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Case Study

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HARNESSING THE HEALING POWER OF LEECHES IN ECZEMA CARE: A CASE REPORT

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ABSTRACT

Background: Eczema is a prevalent skin disorder, affecting about 20% of children and up to 10% of adults. It is clinically presented as erythema, edema, papules, vesicles, scaling, and lichenification depending on the chronicity of the skin lesions. The etiopathogenesis relies on the combination of factors. **Objective:** The present article reports the healing properties and efficacy of Leech Therapy in eczema (*Nar-farsi*). This study provides an efficient and inexpensive alternative management of eczema. **Intervention:** A 60-year-old male has a complaint of a dry and itchy lesion over the flexor aspect of the right foot, which was diagnosed as a case of mild eczema. The patient was treated with local application of *Irsal-e-Alaq* (Leech Therapy) weekly for a period of six weeks. The efficacy of leech therapy was assessed every 15th day based on the selected criteria for assessment i.e. EASI Score. **Result:** In this case report, leech therapy was found effective and no side effects were noted during the course of treatment. There is no reported recurrence during the post-treatment follow-up. **Conclusion:** Leech Therapy has been proven beneficial in treating cases of eczema and enhancing patient's quality of life.

KEYWORDS: Eczema, Leech therapy, *Unani* medicine, Hirudotherapy, *Nar-farsi.*

INTRODUCTION

Eczema is defined as a chronic, relapsing, and itchy inflammatory skin condition. It is prevalent not only in industrialized countries but also in urban areas of developing nations.[1] It affects about 20% of children and up to 10% of adults and is associated with a high burden of morbidity and costs to individuals and health services. The "eczema" is a Greek term derived from 'ec' means out & 'zema' means boiling. In this condition, skin looks like "boiling out" or "oozing out". It clinically manifests as pruritus, erythema, edema, papules, vesicles, scaling, and lichenification.[2] It is the most common inflammatory skin condition worldwide in children.[3] Histologically, spongiosis is the hallmark of eczema and clinically pruritus is the hallmark of eczema which may disturb sleep and other elements of quality of life.[4] Based on etiology, eczema is classified into endogenous, exogenous, and combined eczema. In endogenous form, constitutional factors are the predisposing factors, and lesions are symmetrically distributed and well-set patterns. The causes are not well understood, probably a combination of factors result in this inflammatory condition of the skin. Hand eczema prevalence is about 4%, one-year prevalence 10%, and lifetime prevalence 15%. It has a higher prevalence in women as compared to men[5] and is related to environmental factors. Possible causes are contact irritants, contact or ingested allergens, infections, etc. It has some morphological patterns such as chronic acral dermatitis, fingertip eczema, recurrent focal palmar peelings, and wear and tear dermatitis.[4] Treatment in the conventional system of medicine includes immune-modulator, emollients, topical corticosteroids, topical calcineurin inhibitors, antihistaminic, antibiotics (For secondary infection). VitaminE or multivitamins are also supposed to be used as adjuvant but its role is not confirmatory and more exploration isneeded.

The term *Nar-farsi, Akota, Chhajan* have been used by eminent Unani scholars to address "*eczema*" in classical literature. It is described as skin eruptions that are encrypted immediately after appearance and associated with intense burning or severe itching. It can occur in all age groups. There are reddish-greenish lines on the skin at the site of eruptions which resemble fire.[6] The primary cause of *Nar-e-Farsi* (eczema) is the production of an excess quantity of abnormal *Safra* (Yellow bile) mixed with abnormal *Sauda* and *Sauda-e-Muhtariqa*.

Other causes, include *Haad Safra, Damvi Madda* (Sanguineous matter).[7,8] General weakness, gout, arthralgia, excessive cold or heat, intestinal worms & teeth eruptions in children are some mentioned predisposing factors. The affected area is a red, small size lesion from which secretions (often pus)come out.[9] The drugs having properties of *Musaffiyat-e-dam* (blood purifier), *Muhallil e auram* (Resolvent), *Dafe-Ta'ffun* (antiseptic),[10] *Taskeen-e-jild* (soothing), *Mudammil Quru'h* (Healing) are used to treat eczema as per the principles of Unani medicines. The Present Case Study is an attempt to highlight the role of *Irsal-e-Alaq* (Hirudotherapy/Leech Therapy) in alleviating the eczema.

MATERIAL AND METHODS

Selection of case

A diagnosed patient with mild eczema was taken for the study from Regimental therapy OPD of Markaz Unani Medical College & Hospital, Kozhikode, Kerala.

CASE PRESENTATION

This patient was a 60-years old male who was referred from the OPD of *Jild-wa Tazeeniyat* to our OPD of the Markaz Unani Medical College & Hospital on 01/01/2024 with complaints of the dry and itchy lesion over the flexor aspect of the right foot. He was in good health one year ago when he noticed the lesion but initially, he ignored it. Gradually, he found it more problematic and disturbing due to severe itching and often develops cracks/cuts and oozing from it. After taking the patient's history and clinical examination, it was found that the patient was having mild eczema. There was no history of diabetes mellitus or other associated disease. No other significant history was recorded. No abnormal systemic finding was present during physical examination and vitals were also normal. The skin lesions were assessed on Eczema Area and Severity Index (EASI), and categorized under eczema of mild category. The patient was well informed about the usage of leech therapy in detail and also informed if the treatment willbe effective, the case may be published in the journal hiding the identity of the patient and its family background. The *mizaj* was assessed on ten classical parameters. Before starting the treatment a picture of the affected part was taken as shown in the figure-1.

Informed consent

The Patient was willing for this study and informed consent was taken before the start of intervention.

Intervention

Leeches were applied weekly for 6 weeks. Fresh unused, well-cleaned leeches are gathered 24 hours before starting a leech therapy session. Leeches were sent for identification to the Zoology department and have been identified the leeches as *Hirudinaria granulosa.* Small and ventilated containers partly filled with water for leeches were used. These containers were labeled with the patient's name. Before starting the leech therapy session, Waterproof padding and towels, Bandages or highly absorbent material, Adhesive tape, Water, Scissors, a disposable razor, and Surgical-gloves, were required and gathered. The Patient was advised not to use perfume or chemicals on the skin at the intended application site for at least 2 days before treatment. The skin of the target area was thoroughly cleaned with soap and water or removed all substances with strong odor or taste because leeches are very sensitive to a strong odor. After wearing surgical gloves, active and healthy leeches were selected. The head of the leech was put at the targeted area, attachment generally occurs quickly. If the leech was reluctant to bite, a small needle prick was made on the skin to produce a tiny droplet of blood, which results in enthusiastic attachment. The target area was kept warm and dark by covering it with a towel or other material. Leeches usually stay attached for 30-60 minutes and fall. When the leeches dropped off they were placed in a jar labeled with the patient's name to avoid confusion between used and unused animals and to prevent use on another patient. The tripartite jaw of the leech makes a three-pronged Y-shaped bite wound. After the leech has dropped off it usually takes 3-48 hours for the wound to stop bleeding. The slow drainage of blood is an important part of treatment. The drainage of blood reduces venous congestion. When there was a good outflow of blood after leech feeding, the wound was loosely covered and the extent of bleeding 15-30 minutes later, if satisfactory, a loose dressing was applied. The patient was advised to avoid strenuous physical activity until the bleeding stop naturally. Primary dressings consist of a wide and thick sterile pad to absorb all the blood oozing from the wound. The layers of padding were loosely secured with a gauze bandage that was not so tight that it obstructed the blood flow.

Efficacy and Safety assessment

For efficacy assessment, the Baseline observations were recorded on zero-day thereafter at an interval of 15 days to 6 weeks. At every visit, the patient was asked about the improvement and worsening in their symptoms and subjected to examination to assess clinical findings. Concomitant treatment was not allowed during the protocol period. The Criteria for the assessment of lesion was the EASI score. This score varies from 0-72, with lower values indicating a narrower region of involvement. In terms of severity, mild -1, moderate 2, and severe -3 are indicated. No side effect was observed and the patient was very satisfied. During the 4-week post-treatment follow-up period, the patient had no disease relapse, no re-appearance of prior patches, and no new patches grew on the body. The assessment of the safety of the treatment was done by hematological assessment (before and after the treatment) TLC, DLC, ESR, CT, BT, and Biochemical assessment (before and after the treatment) – Blood sugar fasting and Postprandial, HBsAg, Elisa test for HIV and AIDS were carried out for not to perform leech therapy. Hb% assessment was done on every 15TH day to check anemia.[Table-1]

RESULT

A significant improvement was seen in the patient's

symptoms and signs with leech therapy, as shown in Figs. 1-5 and Table-1**.**

Table 1: Effects of Leech Therapy on Efficacy & Safety Parameter.

Parameters	0 Day	15th day	30th day	45th day
EASI Score	5.6	3.8	2.2	0.9
Hemoglobin	12.8	12.8	13.1	13.2

DISCUSSION

A 60-year-old man was observed for 6 weeks after developing an eczema patch on his right foot, as described in this case report. Leech treatment was applied locally to the patient. Antiseptic bandages, and various medications such as oral antibiotics, local antibiotics, and steroids might somewhat, but not totally, alleviate symptoms in the conventional medical system. Therefore, the development of a treatment that may completely cure eczema patches and lessen their associated symptoms without causing any side effects is urgently needed. Leeches can be extremely helpful in such situations, especially given the advancements in medical technology. Considering the above-mentioned aspects, *Irsal-e-Alaq* (Leech Therapy) was selected to evacuate morbid humor from the blood vessels by its sucking property and hence found effective in this case. The reason why leech therapy has worked is the presence of several pharmacologically active substances and enzymes in the leech's saliva, i.e., hirudin, hyaluronidase, Eglin, calin, bdellins, etc. Hirudin and calin are anticoagulants, these enzymes from leech's saliva help decrease stasis and slowly cleanse the wound by maintaining secondary bleeding for approximately another 12 hours. Histamine-like substances have a dilatation effect on the blood vessels thereby causing an increase in the bloodstream to the bite site and helping in wound healing due to circulation. The hyaluronidase increases the membrane permeability, reduces the viscosity, promotes the diffusion of injected fluids, and acts as an antibiotic. Bdellin and Eglin enzymes acts as anti-inflammatory, antioxidant, and protease inhibitors and inhibit trypsin, plasmin, and acrosin to reduce swelling due to venous congestion. Eglin is well tolerated on the central nervous system and prevents neutrophil infiltration (adhesion, penetration, and migration) into inflamed vessels and neutrophil-mediated injury to the microvascular endothelium, thus helping in granulation. Apyrase is a nonspecific inhibitor of platelet aggregation by its action on adenosine 5' diphosphate, arachidonic acid, platelet-activating factor (PAF), and epinephrine. Destabilase: Dissolves fibrin and has thrombolytic effects, which help in healing. Acetylcholine is a vasodilator that decreases stasis and increases blood circulation towards ulcer which promotes healing.[11,12] As per the *Unani* concept, impure blood is extracted from the body, thus releasing the body from toxins and the circulation of fresh blood takes place at the site of the lesion, which makes the healing process easier. The patient was asked to follow up in OPD.

Figure 1: (Before treatment).

Figure 2 & 3: (During treatment).

Figure 4 & 5: (After treatment).

However, no reoccurrence of any signs and symptoms was seen. *Irsal-e-Alaq* (Leech Therapy) proved very effective in this patient with eczema. However, further evaluation with a large sample size is required to show its significance.

CONCLUSION

Based on the present case's outcomes, it can be conclude that leech therapy is found effective in eczema (*Nar-farsi*) cases of this kind. Enhances the quality of the patient's life, and also has a relatively long-term clinical efficacy with no side effects. However, further research on this therapy is critical and needs funding. Scientific use of this therapy is needed in such cases.

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Conflict of interest

The authors declare that there is no conflict of interest.

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