platelet anti-aggregate activity which acts by dissolving the blood clots, thus opening up very exciting therapeutic avenues.

Hyaluronodase: This acts both as factor of diffusion as an antibiotic.

Lipase and esterases: These substances have lipolytic effect.i.e; dissolves fat and thus can be used for hyperlipidemia.

Anti elastase: This substance acts by limiting the action of elastases which degrade cutaneous elastin particularly at the level of skin.

Vasodilatory: This substance has not yet been identified but it is very similar to histamine.

Conclusion

In the light of the above discussion, it can be concluded that the *Irsale Alaq* (Leech therapy) has significant anti psoriatic effect without demonstrating any sign of toxicity or side effect. The *Irsale Alaq* (Leech therapy) is effective because of it's blood purifying, analgesic, anti inflammatory, detergent and wound healing properties. However, detailed and large sample size studies are required to determine relapse of the disease over a relatively long period of time.

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Conflict of Interest

The authors declare that there is no conflict of interest involved in this study.

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सारांश

सोरायसिस में लीच थेरेपी के सोरीएटिक विरोधी प्रभाव - एक केस रिपोर्ट

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तक़श्शुर जिल्द (सोरायसिस) एक साधारण, आनुवांशिक और अज्ञात कारणों के लिये उत्तेजक तथा त्वचा विकार है जो विश्व की 1-3% आबादी को प्रभावित करता है। आधुनिक फार्माकोथेरेपी में प्रगति के बावजूद, रोग की कमी, पुनरावृत्ति, लक्षणों को ख़त्म करने, प्रतिकूल दुष्प्रभाव के मामलों के आंकड़े इसके अत्यंत सीमित उपचार को दर्शाता है। यूनानी चिकित्सक प्राचीन काल से इरसाल अलक (लीच थेरेपी) के माध्यम से सोरायसिस (तक़श्शुर जिल्द) का सफलतापूर्वक उपचार कर रहे हैं परन्तु इसमें वैज्ञानिक दस्तावेजों की कमी है। अतः वैज्ञानिक मापदंडों पर लीच थेरेपी (हिरुडिनेरिया ग्रैनुलोस) की सुरक्षा और प्रभावकारिता का मूल्यांकन करने के लिए एक मरीज का अध्ययन किया गया। नैदानिक प्रस्तुतिकरण के आधार पर निदान किया गया। प्राथमिक परिणाम मान वी.ए.एस. और पी.ए.एस.आई. पर आधारित थे। फोटोग्राफिक सबूत के साथ अध्ययन के दौरान वी.ए.एस. उप अंक और वी.ए.एस. कुल स्कोर द्वारा माध्यमिक परिणाम मान का मूल्यांकन किया गया। लीच थेरेपी से सोरायसिस के उपचार में महत्वपूर्ण प्रभाव पाए गये। पी.ए.एस.आई. में महत्वपूर्ण कमी पाई गई। इसके अतिरिक्त, अध्ययन के दौरान और उसके बाद कोई दुष्प्रभाव नहीं पाया गया।

शब्द कुंजी: केस रिपोर्ट; इरसाल अनक (लीच थेरेपी), सोरायसिस; तक़श्शुर जिल्द

