



BENIFITS OF LEECH THERAPY IN UNANI SYSTEM OF MEDICINE: A REVIEW

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ABSTRACT

This paper is aimed to review and analyze the benefits of the leech therapy in Unani system of medicine. Leeches help humans in a number of medical treatments. Ancient Egyptian, Indian, Greek and Arab physicians used leeches for a wide range of diseases starting from the conventional use for bleeding to systemic ailments, such as skin diseases, nervous system abnormalities, urinary and reproductive system problems, inflammation, and dental problems. Nowadays, they are being used for various therapies by Unani as well as allopathic practitioners. Leech therapy is not a new concept. It dates back to many centuries. It has been a vital part of the traditional methods of

healing in many countries across the world since ancient times. Its origin may be traced to the early days of civilization when man roamed about in the jungles, leading a nomadic life. Today, Leech therapy has found acceptance in the modern society as an economical, quick and effective way to cure blood circulation disturbances and related diseases. However, there are diverse views over the classification of Leech therapy. While some medical experts think Leech therapy is a part of Unani system of medicine others deem it to be a treatment under naturopathy.

KEYWORDS: leech therapy, Istifiragh.

INTRODUCTION

Bloodletting is an ancient art which archaeologists dated back to Stone Age after recent discovery of bloodletting tools in that culture.^[1] The first records concerning bloodletting by cutting vein, or venesection were found in the Hippocratic collection in 5th century BC. Early practitioners let blood to eliminate the peccant humors in an attempt to restore health.

Plethora or an overabundance of body humors is considered as an unhealthy in Unani system of medicine also. The idea lay down by the renowned physician of the past like Hippocrates, Galen, Avicenna, Rhazi and other Unani scholars. Leeches are being instrumental in helping to rid the body of plethora painlessly. Leeches and the medical practitioners have been closely associated for centuries. During the Roman Era, Galen (129-189A.D) promoted leeching because he believes that bloodletting would rid the body of noxious substances produced by disease. By doing so it could restore the four humor to proper balance and so the equable temperament. Avicenna (978-1037AD) the great Arab physician, believe that leeches drew blood from deeper sources in comparison wet cupping. In his world famous book the canon of Medicine (Al Qanoon-fi-Tibb) he has devoted several pages for instruction on leeching and description of leeching to be used medicinally.^[2]

The description of leeches is also found in Kitabul Umda Fi Jarahat written by Ibne Maseehi (1233-1286AD), where he has mentioned the characteristics of poisonous leeches according to their shape and color. The leeches described for the medicinal use include mash color leeches, blackish red leeches, liver color leaches, yellow color leeches, thin leeches resembling to mice tail etc.^[3] Abd-al-Latif al-Baghdadi mentioned in his texts the beneficial usage of leech application after surgical operations.^[4]

Numerous indications for leeching include acute laryngitis, nephritis, nephralgia, sub acute ovaritis, epistaxis, swollen testicles, ophthalmia and brain congestion.^[5]

Leeches can ingest an amount of blood almost ten times its own weight and may digest the bout of blood for as long as 12 to 18 months during which time the leech will not bite^[6], leech could suck 5 to 15ml of blood which would then be broken down by the flora of the gut of the parasite. Mention of medicinal leeches in Australia dates back to 1824 CE.^[7] Although the same thing has been mentioned in Avicenna Canon of medicine way back in 980 CE.

The leeches belong to the phylum Annelida and there are about 650 species of leeches in the class hirudinae. The leeches in use medicinally are *Hirudinaria medicinalis*, *Hirudinaria asiatica*, *Hirudinaria manellensis*. The name *Hiridunaria medicinalis* was given to the leeches used medicinally linnaeue in 1758 CE.

UNANI CONCEPT

Unani System of Medicine is based on the concept of *Nazriya Akhlaat* (Theory of Humours), given by Hippocrates, which supposes the presence of four body fluids- Dam (blood),

Balgham (phlegm), *Safra* (bile) and *Sauda* (black bile) known as *Akhlaat* (Humours). As every person is supposed to have a unique humoral constitution, which represents his healthy state with a specific *Mizaj* (temperament), the *Mizaj* of a person is expressed as *Damwi* (sanguine), *Balghami* (phlegmatic), *Safrawi* (Choleric) and *Saudawi* (melancholic) according to the preponderance in the body. As long as these humours exist in normal quantities and qualities and in the normal region of the body, the healthy state of an individual is maintained. Any imbalance to the constitutions or changes in the quantity and quality of these humours result in diseases.^[8,9]

In this system of medicine, the basic principle of treatment is based on *Ilaj bil zid* i.e. treatment is in contrast to nature and *Mizaj* of the disease and is adopted in two ways i.e. observational and rational methods which are employed through diet, drugs, regimes, manipulation techniques and operations. Broadly speaking, there are four different methods of treatment viz; *Ilaj bil Tadbeer* (Regimental therapy), *Ilaj bil Ghiza* (Dietotherapy), *Ilaj bil Dawa* (Pharmacotherapy) and *Ilaj bil Yad/Jarahat* (Surgery).^[10]

Ilaj bil Tadbeer is one of the most popular methods of treatment, practiced by ancient Unani scholars since antiquity. Literally *Tadbeer* is an Arabic word meaning regimen or systemic plan whereas *Ilaj* means therapy or treatment. Thus, *Ilaj bil Tadbeer* means treatment through regimen, which is a method, through which care of the sick person and maintenance of general health is attained through modulation or modification in *Asbaabe Sitta Zarooriya* (six essential factors for life). In other words, regimental therapies are mostly non medicinal techniques/procedures by which we modulate the life style, dietary habits and habitat of the patient and practice some other therapeutic regimens for the treatment of various diseases. The eminent Unani scholar, *Ibne Sina* has mentioned 36 regimes in his famous book “Canon of Medicine”. The important regimes include *Irsale Alaq* (Leeching), *Fasd* (Venesection), *Ishal* (Purgation), *Qai* (Emesis), *Idrar* (Diuresis), *Huqna* (Enema), *Hijamat* (Cupping), *Dalak* (Massage), *Riyazat* (Exercise), *Hammam* (Bathing), *Tareeq* (Diaphoresis), *Amle Kai* (Cauterization), *Nutool* (The pouring of medicated water slowly over an affected part from a distance), *Inkebaab* (Inhalation), *Tanafis* (Expectoration), *Takmeed*, *Imala* (Diversion of morbid material), *Ilam* (Counter Irritation), *Aab-e-zan* (Hydration Therapy), *Zimaad wa tila* (Ointment and Liniment) etc. These regimes are actually meant for the *Istefragh* (evacuation) of *Akhlate radiya* (morbid fluids), from the body and so the other unwanted temperaments. These morbid humours true culprits responsible for the genesis of disease. As soon as these

morbid humours are removed from the body, normal health gets restored and vitality of the body get increased.^[11,12,13] Blood-letting in the form of venesection, leech therapy and cupping with scarification is an essential part of regimental therapy. It has been utilized for preventive as well as therapeutic measures for thousands of years by ancient Unani physicians.^[14,15] A part from this it increases the circulation of the blood where vessels are damaged or blocked due to chronic infection specially those which are related to the skin diseases these effects have been found due to different enzymes present in this.

Irsale Alaq (Leech or Hirudo therapy) is a method of blood-letting which involves the withdrawal of blood in a considerable quantity from the body with the help of Leeches.^[10] It is actually a blood sucking process with the help of medicinal leeches for prevention and treatment of various diseases. The therapeutic application of this therapy is known from the time of extreme antiquity and is still alive in present health scenario. The important advantage of leech therapy is that it may be advised on those areas of the body where other processes of blood-letting like venesection and cupping are not possible.^[16,17]

MAJOR ENZYMES FOUND IN LEECH SALIVA	
Hirudin	A protease inhibitor thus act as anti-inflammatory
Bdellin	A powerful platelet anti-aggregate factor thus decrease the blood viscosity
Apyrase	It is also an inhibitor of inflammation but at the same time it is an antioxidant
Eglin	The enzyme has very powerful anti-aggregating activity which acts by dissolving the blood clots, thus opening up very exciting therapeutic avenues
Destabilase	It acts as both a factor for diffusion and as an antibiotic
Hyaluronidase	This substance acts by limiting the action of estrases which degrade cutaneous elastin particularly at the level of skin Histamine
Lipase & esterases	used for hyperlipidemia
Vasodialatory substances	these substances have not been yet identified but it is very similar to Anti elastase.

There are other important enzymes in the bio-energetic processes such as neurotransmitters which are secreted by 34 cerebral nodes distributed along the body of leeches. The leeches also produce catecholamine which act on the nerve terminator, particularly at the level of the skin which are dopamine, serotonin, and acetylcholine which is so important in leeches that the official method for assaying acetylcholine in tissue is based on a biological method involving the contractility of leeches dorsal region.

Concept of Leeching on The Basis of Istifragh and Tabyat

Istifragh is that process through which body removes its metabolic wastes product which can be harmful for it. As these metabolic wastes can produce diseases so it's necessary to remove these waste products in normal quantity from the body in order to prevent disease. In Unani system of medicine *Tabyat* plays very important role in removing these waste product. *Ali bin Rabban Tabri* states that it's the beauty of *Tabyat* that it removes the waste product from the organ. So when they get accumulated in the brain it can be remove by sneezing, like wise if these waste products diverted towards lungs than *Quwat-e-dafiyah* removes it through coughing. Similarly if these waste product goes towards liver and adheres to it, it produces the condition of nausea and vomiting and it can be removed through mouth.^[18] In the same way different waste product of the body e.g urine, stool, menstrual blood, sweat, wax of ears, removes with the help of *Tabyat* and by this way the waste product removes from the body and body will be protected from various diseases. Now if these processes increased or decreased it shows very harmful affect on the body which can be seen especially in the season of summer and monsoon, when body become diseased, ill or weak. For *Istifragh* (evacuation) it should be kept in mind that the direction of waste product should be towards normal route to help *Tabyat* for playing its role.^[18] The above benefits of *Istifragh* shows why Unani physicians chosen leeching as an important and useful way of treatment of various diseases.

BENEFITS OF LEECHING

Leeching can be useful in those areas of the body where venesection and wet cupping is not possible. Leeching is used as one of the method of *Istifragh* (evacuation) for which leech is placed on the affected area. Leeches because of its special ability can remove morbid humors from the body and protect the body from various diseases. Hence, because of all these benefits Unani physicians adopt leeching as an effective mode of treatment.^[19] According to kitab al-umda fil al-jarahat (vol 1) leeching removes more morbid humor than cupping but less than venesection. It is necessary that after the evacuation of the morbid humors from the organ, leeching can be done so that the morbid humors cannot get accumulated once again in the effected organ of which *Istifragh* (evacuation) is done. Besides this it's also mentioned in kitabul umda fil jarahat (vol 1) that after the process of leeching the blood should be sucked from the effected place with the help of a hollow horn so that the blood which is left is evacuated and the effect of biting of leech is also removed.^[20]

In comparison to cupping leeching can suck more blood from the depth of the organ. It is also mentioned in Jarahate Zohrawia that more often leeching can be done in that areas of the body where venesection and wet cupping is not possible. And because of its small size it can also be used in lips and gums and in those organs which are devoid of muscles eg. finger and nose.^[21]

It is mentioned in Miftah-al-hikmat that according to *Sheikh ur Rais* leeching can be used in skin diseases eg. Baldness, Ringworm, infected ulcer. In ulcer it should be placed around infected ulcer, in blephritis around eyes, in fistula-around it, in cervical lymphadenopathy around effected portion, in diseases of nose around nose, in cancer on the effected portion.^[22]

Leeching is very beneficial in Children, Pregnant women, weak and ill persons who cannot tolerate wet cupping or venesection. In comparison to cupping leeching can remove blood from the depth of the tissue. Some Unani physicians mentioned that leech can suck only impure blood which is not good for our health it cannot suck pure blood which is good for our health.^[23] Leeching therapy can be useful in various skin diseases Ring worm, blephritis, psoriasis, cervical lymphadenopathy, chronic ulcers, cancer etc. It can also be used elephantiasis, various E.N.T disorders and in biting of poisonous insects.^[23] Beside these, leeching can also be useful in some systematic diseases eg. Cerebroscerosis, Hypertonia, Arteriosclerosis, Cardiosclerosis, Varicose veins, Thrombosis, Insufficiency of the heart function, Haemorrhoids, Gynaecological diseases, Migraine, Baldness, Prostate disease, Neuritis of dental and ear nerve etc. Sometime it can be used in various complicated cases which cannot get benefitted by Surgery eg. VaricoseVeins ulcers, Haemorrhoids, Thrombosis etc. Other than these, leeches can specially used in Neck, Liver, Bile inflammation and Gyanaecological diseases eg. Parametritis, Piosalpinx, Inflammation of the ovary, adnexites, endometrisis, mastitis, degenerative changes in the ovary. In all these diseases it's having very good therapeutic effect, decreases pain, decreases body heat and normalizes the cycle. It is also used in plastic and reconstructive surgery. It increases the blood circulation of the tissue and help in their adherence. In adherence of tissue approximately 5ml of blood is excreted from a leech. In this process the benefit is because of its salivary secretion excreted by the leech in this stage. These includes Anaesthetic, Anticoagulant (hirudin), Local vasodialator (histamine) and enzyme (hyaluronidase) because of combined effect of all these approximately 150 ml blood is evacuated in 48 hours around the region where leech is applied. The blood which is evacuated after application of a leech takes approx. 6 hours. The evacuation of blood by leech is not only because of its anticoagulant effect but it's due to the

combined effect of all its salivary secretion. In around 3 to 7 days new veins are formed hence, increases circulation of blood.

The leech therapy is also used in pain of acute dry pleurisy, parotitis, Myocarditis, Tonsillitis and joints diseases.^[24]

In Hyperaemia of lung it helps to decrease the congestion and for that, application of 6 leeches are needed. It also helps in cardiac affection and other cardiac diseases.^[25]

Charachteristics of Medicinal and Poisonous Leeches

Ibne Sina mentioned in his book *Kulliyat-e-Qanoon* some of the charachteristics of medicinal as well as poisonous leeches.

Medicinal leech

In ponds and lakes various kind of leeches are found but they all are not useful for medicinal purpose. The leeches which are used for medicinal purpose are found in that water which consists of green algae and small frogs in it, only those leeches can be used for treatment purpose.

Poisonous leech

We should avoid those leeches which have following charachteristics.

1. Those which have large heads.
2. Those which have blackish grey and green color.
3. Those which have hairs on their body.
4. Those which resemble Bam fish.
5. Those which have different kind of lines on their body.^[23]
6. Those which have red and green stomach especially when they are found in flowing water.

Use of these kind of leeches can result in various kind of diseases like syncope, haemorrhage, inflammation, paresis of limb, fever, intractable ulcer.^[26,23,27]

Treatment of Poisonous Leeches

If by some mistake, we use poisonous leeches for treatment purpose then it can be treated as prescribed by our Unani physicians.

We have to prepare the powder of some Unani drugs and used it as an antidote i.e Glycirrhiza glabera, Zingiber officinalis, Piper longum, Ipomea turpthem, Curcuma longa. These can be taken in equal quantity and can be used orally, as an ointment or nasally. If it can be used as an ointment then it should be added with some honey and applied over the effected area.^[28,24]

Characteristics of Male and Female Leech

Female leeches

1. They have soft body.
2. They have soft skin.
3. They have small head.
4. They have large lower body portion.

Male leeches

1. They have hard skin on their body.
2. They have large head.
3. Its middle body portion is small and it's like half moon, they should be considered as male leech.

Vagh Bhatt describes that if the disease is severe then more blood should be evacuated and for that male leech should be needed and in comparison if severity of disease is less then comparably less quantity of blood should be evacuated and for that, female leech should be needed.^[28,24]

DISCUSSION

The use of leeches for medicinal purposes dates back to 1500 BC. It was believed that the leeches suck bad blood which later on proved to be a wrong notion, instead the leech is a blood sucking animal which sucks every type of blood. The leeches were used for almost every ailment. The leeches were also used after the patient gets cured so as to remove the paccant humors which get accumulated in the body. In Unani system of medicine the bad humors which get accumulated in the body need to be removed (*Istifragh*) by various method like venesection, purging, emesis, diaphoresis, leeching etc. Especially after winter season due to less work and exercise the bad humors (*Akhlate fasida*) get accumulated and needs to be removed.

The advances made in the medical sciences have proved that leeches can work wonders. Recent studies have proved that efficacy of leech extract in cosmetics. The leeching has proved very beneficial in microsurgeries, in ailments like frost bite, essential hypertension and in different types of arthritis.

CONCLUSION

To conclude, leeching was a popular therapeutic practice throughout the ages for a wide range for diseases and it was applied as an unscientific home remedy by traditional therapists. Nowadays, leech therapy came back to the contemporary medicine with fewer applications, which were proven and supported by a huge number of scientific studies and case reports. Leech therapy in the field of plastic and reconstructive surgery is expected to be of paramount importance due to the ease of leech application and reduce side-effects. Hence, more efforts could be undertaken to optimize this utilization. More investigations are also required to assess leech efficacy and safety in the treatment of Diabetes Melitus and cancer.

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