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## SHOPHA IN AYURVEDA: CONCEPTUAL UNDERSTANDING, PATHOGENESIS, AND MANAGEMENT

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### ABSTRACT

Ayurveda, one of the oldest systems of medicine, addresses the full spectrum of human life—from birth through old age. It provides comprehensive guidance not only on daily living practices but also on the identification and management of various diseases.

In modern medicine, inflammation is a key factor in understanding disease processes, playing an important role in both infectious conditions and non-communicable diseases. Ayurveda, however, interprets disease development through the imbalance of the three Doshas—Vata, Pitta, and Kapha. The condition termed *Sopha* (inflammation or swelling) is particularly important, though often complex, as it requires careful assessment of doshic disturbances for proper diagnosis and treatment.

This article focuses on *Shotha*, a specific disease described in Ayurveda. While it is recognized as an independent condition, *Shotha* can also appear as a *Purvarupa* (early symptom), *Rupa* (clinical manifestation), or *Upadrava* (complication) in various disorders. Also referred to as

203

*Shvayathu* or *Shopha*, Shotha closely resembles oedema in modern medicine, where excess fluid accumulates in body tissues.

The objective of this paper is to present a detailed overview of Shotha, including its *Nidana* (causes), *Purvarupa* (early signs), *Rupa* (symptoms), *Samprapti* (pathogenesis), *Bheda* (classification), *Chikitsa* (management), and *Pathya-Apathya* (recommended and restricted diet and lifestyle practices).

**KEYWORDS:** Sopha, Inflammation, Utsedha, Pathya-Apathya

## INTRODUCTION

Sopha (inflammation) is a complex biological response of the vascular tissues to harmful stimuli such as pathogens, damaged cells, or irritants. It represents the body's innate protective mechanism aimed at eliminating the cause of cell injury and initiating tissue repair. The classical signs of acute inflammation include pain (*dolor*), heat (*calor*), redness (*rubor*), swelling (*tumor*), and loss of function (*functio laesa*). This response involves both vascular and cellular components working together to contain and eliminate injurious agents and begin the healing process.<sup>1</sup>

Inflammation is also associated with a wide spectrum of infectious and non-communicable disorders (NCDs), including allergies, cardiovascular dysfunctions, metabolic syndrome, cancer, and autoimmune diseases. These conditions not only affect individual health but also contribute significantly to the economic burden on both individuals and society as a whole.<sup>2</sup>

Shotha is described in classical Ayurvedic texts both as a symptom of various diseases and as an independent disease entity. The fact that treatment protocols for *Shvayathu* are discussed separately in most Ayurvedic classics highlights the clinical significance of this condition. In Ayurveda, *Shvayathu* and *Shopha* are considered synonymous with Shotha. The cardinal sign of Shotha is *Utsedha* (swelling). It is characterized by the accumulation of vitiated *Doshas* in the *Twacha* (skin) and *Mamsa* (muscle tissue), forming a raised area or bulge. Importantly, this swelling typically lacks signs of *Paka* (suppuration or pus formation). In modern medical science, Shotha is correlated with oedema, which involves the abnormal accumulation of fluid in tissues.

Shotha is broadly classified into *Nija* (endogenous) and *Agantuja* (exogenous) types. All three *Doshas*, *Vata*, *Pitta*, and *Kapha*, along with *Rakta* (blood), can be involved in its pathogenesis. Based on the predominant *Dosha*(s), Shotha is further categorised as *Ekadoshaja* (single

dosha), Dwidoshaja (dual dosha), or Tridoshaja (all three doshas). Treatment is determined by identifying the causative factors and the site of manifestation of Shotha.

### **Nidana (Etiological Factors)**

Shotha may develop in individuals who are physically debilitated or have lost strength due to conditions such as Shodhana (cleansing therapies), Jwara (fever), Pandu (anaemia), fasting (Upavasa), or other chronic illnesses. The consumption or exposure to certain aggravating substances further contributes to its manifestation. These include:

- Incompatible foods such as:
  - Kshara (excessively alkaline substances)
  - Amla (sour foods)
  - Teekshna (pungent or excessively sharp foods)
  - Ushna (hot or heat-producing foods)
  - Guru (heavy-to-digest foods)
  - Dadhi (curd)
  - Ama (unripe or improperly digested substances)
  - Mrit (earth or clay)
  - Shaka (certain leafy green vegetables)
  - Viruddha Ahara (mutually incompatible food combinations)
  - Dushta Anna (spoiled or contaminated food)
  - Visha Upasrushta Anna (food contaminated with toxins or poison)<sup>3</sup>

These etiological factors, particularly when consumed by individuals with already compromised Agni (digestive fire) or Ojas (vital essence), play a significant role in the development of Shotha by vitiating the Doshas and disturbing the body's homeostasis.

### **Purvarupa (Prodromal Symptoms)<sup>4</sup>**

According to Acharya Charaka, Shotha is preceded by three key Purvarupa (prodromal symptoms), which serve as early indicators of the impending condition:

1. Ushma – An increase in local heat at the site where Shotha is about to develop.
2. Daha/Davathu – A burning sensation or heat felt in the sensory organs, such as the eyes and skin.
3. Sira Ayama – Tension or stretching in the blood vessels, indicating early vascular involvement.

These symptoms reflect the initial vitiation of Doshas and Rakta, preparing the ground for the manifestation of full-blown Shotha. Early recognition of these signs is crucial for timely intervention.

### **Rupa (Symptoms)<sup>5</sup>**

According to Acharya Charaka, the clinical manifestations (Rupa) of Shotha include the following:

- Gaurava – A sense of heaviness in the body or the specific region affected by Shotha.
- Chalatva – Instability or fluctuation of the swelling, which may increase, decrease, or shift from one location to another.
- Utsedha – Elevation or raised swelling in the affected area.
- Ushma – Increased local heat at the site of inflammation.
- Sira-Tanuta – Thinning or reduced prominence of veins in the swollen area due to pressure from accumulated fluid.
- Varna Vaivarnya – Discolouration of the affected body part, which may vary depending on the doshic involvement.

These symptoms reflect the disturbed balance of the Doshas, Rakta, and Dhatus, and help differentiate the type and severity of Shotha.

### **Etymology and Conceptual Understanding of Sopha**

The Sanskrit meaning of Sopha is “Gati Vriddhi”, which refers to the excessive movement or accumulation of fluid within the body. This term has several synonyms in classical Ayurvedic literature, including Svayathu and Sotha, which are often used interchangeably, but can also imply different severities of the condition:

- Sopha – Denotes a mild inflammatory response.
- Svayathu – Refers to moderate edematous swelling.
- Sotha – Indicates a severe or advanced stage of edematous manifestation.

A review of the classical texts reveals that Acharya Charaka predominantly uses the terms Sotha and Svayathu, whereas Acharyas Sushruta and Bhela primarily refer to the condition as Sopha. In general terms, all these denote “swelling” or “inflammatory enlargement” of tissues.

Among the three Doshas, Vata plays the most significant role in the manifestation of Sopha, as it governs movement, including the circulation of fluids. Therefore, the site of origin is considered to be the Pakyashaya (large intestine), the principal seat of Vata.

A critical analysis of the Brihatrayee (Charaka, Sushruta, and Vagbhata), Madhava Nidana, and Bhela Samhita reveals that Sopha can manifest not only externally with visible oedema but also internally, without overt swelling, much like Jwara (fever) affects the body. Internal Sopha can involve vital organs such as:

- Pliha (spleen) – Plihavidhi
- Yakrit (liver) – Yakritvridhi
- Kasa (cough)
- Shwasa (dyspnea or breathlessness)
- Hridroga (cardiac disorders)

These internal manifestations can be better understood by considering the pathological accumulation of fluid in potential spaces, as seen in conditions like Jalodara (ascites), where the fluid imbalance leads to significant internal swelling.

All of the Asta Vrana vastu (tvak, mamsa, sira, snayu, asthi, sandhi, kostha & marma) are involved in the manifestation of Sopha.<sup>6</sup>

### **Samprapti (Pathogenesis)<sup>7</sup>**

In the pathogenesis of Shotha, vitiated Vata dosha plays a pivotal role. The process unfolds as follows:

- Vata, when aggravated, pushes the morbid Doshas, Pitta, Kapha, and Rakta (blood), into the Srotas (circulatory channels).
- These vitiated elements begin to accumulate in specific tissues, particularly in Twacha (skin) and Mamsa (muscle).
- As a result, they create obstruction (Srotorodha) to the normal flow of Vata, further aggravating Vata and disturbing the functional harmony.
- This leads to a localised accumulation of Pitta, Kapha, and Rakta, resulting in Utsedha (swelling), the characteristic feature of Shotha.

Rakta, when combined with vitiated Doshas, plays a significant role in facilitating Paka (suppuration or maturation) of Sopha. This highlights the dynamic interplay between Rakta and the Doshas in the inflammatory process. Notably, Acharya Sushruta discusses the

involvement of the Tridosha in the "Vrana Prasna Adhyaya", indicating that Sopha, when left untreated or poorly managed, can progress into Vrana (ulcer or wound), demonstrating its potential severity.<sup>8</sup>

According to Ayurveda, Sopha can manifest in three clinical forms.<sup>9</sup>

- As a symptom of various diseases,
- As an independent disease entity, and
- As a complication (Upadrava) of other illnesses.

The role of Srotas (microchannels or bodily pathways) is central to the pathogenesis of Sopha. When an individual consumes Ahara-Vihara (diet and lifestyle) that is identical to the vitiated Doshas and antagonistic to the respective Dhatus, it leads to blockage or vitiation of these Srotas. This obstruction becomes the foundational event in the formation and localisation of Sopha.

Although Acharya Charaka does not describe Sopha specifically in the Nidana Sthana, he provides a comprehensive discussion on its types, symptoms, pathogenesis, and treatment in the chapters on "Trisothiya" and "Shvayathu Chikitsa" of the Chikitsa Sthana, signifying its clinical importance.

Thus, Shotha arises from a vicious cycle of doshic aggravation and obstruction, where disturbed Vata mobilises the morbid elements, and their accumulation disrupts normal physiology, leading to inflammation and swelling

### Signs of Inflammation with its doshic involvement

Feature (Latin)	Dosha Involvement	Clinical Feature	Pathophysiology
Rubor (Redness)	Pitta	Erythema (redness) due to capillary dilation	Increased blood flow and enhanced cellular metabolism
Calor (Heat)	Pitta	Local warmth at the site of inflammation	Vasodilation and hyperemia (increased blood flow)
Tumor (Swelling)	Kapha	Oedema / raised swelling	Exudation of fluid, vasodilation, and extracellular accumulation
Dolor (Pain)	Vata	Pain and tenderness due to pressure	Local pressure, release of chemical mediators,

			chemotaxis, and nerve irritation
Functio laesa (Loss of function)	Tridoshic involvement	Restricted/altered function of the affected part	Structural and functional disturbances due to the combined effect of Dosha vitiation and tissue damage

### Classification of Sopha

Category	Types
Ekavidha (Single type)	Utsedha Amanya (ordinary swelling)
Dvididha (Two types)	<ol style="list-style-type: none"> <li>1. Ashukari (acute, fast developing)</li> <li>2. Chirkari (chronic, slow developing)</li> <li>3. Nija (endogenous)</li> <li>4. Agantuja (exogenous)</li> <li>5. Bahya (external)</li> <li>6. Abhyantara (internal)</li> <li>7. Ekanga (localised)</li> <li>8. Sarvanga (generalised)</li> </ol>
Trividha (Three types)	<ol style="list-style-type: none"> <li>1. Based on Dosha: Vatika, Paittika, Shleshmika</li> <li>2. Based on site: Sarvangashrita (generalized), Ardhangashrita (hemilateral), Avayavashrita (localised to an organ)</li> <li>3. Based on shape: Prithu (diffuse), Unnata (raised), Grathita (nodular)</li> </ol>
Chaturvidha (Four types)	Vatika, Paittika, Shleshmika, Agantuja
Panchavidha (Five types)	Vatika, Paittika, Shleshmika, Sannipataja (Tridoshaja), Vishajanya (toxic)
Saptavidha (Seven types)	Vatika, Paittika, Shleshmika, Vatapaittika, Vatashleshmika, Pittashleshmika, Sannipataja
Ashtavidha (Eight types)	Vatika, Paittika, Shleshmika, Vatapaittika, Vatashleshmika, Pittashleshmika, Sannipataja, Agantuja

## Treatment

The line of treatment totally depends on the nature of the dosa, involvement of ama, consistency of dhatu, bala, kala and Srotas condition.

Acharya Charaka, in his classification of fifty pharmacological groups (Mahakashayas), included the "Svayathu Hara Gana", a group specifically indicated for the management of Svayathu (oedema/inflammatory swelling). This group is essentially synonymous with the well-known herbal formulation Dashamoola, renowned for its anti-inflammatory, deepana, and srotoshodhana (channel-cleansing) properties.

Among the herbs, Haritaki stands out as a drug of choice in the treatment of various conditions involving Swelling, inflammation, and fluid retention. Consequently, formulations like Dashamula Haritaki or Kanaka Haritaki have been extensively used as primary treatment options in conditions where dosha accumulation and srotas obstruction are involved.

- In diseases like Swasa (dyspnea/asthma) and Mutraghata (urinary retention), these formulations are useful in managing disorders of the Pranavaha, Udakavaha, and Annavaha Srotas (respiratory, water-regulating, and digestive channels, respectively).
- They are also applicable in disorders of the Mutravaha, Purisavaha, and Swedavaha Srotas (urinary, excretory, and sweat-regulating channels), as they help restore proper flow and balance within these systems.

This highlights the multi-systemic therapeutic role of Dashamula and Haritaki, especially in conditions involving fluid imbalance, obstruction, and inflammation, all of which are central to the pathogenesis of Shotha. It means that Sodhana is necessary for conditioning the Srotas in Sopha chikitsa, that's why Charaka advice to advocate Virechana when Svayathu in the lower part of body, Vamana when Svayathu in the upper part of the body and and Sira-virechana when Svayathu in the Shiras and Kamsaharitaki, Potalamuladi kasaya & Punnavarista narrated in the Svayathu chikitsa.

## Treatment Principles (Chikitsa) of Sopha

When the presence of Ama (toxins or undigested metabolic waste) is suspected in Sopha, the line of treatment should begin with:

- Langhana (lightening therapies),
- Pachana (digestive therapies to metabolise Ama),
- And then proceed to Shodhana (purificatory therapies).

Acharya Bhela recommends both Santarpana (nourishing therapy) and Shodhana as part of Sopha Chikitsa, depending on the underlying cause. For Santarpana therapy, formulations such as:

- Kalyanaka Ghrita,
- Mahatiktaka Ghrita, and
- Panchagavya Ghrita

are advised to restore balance and nourish the weakened Dhatus when depletion is observed.

According to Charaka, the quality of causative factors determines the choice of therapy:

- If excessive consumption of Ruksha (dry, non-unctuous) food and drinks has led to Svayathu, then Snehana (oleation therapy) should be administered.
- Conversely, if Svayathu is caused by excessive intake or administration of Sneha (unctuous substances), then Rukshana (drying therapy) should be indicated.
- In cases where both Pitta and Vata are aggravated simultaneously, Tikta Ghrita (bitter medicated ghee) is the recommended formulation.
- If Kapha is the predominant Dosha, then substances with Kshara (alkaline), Katu (pungent), and Ushna (hot potency) should be used for management.

Therefore, there is no single or specific treatment protocol for Antar Sopha (internal swelling) and Bahir Sopha (external swelling). The Nidana (etiological factors) must be carefully assessed to formulate the appropriate line of treatment. A thorough understanding of the involved Srotas (bodily channels) is essential for accurate diagnosis and effective management of both internal and external manifestations of Sopha.

Sr N.	Yoga	Aushadha kalpana	Anupana/Sahapana
1.	Punarnava, Devdaru, Shunthi	Kwatha	Shuddha guggulu
2.	Patolmooladi kwatha	Kwatha	Goghrita
3.	Bhunimbadi kwatha	Kalka	Punarnava kwatha
4.	Punarnavashtak kwatha	Kwatha	Madhu
5.	Dashmoola	Kwatha	Shuddha guggulu
6.	Gandearadhyarishta	Arishta	Equal water

7.	Kshar gudika	Vati	Warm water, Triphala kwatha
8.	Pippali, Shunthi	Choorna	
9.	Punarnavarishta	Arishta	Equal water
10.	Phalatrikadhyarishta	Arishta	Equal water
11.	Abhyarishta	Arishta	Equal water
12.	Kankarishta	Arishta	Equal wate
13.	Kans hareetaki	Avleha	-
14.	Punarnavadhyavleha	Avleha	-
15.	Chitrakadi ghrita (Pratham evum dwitiya)	Ghrita	-
16.	Sthalpadhm ghrita	Ghrita	-
17.	Manak ghrita	Ghrita	-
18.	Shunthi ghrita	Ghrita	-
19.	Panchkoladhya ghrita	Ghrita	-
20.	Punarnava ghrita	Ghrita	-

### Pathya for shotha

Ahara-Ustra dugdha (Camel milk), Godugdha with Gomutra, Kulattha Yusha made by Pippali Kalka, Shunthi (Dry ginger), Pippali, Maricha and Yavakshara siddha Mudga Yusha, Mansrasa of Vishkir and Jangal Pashu Pakshi, Mansa Rasa of Kachhua, Goh, Mor and Shahi.

### Apathya for shotha

Gramya, Jaliya, Anoop Mansa, Lavana (salt), Shushk Shaka, Nutan Anna, Dadhi (curd), Vijjal, Madira (Liquor), Amla Dravya (Acidic, Dhana, Vallura, Samashna, Guru, Asatmaya, intake of Vidahi Anna, Vasa, Mritika, Paya, Pishtanna, Taila, Ghrita.

### DISCUSSION

This paper is a sincere effort to present a comprehensive understanding of the diagnosis and management of Shotha. A range of formulations has been compiled from various classical Ayurvedic texts, all of which have been traditionally used in the effective treatment of Shotha.

Shotha is broadly understood as swelling, which may arise either from an inflammatory process or from non-inflammatory causes, affecting any part of the body. It may present as a Swatantra Vyadhi (a primary, independent disease), a Paratantra Vyadhi (a secondary condition), or as a symptom of other underlying diseases.

### **Ayurvedic Perspective on Microcirculation and Homeostasis**

According to Ayurveda, the living body sustains itself through microcirculation, which facilitates the transportation of Doshas and Asthaya Dhatus (intermediate tissue products), as well as the removal of Malas (waste products). The core objective of Ayurvedic treatment is to maintain the equilibrium of Dhatus, which reflects a state of health and homeostasis. This Ayurvedic principle can be correlated with the concept of cellular homeostasis in modern physiology. The cell membrane serves as a dynamic boundary, regulating the internal environment of the cell and maintaining its integrity by controlling molecular exchange with the external surroundings.

Molecules move across the cell membrane through two fundamental mechanisms:

- Passive transport, driven by the natural kinetic energy of molecules, and
- Active transport, which requires energy expenditure and aligns conceptually with the action of Vata Dosha, known for its role in movement and circulation.

These transport mechanisms are essential for maintaining homeostatic balance at the cellular level, just as the balanced state of Doshas and Dhatus ensures systemic health in Ayurveda. Thus, both systems emphasise the importance of regulated internal environments, whether at the level of cells or bodily systems, for sustaining life and health.<sup>10</sup>

### **Siranam Ayama and Microcirculatory Obstruction: An Ayurvedic and Modern Correlation**

The Ayurvedic concept of "Siranam Ayama", literally referring to the stretching or tension in the vessels, can be correlated with early vascular changes seen in inflammation, specifically vasodilation and increased vascular permeability. These are fundamental events that facilitate the transport of circulating immune cells (like leukocytes) into the tissues during an inflammatory response.

In the Ayurvedic framework, Kapha, Rakta, and Pitta, when vitiated, enter both external and internal Siras (vessels) and disturb the local Vata, which is primarily responsible for circulation and movement. This disturbance leads to blockage of microcirculation, resulting

in swelling or Shotha. Additionally, Meda-Kapha Anubandha (the association of fat and Kapha) can physically obstruct the Srotas (channels), further impairing tissue perfusion.

This Ayurvedic understanding finds a parallel in the modern description of atherosclerosis, a chronic inflammatory process of the arterial wall:

- The process begins with the accumulation of cholesterol-rich low-density lipoproteins (LDL), conceptually similar to the Sneha (unctuousness) of Pitta, within the intima layer of the blood vessels.
- This accumulation triggers endothelial activation, promoting the expression of leukocyte adhesion molecules and the release of chemokines, leading to the recruitment of monocytes and T-cells.
- Monocytes differentiate into macrophages, which express scavenger receptors (for internalising oxidised LDL) and toll-like receptors (for immune signalling), eventually forming foam cells.
- These activated immune cells release pro-inflammatory cytokines, proteolytic enzymes, and vasoactive molecules, contributing to plaque growth, vascular inflammation, and further narrowing of the channels.

Similarly, T-cells within the plaque mount a Th1 immune response, exacerbating the local inflammation<sup>11</sup>. This entire cascade leads to vascular rigidity, microcirculatory blockage, and impaired tissue nourishment, analogous to the Ayurvedic description of Siranam Ayama and Srotorodha (channel obstruction).

Endothelial dysfunction activates inflammation, and it is among the first line of the body's defence system; it encounters and combats the perturbation of invading microbes and endogenous substances in response to tissue damage.<sup>12</sup> To validate the Ayurvedic concept of Sotha in terms of treatment, it has been observed that Dashamoola is considered the drug of choice. Research supports that Dashamoola exhibits significant anti-inflammatory, analgesic, and anti-platelet activities, demonstrating effects comparable to those of aspirin. These pharmacological properties help in reducing inflammation, pain, and vascular obstruction, aligning with the Ayurvedic understanding of managing Sotha through dosha pacification and srotoshodhana (cleansing of bodily channels).<sup>13</sup>

In this paper, we have discussed:

- The Shotha and its type,

- Simple and effective formulations are useful in their treatment.
- And appropriate Pathya-Apathya Ahara-Vihara (wholesome and unwholesome diet and lifestyle practices) in the context of Shotha.

## CONCLUSION

Shotha, described in Ayurveda as swelling with heaviness and impaired function, may occur as an independent disease, symptom, or complication. Its pathogenesis arises from vitiation of Vata along with Pitta, Kapha, and Rakta, leading to Srotorodha (obstruction of channels) and tissue imbalance. Management is individualised, considering Nidana, Dosha predominance, and presence of Ama, with both Shodhana and Shamana therapies applied. Classical formulations like Punarnava, Dashamoola, and Haritaki-based yogas are effective due to their anti-inflammatory and diuretic properties. Modern research supports these principles, correlating Srotorodha with microcirculatory dysfunction, highlighting Ayurveda's holistic and timeless approach in understanding and managing Shotha.

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