



# JV AYURVED SANGRAH – SHALAKYA TANTRA

***Jv'n Dr. Meenakshi***

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## JV AYURVED SANGRAH – SHALAKYA TANTRA

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**CHAPTER 1 :**  
***RAKTAMOKSHANA (BLOOD LETTING) ACCORDING TO***  
**AYURVEDIC TEXTS**

*Ayurveda* the good life science of our nation is currently practiced eagerly; however once the challenges of resistant cases are increasing day by day, *Ayurveda* is the only hope in such cases. There is no piece of doubt that every country has its own ancient medical system, that they practiced since centuries back however because of lack of a well written script it step by step disappears. In Asian nation, ancient medical system is enriched with a well outlined *doshik* (morbid) theory of illness etiology, types, clinical options, treatment modalities etc. in an exceedingly alright organized and systematic manner, and called piece of writing. *Charaka Samhita*, *susruta Samhita*, *ashtanga smrgraha* and *ashanga hridaya* are the bottom books whereas *madhav nidana*, *sharangdhara samhita*, *bhava prakasha* etc. are the supplementary books; thanks to these written matter books piece of writing remains active in Asian nation with nice success. *Rakta mokshana* or blood property is practiced in or nation since thousands of years. Our *acharya* enclosed this procedure beneath the 5 bio-purificatory procedures; they believed that removal of impure blood from the body treats the basis reason behind the sufferings.

*Rakta mokshana by jalauka (Blood property by leech)*

Blood property are often done by *jalauka* (leech) in people who area unit made, weak, fearful subtle, previous and just in case of females. Leech is sheeta (cold) in nature thus ordinarily employed in *pittaja* and *raktaj* disorders. Leeches initial sucks the impure blood than the pure thus once patient feels pricking pain and itching sensation over the bite place, leech ought to be removed. Leech ought to endure ejection, to expel the dirty blood *Jalauka*.

Bheda (types of leeches)

*Savisha* (poisonous)

1. *Krishna* – achromatic, long head
2. *Karbura* – like Rohit fish, spiral lining over the body
3. *Alagarda* – furry, lobulated
4. *Indrayudha* – rainbow like particolored
5. *Samudrika* – black-yellow, dotted
6. *Gochandana* – like scrotom of ox

*Nirvisha* (non poisonous)

1. *Kapila* – mineral color, extremely motile
2. *Pingala* – scarlet, circular
3. *Shankhamukhi* – color like of liver, speedy consumption (commonly used)
4. *Mushika* – color and odor like rat
5. *Pundarikamukhi* – face like lotus
6. *Savarika* – eighteen angula long, form like lotus

## रक्तमोक्षण

आयुर्वेद में 'रक्तमोक्षण' को शोधन चिकित्सा के अन्तर्गत माना है। दुष्ट रक्त का निर्हरण ही रक्तमोक्षण कहलाता है। रक्तमोक्षण से रक्तगत दोष शान्त होकर रक्तज व्याधियों का शमन ही नहीं होता बल्कि रक्त धातु के बाद उत्पन्न होने वाली उत्तरोत्तर धातुएं भी शुद्ध हो जाती हैं परिणामस्वरूप उत्तरोत्तर धातुगत व्याधियाँ भी नहीं उत्पन्न होती। रक्तज व्याधियों के संदर्भ में आचार्य वाग्भट का विचार है।

“एकतस्तु क्रिया सर्वारक्तमोक्षणमेकतः”।

अर्थात् रक्तज व्याधियों की सारी चिकित्सा एक तरफ तथा केवल रक्तमोक्षण की चिकित्सा एक तरफ।

रक्तमोक्षण के लिए आवश्यक अवस्थायः:-

- |                    |                                 |
|--------------------|---------------------------------|
| (1) दोषानुसार      | वात<br>पित्त<br>कफ              |
| (2) रक्त की स्थिति | अवगाढ़<br>अवगाढ़तर<br>अवगाढ़तम् |
| (3) आतुरावस्था     | बलवान<br>सुकुमार<br>परमसुकुमार  |

### रक्तमोक्षण के प्रकार

1. शस्त्र – प्रच्छान्न, सिरावेध (वेधन, विस्रावण)
2. अशस्त्र – यन्त्र (शृंग, अलाबू, घटी), अनुशस्त्र (जलौका, विघर्षण)

- |   |                 |  |
|---|-----------------|--|
| 1 | शृंग का प्रयोग  | वात दुष्टि में<br>अवगाढतम रक्तदुष्टि में<br>त्वक् गत रक्त दुष्टि में             |
| 2 | जलौका का प्रयोग | पित्तदुष्टि में<br>अवगाढ रक्तदुष्टि में<br>ग्रन्थित रक्त में<br>सुकुमार रोगी में |
| 3 | अलाबू का प्रयोग | कफ दुष्टि में<br>अवगाढतर<br>त्वक्गत रक्त दुष्टि में                              |
| 4 | सिरावेध         | सर्वगत दोषों में<br>संवाग शरीर में व्याप्त दोषों में                             |
| 5 | प्रच्छान्न      | उत्तान रक्त गत दोषों में<br>एक देश में स्थित पिंडित रक्त में।                    |
| 6 | घटी यन्त्र      | कफ वात से दुष्ट रक्त में<br>बद्ध मूल गुल्म के शस्त्रकर्म में                     |

### रक्तमोक्षण में निष्कासित रक्त का प्रमाण (सामान्यतः)

- (1) शृंग :- व्याधितस्थान के चारो ओर 10 अंगुल स्थान तक शोणित स्रावित करता है । (शा.)

- (2) जलौका :- एकहाथ दूर तक रक्त को ग्रहण कर सकती है।  
(3) अलाबु :- द्वादशांगुल तक स्थित रक्त को निष्कासित कर सकता है। (भा.प्र.)  
(4) प्रच्छान :- एक अंगुल दूर तक स्थित रक्त दोष को बाहर निकाल सकता है। (भा.प्र.)

अधिकतम निष्कासित रक्त का प्रमाण — 1 प्रस्थ (54 तोला)

सिरावेध के योग्य रोगी :-  
विसर्प  
विद्रधि  
प्लीहवृद्धि  
गुल्म  
नेत्र रोग  
कुष्ठ  
वातरक्त

अयोग्य रोगी :-  
क्षत क्षीण  
मद्यपान  
कृश  
गर्भिणी  
बालक  
वृद्ध  
रुक्ष  
आक्षेपक



पक्षाघात

सिरावेध का काल

(अ) (अनुपयुक्त काल)

उपर्युक्त 5 स्थितियों में सिरावेध न करें।

अतिशीतकाल

अत्युष्णकाल

प्रवात वेग अधिक हो

आकाश में मेघाच्छन्न

रोग होने पर

(सु.शा. 8/7)

(ब) उपयुक्त काल

सामान्यतः शरद ऋतु प्रशस्त काल है।

वर्षा ऋतु में व्यभ्रकाल (बादल न हो)

ग्रीष्म ऋतु में शीत समय में

हेमन्त ऋतु में मध्याह्न में (सु.शा.8/10)

पूर्वकर्म :-

स्नेहन, स्वेदन, लघु, द्रव आहार

सिरावेध में प्रयुक्त होने वाले उपकरण

कुठारिका शस्त्र

व्रीहि मुख शस्त्र

त्रिकुर्च शस्त्र

सम्यक् स्राव के लक्षण

शरीर में हल्कापन

रक्त का स्वतः ही बन्द हो जाय  
रोग प्रान्त में वेदना की शान्ति  
रोग की तीव्रता में कमी  
मन का प्रसन्न होना ।

### असम्यक् स्राव के लक्षण

शरीर में कण्डू  
लालिमा  
शोफ  
जलन  
पाक  
वेदना

### अतिस्राव के लक्षण

शिरस्ताप  
अधिमन्थ  
तिमिर रोग  
धातुक्षय  
आक्षेपक  
पक्षाघात  
एकांगवात  
तृष्णा  
दाह ,कास—श्वास—पाण्डू रोग  
मृत्युजनक

अति स्राव होने पर रक्त को रोकने के लिए 4 प्रकार है।

- 1 संधान :- कषाय द्रव्यों का प्रयोग (सु.सु 14/39-40)
- 2 स्कन्दन :- शीत द्रव्यों का प्रयोग
- 3 पाचन :- भस्म, क्षार द्रव्यों का प्रयोग
- 4 दहन :- दाह कर्म

**रक्त मोक्षण के लिए प्राथमिक नियम :-**

रक्त की सम्पूर्ण दुष्टि निकल जाने तक स्राव न करें। उसे सदोष शेष रखना चाहिये। क्योंकि दोषों को अवशिष्ट रखने से उतना व्याधिश्रम नहीं है जितना अति मात्रा में स्राव होने से होता है।

शेष दोषों का श्रृंग, अलाबू, जलौका से निर्हरण करना चाहिये या शमन चिकित्सा करनी चाहिये।

आतुर बल, रोग, आशय को देखकर ही रक्त स्राव कराये। बलवान रोगी में एक प्रस्थ, मध्यम बल वाले रोगी में आधा प्रस्थ, व दुर्बल रोगी में एक कुडव से अधिक रक्त स्राव न करावें।

**रक्तमोक्षण की कार्मुकता :-**

रक्त मोक्षण के महत्व को सभी आचार्यों ने अनेको स्थानों पर निर्दिष्ट किया है। महर्षि सुश्रुत ने शल्यविद् होने के कारण विस्तार पूर्वक रक्त मोक्षण की प्रशस्ति को कहा है।

“ रक्तं जीव इति स्थितिः ”

रक्त से ही जीवन की स्थिति या अस्तित्व है। रक्त के दूषित होने से जीवन की स्थिति सामान्य नहीं रह पाती तथा बाह्य व अभ्यन्तर दोनो स्थानों पर अनेको

रक्तज रोगों की उत्पत्ति होती है रोगों की व्यापकता इतनी है कि ये पिडका न्यच्छ, व्यंग, आदि छुद्र रोगों से लेकर सन्यास और मृत्यु तक की गम्भीर अवस्थाये भी हो सकती हैं। इससे स्पष्ट है कि रक्त मोक्षण की उपयोगिता भी अत्यन्त व्यापक है। यथा –

- 1 त्वग रोग, ग्रन्थी शोफ तथा अन्य रक्त दुष्टि जन्य रोग पुनः उत्पन्न नहीं होते।
- 2 आशुलाभप्रद चिकित्सा हैं
- 3 रक्त मोक्षण निश्चित समय पर बार बार किये जाने से वर्ण प्रसन्न रहता है इन्द्रिया अपने विषयों को ग्रहण करने में समर्थ रहती हैं। अग्नि की शक्ति बढ़ जाती है।
- 4 जिस प्रकार कार्यचिकित्सा में वस्तिकर्म को अर्द्धचिकित्सा कहा गया है। उसी प्रकार शल्य तंत्र की अर्द्धचिकित्सा रक्तमोक्षण हैं।

## CHAPTER 2 : INTRODUCTION OF LEECH



There are various species of therapeutic medicinal leeches, most common are : -

1. *Hirudo – medicinalis* (the European medicinal leech)
2. *Hirudo – mychaelseni*.

Scientific Classification of *Hirudo Medicinalis* :

Kindom – Animalia

Phyllum – Annelida

Class – Clitellata

Order – Hirudinida

Family – Hirudinidae

Genus – *Hirudo*

Species – *H. Medicinalis*

Other *Hirudo* species sometimes used as medicinal leeches include *Hirudoorientalis*, *Hirudotroctina*, and *Hirudoverbana*.

The Mexican medical leech is *Hirudinariamamillensis*, and the North American medical leech is *Macrobdelladecora*.

## CHAPTER 3 :

### MORPHOLOGY OF LEECH



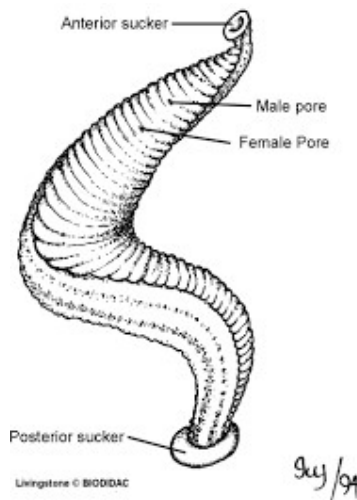
The general morphology of healthful leeches follows that of most alternative leeches. Leeches will vary in size from a half inches to 10 inches long. Absolutely mature adults is up to twenty cm long, and area unit inexperienced, black, brown, or greenish-brown with a darker tone on the dorsal aspect and a lighter tone on ventral aspect. The dorsal aspect additionally includes a skinny red strip.

The Leeches area unit metameric “worms” with 2 suckers, one at every finish of their body.

- Caudal (back end/posterior) - used primarily for leverage
- Rostral (front end/anterior) - consisting of the jaw and teeth, is wherever the feeding takes place.



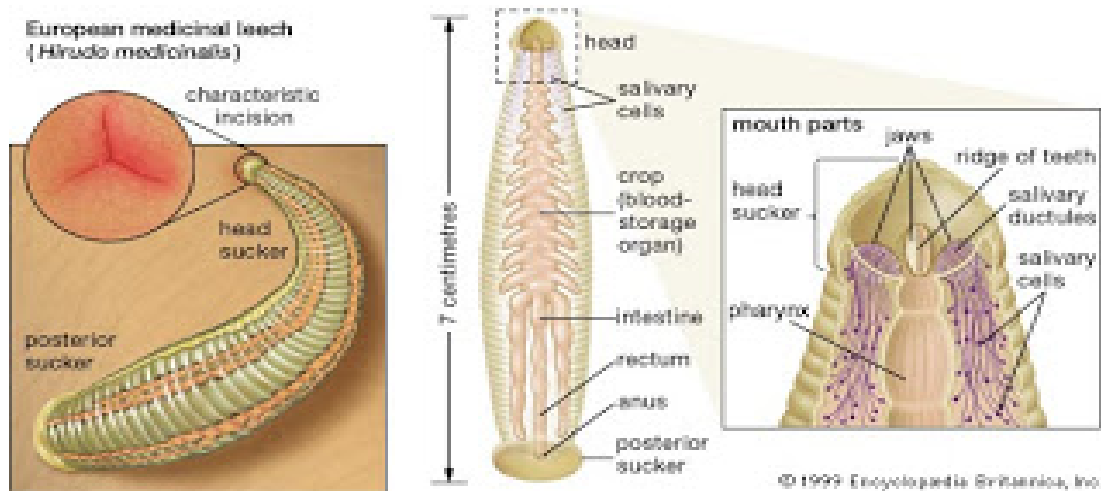
Medicinal leeches have 3 jaws (tripartite) that appear as if very little saws, and on them area unit regarding one hundred sharp teeth accustomed cut the host. The general public claim that even with its abundance of teeth, the bite of the leech doesn't hurt as a result of its secretion numbs the body part wherever the leech attaches. The incision leaves a mark that's associate inverted Y inside a circle.



After piercing the skin and injecting anticoagulants (hirudin) and anaesthetics, they suck out blood. Leech secretion contains several bio-active substances as well as prostaglandins, vasodilators, anesthetics and anticoagulants. Hirudin a potent anti-coagulant found in leech secretion inhibits conversion of proteinogen to fibrin, therefore preventing blood coagulation. alternative existing substances in leech saliva– calin, apyrase enzyme, egline, destabilase, piyavit and kollaginase.

Large adults will consume up to 10 times their weight in a very single meal. Once connected, the leech might suck anyplace from one to three teaspoons (5 to fifteen ml) of blood from the body. These leeches will live for up to a year between feeding. A leech will stay from half-hour to six hours because it fills with blood. Following the suction method the leech will perform active

movements when per week. The leech stores the sucked blood over months in its abdomen and digests it at intervals a amount of 1 and a 0.5 years.



There are alternative forms of leeches that will be used, like *Macrobdella decora*, however they sometimes hold considerably less blood.

Medicinal leeches are hermaphrodites that reproduce by sexual practice, birth eggs in clutches of up to fifty close to water, and in shaded, wet places.

The preferred home ground for this species is muddy fresh pools and ditches with plentiful weed growth in temperate climates. Some take advantage of decaying stuff. Others are parasites, feeding on blood and tissue of alternative animals.

Over-exploitation by leech collectors within the nineteenth century has left solely scattered populations, and reduction in natural home ground although avoidance has additionally contributed to their decline. Another issue has been the replacement of horses in farming (horses were healthful leeches' most popular food source) and provision of artificial water provides for oxen. European healthful leeches are lawfully protected through nearly all of their natural vary.



## CHAPTER 4 : ABOUT JALAUKA

### Word Jalauka

जलमासामायुरिति जलायुका” ।

जलमासामोक इति जलौकसः ।। (सू.सू. 13 / 9)

The word *Jalauka* is made by the union of 2 words jala & oka.

Jala suggests that water and *oka* suggests that home. Jalauka resides in water, therefore it's known as *jalauka*.

Jalauka suggests that solely *Hirudo-medicinalis* or non-toxic leech. Jalauka may be a live Para-surgical sharp instrument. Jalauka is that the native manner of blood-letting. Jalauka is made in water. it's Madhur & water being.

### History of Jalauka

Leech medical care is termed as *Jalauka* in Ayurveda system. *Dhanvantari*, God of *Vaidya*'s brought the data of surgery in the world. *Ayurvedic* scriptures like *Charak Samhita* literature and *Sushruta Samhita* have a clear description of *Jalauka*. Leeches square measure a crucial player in an age previous sort of *Ayurvedic* detoxification called *Rakta Mokshan* (the property of nephrotoxic blood). The first description of leech medical care, classified as blood property was found within the text of *Sushruta Samhita* written by *Acharya Sushruta* who was conjointly thought of the “Father of cosmetic surgery”. *Sushrut samhita's sutrashthan* provides all the fundamental principles of surgery. within the thirteenth chapter i.e. "*Jalaukavacharaneeya Adhyay*" (Chapter regarding leech) *Acharya* mentions regarding leech and its therapeutic uses.

He delineate regarding twelve varieties of leeches. Six varieties are *savisha* (poisonous) and 6 are *nirvisha* (non-poisonous). Diseases wherever leech medical care was indicated were skin diseases, neuralgia and system pain.

*Savish Jalauka –*

- *Krishna*
- *Karbura*
- *Algarda*
- *IndraYudha*
- *Samudrika*
- *Gauchandana*

*Nirvish Jalauka*

- *Kapila*
- *Pingla*
- *Mushika*
- *Savrika*
- *PundrikMukhi*
- *ShankMukhi.*

*Savisha (poisonous)*

- *Krishna* – achromatic, long head
- *Karbura* – like Rohit fish, spiral lining over the body
- *Alagarda* – furry, lobulated
- *Indrayudha* – rainbow like painted
- *Samudrika* – black-yellow, dotted
- *Gochandana* – like scrotom of ox

*Nirvisha* (non poisonous)

- 1 कपिला – मनः शिला एवं मुद्गवर्ण तथा स्निग्ध (coloured like Manah-Shila (realgar) at the sides, and their backs are tinged with a glossy hue like that of a Mudga pulse)
- 2 पिंगला – किञ्चित् लाल पिंगल वर्ण तथा गोल होती है (reddish colour, are round in shape and capable of speedy locomotion)
- 3 शंकुमुखी – यकृतखंड, कृष्ण, बैंगनी वर्ण, शंकुमुख वाली होती है (marked by a blackish red hue like that of the liver, are provided with sharp elongated mouths, and are capable of sucking blood with the greatest swiftness)
- 4 मूषिका – मुषिक आकृति एवं वर्ण, अप्रिय गन्ध वाली (coloured like the common blind moles, and emit a fetid smell from their bodies)
- 5 पुण्डरीक मुखी – मूंग वर्ण, हरीत वर्ण, पुण्डरीक मुखवाली (coloured like the Mudga pulse and are so called from the fact of the resemblance of their mouths to the full-blown lotus)
- 6 सावरिका – स्निग्ध कमल पत्र वर्ण की, 18 अंगुल लम्बी, पशुओं में रक्त चूषण हेतु प्रयोग (cold bodies marked with impressions like lotus leaves and measure eighteen fingers' width in length, and they should be employed in sucking blood from the affected parts of lower animals)

Savish Jalaukas area unit found in foul smelling water, whereas Nirvish Jalaukas area unit found in pleasant smelling water. various Jalaukas area unit seen in Pandya Pradesh (South) i.e. western space of Indraprastha, Sahyadesh i.e. space close to the stream Narmada and Turkisthan.

Out of 12, solely half-dozen sorts of nonpoisonous leeches area unit used for healthful purpose. The *Sankumukhi* style of leech is ideally used for healthful functions because of its fast blood intake capability. As per classical description of writing, *Jalauka* that is larger in size within the centre (spindle shaped), slowly moving, terribly huge a *savish Jalauka* isn't use for blood letting.

*Jalauka* ought to be collected in *sharad ritu* and picked up in an exceedingly huge mud vessel or in an exceedingly tank. Daily *kand churna* is provided as meals. The water within the vessel ought to be modified once each third or seven th day.

*'Anushatrani tu.....Jalaukaagnikshar....karirvalagulay iti (su.su.a.8) 'Shishuna Shatrabhiruna Shastrabhava ra Yogyet (su.su.a.8) 'Trupadhyabalshtivirbhiru durbalnari sukumarana anugrathi paramsukumarasya Shonitavasechneyopay: Abhihit: Yat Jaloukas:'*

(su.su.d.8)

When *Raktadushti* is in deeper structures, once Rakta becomes Grathit and in sukumar, king, adhya [Rich persons], aged women and in one who is frightened, *Jalaukavacharna* is that the safest technique.

Disease making *Doshas* abide in blood. Decrease and increase of *Doshas* is because of blood, (*Teshan Kshyvrudhi Shonilnimitte*) therefore says *Sushrut* *Doshas* area unit invise except for their purification visible blood, being the abode of *Doshas*, should be refined. This is also concerned at another place. 'Ye

*tu sanshadhanai : shudha n teshan punarudrabhav :*' There are unit some diseases wherever blood rental (*Raktamokshan*) is necessary in cyanogenic or essential phases. In some cases, wherever Application of Leeches for blood rental could be a positive and delicate remedy. In some post-surgical and blood oozing cases additionally, this Leech application ought to be useful.

Leech could be a para- surgical technique of blood letting. The place wherever surgical instruments aren't potential to work at that place para-surgical strategies ought to be used.

It is greatly helpful particularly in *pittadushta* conditions. *Jalauka* is employed for blood letting to medical functions. It's an simplest way of Blood letting medical care. Leech medical care will wonders in several diseases connected with clotting. The impure blood that is that the root cause of most of the human ailments is off from the body. Leeches have the power to suck blood clogged around muscles or skin. The anti-blood action enzymes in their secretion makes the blood circulation traditional..

Leech medical care has been used for thousands of year to treat everything from infections to abdomen ailments. In nowadays, it's usually utilized in varied kinds of surgery, notably once augmented blood flow and attenuated clotting is critical. Leech medical care is quite easy to conduct however is best done by a talented doctor, as a result of complications are unit potential. For folks that are unit unwilling to use a live leech, there are unit mechanical or artificial leeches accessible.

The observe of *rakta mokshan* victimization leeches has diminished significantly in Ayurvedic education and observe. though university level courses are unit needed to show the theoretical aspects of this medical care, several don't supply sensible education.

### **Jalauka in Medieval and fashionable medication**

In medieval and early fashionable medication, the leech (*Hirudo medicinalis* and its congeners *Hirudo verbana*, *Hirudo troctina*, and *Hirudo orientalis*) was accustomed take away blood from a patient as a part of a method to "balance" the "humors" that, per Galen, should be unbroken in balance for the body to perform properly. (The four humors of ancient medical philosophy were blood, phlegm, black bile, and body fluid.) Any illness that caused the subject's skin to become red e.g. fever and inflammation therefore the theory should have arisen from an excessive amount of blood within the body. Similarly, someone whose behavior was strident and "sanguine" was thought to be plagued by an far more than blood. Leeches were typically gathered by leech collectors and were eventually farmed in massive numbers.

Medicinal leeches area unit currently creating a comeback in surgical procedure. they supply an efficient suggests that to scale back clotting, to alleviate blood pressure from pooling blood (venous insufficiency), and in surgical procedure to stimulate circulation in reattachment operations for organs with essential blood flow, like eyelids, fingers, and ears. alternative clinical applications of leech medical care embody unhealthy veins, muscle cramps, phlebitis, and degenerative joint disease, among several varied conditions. The therapeutic impact isn't from the blood taken within the meal, however from the continuing and steady hurt from the wound left once the leech has detached, yet because the anesthetizing, medicine, and vasodilating properties of the secreted leech secretion. the foremost common complication from leech treatment is prolonged hurt, which might simply be treated, though hypersensitive reactions and microorganism infections can also occur.

Physicians leeches would possibly play a special role in bound styles of surgery, by serving to promote blood flow to broken tissue. that is as a result of once leeches bite a victim, their distinctive secretion causes blood flow to extend and

prevents action. As a result, once bitten, victims will bleed for hours, permitting ventilated blood to enter the wound space till veins re-grow and regain circulation.

Leech facilitate doctors do everything from re attach cut off fingers to treat probably fatal circulation disorders. The leech is priceless in surgical procedure once sweet-faced with the difficulties of re attaching minute veins. Ears have such little veins that, within the past, nobody was ready to with success reattach them. Then, in 1985, a Harvard doctor was having nice problem in reattaching the ear of a five-year-old child; the little veins unbroken action. He determined to use leeches and therefore the ear was saved. Since then, leeches have saved lives and limbs, reducing severe and dangerous blood vessel engorgement post-surgery in fingers, toes, ear and scalp reattachments; limb transplants; skin flap surgery and breast reconstruction.

Sometimes they take off patients and reattach themselves in unwanted places. Hirudin and connected substances area unit synthesised victimization recombinant techniques. Devices referred to as "mechanical leeches" that dispense decoagulant and perform a similar perform as healthful leeches are developed. In the device which looks a little like a small bottle attached to a suction cup, delivers an anti-clotting drug to damaged tissue and then gently sucks out as much blood as needed.

## CHAPTER 5 :

### LEECH ANATOMY& PHYSIOLOGY

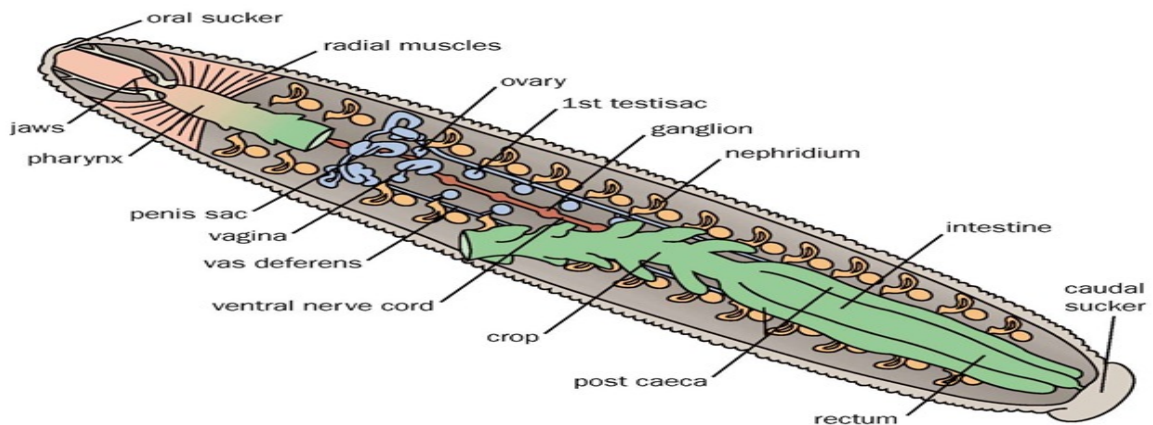
#### Anatomy, Physiology and Cultivation of Leech

Leech is described in Sushruta samhita. Leech length is 1 1/2 c.m. to 45 c.m.

It has two mouths, two hearts and 300 teeth, Some of these leeches do not suck the blood. Leech saliva has certain medicinal properties. Leech is a live laboratory.



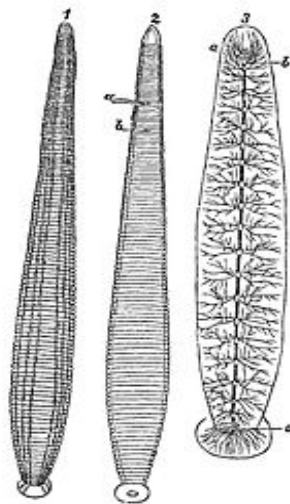
Leeches have two "suckers," one at every finish. The caudal (back end) suction cup helps the leech to walk on dry surfaces, and to connect to its host; the rostral (front end) suction cup conjointly contains the mouth with 3 sharp jaws that leave a Y-shaped bite.



Like alternative annelids, the leech may be a segmental animal. however not



like alternative annelids, there's no correspondence between the external segmentation of a leech's body surface and therefore the segmentation of its internal organs. The body surface of the animal is divided into 102 annuli, whereas its internal structures are divided into thirty two segments. Of the thirty two segments among the body, the primary four anterior segments are selected head segments, that embrace associate anterior brain and sucker. These are followed by twenty one midbody segments, that embrace twenty one somatic cell ganglia, 2 fruitful organs, and nine pairs of testes. Finally, the last seven segments are united to create the animal's tail sucker, further as its posterior brain.



Leech-agriculture is already started in foreign countries. In fatal conditions of sure diseases, it's determined that, Leech application performs miracles therefore foreign Medical field, at present, is simply Leech frantic. In foreign countries at this time Leech-application is prescribed principally in Gangrene. sure chemicals in Leech-saliva also are useful in a number of the diseases. Really Leech may be a fantastic to life science.

Medicinal leech (*Hirudo medicinalis*) may be a worm (Phylum: Annelida). This phylum includes the Polychaetes, the Oligochaetes (earthworms) and also the class Hirudinea (leeches).

Leech: a most delicate instrument. it's usefull in Rakta Mokhan or Asra- Visruti. It means that out dripping of bood, Leech is applied primarily once tyrannid is faulty and blood is intensively impure. Severe pain native and swelling .

Non-healing wound diseases of blood-circulation and system square measure a number of the ailments. wherever Leech-application may be a higher remedy for aged and weak persons, pregnant girls.

### **Reproduction and Development**

Leeches square measure hermaphrodites, that means every has each feminine and male procreative organs (ovaries and testes, respectively). Leeches reproduce by reciprocal fertilization, and spermatozoon transfer happens throughout relation. Like earthworms, leeches use a clitellum to carry their eggs and secrete the cocoon.

During replica, leeches use hypodermic injection of their spermatozoon. They use a spermatophore, that may be a structure containing the spermatozoon. Once next to every alternative, leeches can line up with one's anterior aspect opposite the other's posterior. every leech then shoots the spermatophore into the clitellar region of the opposite leech, wherever its spermatozoon can build its thanks to the feminine procreative components.

The embryonic development of the creature happens as a series of stages. throughout stage one, the primary cleavage happens, which supplies rise to associate degree AB and a CD cell, and is within the interphase of this organic

process once a yolk-free protoplasm known as teloplasm is created. The teloplasm is thought to be a determinant for the specification of the D cell fate. In stage 3, throughout the second cleavage, associate degree unequal division happens within the CD cell. As a consequence, it creates an outsized D cell on the left and a smaller C cell to the proper. This unequal division method depends on protein, and by the tip of stage three the AB cell divides. On stage four of development, the micromeres and teloblast stem cells square measure fashioned and after, the D quadrant divides to make the DM and also the DNOPQ teloblast precursor cells. By the tip stage half dozen, the fertilized ovum contains a group of twenty five micromeres, three macromeres (A, B and C) and ten teloblasts derived from the D quadrant.

The teloblasts square measure pairs of 5 differing kinds (M, N, O, P, and Q) of embryonic stem cells that type divided columns of cells (germinal band) within the surface of the embryo. The M-derived cells build germ layer and a few tiny set of neurons, N leads to neural tissues and a few ventral ectoblast, letter contributes to the dorsal ectoblast and O and P within the leech square measure strong cells (same organic process potential) that manufacture lateral ectoderm; but the distinction between the 2 of them is that P creates larger batches of dorsolateral stratum than O. The slugworm Tubifex, in contrast to the leech, specifies the O and P lineages early in development and thus, these 2 cells don't seem to be strong. every phase of the body of the leech is generated from one M, O, P cell sorts and 2 N and 2 letter cells sorts.

The ectoblast and germ layer of the body trunk square measure completely derived from the teloblast cells in a very region known as the posterior progress zone. the pinnacle of the leech that comes from associate degree united region, is created by the primary set of micromeres derived from A, B, C and D cells, keeping the symmetricalness between the AD and B.C. cells.

Medicinal leeches square measure hermaphrodites that reproduce by sexual pairing, birthing eggs in clutches of up to fifty close to water, and in shaded, wet places.

Over-exploitation by leech collectors within the nineteenth century has left solely scattered populations, and reduction in natural surroundings although voidance has conjointly contributed to their decline. Another issue has been the replacement of horses in farming (horses were medicative leeches' most well-liked food source) and provision of artificial water provides for kine. European medicative leeches square measure lawfully protected through nearly all of their natural vary.

## **CHAPTER 6 :**

### **LEECH STORAGE AND MAINTENANCE**

Leeches are stored in a Glass Aquarium filled with up to 2/3 by non-chlorinated water, covered by fabric with a good elastic or thread band (leeches can crawl out without it - the smallest hole is big enough for them).

Keep in mind leeches must breathe (they can breathe through fabric but not through a plastic cover). Clear water that is free from chlorine is necessary for maintaining leeches. Avoid placing leeches in chlorinated water. Leeches are sensitive to substances such as chlorine, copper, and other chemicals. Non-chlorinated tap water in most areas is suitable for leeches. Do not use distilled water alone since its extreme purity can be harmful to the leeches' metabolic balance. Keep the water clean. Once the water shows signs of becoming dirty or polluted, it should be changed. Water of the aquarium has to be changed every 3-6 days, depends on quantity of leeches.

Because leeches may be used as needed, they are often kept in the patient's room. They are usually stored in special solution (0.5g Hirudosalt™ in 1 liter of distilled water). The storage container should be kept in a secured, cool (<68 degrees), dark place with vents open to provide ventilation. Vent should be covered with gauze that is secured to prevent leeches from escaping as they can squeeze through very small spaces. Leech solution should be changed every other day. Leeches should not be overcrowded - no more than 50 in a 2-gallon container.

The leech will survive quite happily in a cool place provided the temperature around 5-27°C (40-80°F). It is better to avoid direct exposure of sunlight. When changing the water the replacement water is of same temperature as the previous.

Naturally the leeches engulf algae, fish, blood, flesh.

Leech should be stored in a well-labeled container having multiple pores on the top for proper aeration. The temperature should be maintained around 5-27°C (40-80°F). The water of the container should be dechlorinated and should be replaced after 5-6 days. About 50 leeches can be kept in one gallon of water.

Changing the water of Leeches. Cover the jar opening by gauze and dump the old water. The gauze will absorb the grease from the jar. Then pour some fresh water in the jar. Sudden temperature changes could harm the leeches, so keep your containers with fresh water in the same room where you keep the leeches. Ideal temperature for Leech is in a range of 40F to 80 F (5-27 C). Leeches can live up to one year without food so there is no need to feed them. Leeches live Up to 10 years/>>. It depends on many factors that are out of our control: quality of water, smells, quality of ventilation, sharp temperature or pressure changes, etc. Leeches can die after a meal just because they have eaten too much.

❖ जलौका आहार – ऋंगाटक, शैवाल, जलकन्द, मृणाल चूर्ण

## **CHAPTER 7 :**

### **HIRUDOTHERAPY**

Leeches are kept during a glass storage tank stuffed with up to 2/3 by non-chlorinated water, coated by cloth with a decent elastic or thread band (leeches will crawl out while not it - the littlest hole is large enough for them).

Keep in mind leeches should breathe (they will breathe through cloth however not through a plastic cover). Clear water that's free from gas is important for maintaining leeches. Avoid inserting leeches in chlorinated water. Leeches are sensitive to substances like gas, copper, and alternative chemicals. Non-chlorinated water in most areas is appropriate for leeches. Don't use water alone since its extreme purity will be harmful to the leeches' metabolic balance. Keep the water clean. Once the water shows signs of changing into dirty or impure, it ought to be modified. Water of the storage tank must be modified each 3-6 days, depends on amount of leeches.

Because leeches are also used as required, they're typically unbroken within the patient's area. They're sometimes kept in special answer (0.5g Hirudosalt™ in one cubic decimeter of distilled water). The storage instrumentality ought to be unbroken during a secured, cool (<68 degrees), dark place with vents receptive offer ventilation. Vent ought to be coated with gauze that's secured to stop leeches from escaping as they'll squeeze through terribly tiny areas. Leech answer ought to be modified each alternative day. Leeches mustn't be overcrowded - no over fifty during a 2-gallon instrumentality.

The leech can survive quite gayly during a cool place provided the temperature around 5-27°C (40-80°F). It's higher to avoid direct exposure of daylight. When dynamic the water the replacement water is of same temperature because the

previous.

Naturally the leeches engulf protoctist, fish, blood, flesh.

Leech ought to be kept during a well-labeled instrumentality having multiple pores on the highest for correct aeration. The temperature ought to be maintained around 5-27°C (40-80°F). The water of the instrumentality ought to be dechlorinated and will get replaced once 5-6 days. concerning fifty leeches will be unbroken in one gallon of water.

Changing the water of Leeches. cover the jar gap by gauze and dump the recent water. The gauze can absorb the grease from the jar. Then pour some water within the jar. fast temperature changes may damage the leeches, thus keep your containers with water within the same area wherever you retain the leeches. Ideal temperature for Leech is during a vary of 40F to eighty F (5-27 C). Leeches will live up to at least one year while not food thus there's no got to feed them. Leeches live Up to ten years/years. It depends on several factors that are out of our control: quality of water, smells, quality of ventilation, sharp temperature or pressure changes, etc. Leeches will die once a meal simply because they need eaten up an excessive amount of.

- जलौका आहार – ऋंगाटक, शैवाल, जलकन्द, मृणाल चूर्ण



## **CHAPTER 7 :**

### **HIRUDOTHERAPY**

Hirudotherapy may be a treatment exploitation medical leeches. this type of medical aid is thought from the time of maximum antiquity and continues to be alive today. This truth testifies its potency in healing varied varieties of sicknesses and diseases. the tactic of hirudotherapy is approved by several countries.

The enormous expertise of exploitation healthful leeches in medical functions is concentrated throughout several centuries. With the event of science, the mechanism of action of a secret of secretion glands of leeches was deciphered, biologically active substances that area unit enclosed in it were opened, their influence on the sure structures of Associate in Nursing alive organism is investigated. Some medical forms area unit created on a basis of biologically active substances of secretion glands of leeches and work on creation of recent substances is conducting. fashionable hirudotherapy differs from the traditional one as a result of currently we tend to don't use wild leeches: instead we tend to use leeches big at special biofactories wherever they're during a severe quarantine. Besides, today we tend to use a leech just one occasion. This truth fully excludes the prospect of infecting a patient.

The obvious advantage and absolute safety of hirudotherapy is checked up by thousands of years of expertise of humanity and doesn't cause any doubts.

#### **Active substances in saliva of Leech**

One of the primary substances found in secretion glands of *Hirudo medicinalis* is hirudin - the substance oppressing the method of clotting. Then such anticoagulating substances as ferment destabilizer, inhibitors of plasmin,

callecrein of plasminogen et al were opened. Factors of diffusion-ferments of hyaluronidase, collagenase, the factors expressing the mediators of pain-cinase, antisclerous factors were investigated additionally. once more opened substances area unit studied. so a *Hirudo medicinalis* may be a tiny “factory” producing biologically active substances.

Action of active substances from spit

The results of action of biologically active substances on Associate in Nursing alive organism are:

- Normalization and improvement of capillary circulation
- Expressed opposing inflammation impact
- Anti-stressful and adaptogenic effects
- Immunostimulating and immunomodulating effects
- Anesthesia
- Anticoagulation
- Antibacterial effect;

Improvement of Associate in Nursing endocellular exchange and therefore the realization of those mechanisms has each native and general character.

The existence of skin-visceral connections with the definite organs is standard. Biologically active substances act to organs throughout the blood-sucking work of healthful leeches through veins. It promotes the development of blood circulation within the sure organ, renders thrombotic, medication, immunostimulating action, raises nutrition of tissues, strengthens tissues immunity. It's not possible to call all diseases which might be treated by exploitation hirudotherapy.

It's easier to call contra-indications here :

- absolute-hemophilia
- relative-pregnancy
- anemia
- hypotonia

Hirudotherapy is also applied at any diseases famous now-a-days. It will be used as Associate in Nursing freelance technique of treating and in advanced with the others. Doctors apprehend utterly well however it's troublesome to struggle with chronic inflammatory diseases. The matter is that {at all|in the least|the least bit|in the slightest degree|in Associate in Nursing respect} sorts of clinical displays of sicknesses mechanisms of protection of an organism area unit universal-emission mediators of inflammation, vasoconstrictors, apiretics and a few alternative biologically active substances into blood. Everything involves aspiration of a live organism to delimit the nidus of inflammation by deterioration of blood circulation and capillary-tissue permeability, creation of an inflammatory shaft by cellular and conjunctive tissue structure and a temperature mode in the given area. As a result of it the concentration of drugs for example an antibiotic in the nidus of inflammation is much lower than in blood.

The increase of a dose of a chemical drug doesn't solve a drag as a result of results in excessive hypersensitivity reaction and strikes a blow on different organs (liver, kidneys, neural structure, endocrine glands). As a result we've plenty of problems: disbacteriosis, hepatitis, uropathy, immune deficiency conditions, however the matter of chronic inflammation for a given patient isn't resolved. Here it's a time to remember concerning hirudotherapy. Biologically active substances containing in secretion glands of medicative leeches will restore blood circulation within the nidus of inflammation, take away associate

degree anaemia of organs, give capillary tissue exchange and thanks to it will perform the transport of chemical medication into the nidus of inflammation, improve immune protection and regeneration of tissues. In such conditions the victimisation of a similar chemical medication is feasible in smaller doses. These factors don't limit the talents of hirudotherapy to influence the nidus of inflammation.

The matter is that in secretion glands of medicative leeches there area unit some substances capable to detain the expansion of bacterias. one in all the foremost investigated substances is hirudin. In experiments at animals a organic process and germicidal action of hirudin has been tried. the most reason of medicative action of hirudin for instance at phlebitis is in its germicidal property. That's why it becomes clear that the victimisation of leeches each at antiseptic inflammation and at inflammation caused by the microorganism agent helps the organism. The property of a secret of secretion glands of a *Hirudo medicinalis* to penetrate through" demarcacional shaft" of inflammation is determimed by the action of the issue of penetration-the enzyme gialuronidaza. This enzyme is capable to unactivate the action of gialuron acid that is that the cementing substance for conjunctive tissues.

Hirudotherapy primarily distinguishes it from the opposite strategies of treatment.

Besides the mentioned on top of effects of hirudotherapy it's necessary to recollect concerning one like the irritation of biologically active points influence on reflex zones.

It was detected way back that leeches favor to sit on the sure areas of skin that correspond to points of ancient Chinese strategies of treatment-needleacupuncture. In results of hirudotherapy we tend to receive the impact in

treatment not solely thanks to action of biologically active substances of leeches' secret, however conjointly by means that of influence on reflex zones. for instance at the treatment of hypertonic sickness biologically active points of bone and cervical space area unit used and therefore the influence of those points offers anaesthetic, vasodilating and hypotensive effects.

The other action of leeches is blood taking. One leech exhausts from five to ten cubic centimetre of blood. haemorrhage lasts for a few hours (about 12-24 hours) and therefore the patient loses concerning 20-30 cubic centimetre of blood. so thanks to influence of five leeches at the same time the patient loses 100-250 cubic centimetre of blood and this manner of blood taking has unquestionable benefits before taking blood from veins. Taking blood from the world connecting with the sick organ lasts for concerning associate degree hour. Thus, it's making conditions of a stable and lasting several hours evacuation and blood vessel unloading of the given space, within the sure space there typically is associate degree improvement of microcirculation, the nutrition of tissues, cellular exchange, blood vessel stagnation is sometimes liquidated and therefore the anaemia of organ is sometimes eliminated.

After a treatment course consisting of 5-10 procedures victimisation from four to ten leeches a decent clinical impact is marked. At the vas pathology resulting in decompensation of blood circulation (ischemic cardiovascular disease, intimate defect) the leeches appointing to the world of a liver genuinely scale back accumulated blood pressure, results in reducing the stagnation within the liver, to improvement of respiratory organ ventilation and unloading of heart. The impact comes in a very results of an instantaneous hypotensive and anticoagulating action of hirudin and in not a smaller degree thanks to reducing of peripheral resistance. At diseases of circulatory system hirudotherapy plays a special role. It is simple to search out an evidence for this taking under

consideration its on top of mentioned properties. Besides it's necessary to notice the flexibility of hirudin to influence on curdling.

The liquid condition of blood and its action is provided by purposeful interaction of 2 systems of the organism : action and anticlotting. The anticlotting system supports blood in liquid condition, protective it from action, the second provides protection from haemorrhage at infringement of integrity of blood vessels.

For the patients with ischaemic cardiovascular disease, high blood pressure for previous folks patients with polygenic disorder the most drawback is hardening of the arteries of vessels and as a result-angiopathy; hardening of the arteries is nothing that infringement of integrity of blood vessels. which provide and activate the system of action. in a very result one in all the foremost terrible displays of diseases of heart and vessels is that the occlusion of arteries within the necessary|important} important organs. The output of occlusion area unit the infarct of heart, brain, lungs bringing typically to fatal outcomes. Stimulation of fibrinolytic activity and anticlotting system of blood at such diseases, oppression of formation of trombs, and reducing of body of blood area unit necessary each with medical purpose and for preventive maintainance of ischaemic conditions.

The mechanism of oppressing activity of hirudin on coagulase is investigated. Hirudin blocks the action of coagulase and therefore the last one losing its properties, doesn't promote the transition of factor I into protein. Besides the key of secretion of a *Hirudo medicinalis* blocks associate degree anitial attachement of thrombocytes and fully supresses their aggregetion on a surface of collagenus. Thus, the secret of secretion of a *Hirudo medicinalis* influences on cellular and plasma factors of curdling. In researches of the many authors it's marked that when the assignment of leeches there's a standardization of separate parameters of coagulogramme-at anitial combination of hyper coagulations the

anticoagulating system is activating and on the contrary becomes additional active. Similar impact wasn't received even after we use such wide renowned anticoagulants as Lipo-Hepin and Empirin. We should add the lipotropic effect of enzymes of salivary glands of medicinal leeches which consists in the ability to influence on blood lipids. At the beginning of the century some scientists expressed the assumption that the development of atherosclerosis can be prevented by applying medicinal leeches. In 1984-1989 it was experimentally proved that at long intravenous introduction of a secret of salivary glands of medicinal leeches to the rats which were in the condition of a strongly expressed atherosclerosis the last ones had reduction of lipids in abdominal and lung arteries.

It's documented that the lipoproteids of tenuity and lipoproteids of terribly tenuity promote the event of coronary artery disease, but the lipoproteids of high density play the role of the protecting antisclerous issue. At ischemic detected sickness there's a distribution of steroid alcohol in numerous categories of lipoproteids. the amount of it raises in lipoproteids of tenuity and in lipoproteids of terribly tenuity being reduced so in lipoproteids of high density. The patients of this cluster have authentic increase of the extent of common lipids, triglycerids, steroid alcohol in blood vessel walls. several authors engaged during this drawback mark the authentic reduction of triglycerids and steroid alcohol in blood when many session of hirudotherapy. It permits to draw a conclusion that oleophilic enzymes secret of secretion of medicative leeches could also be used at arterial sclerosis defect of vessels regardless of primary localization of coronary artery disease.

Probably the impact of "rejuvenation" which can be noticed when hirudotherapy - the looks of shine in eyes, the development of skin physical property, the appearance of flush, the disappearance of the mask of temporary

state on patients faces, an energetic reasonably patients. It's attainable as a result of during this case we tend to agitate the mechanism of skyrocketing of biological process of skin and internal organs. Probably, because of the action of girudin and gyaluronidaze (the issue of penetration)it is rising not solely blood circulation is organs-targets, however in different organs and tissues because of the most effective capability of cappilary-tissues exchanging then on. It promotes the reduction of swelling, the dissolution of the organized blood-clots, cosmetic impact. The victimisation of leeches promotes the increasing of native immunity additionally.

Diseases of vessels, heart, chronic nonspecific diseases of lungs resulting in heart and liver incompetence could also be treated with hirudotherapy. at bottom incompetence and chronic lung's heart the stagnation in an exceedingly huge circle of blood circulation takes place and this reality results in useful liver incompetence. The unloading of a giant circle of blood circulation at hirudotherapy(the improvement of blood circulation in region),the action of oleophilic enzymes,the reduction of a hypostasis of liver-all these factors promote the development of patients health because of the complicated influence of leeches secrets on organism.

Hirudotherapy as we tend to see ought to be regarded not solely as a preventive maintenance, however conjointly as a technique of treatment at ishemic cardiovascular disease, insult and different vascular pathologies,at diseases of exchange,at endocrine diseases,nervous diseases, in the slightest degree inflammatory diseases then on. As a result it's necessary to notice that the succers of hirudotherapy depends not solely on biological properties of leeches secret however conjointly from the expertise of a doctor and joint actions of a patient and a doctor.



## CHAPTER 8 :

### SAFETY AND ADVERSE AFFECT OF LEECH THERAPY

Leech medical care seldom ever results in serious complications. The native pain of treatment and short itch square measure regular aspect effects. before treatment, the patient ought to be suggested consequently and asked to sign a consent kind describing the relevant aspect effects (see Appendix). Prevalence information from systematic and prospective studies square measure solely on the market for a few of the various aspect effects of leech medical care.

#### **Local Pain throughout Treatment**

Perceptions of the native pain of leeching varies. Most patients describe an area dragging pain that happens instantly when the leech bites and persists for around one to 5 minutes. As additional and additional spittle is introduced into the tissues, the anesthetic result of leech spittle begins to require result. The perceived intensity of the leech bite varies from one individual to a different.

A slight (or typically somewhat stronger) intoned actuation sensation is sometimes noticed for the primary one to 3 minutes when the beginning of feeding. whether or not stimuli of precisely the same intensity square measure perceived as painful or aren't perceived the least bit is definitely obsessed with the individual's temperament, however conjointly depends on it person's concentration on the leech or perspective toward leech medical care.

Many people ne'er even notice the leech bite, for instance after they square measure bitten underneath water whereas their attention is concentrated on one thing else. Frequently, the additional uneasily the patient focuses on the leech making ready to bite, the upper the pain perception. If latex gloves should be

worn for hygienical reasons, the leech expert ought to ne'er use extractor on the leech.

### **Local Ttch**

Transient itch at the positioning of the leech bite within the 1st few days when treatment is extremely common and will not be mistaken for associate degree allergic reaction/.. Transient itch at the positioning of the leech bite within the 1st few days when treatment is extremely common and will not be mistaken for associate degree allergy.

### **Blood Loss**

Leech medical care is often related to an explicit degree of blood loss, that is clinically orthogonal in most cases. The reason for this wound-healing disorder is unknown. Improper handling, particularly early stoppage of when haemorrhage from the wound, squeeze the top of the leech with extractor, forceful removal of the leech before it's finished feeding, and failure to stay the animals in water, have oft been concerned as potential causes.

## CHAPTER 9 :

### PROCEDURE OF LEECH THERAPY

#### **Blood-letting by Jalauka**

Leech is principally pittadhan it's not true that leech sucks solely impure blood like - Leech have a suction capability is up to solely capillaries or blood vessel circulation and Vagbhat aforesaid such a lot of years past that 'agre sravati dushatsram ' Leech don't have any data what's vein & what's artery. So surgeon should apprehend site of leech application.

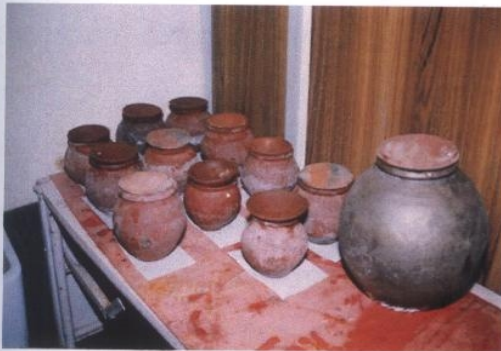
Leech suction capability is just one to a pair of gram of blood. it's improper amount of "bloodletting". generally leech will suck over capability. So to avoid complications; MD should apprehend when; where; how; leech application is done & is removed properly.

Leech incision is inverted Y-shaped ;tiny ;out of eight ; three kinds of surgery is finished the assistance of leech ; particularly –incision ;to puncture ; voidance . apart from this leech will do sandhan or cosmetic surgery or sort of a natural suture.

Leech is that the best best parasurgical sharp instrument. there's one indication – 'shishuna... 'So, leech surgery is tired all surgical disorders through bloodletting; through impact on circulation.



कॉचपात्र में जलौका संग्रहण



मिट्टी के पात्र में जलौका संग्रहण



जलौका संग्रहण



जलौकावधारण हेतु सांभार द्रव्य



जलौका का हरिद्रा कल्क में सांभान

### **Poorva Karma**

- अ – संग्रहण तथा पोषण— प्रायः शरद ऋतु में संग्रह करें। बड़े नवीन मृत पात्र में रखें। आहार डालें। तीन दिन पर पात्र जल बदलें। सात दिन बाद पात्र बदलें।
- ब – आतुरपरीक्षा— सुकुमार, नृप, धनिक, भीरु, स्त्रियाँ, बाल वृद्ध, अल्पक्लेशसहप्रकृति तथा पित्त दोष वृद्धि, अवगाढ रक्त एवं गुल्म, अर्श, विद्रधि, कुष्ठ, वात रक्त, कंठ नेत्र रोग, विषदंष्ट्र विसर्प आदि में। (अ.ह.सू. 26/42) रोगी में पूर्व में स्नेहन, स्वेदन करें।

Part preparation – initial the world of the body wherever the leech can attach is clean. The patient's skin is clean totally with soap and water or turmeric water.

- स – जलौका शोधन – शोधन हेतु सरसों या हरीद्रा चूर्ण का लेप या इनके चूर्ण से मिश्रीत जल में एक महूर्त (48 मिनट) तक रखें (सुश्रुत)।
- बाग्भट्ट के अनुसार कांजी या तक्र में डूबोकर स्वच्छ जल में धोकर प्रयोग करें। चूषण स्थान को विरुक्षण करें।

### **Pradhanakarma (main procedure)**

त्वचा पर क्षीर, मधु, रक्तादि का प्रयोग अथवा शस्त्र से थोड़ा क्षत करके जलौका वचारण करें। (सुश्रुत /अ.ह.). जलौका लगने पर उस पर जल से नम वस्त्र अथवा रुई रखें। मुँह ऊँचा करके रक्त आचुषण करती है। बूंद बूंद जल रुई पर डालें। जौंक बड़ी होने लगती है दंशस्थान पर शूल, कण्डू होने पर हटाये। हल्दी या नमक मुख पर डालें (सु.सू.13)

Application of honey or by creating associate incision or a sterile needle prick at the specified website so drop of blood is made and also the leech attaches to the wound / incision quickly. The leech is then wrapped in a very wet cotton or a artifact then applied . Then, the leech's head is directed to the world wherever it should attach. this could be done by holding the leech with gauze and manually directive the leech. The leech is also placed within the barrel of a syringe and directed to the world of attachment for accrued accuracy

Steer the leeches head to the world to be treated. the pinnacle of the leech is recognized by is looking forward movements, whereas the tail finish is employed as a sucker for attachment, The leeches should be applied in adequate numbers to space of most infection / congestion.

When Leech starts suction blood, cowl the leech with wet cotton. If the leech isn't able to suck the blood from the part then application of madhu, ghritaor butter ought to be done. If the leech refuses to connect, drinking water is applied to the world as enticement. Some patients could have atiny low quantity of blood drawn to have interaction the leech in attachment.

Once it attaches, the leech can feed till it's full. this could take anyplace from many minutes to many hours. once it's reached its limit, the leech can merely fall removed from the body. The professional person should watch the leech to make sure that it doesn't move to alternative areas of the body. the world encompassing the leech usually are going to be coated in gauze or plastic to stop such movement.

If the leech has to be aloof from the body throughout leech medical care, it is done by gently wiping its head with a tiny low quantity of vinegar, salt or alcohol.

Leech has finished suction the blood, typically among half-hour, take away it (if it doesn't return off by itself) by applying salt or turmeric powder on its head.

Ensure that an equivalent leech is applied next time to an equivalent patient.

Check the injury & period of the patient. These ought to be traditional.



#### **Paschata karma (after procedure)**

जलौका के मुख पर सैंधव मिश्रित तैल मले तथा रक्त वमन करावें तथा जलौका को जल पात्र में डाले । गति होने पर सम्यक वमन जाने। इन्द्रमद रोगोत्पत्ति वमन न होने पर होती है। पुनः इस जलौका को 7 दिन बाद प्रयोग करें।

रोगी के वर्णस्थान पर हिरूडिन के प्रभाव के कारण रक्त शीघ्र स्कन्दित नहीं होता है वृण पर शतधौतवृत का प्रयोग अथवा हरीद्रा,स्फटिक भस्म का प्रयोग कर बन्धन करे।



Leeches initial sucks the impure blood than the pure therefore once patient feels prick pain and haptic sensation over the bite place leech ought to be removed. If it's not simply removed, then saindhav powder or Haridra churna is besprent at the positioning. In samyak yoga, the wound is clean and dressed with shatdhautghruta. Dusting of yashtimadhu (liquorice powder) churna and medical care over the bite site.

The applied Jallauka is then clean by emitting the sucked blood. Induction of reflex to the leech by dusting of haridra churna (turmeric powder) on its mouth.



The rice powder is applied on the body wherever as salt and oil is applied to its mouth. Its tail is then control in between the thumb & forefinger of mitt & by applying pressure with thumb & forefinger of manus. The sucked blood is emitted.

Sometimes pressing the leech from caudal to side is needed for correct reflex therefore Press the detached leech between fingers to force out the sucked impure blood.



Then restore in H<sub>2</sub>O instrumentality. Leech ought to be freed in H<sub>2</sub>O, wherever it swims fleetly then settles down. Replace the leech in a very clean jar or vivarium. The patient's space wherever the leeches are place ought to be examined for native infections.

After *samyak vaman*, the leech easily swim in the water. But if emission is improper. It will settle down at the bottom & does not move in such condition, emitting of sucked blood is done.

- In *Heena-yoga* = honey is applied.
- In *Ati-yog* - chilled water is poured in order to stop the bleeding.
- In *Mithya-yog* - kashay durgs are used in the form of lepa. Madhur, Snigdha and *sheeta* drugs should be consumed.

In order to stop the complications like Murchcha, associate skilled should be ready to recognise the Heen , mithya and atiyog of Jalauka.

The minor wounds is clean and washed with honey, and treated. One leech ought to be reserved for one explicit patient.

Sometimes, a leech doesn't bite. Remedy is feasible through warming up and cleansing the skin. any measures those ar useful the skin soften and also the blood circulation promote. If the leech doesn't need to bite in any respect, there's the likelihood the skin with a needle to puncture still.

### **Care of wound :**

After detachment of leech there's triangular wound created by the mouth of the leech.

The blood comes out from the wound. The trauma from wound is checked by application of Yastimadhu or turmeric powder.

### **Induction of emesis**

The leech that's applied to the lesion undergoes the method of vaman so identical leech may be applied next time to identical patient. For the vaman of leech turmeric powder is applied over the mouth of the leech. The leech vomits out all the blood sucked by it to urge sublimate. Sometimes pressing of the leech from caudal to front-end is needed for correct physiological reaction.

After correct vamaana leech ought to be place in H<sub>2</sub>O wherever it swims fleetly and than settles down. Replace the leech in an exceedingly clean jar or vivarium.

### **Observation of leech**

Gradual distention within the central portion of the body. Itching and burning sensation at the positioning of bite. Pulsations on the body of leech is also visible.

### **Removal of leech**

Removal of leech After 30-70 minutes the leech is removed by itself, or by application of turmeric powder on the mouth of leech.

### **Precautions throughout leech application**

Bleeding and period of time of the patient ought to be traditional. Gentle handling of the leech. Cover the leech with wet cotton. A few organic chemistry examination liked haemoglobin, TLC, DLC, blood urea, blood serum creatinine of patient blood and leech sucked blood doesn't show any amendment.

### **Frequency of leech application**

The frequency of leech application will vary according to the disease and severity.

Generally leech should be applied once in a week up to six sittings.

One leech should be reserved for a particular patient to avoid cross infection.

### **Directions For Handling Medicinal Leeches**

Leeches are ordered from pharmacy.

Leeches are to be applied to the tissue that we want to treat. In most cases, this would be the skin of the inset free flap. However, this may be any skin that looks dusky after a surgery, even if it's not a free flap. The OTO resident should "outline" with plastic drapes the area in which leeches are to be applied. The plastic drapes can be arranged to help "contain" the leeches within the area of concern.

Patient is started on Levaquin.

How many leeches are to be used per session.? (Usually it's just one, may be two.)

Ask the resident if you have any doubts about where the leech should be applied.

Place the leech on this tissue. If it starts to leave the area that we want to treat, use your gloved hands as a wall to force it to stay in the right area. Placing a small amount of D5 [dextrose 5%] on the desired area will encourage the leech to begin feeding.

When it stops wiggling, it's probably attached. Never squeeze an attached leech; it may vomit the Aeromonas that lives in its stomach which would increase the chance of wound infection.

Examine the leech frequently (every 10 minutes) to make sure that it's still in place. You can expect the leech to stay in place for at least 30 minutes. When the leech lets go, pick it up and place it in a jar of 95% ethanol. This will

euthanize it. It is to be returned to pharmacy.

You will see that the site where the leech was attached will ooze dark (venous) blood. Place moist gauze over it to absorb the blood. Wipe this spot every 15 minutes or so to see if fresh blood is still oozing.

When it stops oozing, apply another leech. Serial hematocrits, 8 hours, should be obtained on patients undergoing leech therapy. It is not unusual for repeated transfusions to be required in patients undergoing leech therapy.

**Indications of Leech Therapy are in modern science :**

- Gangrene
- Non-healing ulcers
- Accidental wounds
- Burn,
- insects bites
- complications of diabetes,
- prolapse inflamed piles
- fissure in ano
- blind external fistula
- skin-diseases
- inflammations
- appendicitis
- paralysis
- sciatica
- spondilitis
- varicose veins
- filarial
- Acne

- Lipoma
- Cyst
- post-operative surgical complications
- keloid
- Ear disease (deafness)
- Eczematous patch
- atopic dermatitis
- vitiligo
- filariasis
- non healing
- ulcers, pemphigus.
- Plastic surgery and reconstructive surgery.
- ear infections, such as tinnitus
- cardiac infarction to increase circulation through the heart.
- Eczema
- Paralysis
- Hair-loss
- Psoriasis
- Thrombosis
- Cramps
- Osteoarthritis
- Rheumatoid arthritis
- Diabetic foot ulcer
- Hypertension
- Inflammation
- Varicose Veins
- Cellulitis
- Thrombosed piles
- Boil

- Herpes zoster
- Thrombophlebitis
- Gout
- Sciatica
- Wounds – diabetic, leprotic, pyogenic
- Atopic dermatitis
- Alopecia

### **Indications of Leech Therapy in Ayurveda**

Leech is sheet (cold) in nature so commonly used in pittaja and raktaj disorders. In sukumar, king, adhya (Rich persons), aged Ladies and in one who frightened, Jalaukavacharan is the safest method.

- When Raktadushti is in deeper structures
- When Rakta becomes Grathit.
- Vidradhi (abscess)
- Gulma (lump)
- Arsha (Piles)
- Kushtha (skin diseases)
- Vatarakta (sclerosis)
- Kantharoga (throat diseases)
- Netrarog (eye diseases)
- Granthi (cyst)
- Arbuda (tumour)
- Shlipada (filariasis)
- Vidarika (Rhagades)
- Vishadamshttra (poisoning)
- Visharpa (pemphigus)
- Siroroga (headache)

- Dantaveshta (dental disorders)
- Katigrah
- Sandhigrah
- Eye disease (vartma-chinnavrana)

Leech application process was tried upon 32 diseases as follows.

- 1) Vranshoth
- 2) Dagdhavran
- 3) Vichchrika
- 4) Kunakh
- 5) Chippa
- 6) Tvakvaivarnya
- 7) GudaParikartika
- 8) Bhgandar
- 9) Arshbhransh
- 10) Kushta
- 11) Mashak
- 12) Medogranthi
- 13) Tarunya Pitika
- 14) Vipadika
- 15) Vidarika
- 16) Aagantujvran
- 17) Koth
- 18) Nadivran
- 19) Slipad
- 20) Savranmagna
- 21) Dushtavran
- 22) Saumya Medoburda
- 23) Vishdushta vran
- 24) Martashrit Vranshoth

- 25) Abhishyand
- 26) Shirashul
- 27) Alsak
- 28) Vidrathi
- 29) Burger disease
- 30) Santhiprantsth Shoth
- 31) Kadar Chednottar Utpanna Vran
- 32) Arsha chedan pashchat utpanna vran.

1. Leech application seems to tender quick and expected results in all ailments.
2. Much effectiveness in blown up stage (Vegavastha) of diseases
3. With preliminary blood extracting (Raktamokshan) at the stages of location (Sthansanshray) and expression (Vyakti) at times Leech application tenders quick relief.
4. All of the diseases curable by blood extracting process are completely cured by Leech application.
5. Post dissection recurring ailments such as Parikartika, Koth, Non healing ulcers can be completely rooted out with Leech application .
6. Leech application is useful in critical swollen, transitional acheing, prolapses piles.
7. Blind external fistula can be transformed incomplete fistula within 24 hours with Leech application.
8. In fistula after performing Ksharsutra Chikitsa application of Leeches prohibits Keloid formation.
9. Leech application therapy, if performed after dissecting in accidental (Agantuj Vran) ulcer and corn(Kadar) Keloid formation can be arrested



and traumatic wound heals up .

10. Leech application arrests inflammation and extinguishes pain in burn wound (Dagdhavran), fractured wound (Savranbhagna), exertion wound (Agantuj Dhrustavran).
11. In a surgical case of mild fatty tumours (Soumya Medoarbuda) having a bulging size in the down words region of left abdomen. Leech application reduced much of it' swelling from 6.5 inches -2.00 inches with in five days only.
12. Leech application is effective in poisonous inflammation (Vishdusta Vranshoth) .
13. In inflammatory diseases belonging to Eyes, Ears and Vital parts, Leech application is effective.
14. Leech application in the primary curiped stage (Amavstha) of inflammation creates ripining in a short time; opening (Bhed) occurs naturally. Fistula (Nadivran), Gangrene (Koth) also do not developed.
15. Facial moles (Tarunpitika), Piles (Arsh), prolapsed (Bhransh), mild fatty tumor (Soumya Medoburd), Oedema, Elephanties (Shlipad), Burgers disease, ophthalmia (Abhishyand), Headache (Shirashul), abscess (Vidrathi), Erythema (Visarpa), Rheumatism (Santhivat). These are some of the diseases in which, it is observed that blood extracting (Raktamokshan) if introduced along with Leech application, expected results are achieved quickly.
16. In inflammation when it is not decisive whether the stage of disease is primaryimmature or finally mature, if Leech application introduced. It is observed that critical development is stopped, complication never arise.
17. Usefullness of sub surgical tools in the absence of surgical.

Acharya Sushruta such as, 'Rakta Hi Vedanamul....' Vednopashamadharya  
tatha Pakshamay Ch ' Nrupadhyabal.... Yat Jaloukas' convincing.

1. Pain extinguishes.
2. Application of Leeches creates local anesthetic action.
3. Bottom deep sucking of the blood.
4. Ability to suck up impure blood.
5. Ability to purify Doshas .
6. Swelling decreases.
7. Hastens ripening of swelling.
8. Ability to purify specifically.
9. Antibiotic treatment is not required.
10. Ability for quick transformation of stages.
11. Cosmetic, parasurgical process.

#### **Contra indication of leech therapy**

- Blood clotting disorder.
- Severe anemia.
- Allergic reaction to active substances of the leech such as hirudin, calin, hyaluronidase, egline, kollagenase, apyrase, destabilase, piyavit.
- Human with weak constitution.
- Pregnancy.

#### **Complications of hirudotherapy**

- The infection caused by bacteria aeromonas-hydrophilia present in gut of leech, which can cause pneumonia, septicemia or gastroenteritis.
- Excess blood loss so contra indicated in patients of haemophilia or in other bleeding diathesis.
- Allergic reactions such as itching followed by burning and blister formation
- Ulcerative necrosis due to toxins present in leech saliva.

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