



A CRITICAL REVIEW ON HISTORICAL ASPECTS OF JALAUKAVACHARAN (HIRUDOTHERAPY)

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ABSTRACT

The medicinal leech, *Hirudo medicinalis*, is one of the few examples of the use of invertebrates in the treatment of human disease. Leech therapy also known as Hirudotherapy (mentioned as Jalaukavacharan in Ayurveda) played an important role because it was used for medicinal "blood-letting" and "purification" - a practice believed to cure a variety of ailments from gout to headaches. The use of leeches began to become less widespread towards the end of the 19th century. But leech therapy has now again emerged as widely useful therapy in large number of diseases and is attracting the eyes of researchers all over the world. In Ayurveda, Jalaukavacharana has been mentioned as one of the processes of Raktamokshana. Ayurveda scholars have devoted full chapters in their texts depicting identification, collection, preservation, method of application, indications etc. of leeches which proves its popularity in medical field since ancient times. Besides its wide indications, its easy applicability without producing any adverse effects is also another reason why leech therapy has been practiced by Ayurvedic physicians since ancient times.

In present era, role of leeches in microsurgery in setting of venous congestion associated with soft tissue replantations and free flap-based reconstructive surgery has been well accepted on various scientific grounds. In 21st century, studies have been done to prove its role in arthritis. But there are many more areas from headache to hypertension, where leeches are evident to give successful results. The need is to explore these areas and perform studies to make them globally accepted. Researchers in Faculty of Ayurveda, IMS, BHU are involved in various clinical as well as experimental studies to make the well evident clinical efficient therapy mentioned in Ayurveda scientifically accepted all over the world. These reasons, gave us the curiosity to explore the historical uses of leech therapy in view to establish its importance as well as to get clues for future scopes in hirudotherapy.

Key words: Jalauka, Jalaukavacharan, Raktamokshan, Hirudotherapy.

INTRODUCTION

A comprehensive search of major medical search engines i.e, Google, Pub Med, Scientific commons was conducted. Ayurvedic texts namely, Charak samhita, Susrut samhita, Astang Sangrah, Astang Hridaya, Kashyap samhita are also studied to get the view of the uses and popularity of leeches in past eras.

Review of Hirudotherapy in Vedas and Ayurveda

Hirudotherapy has been mentioned in Ayurveda by the name of 'Jalaukavacharan' ('jalauka' meaning leeches and 'avacharan' meaning application). As per Ayurveda, jalaukavacharan is one of the procedures of Raktamokshana. Raktamokshana is one of the bio purification methods mentioned in Ayurveda, in which humors vitiated in blood are expelled from the body. Ayurveda mentioned various kinds of leeches out of which 6 varieties of nonpoisonous leeches are used for hirudotherapy. Ayurvedic scholars have devoted full chapters in their texts mentioning the origin, identification, collection, preservation, application, indications and contraindications of leeches. This signifies the importance and efficacy of leech therapy since ancient times.

- Reference regarding the eradication of the disease form "Usniha" (arteries) is mentioned in Rigveda. This process mostly refers to Raktamokshana. (R. V. 10/16,4,2)
- The method of application of leech for bloodletting is mentioned in Kaushika Sutra (4/26/8) which is a sutragrantha of Atharvaveda.
- The description of bloodletting by Shrunga in a reference of treatment of Pilinduvaccha, who suffered

with parshwavata is mentioned in Vinaya Pitaka (Vinay 6/2/5).

- Acharya Charka has enumerated Raktaja Roga and their treatment by Shonitavasechana. (Ch. Su. 24; Ch. Chi. 7/52)¹⁶ and various means of Raktamokshana is also mentioned (Ch. Chi. 28).
- Acharya Sushruta has dealt in detail with Raktamokshana and its type. He described special chapter for Jalaukavacharan(Su. Su.13)¹⁵ The types of Jalauka, their habitat etc. has been described first time in detail in this chapter. Complete description of leeches starting from its identification, method of applying leeches over the body, post sucking purification of leeches, its clinical utility etc. is mentioned.
- Other texts like Astang Hridaya, Astang Samgrah, Sharangdhar Samhita have also mentioned Raktamokshana and Jalaukavacharana with a detail description. (A. H. Su. 26; A. S. Su. 37; Sa. Sam. Ut. 12).

Historical Prospective

Bloodletting is an ancient art which archeologists have now dated to the stoneage after discovery of various tools in that culture (Glascheib 1964)¹. The first recorded context of bloodletting via phlebotomy is found in Hippocratic collection of 5th century B.C. But ayurvedic blood letting concept was not acknowledged in western texts.

The first recorded use of leeches in medicine was in 200 BC by the Greek physician Nicander in Colophon² and soon thereafter Hirudotherapy has also been reported by Themison of Laodicea (a pupil of Aesculapius) in the year 50 BCE³. However practice of jalaukavacharan has been

mentioned in Ayurveda since 2500 B.C. and Ayurvedic doctors are practicing this therapy successfully to treat variety of ailments.

Medical use of leeches was discussed by Avicenna in The Canon of Medicine (1020s). He believed that leeches drew blood from the deeper source than wet cupping. He has devoted many pages in his book for instruction on leeching and medicinal uses of leeching. (Grunner, 1930)¹.

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. The leeches described for medicinal uses include mash colour leeches, blackish red leeches, thin leeches resembling to mice tail, liver colour leeches, etc.(Maseehi,1986)¹.

A painting in an Egyptian tomb from around 1500 BCE depicts the use of medicinal leeches^{1, 4}. 5000 years ago, Egyptians physician believed that letting a leech sip a sick patient's blood could cure everything from fever to flatulence. In medieval Europe, leeches were so closely associated with physicians that the term leech was used to designate them¹.

Leech therapy played an important role during the seventeenth and eighteenth centuries, at which time it was used for medicinal "blood-letting" and "purification" - a practice believed to cure a variety of ailments from gout to headaches.^{1,5,6} In medieval and early modern medicine, the medicinal leech (*Hirudo medicinalis* and its congeners *Hirudo verbana*, *Hirudo troctina* and *Hirudo orientalis*) was used to remove blood from a patient as part of a process to "balance" the "humors" that, according to Galen, must be kept in balance in order for the human body to function properly.

The leeches became popular mode of bloodletting in 18th & 19th century AD. Thomas treatise on domestic medicine, written in 1822, advocated leeching. Topical bleeding may be performed in two ways, viz. either by the application of leeches or cupping. Leeches are highly useful and can be applied to delicate parts as eyes, gums, breasts and testicles, etc. where cupping cannot be applied. He also mentioned that the continued bleeding after the leech drops off should be encouraged.

Their use was peaked in 1830 in France when Brousius, the most sanguinary physician in history was practicing (Castiglioni, 1948). He believed that any sickness that caused the subject's skin to become red (e.g. fever and inflammation), so the theory went, must have arisen from too much blood in the body. Similarly, any person whose behavior was strident and "sanguine" was thought to be suffering from an excess of blood¹.

Between 1829 and 1836AD, the use of leeches became more popular and approximately 5-6 million leeches were used yearly.

Enthusiasm for leech therapy waned in the late nineteenth and early twentieth century, but scientific interest in *Hirudo medicinalis* continued^{5,6}. In the early 1880s, Haycraft first noted the antithrombotic properties of leech saliva and Jacoby discovered the anticoagulant factor in leech saliva and named it hirudin in 1904⁷. In the 1980s, French microsurgeons began using leeches to assist with distal digital replantation involving arterial repairs only.⁸

In present era, leeches have become the cynosure for the researchers all over the world. Over 100 chemicals are believed to be present in leech saliva of which about 14 have been isolated and studied⁹. Leeches are now-a- days, commonly used in plastic surgery all over the world to aid wound healing after plastic surgery. Leech therapy is particularly appropriate in plastic surgical situations in which there is more arterial repair than venous repair, such as fingers, auricles, and skin flaps.⁹ Leeches have also been used after breast surgery to relieve the possible complication of venous congestion at the nipple.¹⁰ An additional use of leeches in plastic surgery is in the treatment of ring avulsion injuries.¹¹ It is also used to treat post phlebitis syndrome in which venous valves are obliterated by deep vein thrombosis.⁹ Recent studies have shown its dramatic effect in relieving symptoms of osteoarthritis¹²⁻¹⁴. Besides these, there are various diseases like Eczema, Psoriasis, Rheumatoid arthritis, Cellulitis, Sciatica, Inflammatory Reactions, Blood purification, Varicose Veins, Rheumatic Diseases, Diabetic Wounds, Boils and abscesses, Hypertension, Thrombosis (blood clot), Alopecia and Herpes zoster where studies have been done by researchers here and there but need of more large scale clinical studies needed to prove the efficacy of leech therapy.

CONCLUSION

Jalaukavacharan is one of the important therapeutic procedures mentioned in ayurveda to cure various diseases like skin diseases, blood disorders, alopecia, filariasis etc. Hirudotherapy is known from the time of extreme antiquity and is still alive nowadays. This fact testifies its efficiency in healing various kinds of illnesses and diseases.

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