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Review Article

# Preventive and Therapeutic values of Leech Therapy: A Review

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Abstract

There are three therapeutic modalities in the Unani medical system: *Ilaj bit Tadbeer* (Regimenal Therapy), *Ilaj bid Dawa* (pharmacotherapy), and *Ilaj bil Yad* (surgery). *Ilaj bit Tadbeer* includes several regimenal therapies such as *Hijāma* (Cupping Therapy), *Ta'līq or Irsal-e-Alaq* (Leech Therapy), *Fasd* (Venesection), *Dalk* (Massage), *Nutūl* (Therapeutic Irrigation), *Qai* (Emesis), *Idrār-i-Bawl* (Diuresis), *Tariq* (Diaphoresis), Mundij wa Mu'shil therapy (Concoction and purgation), *Bukhoor* (Medicated Steam), *Kaiyy* (Cauterization), *Huqna* (Enema) etc. Since ancient times, these therapies have been widely used for their preventive, therapeutic, and rehabilitative effects. One of the most significant regimenal therapies, Irsal-e-Alaq (Leech therapy), is still in use. Renowned Unani physicians Razi, Majoosi, Zahrawi, and Ibne Sina have discussed and recommended the use of non-poisonous (or medicinal) leeches in the prevention and treatment of a variety of illnesses, including joint disorders, chronic non-healing ulcers, and numerous skin disorders like eczema, psoriasis etc. This review paper aims to explore the preventive and therapeutic role of leech therapy.

**Keywords:** Unani Medical System, Therapeutic Role, Leech Therapy

## Introduction

The Unani medical system was invented in Greece and refined by Arabs into a sophisticated medical science using the framework of the teachings of *Buqrat* (Hippocrates) and *Jalinoos* (Galen). Since then, it has been referred to as Greek-Arabic medicine[1]. The humoral hypothesis (*Nazriya Akhlat*) advanced by *Buqrat* serves as the foundation for Unani medicine which contends that the four fundamental bodily fluids—*Dam* (blood), *Balgham* (phelgm), *Safra* (yellow bile), and *Sauda* (black bile) determine an individual's health[2]. Every person is said to have a distinct humoral constitution that indicates his healthy state. And to keep the proper humoral balance, the body has a power of self adjustment known as *Quwwat-e- Mudabbira Badan* or simply *Tabiat*[3]. The Unani system uses a variety of regimenal therapies to treat diseases and has a wealth of medicinal herbs[4].

*Irsal-e-Alaq* or *Taleeq* is one of the most popular regimenal therapies. Alaq is an Arabic word that means "leech," and the process of applying a leech is called "taleeq"[5]. *Irsal-e-Alaq* or Hirudotherapy is a bloodletting technique used to withdraw large volumes of blood from the body[6].

Leech therapy, also known as *Irsal-e-Alaq* or *Taleeq*, has been used in Ayurveda as well as in Unani to treat a variety of diseases since ancient times[5,7-8]. It is used to remove disease-causing substances from the deeper tissues, according to the traditional literature of the Unani system of medicine. In fact, the practice of *alaq* is based on past experience and empirical claims passed down from generation to generation[5,9,10].

In addition, a number of recent studies have confirmed its efficacy in a variety of conditions. Saliva of leech is now known to contain various pharmacologically relevant biological compounds like Hirudin, hyaluronidase, a vasodilator, inhibitors of kalikerine, and others. The saliva enters into the human body during the sucking of blood by leech[9-11].

## Historical Background

The Anglo-Saxon word for doctor, "laece," which indicates that doctors and these annelids have been etymologically associated since the dawn of civilization, can be used to sum up the significance of leeches in clinical care[12-13]. One can go back thousands of years and find evidence of leech use in numerous medical procedures. The murals of the Pharaohs of the 18th dynasty mentioned medicinal leeching before the period of Christ (BC).

The symptoms of leeching were described in Jewish writings like the Talmud, the Bible, and other Jewish texts[13]. Leeches were mentioned in the verses written by the Greek poet Nicader of Colophain (200–130 BC) about medicine[12]. The ability of leech to draw blood became popular throughout the Christian period hence it was practiced widely. Greek doctors utilized leeches for bloodletting as well as the treatment of rheumatic pain, gout, various sorts of fever, and hearing loss. Leeches were used at that time based on Galen's (130–201 AD) humoral theory, which was influenced by Hippocrates' (460–370 BC) theory about ailments caused by an imbalance in bodily fluids. Galen thought that when a leech takes blood from a patient, the imbalance between the bodily fluids may be restored, so alleviating the patient's illness[12,14]. Galen would recommend leech bloodletting for virtually all ailments, including basic inflammatory problems, mental disorders, and hemorrhoids[15]. Additionally, a Syrian physician named Themission of Laodice

explained that draining the patient's blood will drive away the evil spirits that can bring on illnesses[12].

Ibne Sina (Avicenna) described how a leech may draw blood from deeper tissues and advised leeching for skin conditions that cannot be treated with the traditional wet cupping method[12,14]. Abd Al-Latif Al-Baghdadi wrote in the 12th century about the advantages of using leeches following operations. Then, according to their shape and colour, Ibn Maseehi (1233–1286 AD) distinguished between medical and non-medical (poisonous) leeches in his book "Umda Fil Jarahat"[16]. Later, during the Middle Ages, physicians began to rely more on leech therapy, which was prescribed for a variety of conditions, including diseases of the nervous system (epilepsy, brain congestion), diseases of the urinary and reproductive organs (nephritis, subacute ovaritis, sexually transmitted diseases), inflammatory diseases (acute gastritis, laryngitis), and diseases of the eyes[12,14].

The thought that claimed that leeching was less painful than using a lancet may really be responsible for the widespread application of leech therapy. In cases of haemorrhoids and vaginitis where patients find the use of a blade or a cupping glass intolerable, leech application is more appropriate and manageable[13].

Leeching increasingly lost favour by the end of the 19th century, and it nearly disappeared by the beginning of the 20th century because this treatment did not meet the new standards set by contemporary medical legislation and the significant advancements in all medical fields[12].

Leech bloodletting, along with other age-old treatments like cauterization and baths, was still often used to treat epilepsy at this time.

Leeches were once applied to the scalp by therapists in an effort to lessen cerebral congestion and brain blood flow, which were considered to have a role in the aetiology of epilepsy[17]. Haycraft's research revealed for the first time the presence of an anticoagulant agent in leech saliva that he called hirudin[18], which was later isolated and identified by Markwardt who demonstrated its antithrombin activity[19]. Another doctor exaggeratedly emphasized his wish to be completely covered by leeches in order to benefit from their hirudin-containing saliva while writing about the excellent beneficial use of leeches in the therapy of myocardial thrombosis[15].

After the recession period of leech therapy, it has resurged after the mid-20th century with new applications in many medical fields including surgical and reconstitution procedures, vascular diseases, arthritis, migraine[14,16]. This novel therapeutic utilization of leeches resulted in more interest in isolation and characterization of the active constituents of leech saliva[20]. In 2004, the Food and Drug Organization (FDA) approved leeches for medicinal purposes[14]. It was assumed that leech therapy depends mainly on two concepts. First, as the leech bites the skin of its prey, it injects the salivary gland secretion into the wound. Second, another part of these secretions will be mixed with the ingested blood to keep it in a liquid state[21,22].

## Description of Leech

Leeches are annelid worms that are carnivorous or bloodsuckers and have a noticeable capacity to stretch or compress their bodies. They are hermaphrodites by nature and are found all throughout the planet, with the exception of the polar regions, deserts, and elevations higher than 3,700 m. More than 700 species of leeches have been identified around the world[23]. About 45 species from 22 genera are present in India[24]. The common species in India include *Hirudinaria granulosa*, *Hirudinaria viridis*, *Hirudinaria javanica*, and *Hirudinaria manillensis*. Additionally, these species are widespread in Sri Lanka, Bangladesh, Burma, and Pakistan. The Southern Indian highlands are home to the land leech known as Haemadipsa[25].

A European species known as the medicinal leech (*Hirudo medicinalis*) has been introduced into several ponds and streams in the eastern United States. It is a rather big leech, frequently reaching lengths of 10 centimetres or more. It occasionally attaches itself to a vertebrate and feeds on the blood of that animal[26]. *Hirudinaria granulosa*, an Indian leech, has therapeutic qualities. It is a typical leech that lives in freshwater reservoirs, ponds, lakes, marshes, and slow-moving rivers. It hides out beneath plants, logs, and stones and favours shallow water. It is sanguivorous (blood-sucking), sucking the blood of cattle or people who enter the pond as well as fish and frogs[25-27].

According to certain characteristics, Unani scholars have divided leeches into toxic leeches and non-poisonous (beneficial) leeches for medicinal purposes. The characteristics of leeches that are therapeutically effective include having a thin, small head, an emerald green colour, being little and rounded like rat's tails, and being located in damp, lush areas where frogs are common. Long-headed, black, grey, or green leeches are thought to be venomous[28,29].

## Bioactive Substances in Leech

Numerous bioactive substances found in leech saliva make it easier for the leech to feed and support the value of hirudotherapy in complementary medicine. The main component is hirudin, an anticoagulant that binds to thrombin and stops fibrinogen from becoming fibrin. Additionally having bacteriostatic and bactericidal effects is the hirudin found in leech saliva[30,31]. Other important substances include destabilase, which dissolves fibrin, and factor Xa and calin inhibitors, two anticoagulants with different mechanisms of action. These compounds cooperate with hirudin to stop blood from clotting in the wound for around 10 hours, enabling pooled blood to drain from venous congestion regions. Additionally, some salivary components have antiplatelet qualities. Acetylcholine, a substance similar to histamine that acts as a vasodilator and boosts blood flow to the area. Bdellins and eglins that guarantee a limited inflammatory reaction to the bite. Hyaluronidase that increases the rate of absorption of these substances by making tissues more permeable. A morphine-like analgesic molecule that makes each bite painless and a collagenase, which lessens the density of adhesions and scar tissue[9,30-32].

## Unani Theory with Relevance to Leech Therapy

According to the Unani System of Medicine (USM), ailments are caused by humours or substances that are out of balance. Unani doctors follow a fundamental course of treatment in which leeching is used when the diseased matter is present in the middle, venesection is preferred when it is present both internally and superficially, and cupping is used when it is present only superficially[33,34]. As a result, according to the classical literature of the Unani system of medicine, it is done to remove disease-causing agents from the deeper tissues. Unani doctors apply this method in almost all systems. According to *Razi* in his well-known book *Al Havi Fil'Tib*, *Taleeq's* therapeutic properties are due to both its *Musakkin-e-Alam* (analgesic) and *Muhallil* (resolvent) effects in addition to sucking out morbid humours from the affected area of the body. *Taleeq* absorbs sanguineous substances more effectively than *Hijamat* (cupping), according to Unani philosophers[35–41].

## Indication of leeching in unani literature

In his book *Takmeel-ut-Tib*, *Hakeem Abdul Hameed Bhopali* cites *Rofus* (first century AD), who mentions that leeches are used at

various areas for various ailments. *Rofus* was the first Unani physician to publish a text titled "*Risale Taleeq*" that discussed leech therapy[42].

In his book *Al Havi fil Tib*, *Razi* (known in the West as Rhazes), cites Arkaghanees, who suggests applying leeches to treat *salabat-e-tehal* (splenomegaly)[43].

Leeches have been suggested as treatments for many conditions by *Razi* (865-925 AD), including *Qooba* (ringworm infection), *Sa'fa* (alopecia), *Quroohe balkhiya*, and *I'lale Mafasil* (joint ailments)[44]. The application of leeches in cases of *irqunnasa* (sciatica) at the hip joint was recommended by *Ali Ibn Abbas Majoosi* (Haly Abbas) (930-994 AD)[45].

Leeching has been recommended by *Abul Qasim Zahrawi* (Abulcasis) (936–1036 AD) for areas like the lips and gums where cupping is not possible[46]. They can also be used on the body parts with the least amount of flesh, like the finger and nose. In addition, he claimed that bathing the affected area with vinegar and lots of water would have further therapeutic benefits[46, 47].

With reference to Indian physicians, *Ibn-e-Sina* (Avicenna) (980–1037 AD) provided a very thorough description of the leech therapy. He described the varieties and traits of the leeches that can be used medicinally. Besides that, he has also discussed the mode, procedure and post leeching regimens[48].

After disordered humours were expelled through purgation and venesection, *Ibn-e-Hubal Baghdadi* (1122–1213 AD) advised using leeches. Additionally, he stated that the removal of changed blood from the *Sa'fa* (alopecia), *Qarha muzmin* (chronic wound), and *Wajaul anaf* (nasal pain) sites by a leech heals these conditions[28].

According to *Ismail Jurjani* (12th century), *taleeq* (leech therapy) should be used for two straight days if total evacuation of the diseased material is the goal. He also argued for its value in treating skin conditions. He reports *Baghdadi* as saying that after performing purgation and venesection on the body, leeches should be applied[29].

According to *Ibn-ul-Quf al Maseehi* (1233–1286 AD), *Taleeq* (Leech therapy) expel unhealthy materials more forcefully than *Hijama* (cupping), but less effectively than *Fasd* (venesection). He emphasised the pre- and post-leeching treatments and emphasised the need for cupping following *Taleeq* (leech therapy). He also advised that before utilising the indigenous medicines for *Sa'fa* (alopecia), leeches should be applied[49].

Indian physician *Akbar Arzani* said in the 16th century that in circumstances involving children, *taleeq* (leech therapy) can be used instead of *fasd* (venesection). He added that it is particularly useful for *muzmin amraze jildiah* (chronic skin diseases), such as alopecia and ringworm infections[50].

## Modern Therapeutic Applications of Leech Therapy

**Cardiovascular diseases:** Since leech saliva can temporarily increase blood flow and lessen connective tissue hyperalgesia, leech therapy has become a well-established alternative treatment for vascular disorders[51]. By 1997, a unique antithrombotic and anticoagulant pharmaceutical preparation known as "Piyavit" that contained an extract of the therapeutic leech saliva was made available on the Russian market and was recommended as thrombolytic and antiplatelet. According to clinical investigations, it has an anti-inflammatory effect and can lower blood hypercoagulability in thrombophlebitis patients[52]. Similarly, patients with phlebitis who had topical leeching showed near-normal skin colour on their legs, improved walking capacity, and decreased discomfort and mild leg swelling[53]. In such circumstances, medical professionals often administer 4–6 leeches directly to the afflicted region for the treatment of gonarthritis, secondary ischemia-related dermatosis, varicose veins, haemorrhoids, and hypertension[52,16].

Specific thrombin inhibitors, such as hirudin extracted from *H. medicinalis*, which was demonstrated to possess a potent inhibitory effect on both free and clot-bound thrombin are the cause of the effectiveness of leech saliva in CVDs[18,19,54,55,56]. In addition, other thrombin inhibitors from several leech species were discovered. For instance, bufrudin, which has a chemical structure very similar to hirudin, was isolated from *H. manillensis*[57]. From the entire body extract of the leech species Haemadipsa sylvestris, a tight-binding thrombin inhibitor known as haemadin was discovered[58].

Granulin-like, another antithrombin, was discovered from the leech species *H. nipponia*[59]. Theromin, a human granulocyte and monocyte protein inhibitor with antithrombin action, was lastly identified in the head extract of Theromyzon tessulatum leech species[60]. It is noteworthy that only hirudin, an anticoagulant developed from hematophagous animals, has received FDA approval for use in clinical settings[61]. Numerous studies revealed that in patients with unstable angina, hirudin is more effective than heparin at preventing deep vein thrombosis (DVT) and ischemic events[61]. Hirudin has the benefit of having a direct inhibitory effect on thrombin without the need for endogenous cofactors (antithrombin III), unlike the indirect thrombin inhibitors heparin and low molecular weight heparins. As a result, individuals with disseminated intravascular coagulation syndrome (antithrombin III deficiency) turned to hirudin as their preferred medication. Hirudin has no immunological effects on erythrocytes, making it safe to be administered in individuals with aberrant platelets or thrombocytopenia brought on by heparin[56]. Additionally, unlike heparins, hirudin has a promising prophylactic effect in patients who are at high risk of experiencing cardiovascular events because it has the ability to prevent thrombus growth by blocking the binding of thrombin and fibrin. As a result, hirudin was said to be able to lessen DVT, pulmonary embolism, and the spread of venous thrombosis[61,56].

Leeches, on the other hand, have created additional active substances that target other coagulation factors, such as antiplatelet factor Xa (FXa) inhibitors, fibrinolytic enzymes and inhibitors[62]. First, decorsin, a strong antiplatelet with a high affinity for glycoprotein IIb–IIIa receptors, was discovered in *Macrobdella decora*[63]. Second, the European leech, H. medicinalis' salivary secretion contained calin, a platelet adhesion and activation inhibitor that was thought to work by blocking von Willebrand factor and collagen[64].

Additionally, it has been reported that the leech saratin from *Haementeria ghilianii* inhibits platelet aggregation by preventing collagen from adhering to integrin alpha2beta1 and von Willebrand factor[65]. The activated platelet glycoprotein IIb–IIIa serves as a receptor for fibrinogen, vitronectin, and other molecules from a pharmacological perspective. As a result, drugs for the treatment of acute coronary syndrome could include surface receptor inhibitors[66].

**Reconstructive and microsurgery:** Hirudotherapy has mostly been utilised to treat venous congestion, which is brought on by adequate arterial inflow but poor venous outflow, after microvascular procedures. The leech bite's persistent leaking provides a pathway for venous outflow[32,67]. Dusky bluish skin tone, tissue edoema, and warmth of the replanted tissue are common indicators of venous outflow insufficiency when there is a rapid capillary refill time (3 seconds or fewer)[32,68]. After plastic surgery procedures like flap surgeries and digital re-plantations, venous congestion may develop[69].

Aggressive leech therapy has been demonstrated to be beneficial for tissue-flap transplantation, which includes moving tissue while maintaining the tissue's blood supply[70]. Researchers evaluated the efficiency of leech therapy in flap operations of a venous obstruction in the head and neck that couldn't be treated medically or surgically[31]. In one case of post scalp surgery, application of leeches was advised and the patient got a good recovery[30]. Venous insufficiency is the most frequent factor in the failure of flap and replantation procedures. Due to the formation of collateral venous channels, hirudotherapy is a generally successful treatment for venous congestion. However, it is only taken into consideration in the case of a surgical emergency requiring immediate care, such as forearm compartment syndrome, if the venous insufficiency cannot be surgically corrected or if surgery is not recommended[68].

**Cancer and Metastasis:** A previously discovered metastatic inhibitory action of various anticoagulants, such as warfarin and heparin, served as the inspiration for the use of leeches as an antimetastatic agent[71]. It was thought that leech saliva would be a more potent antimetastatic medication due to its very high concentration of anticoagulants, protease inhibitors, and other substances[72].

It was noted that lung tumour cells were introduced intravenously into the test animals, and salivary gland extract from H. ghilianii and Haementeria officinalis reduced the metastatic colonisation of the tumour cells[71]. Later, the salivary gland secretion of the proboscis leech, H. ghilianii, was purified to produce the antimetastatic and anticoagulant protein known as ghilanten[73]. Ghilanten was said to be able to prevent the spread of melanoma, breast cancer, lung cancer, and prostate cancer[74].

Numerous studies on the Mexican leech Haementeria officinalis eventually revealed the salivary gland secretion's antimetastatic properties. Antistasin, a 17 kDa protein found in its saliva, was found to have the ability to stop the colonisation of lung cancer. They claimed that the presence of platelet aggregation inhibitors, anticoagulants, and antiproteolytic enzymes in the Mexican leech saliva was responsible for its antimetastatic activity.[75,76]. In 2010, additional researchers revealed for the first time that patients with late stages of kidney cancer and leiomyosarcoma might receive a 2-month treatment by topical application of H. medicinalis and be entirely cured of their local lumbar pain[77]. A saliva extract from the tropical leech H. manillensis (Lesson, 1842) was recently shown to have antiproliferative properties against small cell lung cancer (SW1271). Additionally, the leech saliva demonstrated supra-additive synergistic activity with carboplatin[78].

**Diabetes Milletus and its Complications:** Traditional methods of treating complications of DM have included leech application[79]. The most severe complication of DM is the Cardiovascular conditions brought on by coronary atherosclerosis, hyperglycemia, elevated blood lipid levels, platelet adhesion issues, coagulation factors, high blood pressure, oxidative stress, and inflammation. Myocardial infarction, the leading cause of death in type 2 DM, is a serious danger for diabetic patients[80]. The inclusion of blood-affecting peptides and proteins in leech saliva, on the other hand, can be a significant advantage for the relief of these illnesses. First of all, due to its capacity to bind thrombin and subsequently block the thrombin-mediated conversion of fibrinogen into fibrin, hirudin plays a crucial role in stopping the clotting process thus enabling it to be beneficial for the alleviating of ischemic events[61].

Patients with diabetes who have peripheral vascular issues may experience decreased blood flow to their limbs, which can result in ischemic disorders like gangrene. By reducing blood pressure and lipidaemia, as well as improving blood flow in the peripheral blood arteries, diabetic patients can manage gangrene to a great extent[78]. Traditional Chinese medicine practitioners have utilised the wild leech species Whitmania pigra (Family: Hirudinidae) to promote blood flow to the distal portions of the body and to treat clotting issues. The entire body of this leech species' aqueous and alcoholic extracts were said to have strong anticoagulant properties[80]. A myoactive peptide known as the leech excitatory peptide was extracted from the leech W. pigra and was found to improve the muscular contraction of the gut and penis[82].

The study involved a 60-year-old woman with a grade 5 diabetic foot (on the left) who was in danger of having her foot amputated soon. The patient's gangrenous foot was painful (80 mm on a 100 mm visual analogue scale) and had necrosed, foul-smelling patches. Unripe papaya was used as a wound dressing since it is particularly effective at removing necrotizing areas. Hirudotherapy was also utilised on wounds that weren't healing well. Within 20 days, the pain score on a 100 mm visual analogue scale dropped to 0–10 mm, and no additional painkillers were needed. Necrotic patches vanished and the wound healed entirely over the course of almost 3 to 5 months[83].

**Analgesics and arthritis:** Numerous studies on individuals with arthritis determined the painkilling effects of leech application. Those with osteoarthritis said that leeching provided higher pain relief with no side effects than topical diclofenac[84]. Additionally, some studies demonstrated that hirudin can lessen synovial inflammation in people with arthritis by inhibiting DING protein, a synovial stimulatory protein derivative that acts as an autoantigen in people with rheumatoid arthritis[85]. In a different trial, a group of women who had osteoarthritis in their first carpometacarpal joint underwent a local therapy regimen using two to three leeches. Less discomfort and an improvement in disabilities were seen in all treated patients. After one week of treatment, leeching was shown to be effective, and it continued for at least two months[86].

In another clinical study Leech therapy has been shown to significantly minimise the requirement for analgesic consumption in patients with advanced osteoarthritis of the knee. It has been noted that a double treatment schedule given at intervals of four weeks resulted in longer-lasting relief and improved physical activity than a single treatment regimen[87]. Additionally, the efficiency of leech therapy in conjunction with the conventional Unani herbal formulation was evaluated. Patients who received the combined therapy showed less pain and stiffness and had better working capacity[88]. In other studies, leech therapy was suggested as a pain reliever for cervicobrachialgia syndrome and discomfort in the iliosacral joints[51].

**Skin Diseases and Cosmetology:** Hirudotherapy in cosmetics can become an integral component, particularly in anti-aging and anti-psoriatic treatments, and aid in maintaining young looking skin. However, to do this, information about the scientifically proven efficacy must be widely disseminated. Those who are interested in nature therapy and complementary medicine and do not wish to utilise invasive anti-aging techniques seem to be the best candidates for such therapies. In a case study of a 42-year-old woman who spent seven years dealing with psychological issues as well as psoriasis. Stress and a poor diet were the causes of and contributors to skin symptoms. The scalp was covered in psoriatic lesions, as was the rest of the body. The patient received radiation treatment in the hospital for 10 days prior to being admitted to the hirudotherapy office. Six sessions of leech therapy were required, and a new batch of leeches was applied

once every week: the first week, five leeches were placed close to the liver, and the second week, six leeches were placed close to the kidneys, three on each side. The condition of the patient had improved by the time the therapy was over[89].

A 25-year-old female patient with acne vulgaris had hirudotherapy treatments, according to a case study by Habeshian et al. The skin of the face had been affected by acne lesions for six months. Dermatologist visits and pharmaceutical treatments did not stop acne from reappearing. Four one-week sessions were held at regular intervals with the application of 4-5 small leeches to the lesions' region. It was advised to adopt a healthier lifestyle, eat well, and utilise the Ayurvedic remedy. Following therapy, all acne lesions, itchiness, burning, and pain completely vanished. A considerable decrease in face discolouration was seen, as well[89].

## Conclusion:

In conclusion, conventional therapists utilised leeching as an unproven home treatment throughout history as a common therapeutic technique for a variety of ailments. Leech has just made a comeback in modern medicine with fewer applications that have been demonstrated and backed up by a large body of research. Considering how simple leech application is and how little adverse effects there are, leech therapy is anticipated to be of utmost importance in the field of plastic and reconstructive surgery. In order to maximise its utilisation, greater efforts should be made. Additional research is necessary to evaluate the effectiveness and safety of using leeches to treat cancer and diabetes mellitus.The review article mentioned above was intended to serve as a framework for the historical aspects and indications from the traditional Unani texts with contemporary studies on leech therapy.

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