

Clinical importance of leech therapy

Tanzeel Ahmad* & Mohd Anwar

National Institute of Unani Medicine, Bangalore 560 091, Karnataka

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The Unani System of Medicine is based on the concept of balancing body humours. The majority of the diseases are caused by the endogenous factors by excessive accumulation of foodstuff, blood and superfluous or morbid humours, the metabolic products. Consequently to the concept of congestion or over filling the 6 evacuating methods blood letting, purging, vomiting, sweating, diuresis and cauterization are described. Blood letting in the form of venesection, leech therapy and cupping with scarification is an essential part of regimental therapy. Leech therapy, one of the most important and widely practiced methods known from the time of extreme antiquity is still alive. This fact testifies to its efficiency in various health problems. The paper deals with the method, indications and contra-indications of the leech therapy.

Keywords: Leech therapy, *Hirudo* therapy, Regimental therapy, Blood letting, *Unani* medicine

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Unani System of Medicine is based on the concept of balancing body humours. Their imbalance causes diseases whereas restoration of the balance leads to health. In the classical text books of Unani medicine 3 different methods are described to treat the diseases, regimental therapy, pharmacotherapy and surgery¹. Under regimental therapy, various methods like *taleeq* (leech therapy), *hajamat* (cupping therapy), *dalak* (massage), *riyazat* (exercise), *hammam* (bath), *amale kai* (cauterization), *fasd* (venesection) and *ilaj bil ghiza* (diet therapy) have been mentioned^{2,3,10,15}. It is believed that majority of all diseases does not come from without (like injury), but from within by overfilling with foodstuff, blood and superfluous or corrupt humours, or the metabolic products⁴. Consequently to the concept of *imtela* (over filling), six evacuating methods, blood letting, purging, vomiting, sweating, diuresis and cauterization were the basis of the most effective general treatment until the beginning of 19th century^{3,4,7}. Blood letting in the form of venesection, leech therapy and cupping with scarification is an essential part of the deplethoric, antiphlogistic, antispasmodic and antidyscrasic method of general treatment. For centuries, leeches were the common tool of physicians, who believed that many diseases were the result of imbalance in the body that could be stabilized by releasing blood^{4,7}.

Leech therapy is one of the most important and widely practiced methods of regimental therapy used for local evacuation of morbid humours¹. It is a procedure of treatment with the use of medicinal leech (Table1). The therapy is known from the time of extreme antiquity, more than 2,500 yrs, and is still alive. This fact testifies to its efficiency in various health problems. In English language the medieval healers were referred to as *lechers*. *Dhanvantari*, the Indian God of *Ayurveda*, holds a leech in one of his hands. Some even presumed that the snake of *Asqaliboos* (Esculapian) staff is actually a leech⁷. Researchers of the 17th and 18th century claim that they could cure angina pectoris very often by leeches put upon the region of the heart and more over upon the rectum, in order to drain the portal vein and thus to imitate the self healing power of nature⁵. There is a renewed interest in leech therapy and has once again become a part of our medical care. It was the discipline of reconstructive surgery that first rediscovered the sensitive blood suckers for its purpose back in seventies, when the torn-off ear of a young boy could be saved and successfully reattached with their help. Contemporary leech therapy was pioneered by the surgeons who described the use of leeches to assist in tissue flap surgery in which a flap of skin is freed or rotated from an adjacent body area to cover a defect or injury. Their rationale behind this use of leeches was based on a unique property of the leech bite, namely, the creation of a puncture wound

*Corresponding author

Table 1—Indications and contraindications

Indications	Contraindications
To draw the blood and morbid humours from deeper tissues, <i>imtela</i> (congestion), varicose veins ^{1, 3} .	Absolute haemophilia ^{12, 13} .
Chronic skin disease like scabies, psoriasis, eczematous dermatitis, chronic ulcers, ring worm, reddish freckles and favus ¹ .	Children ^{12, 13} .
Phlebitis and thrombotic (blood clotting) conditions ⁹ .	Pregnancy ^{12, 13} .
To decrease the viscosity of blood, useful in coronary artery thrombosis and Ischemic heart diseases ^{6, 9} .	Anaemia ^{12, 13} .
In preventing post-surgical blood clotting. Helpful in reattachment of severed extremities like fingers, toes and ears ^{6, 7, 9} .	Leukaemia ^{12, 13} .
For relief of pain and to reduce inflammation in diseases like osteoarthritis ¹³ .	Hypotonia ^{12, 13} .
In the treatment of asthma, acute rhino pharyngitis and spasmodic coryza for mucolytic action of saliva ^{11, 16} .	

that bleeds for hours^{4, 6, 11}. Modern leech therapy differs from that of an ancient one because now wild leeches are not used. The leeches are grown at a special leech farms where they are in severe quarantine. Also, to exclude infection of the patient a leech is used only once. The obvious advantage and absolute safety of leech therapy is established^{12, 13}.

In India, there are about 45 species belonging to 22 genera. However, the species commonly cultured for medicinal use are *Hirudinaria granulosa* and *Hirudo medicinalis*. *Hirudinaria granulosa* is abundantly found in the states of Madras, Kerala, Madhya Pradesh, Uttar Pradesh and Punjab, where as *Hirudo medicinalis* is commonly used in western world^{9, 16}. Leeches are blood sucking worms with segmented bodies. These leeches can primarily be found in freshwater lakes, ponds or rivers ranging from 5 mm to nearly 25 cm and have two characteristic suckers located at either end of their bodies. To feed, a leech first attaches itself to the host using the suckers. One of these suckers surrounds the leech's mouth, which contain three sets of jaws, each consisting of about 80 calcareous teeth that bite into the host's flesh, making a Y-shaped incision. Between the teeth lie little openings through which the saliva is secreted. As the leech begins to feed, its saliva releases chemicals that dilate blood vessels, decreases the blood viscosity, and deaden the pain of the bite^{9, 12, 16}. Unani literature describes that the part to be treated should be washed

with a solution of borax and rubbed until red and if the leech is reluctant to bite a tiny droplet of blood may be smeared on the part to be treated, drawn from the wound site with a needle prick and then applied the leech¹. One or more leeches are applied to the affected area and left usually for half hour. Once the leech is attached, it will likely remain safely in place until fully distended, but it is important that the site be checked continuously to ensure that the leech hasn't moved. The leeches are then removed by pulling them off or by loosening their grip with table salt, borax, heat or acid. The used leeches are then killed and disposed off^{1, 3, 14, 16}.

The effects of the treatment lie not in the amount of blood that leeches ingest, but also in the anticoagulant enzymes of the saliva that allow blood to flow from the bite after the leech is detached. The leech produces a number of substances which contribute to the special property of the bite, including anticoagulant like hirudin, calin, inhibitors of kallikrein, hayaluronidase, histamine-like vasodilators, collagenase, and poorly characterized anaesthetic and analgesic compounds^{8, 12}. Hirudin is responsible for inhibiting blood coagulation and is employed as an anticoagulant in surgical operations and has been recommended for the prevention of phlebitis and postoperative pulmonary inflammation, calin also inhibits blood coagulation but it is responsible for slow cleansing of wound by maintaining secondary-bleeding for approximately another 12 hrs. Histamine-like substance has dilating effect on the blood vessels and thereby causes the blood to stream to the bite location. In the mean time the spreading factor, hayaluronidase acted to clear the path for the active and healing substances to penetrate. These substances allow continued bleeding for up to 24 hrs after the leech has been detached. Besides, a regional analgesic and antiphlogistic effect by these substances enforced by hayaluronidase as well as counter irritation might be possible^{7, 11, 12}. Furthermore, some of these substances have antiinflammatory and other additional effects like lipotropic activity that can be used at atherosclerotic defects of vessels in ischemic heart disease and diabetes mellitus. The existence of skin visceral connections with the definite organ is well known. Through veins, the biologically active substances act to organ during sucking by leech. It promotes the improvement of blood circulation in the organ, renders thrombolytic, antiinflammatory and immunostimulant action^{7, 8}. Leech therapy reduces

pain, stiffness, and joint dysfunction in people with osteoarthritis of the knee. In some patients, application of leeches may produce mild fever and itching^{9,12,16}.

Conclusion

Leech therapy, as indicated by the *Unani* physicians can be safely and effectively used to evacuate the blood and morbid humours from deeper tissues and in diseases like psoriasis, chronic ulcers, eczema and favus. Further, modern biochemistry has been able to point out so many substances in the leech saliva as well as their mode of action. On the basis of these findings, it may be suggested that leech therapy can produce better results either single or as an adjuvant with drug therapy in diseases like angina pectoris, coronary thrombosis, hypertension, atherosclerosis, varicose veins and in various surgical and traumatic conditions such as re-attachment of severed extremities, fingers, toes and ears.

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