

Irsal-e-Alaq (Leech Therapy) in Classical Literature of Unani System of Medicine: A Review

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Abstract

Unani system is a rich source of medicinal herbs and uses number of regimental therapies for curing the diseases. *Irsal-e-Alaq* (Leech therapy), one of the most important regimental therapy; a widely practiced method, is known from the time of extreme antiquity and is still alive today. This fact testifies its efficiency in various health problems. Eminent Unani physicians Razi, Majoosi, Zahrawi, Ibne Sina, have described and practiced the use of non-poisonous (or medicinal leeches) in a number of diseases including joint diseases, chronic non-healing ulcers and various skin disorder like eczema, psoriasis etc. Recent, scientific studies also reveal that leech saliva contains hirudin and histamine etc. which have shown anti-coagulant effect; hence improve microcirculation in diseases like varicose veins and diminished edema. Therefore, leech therapy can be used as an alternative or adjacent therapy for these diseases. And need of the hour is to generate clinical data for validation of claims of Unani physicians about efficacy of this therapy. Present paper deals with the historical aspect from Unani literature and brief scientific activities of leech therapy.

Keywords: Irsal-e-Alaq; Leech therapy; Unani system of medicine; Hirudin; Ibne Sina

supposed to have a unique humoral constitution which represents his healthy state. And to maintain the correct humoral balance there is a power of self-preservation or adjustment called *Quwwat-e- Mudabbira Badan* or simply *Tabiat* (Homeostasis) in the body [1,2]. When this proportion is disturbed it manifests in various pathologies.

Unani system is a rich source of medicinal herbs and uses number of regimental therapies for curing the diseases [3]. One of the foremost regimental therapy is *Irsal-e-Alaq* or *Taleeq*. *Alaq* is an Arabic word, which is synonymous for leech and the process of leech application is termed as *Taleeq* [4]. Leech therapy (*Irsal-e-Alaq* or *Taleeq*) is one of the effective methods of treatment various diseases since ancient times, it is mentioned in both the classical literature of Ayurveda as well as in Unani [4-6]. As per the classical literature of Unani system of Medicine, it is done to evacuate the disease-causing substances from the deeper tissues. In fact, the therapeutic application of *Alaq* is based on experience and empirical claims handed down from generation to generation [4,7,8]. Further, from the recent scientific studies has validated its different actions in a number of ailments. Now with scientific advancement it has been revealed that the saliva of leeches contains pharmacologically active biological compounds like Hirudin, Hyaluronidase, vasodilator, inhibitors of Kalikerine and Hementin [7-9]. They are injected into the human body during the sucking of blood by leech.

History of *Irsal-e-Alaq* (Leech Therapy) in Unani Literature

Leech therapy has a long history. Records indicate that Egyptians used leech therapy 3,500 years ago. The first documented use of leeches is found in an Egyptian wall painting, (dated 1567-1308 BC) that shows the leeches are applied on patient's head [10]. There are evidences that leeches were used all over the world since the Stone Age [11].

Rofus (1st century AD), quoted by Hakeem Abdul Hameed Bhopali in his book *Takmeel-ut-Tib* has mentioned that leeches

Introduction

Unani system of medicine was originated in Greece and developed by Arabs into an elaborated medical science based on the framework of teachings of *Buqrat* (Hippocrates) and *Jalinoos* (Galen). Since, it has been known as Greeco-Arab Medicine [1]. Unani medicine is based on the humoral theory (*Nazriya Akhlat*) postulated by Hippocrates. According to this theory, the health of a person depends on the four basic fluids (*Akhlat*) viz. *Dam* (blood), *Balgham* (phlegm), *Safra* (yellow bile) and *Sauda* (black bile) of the body. Every person is

are applied at different sites in different diseases. Rofus was the first among the Unani physicians who wrote about leech therapy in "*Risale Taleeq*" which is in the form of manuscript [12].

Arkaghanees, quoted by Razi (in western called as Rhazes) in his book *Al Havi fil'tib* (Liber Continens), recommends application of leeches in *salabat-e-tehal* (splenomegaly) [13].

Razi (865-925 AD) has recommended the use of leeches in *Qooba* (ring worm infection), *Sa'fa* (alopecia), *Quroohe balkhiya* and *I'lale Mafasil* (joint diseases) etc. [14].

Ali Ibn Abbas Majoosi (Haly Abbas) (930-994 AD) advised the application of leeches in *Irqunnasa* (sciatica) at the hip joint [15].

Abul Qasim Zahrawi (Abulcasis) (936-1036 AD) has suggested that leeching should be done at such sites where cupping cannot be performed like on lips and gums. They can also be applied over the parts having least flesh like finger and nose. He further suggested that sucking the part through cups or washing it with vinegar and plenty of water has got additional benefits from this therapy [16].

Ibn-e-Sina (Avicenna) (980-1037 AD) described the leech therapy very comprehensively with reference to Indian physicians. He has mentioned the types and characteristic of the medicinally usable leeches. In addition to it he has also described the mode, procedure and post leeching regimens [17].

Ibn-e-Hubal Baghdadi (1122-1213 AD) suggested the use of leeches after the evacuation of deranged humours through *Fasad* (venesection) and *Is'hal* (purgation). He also mentioned that leech removes altered blood from the site of *Sa'fa* (alopecia), *Qarha muzmin* (chronic wound) and relieves *Wajaul anaf* (nasal pain) [18].

Ismail Jurjani (12th Century) has described that if complete evacuation of the morbid material is to be intended, *Taleeq* (Leech therapy) should be performed for two consecutive days. He also advocated its benefit in skin diseases. He quotes Baghdadi's recommendation the application of leeches after cleaning the body through *Fasad* (venesection) and *Is'hal* (purgation) [19].

Ibn-ul-Quf al Maseehi (1233-1286 AD) says that *Taleeq* (Leech therapy) eliminates the morbid materials more vigorously in comparison to *Hijamat* (cupping) but lesser to *Fasad* (venesection). He emphasized the pre and post leeching procedures and stressed that cupping should also be done after performing *Taleeq* (Leech therapy). He further added that leeches should be applied before using the local drugs in *Sa'fa* (alopecia) [20].

Akbar Arzani (16th century), an Indian physician states that *Taleeq* (Leech therapy) is a substitute for *Fasad* (venesection) in cases of children. He mentioned its main benefit in *muzmin amraze jildiah* (chronic dermatological diseases) like *Sa'fa* (alopecia) and *Qooba* (ring worm infections) [21].

Hakeem Syed Abdul Hameed Bhopali in his book *Takmeelut Tib* mentions with reference to some experts that leeches

absorb only *Fasid khoon* (contaminated blood) and they are very beneficial in chronic skin diseases like *Sa'fa* (alopecia) and *Qooba* (ring worm) etc.

In medieval and early modern medicine, the medicinal leech *Hirudo medicinalis* and its congeners were used to remove blood from a patient as part of a process to "balance" the "humours" that according to Hippocrates must be kept in balance in order for the human body to function properly and these four humours are blood, phlegm, black bile and yellow bile.

Leech therapy became a popular method in medieval Europe due to the influence of famous Unani writer and philosopher Ibne Sina, mentioned in his treatise *Alqanoon Fil'tib* (Al Canon). A more modern use for medicinal leech was introduced by *Abdul Latif Al Baghdadi* in the 12th century, who wrote that leech, could be used for cleaning the tissue after surgical operations. Contemporary leech therapy is pioneered by surgeons [22].

The use of leeches in medieval times was of greater benefit than cupping because the amount of blood removed would be more "predictable" and of a greater amount. The reporting of the practice of using leeches reached its climax between 1820 and 1845. Francois Broussais (1772-1832) proposed that all diseases resulted from excess of blood and that bloodletting was the only cure.

Eminent Unani physicians like Ibne Sina, Jurjani, Ibn-ul-Quf Maseehi and other physicians have also advocated the use of non-poisonous leeches and stated their identification and differential characteristics in detail. They divided the leeches into two classes; non-poisonous or therapeutically usable leeches and poisonous leeches [23-27]. In fact, the present data has supported their view also.

Unani Theory and its Relevance with Leech Therapy

As per concept of Unani System of Medicine (USM), diseases are due to imbalance between humours or matter. Unani physicians have a basic line of treatment that if the morbid matter is present superficially then cupping will be performed and when both internally and superficially then venesection is preferable; and when present in mid of them then leeching is performed [28]. Thus, from the classical literature of Unani system of Medicine, it is done to evacuate the disease causing substances from the deeper tissues Unani physicians have used it nearly in all systems. The therapeutic effect of *Taleeq* is not only due to the sucking out of morbid humours from the affected part of the body but also because of its *Musakkin alam* (analgesic) and *Muhallil* (resolvent) effects as mentioned by Razi in his famous book *Al Havi Fil'Tib*. Unani physicians have indicated *Taleeq* absorbs sanguinous matters more efficiently as compared to *Hijamat* (cupping) [29-35].

Indications of Leech Therapy

The famous Unani physicians like Rofus, Arkaghanees, Razi, Majoosi, Maseehi, Zahrawi, Ibn Sina, Ibn Hubal Baghdadi, Ismail Jurjani, Akbar Arzani and Abdul Hameed Bhopali etc. have recommended *Taleeq* in-Amraze *jild* (Skin disorders) like *Qooba* (ring worm infection), *Nar farsi* (eczema), *Sa'fa* (alopecia), *Daus sa'alab* (tinea capitis), *Qroohe muzmina ghair mundamila* (chronic non healing ulcer), *Amraze Uzn*, *Ain wa Anaf* (diseases of the ear, eyes and nose), *Amraze nizame baul wa tanasul* (Genito urinary diseases), *Amraze ra's* (diseases of head), *Amraze pistan* (diseases of breasts), *Khanazeer* (scrofula), *Ilale Mafasil* (joint diseases), *Irqunnasa* (sciatica) and *Sartan* (cancer) [29-31,33].

Contraindications

According to the Rofus, *Taleeq* is contraindicated at the following sites: "Stomach, epigastric region, around the spleen and liver, on buttocks, old aged and lean individuals".

Chemical Composition of Leech Saliva

A number of pharmacologically active substances have been found in leech saliva like hirudin [34-37], inhibitor of kallikrein [34,35], trypsin inhibitors [34,35], proteinase inhibitor [34,35], hyaluronidase [38], anaesthetics [34,35,39] and antibacterial [39]. These substances reduce blood coagulation, dissolve thrombi, reduce cholesterol and sugar content in blood, have anti-coagulant and anaesthetic effects, decrease blood pressure, improve the immune system, diminish oedema and improve microcirculation respectively.

Recent Scientific Studies

Leeches seem to have made both a clinical and laboratory resurgence over the past several years. In 1950, Fritz Marquardt of Germany isolated a protein hirudin from *Hirudo medicinalis* [40] which has thrombin inhibitor effect. Due to its high affinity for thrombin, hirudin inhibits almost all the physiological actions of thrombin, and hence acts as antithrombotic.

Recombinant hirudins are currently undergoing clinical trials in deep venous thrombosis and acute coronary syndromes and as an adjuvant to thrombolysis in myocardial infarction strokes, heart attacks, thrombus occlusion of cerebral or coronary arteries respectively [41,42]. Hirudin from leech has more desired and effectiveness and least complications than drugs for the same purpose so it shows promise as novel therapeutic agents and are excreted in unchanged form in the urine [43].

Much research has been directed to identifying proteins from leech saliva extracts. Infact, different methods were used by Ghawi et al. for isolating and using a whole-saliva leech extract in the treatment of anticancer [44], prostate, ovarian or breast cancer [45] leukemia [46], in melanoma [47], in colorectal cancer [48], antioxidant [49], antibacterial [50], anti-

diabetic [51], and antibacterial for skin infections [52] respectively. Another study done on haemorrhoid by Najar et al. showed significant improvement in pain, bleeding, itching and swelling [53].

In 2001 researchers from Kliniken Essen-Mitte Essen, Germany reported in their study, on the use of leeches in the treatment of osteoarthritis of the knee joint [54] and Michalsen et al. in 2003, Andereya et al. in 2008, and Zaidi et al. in 2009 studied on effectiveness of leech therapy in Osteoarthritis of the knee respectively [55-57]. Chepeha et al. in 2002 shows the effect of leech on unsalvageable venous obstruction, while as Singh et al. has showed the effect on psoriasis by applying leech respectively [58,59].

Conclusion

Unani system is a rich source of medicinal herbs and uses number of regimental therapies for curing the diseases. *Irsal-e-Alaq* (Leech therapy), one of the most important regimental therapy and currently practiced in many countries for different diseases of acute and chronic in nature. In fact, the recent scientific studies have evaluated many claims of Unani system of medicine mentioned in the classical literature. The above review paper was envisaged for a blueprint of historical aspect and indications from Unani classical literature with modern studies on leech therapy.

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