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Leech therapy (Jaloka) in the management of varicose veins

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Abstract

Varicose veins, a common venous disorder characterized by swollen, twisted veins usually appearing in the legs, cause discomfort, pain, and potential complications such as ulcers and deep vein thrombosis. Leech therapy (Jaloka), an ancient Ayurvedic parasurgical procedure, has been used as an effective treatment for various vascular conditions, including varicose veins. This review examines the scientific basis, historical use, and clinical efficacy of leech therapy in the management of varicose veins. A comparative analysis between Jaloka and modern surgical techniques, as well as the biochemical properties of leech saliva that facilitate its therapeutic effects, is explored. This article integrates evidence from both traditional Ayurvedic texts and modern clinical research to provide a comprehensive understanding of the role of leech therapy in treating varicose veins.

Keywords: Varicose veins, venous disorder, swollen veins, twisted veins, leg veins

Introduction

Varicose veins are caused by the weakening of the venous walls and valves, leading to improper blood flow, pooling, and vein enlargement. Conventional treatments for varicose veins include sclerotherapy, laser treatment, and surgery, which may involve side effects or recurrence. In contrast, leech therapy (Jaloka) offers a minimally invasive, natural alternative grounded in Ayurvedic medicine. Sushruta, the father of surgery in Ayurveda, described the use of leeches to treat various blood disorders and inflammatory conditions over 2,000 years ago.

Leech therapy has gained modern attention due to the discovery of the therapeutic compounds in leech saliva, such as hirudin, a potent anticoagulant. These compounds help reduce blood viscosity, improve circulation, and reduce venous congestion, which are critical for managing varicose veins. This review article delves into the Ayurvedic perspective of varicose veins, the mechanism of action of leech therapy, and the scientific evidence supporting its efficacy.

Objective of paper

The objective of this paper is to review the efficacy of leech therapy (Jaloka) in the management of varicose veins, comparing its benefits to conventional treatments while exploring its mechanism and clinical outcomes.

Ayurvedic perspective on varicose veins and Jaloka therapy

From an Ayurvedic perspective, varicose veins are understood through the lens of dosha imbalances and circulatory disturbances. In Ayurveda, the condition is commonly seen as a result of the vitiation of Vata and Kapha doshas, with a secondary involvement of Pitta dosha in certain cases. Vata, which governs movement and circulation in the body, becomes aggravated, leading to impaired flow of blood, improper functioning of the venous valves, and pooling of blood in the veins. This manifests in the bulging and twisting of veins, particularly in the lower limbs, as seen in varicose veins. Kapha, associated with structure and stability, contributes to the heaviness and stagnation, causing swelling and pressure in the affected areas.

According to Ayurvedic texts, varicose veins can be categorized under the broader condition of Siraja Granthi, where "Sira" refers to veins and "Granthi" means swelling or knot. This is

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described as an imbalance where the blood (Rakta Dhatu) becomes stagnant due to the improper functioning of the venous system. The vitiation of Vata leads to dryness, stiffness, and constriction of the veins, while Kapha's involvement adds heaviness, resulting in sluggish circulation. The reduced flow of blood and accumulation of waste products in the veins cause the visible swelling and discoloration characteristic of varicose veins.

Jaloka Avacharana (leech therapy) is an important treatment modality in Ayurveda to alleviate varicose veins. Leech therapy is classified under Raktamokshana, the procedure of bloodletting, which aims to remove vitiated blood from the body. This therapy directly addresses the vitiated Vata and Kapha doshas by improving blood circulation, relieving congestion, and removing impurities from the blood. Sushruta, the ancient Ayurvedic surgeon, extensively described the use of leeches to drain impure blood, relieve pressure, and allow the venous system to regain normal function.

The application of leeches in Jaloka therapy helps remove the stagnated blood, thus clearing obstructions and restoring normal blood flow. The leech's saliva contains bioactive substances like hirudin, which have anticoagulant properties, improving blood flow and preventing further clot formation. Leech saliva also has anti-inflammatory compounds that reduce swelling and pain associated with varicose veins, while vasodilators help expand the veins, allowing better circulation.

From an Ayurvedic perspective, the overall goal of Jaloka therapy is to restore balance in the body's internal systems, particularly the circulatory and excretory pathways. By relieving the blood congestion caused by vitiated Vata and Kapha, leech therapy facilitates the natural healing processes of the body. It is particularly useful in cases where there is significant stagnation and heaviness in the lower limbs, along with discoloration and tenderness, which are characteristic of varicose veins.

How leech therapy works

Leech therapy, also known as Jaloka Avacharana in Ayurveda, works by utilizing the medicinal properties of

leeches to improve blood circulation, reduce swelling, and promote healing in affected areas. When a leech attaches to the skin, it injects its saliva into the body, which contains a variety of bioactive compounds that have therapeutic effects.

The primary substance in leech saliva is hirudin, a potent anticoagulant that prevents blood clotting. By keeping the blood in a fluid state, hirudin promotes smooth blood flow and prevents the formation of clots, which is essential in conditions like varicose veins, where blood stagnation is a major issue. Along with hirudin, leech saliva contains other compounds such as calin, which inhibits platelet aggregation and prolongs the anticoagulant effect, even after the leech has detached. Leeches also release vasodilators, which help widen blood vessels, allowing for better blood flow to the affected area. This is crucial in conditions where circulation is impaired, as it helps to alleviate pressure within the veins and reduce congestion. Moreover, anti-inflammatory agents like bdellins and eglins present in leech saliva reduce inflammation and swelling, making it particularly effective in treating conditions such as varicose veins, arthritis, and other inflammatory disorders. Another important compound, hyaluronidase, increases tissue permeability, allowing the therapeutic compounds to spread more easily and penetrate deeper into the tissues. This action enhances the absorption of the bioactive substances and promotes healing at a faster rate. Leech therapy is not just about the immediate removal of blood; it also stimulates the body's natural healing mechanisms. By drawing blood away from congested areas, leeches help relieve the local buildup of pressure and pain. The improved circulation promotes oxygenation of tissues, accelerates healing, and reduces the risk of infection. Additionally, the gentle suction applied by the leech helps to drain stagnant blood, toxins, and impurities from the affected area. Overall, leech therapy works through a combination of anticoagulation, anti-inflammatory effects, improved circulation, and natural drainage of toxins, making it a highly effective and minimally invasive treatment for various circulatory and inflammatory conditions.

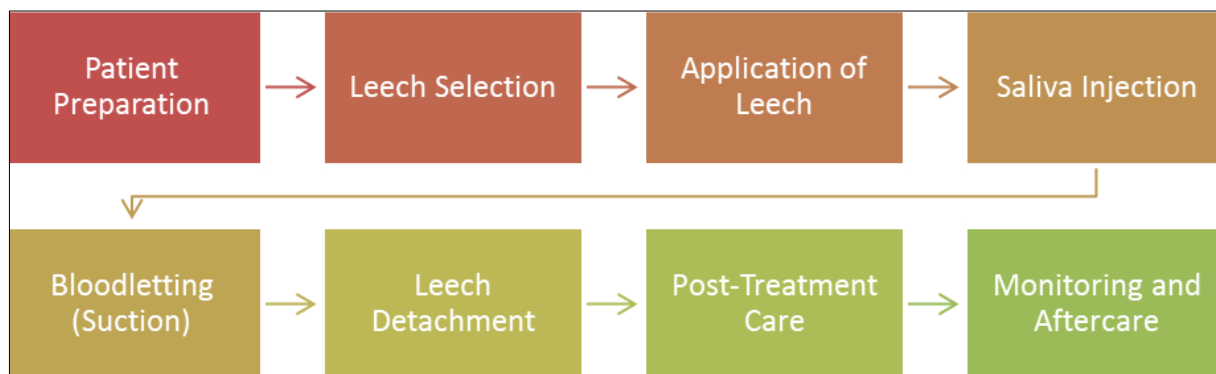


Fig 1: How leech therapy works

Leech therapy over conventional treatments

Leech therapy offers several advantages over conventional treatments, particularly in conditions like varicose veins, where blood stagnation and poor circulation are major concerns. One of the primary benefits is its non-invasive nature. Unlike surgical procedures or laser treatments, which require incisions, anesthesia, and recovery time, leech therapy involves the application of live leeches to the skin,

making it a less invasive option with minimal side effects. Patients often prefer this approach as it does not involve the risks associated with surgery, such as infection, scarring, or anesthesia-related complications. Another key advantage is the natural and holistic mechanism by which leech therapy operates. The bioactive compounds found in leech saliva, such as hirudin, act as natural anticoagulants, anti-inflammatories, and vasodilators. These compounds

promote healthy blood flow, reduce inflammation, and alleviate pain, without the need for synthetic drugs or chemicals. In contrast, conventional treatments often rely on medications like anticoagulants or anti-inflammatories, which can have side effects, including gastrointestinal issues or dependency. Leech therapy offers these benefits organically and without the long-term risks associated with pharmaceutical interventions. Leech therapy also provides a cost-effective alternative to more expensive medical procedures. Surgical treatments for varicose veins, such as vein stripping or laser therapy, can be costly, often requiring multiple sessions and follow-up care. Leech therapy is generally more affordable, and because it is less invasive, the need for extensive post-treatment care is reduced. This makes it accessible to a wider range of patients, especially those looking for a more affordable, natural solution. Additionally, leech therapy is effective in treating underlying causes rather than just addressing symptoms. Conventional treatments often focus on the visible aspects of conditions like varicose veins, such as vein appearance or immediate pain relief. Leech therapy, on the other hand, improves overall blood circulation, reduces venous pressure, and addresses stagnation, which are the root causes of conditions like varicose veins. This can lead to more sustained long-term relief and a lower chance of recurrence, as opposed to surgical or medical treatments that may need to be repeated if the condition reoccurs. Moreover, leech therapy has fewer side effects compared to conventional treatments. Surgical interventions and medications can come with a range of potential side effects, including infections, allergic reactions, and scarring. Leech therapy's primary side effects, such as minor bleeding or bruising, are generally short-lived and resolve quickly. In rare cases, patients may experience mild allergic reactions, but these can be managed easily. In summary, leech therapy offers a natural, minimally invasive, cost-effective, and effective alternative to conventional treatments, making it an appealing option for patients seeking relief from conditions like varicose veins without the risks associated with surgery or pharmaceuticals.

Challenges and Considerations

One of the primary challenges is the risk of infection. Although leech saliva has natural antiseptic properties, there is still a small chance that the leech could introduce bacteria into the body, especially if the leeches are not sourced or handled properly. In rare cases, patients may develop wound infections or systemic infections like aeromonas, a bacteria commonly found in leeches. Ensuring that medical-grade leeches are used and that proper post-treatment care is followed can help mitigate these risks. Another consideration is the patient's discomfort or phobia regarding the use of live leeches. The idea of placing leeches on the body can cause anxiety or distress for some patients, which may affect their willingness to undergo the treatment. This psychological barrier can be a significant challenge for those who might benefit from the therapy but are hesitant due to discomfort with the concept. There is also the possibility of allergic reactions. Though rare, some patients may be allergic to the compounds in leech saliva, such as hirudin, which could lead to swelling, itching, or more severe allergic reactions. It's important to conduct a thorough medical history and screening to identify any potential allergic risks before initiating treatment. Bleeding and

prolonged oozing at the bite site are additional concerns. Since leech saliva contains anticoagulants, some patients may experience longer-than-usual bleeding or oozing after the leech has detached. While this is usually not a serious issue, it can be uncomfortable and may require additional wound care to manage. Another challenge is the limited accessibility and availability of leech therapy in modern clinical settings. Despite its growing popularity, many clinics and hospitals do not routinely offer this therapy, and finding trained professionals who are knowledgeable about its proper use can be difficult. This limits its availability to patients who may benefit from it but cannot easily access it. Finally, while leech therapy has shown significant benefits, its clinical evidence base is still developing. While several studies have demonstrated its efficacy, more large-scale, controlled clinical trials are needed to fully validate its long-term effectiveness and safety compared to conventional treatments. In the absence of extensive scientific backing, some healthcare professionals may be hesitant to recommend leech therapy as a primary treatment option.

Conclusion

Leech therapy (Jaloka Avacharana) offers a unique and effective approach to managing varicose veins, drawing on the ancient wisdom of Ayurveda while benefiting from modern scientific understanding of its therapeutic properties. The bioactive compounds in leech saliva, such as hirudin, calin, and vasodilators, provide significant relief from venous congestion, reduce inflammation, and improve blood circulation. These natural properties make leech therapy a viable, minimally invasive alternative to conventional treatments like surgery, sclerotherapy, or laser interventions. While leech therapy is generally safe and effective, challenges such as the risk of infection, patient discomfort, and limited availability should be carefully managed. By ensuring proper patient screening, using medical-grade leeches, and providing clear post-treatment guidance, these challenges can be mitigated. Although leech therapy is a promising solution, more extensive clinical studies are required to further validate its efficacy in comparison to conventional treatments. Nonetheless, it holds great potential as a cost-effective, natural, and sustainable treatment for varicose veins and other circulatory disorders, offering long-term relief with fewer side effects. With a growing interest in integrative medicine, leech therapy can bridge the gap between traditional and modern therapeutic practices.

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