

MEDICAL PHILATELY

Revisiting Medicinal Leeches

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Lord Dhanvantari. Nepal-1977. Note leech held in his left lower hand and amrit pot in his rt. hand

Leeches are blood sucking annelid worms with ability to expand or contract their bodies. They are mainly found in shaded humid places such as swamps, lakes, slow streams etc. *Hirudo medicinalis* have been commonly used for medicinal purposes in Europe while *Hirudo granulosa* leeches are most common and abundant in India for the purpose.

Mature adult leeches on an average grow 5 centimeters in length; they are brown, greenish brown with a darker tone on the dorsal side. Worm has two suckers, one at each end. Anterior sucker has tripartite jaws, and on them about 100 sharp teeth, used to incise the host, where blood feeding takes place. Hind suckers mainly act as leverage. Incision leaves a mark that is an inverted Y inside a circle resembling Mercedes Benz logo.

Saliva of leech contains 60 different proteins and many pharmacologically active biological substances. They are injected in the host while sucking the blood and are responsible for the local anesthetic, analgesic, anticoagulant



Blood sucking *Hirudo medicinalis* leech with anterior head on the left with supporting posterior end

(hirudin), platelet aggregation inhibitor activity (Apyrase, collagenase etc.), and vasodilatation. Leech applications are not generally painful due to a local anesthetic effect. Adult worm can consume blood up to ten times their body weight in a single meal with 5-15 ml being the average volume taken. They drop off in 20 minutes or so because of tumescence after a full meal. The amount of blood could be controlled by prescribing appropriate number of these bloodletting leeches and if needed to constantly replace them.

Detailed description of leech therapy is found in the text of *Sushruta Samhita* (1000 BC) by **Sushruta**. He described six non-poisonous leeches and indicated the medical conditions where they were useful. Lord Dhanvantari (Nepal stamp, 1977) is traditionally shown with 4 hands. Here his left lower hand holds leeches. No other stamp or cancellation is issued on leech/s to the best of my knowledge

During medieval and early modern period, leeches were used as part of bloodletting to maintain balance of four humors. Legendary Arabic physician **Avicenna** in his *-Canon of Medicine* (1020 AD) has discussed hirudotherapy

in a comprehensive manner.

The use of leeches became very widespread in the 18th and 19th Century in Europe. However, Jan Baptista van Helmont (1579-1644) physician and chemical philosopher, presiding over medicine claimed that bloodletting was a dangerous waste of patient's vital strength. The use of leeches became less widespread towards the end of the 19th Century.

Medicinal leech made an international comeback in 1970. Their use was pioneered by Russian surgeons who started it in tissue flap surgery. Today they are used in microsurgery to release or drain congested blood in wound sites. Plastic surgeons use them in challenging skin grafts. They have also been used in traumatic hand/fingers reattachment and reconstructive surgery. Their preference in these areas is because of the precision with which they can be applied. Regular post procedure checks for bacterial infection, prolonged bleeding is necessary. Used leeches are destroyed and discarded after procedure.

Medicinal leeches are grown in special biological farms meeting the conditions of sterility. In 2004, US FDA approved French firm to market leeches. They are typically stored in hospital refrigerator for plastic and re-constructive surgeons.

Leeches indeed have a place in the field of medicine, however disgusting they may seem at times.

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