



“Therapeutic Applications of Agnikarma, Ksharkarma & Leech Therapy”

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Abstract-

Introduction- Ayurveda's surgical branch, Shalyatantra, includes a broad range of para-surgical techniques that provide efficient and least intrusive remedies for a variety of illnesses. Among these, Jalaukavacharana (leech therapy), Ksharkarma (chemical cauterization), and Agnikarma (thermal cauterization) are well-known treatments that have been used for millennia and proven effective in clinical settings. With the goal of removing the causing doshas and reestablishing physiological equilibrium, these therapies are based on core Ayurvedic concepts. Because agnikarma uses regulated heat to relieve exacerbated Vata and Kapha, it is mostly recommended for musculoskeletal, neurological, and localized chronic pain disorders. Because of its chedana (excision), lekhana (scraping), and bhedana (piercing) qualities, ksharkarma provides a powerful substitute for surgical excision, particularly in cases of anorectal diseases, non-healing wounds, and aberrant tissue growths. By eliminating vitiated blood and promoting healing, leech treatment, a kind of Raktamokshana (bloodletting), is very successful in treating inflammatory, vascular, and skin-related disorders. **Material and Methods-** The therapeutic uses of Agnikarma, Ksharkarma, and Leech Therapy (Jalaukavacharana) in Ayurveda, specifically in Shalyatantra, are conceptually and clinically reviewed in this paper. For the compilation and analysis, both contemporary clinical research and traditional Ayurvedic literature were used. **Discussion-** Their incorporation into contemporary Ayurvedic practice demonstrates Shalyatantra's ongoing value in the treatment of both acute and chronic illnesses. The purpose of this essay is to examine their clinical importance, traditional allusions, and therapeutic uses in the contemporary Ayurvedic setting. **Results-** Despite having different approaches, these three therapies are all focused on accuracy, effectiveness, and safety when used properly.

Keywords- Ayurveda, Shalyatantra, Agnikarma, Ksharkarma & Leech Therapy.

Introduction-

The ancient science of life, Ayurveda, provides a holistic approach to healing that incorporates both special para-surgical methods and surgery (Shalyatantra). One of the eight branches of Ayurveda, Shalyatantra, includes specific remedies for wound healing and illness management in addition to surgical operations. These include the tried-and-true, minimally invasive techniques of Agnikarma (thermal cauterization), Ksharkarma (chemical cauterization), and Jalaukavacharana (leech treatment). These treatments have been effectively used for many generations and are thoroughly explained in traditional books such as the Sushruta Samhita.¹ They can be used to treat a variety of ailments, including vascular diseases, inflammatory illnesses, chronic ulcers, and pain and tissue regeneration. This essay highlights the significance of these treatments in contemporary Ayurvedic clinical practice by going over their processes, indications, and benefits. Shalyatantra, as it is presented in traditional Ayurvedic scriptures such as the Sushruta Samhita, addresses both surgical and less invasive para-surgical treatments for a variety of ailments. Because of their practical application in treating ailments ranging from musculoskeletal diseases to vascular, cutaneous, and anorectal pathologies, Agnikarma, Ksharkarma, and Jalaukavacharana are especially highlighted.² These methods are designed to eliminate the disease-causing factors while minimizing surgical trauma and promoting natural healing.

Agnikarma (Thermal Cauterization):

Agnikarma, often referred to as therapeutic cauterization, is an age-old Ayurvedic para-surgical technique used to treat a range of neurological, dermatological, and musculoskeletal disorders. In order to reduce pain and dissolve diseased tissues, heat is applied using specialized tools (like Panchadhatu Shalaka). In Vedana Pradhana Vikaras (pain-dominant disorders), it is especially recommended. Many people go to the doctor because they are in agony.³ It is also known by the term ruja, which signifies disease. Vata is the root cause of all bodily pains. Agnikarma is the process of applying heat to particular body spots using specially made iron rods (Shalaka) or herbal ingredients. It is recommended mostly for ailments when the Vata and Kapha doshas are exacerbated. A detailed description of the Agni Karma procedure can be found in Astang Samgraha.⁴ Before performing the Agni Karma procedure, benediction chanting and the gathering of relevant materials and tools should be completed. The patient should also be held by knowledgeable assistants to prevent movement and should be placed in the appropriate position with their head pointing in the direction of the East. After that, using a blower or a fan to heat up Jambvostha or Shalaka over a smoke-free fire of Khadira or Badara, the surgeon should create the various shapes of Agni Karma, such as Valaya, Ardhchandra, Swastika, etc., depending on the situation. If patients have difficulty during this time, keep them comfortable by courageous, consoling conversations, providing cool water to drink, and sprinkling cold water. However, the Agni Karma technique should be carried out until complete cauterization is produced. After that, Madhu and Ghrita should be anointed, and cold and lubricating Dravyas should be applied.

Indications:

- Sciatica (Gridhrasi)
- Osteoarthritis (Sandhigata Vata)
- Frozen shoulder (Apabahuka)
- Cervical and lumbar spondylosis
- Corns, warts, and chronic ulcers

Mode of Action: Agnikarma reduces pain, inflammation, and local congestion by cauterizing the afflicted tissue. Additionally, it promotes healing and increases circulation. Ayurveda states that pain is a major indicator of gridhrasi and that Vata is the primary dosha that produces ruka. Treatment is determined by the pathophysiology's dosha and dhatu, which in turn rely on nidana. In contrast to the ushna guna of the agni, the principal guna of the vata dosha is sheeta. Agni may therefore alleviate pain due to its ushna guna. Stambha is primarily caused by the sheeta and ruksha guna of the vata dosha.⁵ The ushna guna of agnikarma relieves stambha by acting as an indirect opponent to vata. The most common cause of muscle stiffness is impaired neuromuscular control, albeit the exact cause is yet unclear. By increasing the warmth at the application site, agnikarma reduces nerve reflexes and relaxes muscles.

Advantages:

- Instant pain relief
- Minimal recurrence
- No need for surgical incision

Disadvantages of Agnikarma (Therapeutic Cauterization) in Ayurveda:

Despite being a very successful Ayurvedic parasurgical treatment for pain relief and certain musculoskeletal or dermatological disorders, agnikarma does have several drawbacks and restrictions.

1. Pain and Discomfort:

The procedure involves thermal cauterization which can cause intense pain during the process, especially without proper analgesic support.

2. Risk of Burns:

o Burn injuries, blister development, or harm to nearby healthy tissues might result from improper technique or overheating.

Scarring:

o Skin discoloration or scarring may result from the operation, particularly if it is not performed correctly or if aftercare is ignored.

3. Infection Risk:

o Abscess development, cellulitis, or local infection are possible outcomes of failing to maintain aseptic conditions.

4. Limited to Specific Conditions:

o Agnikarma works best for localized ailments including tennis elbow, sciatica, heel pain (Vatakantaka), warts, and chronic pain; it is not appropriate for systemic diseases.

5. Not Suitable for All Patients:

o Not recommended for use in pregnant women, those with bleeding problems, the very young or old, or anyone who are extremely sensitive to pain.

6. Requires Skilled Practitioner:

o It requires a great deal of skill and accuracy. Treatment failure and consequences may result from improper application.

7. Psychological Discomfort:

o Patients may get anxious or afraid of the idea of burning or cauterization, which might result in non-compliance.

Sites For Agnikarma:

Acharyas, Charaka, and Antara Kandara Gulpha have all proposed several Agnikarma locations for the treatment of gridhrasi. Harita: Kanishthika Chakradatta Anguli (small toe of the afflicted leg) is one of the four angula in the tiryak gati above the gulpha.⁶

Ksharkarma (Chemical Cauterization): Shalyatantra, or Ayurvedic surgery, is the main application for Ksharkarma, a special para-surgical technique in Ayurveda. In order to manage the debridement or elimination of undesirable or aberrant tissues, Kshara, a caustic alkaline material made from certain medicinal herbs, is used. The Sanskrit root "ksharana" (meaning "to melt or destroy") is where the word "Kshara" originates. The most

popular sources of this herbo-mineral alkaline preparation are Apamarga (*Achyranthes aspera*) and Arka (*Calotropis gigantea*).⁷ In Ksharkarma, aberrant tissues are chemically cauterized or excised using alkaline compounds derived from plants, such as Apamarga or Arka. When surgical excision is either impractical or undesirable, it is frequently employed.

Types of Kshara:

Pratisaraniya Kshara – Topically applied paste or powder (used for local application).

Paneyya Kshara – Oral administration (used internally for digestive or metabolic conditions).

Kshara Sutra – A thread coated with Kshara used in ligation therapy, especially for Bhagandara (fistula-in-ano), Arsha (piles), and Nadi Vrana (sinus).

Indications:

- Hemorrhoids (Arsha)
- Fistula-in-ano (Bhagandara)
- Anal fissure (Parikartika)
- Nasal polyps
- Non-healing wounds (Dushta Vrana)⁸

Mode of Action of Ksharkarma in Ayurveda⁹

An Ayurvedic para-surgical technique called ksharkarma works by combining tissue-destroying, cleaning, and chemical cauterization. It destroys diseased or damaged tissues selectively using Kshara, a strong alkaline preparation made from medicinal herbs (such as Apamarga, *Achyranthes aspera*).

1. Chedana (Excision) – Cutting Effect

- Kshara's alkaline pH can be used to remove growths such as warts, polyps, or hemorrhoids because it penetrates tissues and promotes cell lysis and protein denaturation, which destroy undesired cells.

2. Bhedana (Incision) – Splitting Effect

- In circumstances like Bhagandara (fistula-in-ano) and Nadi Vrana (sinus), where internal pathways are opened and debrided, Kshara's penetrative action breaks fibrous tissues or sinuses.

3. Lekhana (Scraping) – Debridement Effect

Kshara is particularly helpful for Vrana (chronic wounds or ulcers) and Charma roga (skin growths) because it chemically scrapes away slough, necrosed tissue, or hypergranulated tissue, facilitating wound cleansing and healing.

4. Shodhana (Purification) and Ropana (Healing)

- Because Kshara has antiseptic, anti-inflammatory, and antibacterial qualities, it aids in wound or tract disinfection. A decrease in inflammation. Promoting healthy granulation tissue to hasten recovery.

5. Stambhana (Hemostatic Effect)

- Kshara successfully stops bleeding in diseases like ulcers or bleeding piles by cauterizing blood vessels.

Advantages:¹⁰

- Bloodless excision
- Can be performed in OPD settings
- Cost-effective and safe

Disadvantages of Ksharkarma in Ayurveda:

Although Ksharkarma is a para-surgical technique that works well, particularly for anorectal and dermatological disorders, it has several drawbacks and restrictions, which are listed below:

1. Tissue Irritation and Pain:

- Because Kshara is alkaline, it may burn, irritate, or cause discomfort when it is applied, especially in delicate places like the anal canal.

2. Risk of Excessive Tissue Damage:

- Kshara can cause excessive necrosis or harm to healthy tissues if it is administered incorrectly or for an extended period of time. This might result in consequences including ulceration or delayed healing.

3. Recurrence in Incomplete Application:

- In cases such as Bhagandara (fistula-in-ano) or Arsha (piles), a disease recurrence may result from insufficient application or subpar technique.

4. Requires Skilled Practitioner:

- Because improper administration of Kshara might have negative consequences, the treatment requires an Ayurvedic surgeon with training in managing Kshara and its dose.

5. Local Inflammation or Edema:

- If the region is not well cleansed or if the Kshara is applied too strongly, it may cause localized irritation, swelling, or pain.

6. Not Suitable for All Patients:

- Contraindicated in:
 - o Older patients and children with sensitive tissues.
 - o Expectant mothers (particularly for anorectal uses).
 - o Individuals with diabetes (risk of delayed healing), blood problems, or sensitive skin issues.

7. Psychological Discomfort:

- Treatment compliance may be impacted by some patients' concern or anxiety over the prospect of chemical cauterization.

Jalaukavacharana (Leech Therapy): As a kind of Raktamokshana, leech treatment uses medicinal leeches to extract vitiated blood. It works especially well for ailments involving vascular congestion, discomfort, and inflammation. One of the Raktmokshana processes is Jalaukavacharan. Raktmokshana is a prehistoric biosurgical procedure that was described by Sushruta, the father of Indian surgery. Legend has it that Lord Dhanwatari appeared in this world after Samudra Manthan, holding a pitcher of nectar and Jalauka in each hand. This illustrates how important Jalauka is to Indian medicine. They are called Jalauka because they either reside in Jala or are used to the water. Raktmokshana should be used to cure Rakatajroga.¹¹

Historical review of Jalauka: Acharya Charaka mentioned Jalouka as the best Anushashtra, while Acharyas Sushruta Vagbhat and Harita focused on its use. thorough in their compositions.

Types of jalauka- Jalaukas are divided into two types-

1. Savisha Jaloka (Poisonous leeches) - Hirudo detrimental
2. Nirvisha Jaloka (Non- poisonous leeches) - Hirudo medicinalis

Savisha Jalauka (Poisonous Leeches): The putrefied (decayed) dead bodies of poisonous fish, insects, worms, and frogs, along with their urine and excreta, give birth to these leeches, which inhabit polluted water. These are red, white, or extremely black in color, and have a variety of rainbow-like patterns on their back. They are also thick, slimy, and energetic. You have to disregard these.¹²

Nirvisha Jalauka (Non-poisonous Leeches): These originated in pure water (Nirvisha) and are non-toxic. They are bluish-black in color, like algae, and have a spindle-shaped body with a yellowish belly and a dark back. They are strong, hungry, and quick to eat blood. Decomposed Padma (lotus), Utpala (white lotus), Nallina (slightly red lotus), Kumuda (lily), Saygandhika (extremely fragrant lily), Kuvalaya (red lily), Pundanke (very white lotus), and Saivata (algae) are the sources of these.¹³

Gunas of Jalaukas : Sheet , snighdha , shlakshna action on dosha Pittahara.

Important Component of leech saliva-

1. Apyrase, an inhibitor of platelet aggregation based on adenosine triphosphate.
2. Hirudin inhibits blood coagulation by binding to thrombine.
3. Bdelins inhibit trypsin, plasmin, and acrosin and have anti-inflammatory properties.
4. Kallikrein, responsible for preserving a healthy blood pressure level during intrinsic coagulation, is suppressed by histasin.
5. Histamin-like substances Vasodilators increase the amount of blood flowing to the bite site.
6. Blocks the action of elastase, cathepsin G chymase, subtilism, and chymotrypsin. anti-inflammatory.
7. Hyluronidase raises interstitial viscosity and has antimicrobial properties.
8. The inhibitor prevents coagulation factor Xa from converting prothrombin to thrombin.
9. Calin decreases collagen-induced platelet aggregation and blood coagulation by blocking the binding of collagen's von Willebrand factor.

10. Antitryptase drugs block the photeolytic enzymes of the host mast cell.¹⁴

Indications of Jalaukavacharan: According to Acharya Sushruta, Jalaukavacharan should be conducted, particularly on monarchs, affluent individuals, children, elderly people, ladies, and Sukumar people. For venomous or poisonous lesions that do not heal, leeches are the preferred bloodletting technique; rakmokshan is recommended to aid in the healing process. while an abscess is being treated. Multiple grandular inflammatory swellings were the etiology of the inflammatory scrotal edoema. In order to identify the abscess, Acharya Sushruta has advised that jalaukavacharan be performed prior to incision and drainage.¹⁵ Because venous occlusion may result in thrombus formation and stasis, using leeches in plastic surgery carries a significant risk of tissue necrosis. Therefore, one of the most important steps in preserving transplanted tissues is lowering venous congestion. The presence of bioactive enzymes, anticoagulants, and vasodilators in the leech's secretion reduces the cumulative effect of blood pouring from a leech bite. Leeches have been found to effectively increase blood flow following scalp avulsion microsurgery. Leech application instructions were provided as post-operative therapy for patients who had surgery to repair their fingers.¹⁶ Numerous studies on individuals with osteoarthritis who reported that leech therapy is more pain-relieving than topical Diclofenac sodiums demonstrated the analgesic properties of Jalaukavacharan.

Contraindications of Jalaukavacharan-

Severe anemia, erosive gastritis, hemophilia, the risk of gastrointestinal bleeding, severe allergic reactions (allergy to foreign proteins), pregnancy, hypotension, acute mental illness, chemotherapy (or immunosuppressive drugs), and current tuberculosis are among the conditions for which leech therapy is not recommended.¹⁷

Mode of Action of Jalaukavacharana-

Leeches act because of biological components found in saliva. This saliva contains about a hundred bioactive substances, including as antibiotics, anti-inflammatory, anti-platelet aggregation factor, and an anesthetic. These chemicals anesthetize the wound area to make the leech's bite to its host painless and enlarge blood vessels to improve blood flow to the bite site. The important components of leech saliva are listed in the table below.¹⁸

Discussion:

This is a thorough explanation of the Ayurvedic-based therapeutic uses of Agnikarma, Ksharkarma, and Leech Therapy, particularly in the field of Shalyatantra (Ayurvedic surgery and para-surgical procedures). Shalyatantra's application of these para-surgical treatments shows how Ayurveda may treat a wide range of illnesses without requiring extensive surgery. In contemporary surgical treatment, they also function as supplemental or preliminary measures. They are useful in modern integrative medical treatment because of their affordability, low risk of adverse effects, and holistic approach. Agnikarma is the practice of applying controlled heat to particular bodily parts using heated iron tools or other materials. Its foundation is the idea of balancing exacerbated Vata

and Kapha doshas, which are frequently connected to musculoskeletal diseases and discomfort. Ksharkarma performs excision, incision, and scarification using alkaline chemicals (Kshara) obtained from herbal sources such as Apamarga (*Achyranthes aspera*). It is especially helpful for conditions involving the Pitta and Kapha doshas.

Regarded as the most effective treatment, leech therapy is gaining popularity worldwide. Leech saliva contains a variety of bioactive substances, including as analgesic effects, anaesthetics, and vasodilators. It is consequently more effective than topical analgesics and anti-inflammatory medications in the treatment of inflammatory and degenerative joint diseases such as gout and osteoarthritis. Leeches are the most effective treatment for venous congestion because of the little amounts of blood they extract and the enhanced blood clearance that occurs during the passive-bleeding phase of leech therapy. Leech saliva contains a variety of anticoagulant compounds that also help to lessen venous blockage brought on by diseases such as venous thrombosis, varicose veins, and Burger's disease.

Conclusion:

In Ayurveda, Agnikarma, Ksharkarma, and Leech treatment are important para-surgical techniques. They provide efficient, less intrusive treatment for a range of acute and chronic ailments, especially those involving pain, inflammation, and Vata-Kapha vitiation. The Ayurvedic concepts of Shamana (palliation) and Shodhana (purification) are also supported by these treatments. In Ayurvedic surgery, Agnikarma, Ksharkarma, and Jalaukavacharana are powerful therapeutic instruments. They remain relevant in both traditional and modern healthcare settings because they are based on the ideas of dosha balance and minimal invasiveness. By using natural healing processes, its use not only treats the underlying causes of illnesses but also improves the quality of life for patients.

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