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A Comprehensive Review on Cellulitis Varanshopha

[1] Dr Madhulika Sharma,

[1] HOD and Professor,
[1] Department of Shalya Tantra,
[1] B R Harne Ayurvedic Medical College & Hospital Karav Vangani, Thane, India
Email id :drsharmamadhu.1@gmail.com

Abstract:

Background: *Acharya Sushruta*, renowned as the father of Indian surgery (*Shalya Tantra*), has given detailed descriptions of surgical and para-surgical measures for the management of various disorders. Among these, *Vranashopha* is described as an inflammatory swelling, which can be correlated with the modern clinical condition of cellulitis. Cellulitis is an acute, diffuse, spreading bacterial infection of the dermis and subcutaneous tissue, typically presenting with localized pain, erythema, edema, and warmth. Untreated cases may progress to systemic complications, highlighting the importance of timely and effective management.

Methodology: A comprehensive review of classical *Ayurvedic* texts, contemporary research articles, and modern medical literature was carried out to understand the correlation between *Vranashopha* and cellulitis. The therapeutic role of *Jalaukavacharana* (leech therapy) was analyzed in terms of its mechanism, efficacy, and safety. Literature suggests that leech therapy helps in reducing inflammation, relieving pain, improving local circulation, and preventing suppuration, making it a promising therapy in inflammatory conditions like cellulitis.

Results and Discussion: Findings from both *Ayurvedic* principles and modern studies indicate that *Jalaukavacharana* offers significant benefits in managing inflammatory swellings. The anticoagulant, anti-inflammatory, and antimicrobial properties of leech saliva contribute to its therapeutic action. Its minimally invasive nature, safety profile, and rapid symptomatic relief make it superior to many conventional interventions in selected cases.

Conclusion: The concept of *Vranashopha* described by *Acharya Sushruta* bears a close resemblance to cellulitis in modern medicine. *Jalaukavacharana* emerges as an effective, safe, and natural therapeutic option for managing cellulitis due to its anti-inflammatory and blood-purifying properties. Further clinical studies and evidence-based research are needed to validate its role in modern medical practice.

Index Terms *- Vranashopha*, Cellulitis, *Jalaukavacharana*, Leech therapy, Inflammation

I. INTRODUCTION

Shalya Tantra, one of the eight principal branches of Ayurveda, deals with surgical as well as para-surgical procedures for the management of a wide spectrum of diseases. Among these, *Vranashopha* is considered the preliminary stage of *Nija Vrana* (internal ulcer). *Acharya Sushruta* has provided a detailed account of inflammatory swellings under the heading of *Vranashopha*.

"शोफः शरीरस्थानानां वृद्धिः शूलसमन्वितः ।
वातपित्तश्लेष्मजनितोऽगन्तुजश्च ॥" (सु. नि. १/३)

"*Shopha* (swelling) is defined as an abnormal enlargement of a body part associated with pain, arising due to vitiation of *Vata*, *Pitta*, *Kapha*, or external causes."
Based on its clinical features, *Vranashopha* can be correlated with cellulitis in modern medicine.

Cellulitis is a common and potentially serious bacterial infection of the skin and underlying tissues. It usually presents with localized redness, swelling, pain, and warmth. Although most commonly affecting the lower extremities, cellulitis may also occur in the face, arms, and scrotum, where the subcutaneous tissue is comparatively loose.

"आदौ शोफः ततः पाकः ततः शोणितनिस्रुतिः ।
क्रमाच्च वर्धमानस्य व्रणत्वं समुपैति सः ॥ (सु. सू. २१/८)

"Initially there is swelling, which later undergoes suppuration and discharge of blood; if it progresses, it eventually transforms into a chronic ulcer.
From a modern perspective, cellulitis is commonly caused by Streptococcus pyogenic and other Gram-positive organisms. These bacteria release enzymes such as streptokinase and hyaluronidase, which facilitate the rapid spread of infection. Clinically, cellulitis is characterized by diffuse and spreading swelling, pain, tenderness, erythema, warmth, and shiny stretched skin without distinct margins, pus formation, or fluctuation.
Ayurveda prescribes both herbal remedies and Para-surgical measures for such conditions. Among these, *Jalaukavacharana* (leech therapy) is considered one of the safest and most effective.

"क्षुद्राः कृष्णाश्च ये जालूका शीतलाः क्रूरदर्शनाः ।
रक्तमोक्षणे ते योग्याः पित्ताधिक्ये विशेषतः ॥(सु. सू. १३/४)

"Small, black, cold-natured, and mild-looking leeches are considered suitable for bloodletting, especially in conditions dominated by vitiated Pitta."
Thus, correlating *Vranashopha* with cellulitis provides an integrated understanding, and the therapeutic potential of *Jalaukavacharana* offers a safe, natural, and effective alternative for management.

Etiopathogenesis of Vraṇashopha
According to Ayurveda, the origin of *Vraṇashopha* is primarily due to the vitiation of all three *doṣas*, with Pitta *doṣa* being predominant. The involvement of *Rakta* (blood), *Tvak* (skin), and *Māṃsa* further contributes to the pathological process. This results in localized swelling, hardness, thickening of the skin, reddish discoloration, and sometimes the appearance of small vesicles.

"शोफः शरीरस्थानानां वृद्धिः शूलसमन्वितः ।
वातपित्तश्लेष्मजनितोऽगन्तुजश्च ॥" (सु. नि. १/३)

"*Śopha* (inflammatory swelling) is an abnormal enlargement of body parts associated with pain, produced by vitiation of *Vāta*, Pitta, *Kapha*, or by external causes."

*Doṣa – Tridoṣaj*a (all three *doṣas*), with Pitta predominance
Dūṣya – Rakta, Tvak, Māṃsa
Srotas – Rasavaha, Raktavaha
Lakṣaṇa– Ruk (pain), *Śotha* (swelling), *Rāga* (redness), *Uṣṇatā* (heat), etc.

Symptoms of *Vraṇashopha* (**व्रणशोफ लक्षणानि**)
signs and symptoms of *Vraṇashopha*

गुरुता (*Gurutā*) Heaviness in the affected area
उत्सेध (*Utsedha*) Raised swelling
अस्थिरता (*Asthiratā*) Immobility of swelling
उष्णता (*Uṣṇatā*) Local rise in temperature
शिरोरोग (*Śira Roga*) Prominent veins on swelling
वैवर्ण्य (*Vaivarṇya*)Discoloration of skin

Stages (Avasthā) of Vraṇashopha

Suśruta and later *Āchāryas* have described the progression of *Vraṇashopha* into different stages:

1. *Āmāvasthā* :- Mild pain, Slight rise in temperature Immovable, hard swelling

Dominance of *Vāta doṣa*

"**शीतोष्णस्पर्शोऽल्पवेदनः स्थिरः कठिनः शोफः आमावस्थायाम् भवति**"(Ref. Su. Su.)

2. *Pācayamāna Avasthā* :- Increasing pain and tenderness, Rising temperature, Redness and progressive swelling

Dominance of Pitta *doṣa*

"**दाहपीडारागसंपन्नः पाच्यमानः स्मृत** (Ref. Su. Su.)

3. *Pakwāvasthā* :- Suppuration, softening of swelling, Throbbing pain, Fluctuation on palpation

Possibility of pus discharge
Involvement of Kapha doṣa

"**मृदुः स्पर्शे सशब्दश्च पाण्डुरः शोणितोच्छ्रितः पक्वावस्थां निगद्येत** (Ref. Su. Su.)

Investigations

For the diagnosis and assessment of cellulitis/*Vraṇashopha*, the following modern investigations are recommended: Total WBC count, Hemoglobin (Hb%), Serum Creatinine, Urine Sugar, HIV, HBsAg tests, Venous Doppler and soft-tissue ultrasonography (to rule out deep venous thrombosis, abscess, or necrotizing infection in complicated cases)

Management of *Vraṇashopha*

1. *Laṅghana* (**लङ्घन**)**:** *Suśruta* advocates *Langhana* in the early stage

"**लङ्घनं शोफमृदुं प्रशमयति**" (**सु. सू. ३५/२७**)

"*Langhana* helps in subsiding immature swelling. "It works by reducing excessive body fluid volume, restricting heavy nutrition, stimulating Agni , and aiding the digestion of *Āma*. It also enhances immune defense mechanisms and metabolic activity

2. Jalaukāvacharaṇa (**जालौकावचरन** – Leech Therapy)

Since ancient times, leech therapy has been considered one of the safest methods of bloodletting. *Suśruta* prescribes it especially in Pitta–*Rakta* dominant conditions:

"**क्षुद्राः कृष्णाश्च ये जालूका शीतलाः क्रूरदर्शनाः रक्तमोक्षणे ते योग्याः पित्ताधिक्ये विशेषतः ॥**"
सु. सू. १३/४

"Small, black, cold-natured, and mild-looking leeches are suitable for bloodletting, especially in conditions with predominance of Pitta." Leech saliva contains more than 100 bioactive substances, including anticoagulants, vasodilators, and anesthetic agents. These provide anti-inflammatory action, improved local circulation, pain relief, enhanced wound healing and immunomodulation.

3. *Ayurvedic* Herbs in Management

a. *Triphala* (**त्रिफला**)**:** A well-known *Tridoṣa-hara Rasāyana*, possessing antioxidant, anti-inflammatory, antibacterial, and antifungal activities. It promotes digestion, improves blood circulation, and enhances RBC and Hb production.

b. *Punarnavā* (**पुनर्नवा**)**:** Acts as an anti-inflammatory, antibacterial, and diuretic agent. It reduces edema and swelling by eliminating excess fluid.

c. *Gokṣura* (**गोक्षुर**)**:** Known as a natural diuretic, effective in reducing edema and inhibiting bacterial growth responsible for infection.

d. *Varuṇa* (**वरुण**)**:** Promotes diuresis, supports kidney function, and aids in detoxification, thereby reducing swelling and systemic complications.

DISCUSSION

Vraṇashopha, described in Ayurveda by Āchārya *Suśruta*, shares close clinical resemblance with cellulitis in modern medicine. Both conditions manifest with pain, redness, swelling, warmth, and systemic symptoms such as fever and anorexia. However, their understanding and management differ in *Ayurvedic* and modern approaches.

In modern medicine, cellulitis is primarily managed with antibiotics aimed at eradicating the causative bacteria (commonly Streptococcus pyogenes or Staphylococcus aureus). Supportive measures such as elevation of the affected limb, analgesics, anti-inflammatory drugs, and compression bandaging are also recommended to reduce edema and improve circulation.

On the other hand, Ayurveda focuses on the *Samprāpti* (pathogenesis) involving *Doṣa–Dūṣya* interaction, with Pitta predominance. Management includes:

Laṅghana in the early *Āmāvasthā* stage to digest *Āma* and stimulate Agni.

Jalaukāvacharaṇa as the most suitable *Raktamokṣaṇa* measure in Pitta–*Rakta* dominant swellings. Its efficacy is well supported by modern pharmacological findings, as leech saliva contains bioactive substances with anticoagulant, vasodilator, analgesic, antimicrobial, and wound-healing properties.

Herbal interventions like *Triphala*, *Punarnavā*, *Gokṣura*, and *Varuṇa*, which possess anti-inflammatory, antibacterial, diuretic, antioxidant, and immunomodulatory activities, making them ideal adjuncts in the management of cellulitis/*Vraṇashopha*.

Thus, an integrative approach combining *Ayurvedic* principles with modern diagnostic methods (WBC count, Doppler, imaging) provides a comprehensive framework for both diagnosis and management.

CONCLUSION

Vraṇashopha, as described in *Ayurvedic* classics, correlates closely with cellulitis in modern medicine. While modern treatment relies mainly on antibiotics and supportive measures, Ayurveda offers an alternative or complementary approach through *Jalaukāvacharaṇa*, *Langhana*, and *Rasāyana*-based herbal therapy.

Leech therapy not only provides symptomatic relief (pain, swelling, burning) but also addresses the underlying pathophysiology by improving circulation, reducing inflammation, and promoting wound healing. *Ayurvedic* herbs further enhance immunity, digestion, and systemic balance, thereby preventing complications.

Hence, integrating *Ayurvedic* therapies such as Jalaukāvacharaṇa with modern treatment protocols can provide safe, effective, and holistic management of cellulitis. Future clinical trials and scientific validations are required to establish the therapeutic potential of these traditional modalities in contemporary practice.

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