

CONCEPT OF *STROTAS* AND *STROTODUSHTI* IN AYURVEDA: A COMPREHENSIVE REVIEW OF PHYSIOLOGICAL AND CLINICAL PERSPECTIVES

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ABSTRACT

Ayurveda conceptualizes the human organism as an intricate network of channels termed *Strotas*, through which *Dosha*, *Dhatu*, *Mala*, and subtle vital factors circulate to maintain homeostasis and support life. *Strotas* form the functional infrastructure for nourishment, biotransformation, communication, and excretion within the body and mind. Disturbance in the structure or function of these channels, known as *Strotodushti*, is considered a fundamental step in the genesis of disease. Classical texts describe various types of *Strotas*, their anatomical bases (*Mulasthanas*), and the characteristic patterns of their vitiation. This review aims to synthesize classical Ayurvedic descriptions of *Strotas* and *Strotodushti*, highlight their physiological significance, and delineate their clinical implications in contemporary practice. Understanding *Strotas* and their pathological alterations provides a powerful framework for early diagnosis, rational planning of *Shamana* and *Shodhana* therapies, and lifestyle-based prevention of disease.

KEYWORDS: *Strotas*, *Strotodushti*, *Dosha*, *Dhatu*, Ayurveda, Pathogenesis.

1. INTRODUCTION

Ayurveda describes living beings as dynamic assemblies of *Triguna*, *Tridosha*, *Saptadhatu*, *Upadhatu*, *Mala*, *Agni*, *Ojas*, and an intricate system of channels known as *Strotas* that

facilitate the flow and interaction of these factors^[1]. The concept of *Strotas* provides the structural and functional basis for understanding how nourishment, energy, and information are transported throughout the body^[2]. Classical authors emphasize that without properly functioning *Strotas*, no *Dhatu* can be adequately formed, sustained, or eliminated, and disease becomes inevitable.

Strotodushti, the vitiation or derangement of these channels, is therefore central to Ayurvedic pathology and is intimately linked with the stages of disease formation described in *Shatkriyakala*. A clear understanding of *Strotas* and *Strotodushti* is essential for accurate diagnosis, prognostication, and holistic management.

2. MATERIALS AND METHODS

This paper is a narrative review based primarily on classical Ayurvedic sources, including *Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Sangraha*, and authoritative commentaries. Secondary inputs were taken from contemporary Ayurvedic textbooks and recent review articles focusing on the physiological and clinical aspects of *Strotas* and *Strotodushti*. Relevant passages were identified, translated where required, compared across authors, and synthesized into thematic sections.

3. LITERARY REVIEW

3.1 Nirukti and Definition

The term *Strotas* is derived from the verbal root “*sru*” meaning “to flow,” and denotes structures through which *Sravana* (oozing or flow) of various substances occurs. Classical descriptions define *Strotas* as anatomical and functional pathways that allow entry, circulation, transformation, and exit of materials within the organism. These channels include both gross structures (like tubular organs and vessels) and subtle pathways (such as microcirculation and functional communication networks).

3.2 Synonyms and Conceptual Range

<i>Strotas</i>	Principal <i>Mulasthanas</i> (locus)	Major Function
<i>Pranavaha</i>	<i>Hridaya, Mahastrotas</i>	Respiration, life-sustaining Prana circulation
<i>Annavaha</i>	<i>Amasaya</i> , related <i>Dhamani</i>	Ingestion, transport of food
<i>Udakavaha</i>	<i>Talu, Kloma</i>	Regulation of water, thirst mechanisms

<i>Strotas</i>	Principal <i>Mulasthanas</i> (locus)	Major Function
<i>Rasavaha</i>	<i>Hridaya, Rasavahi Dhamani</i>	Primary nutrient transport (Rasa circulation)
<i>Raktavaha</i>	<i>Yakrit, Pliha, Raktavahi Dhamani</i>	Blood formation and circulation
<i>Mamsavaha</i>	<i>Snayu, Twak</i> , related channels	Support and nourishment of muscle tissue
<i>Medovaha</i>	<i>Vrikka, Kati</i> region, <i>Medovahi</i> pathways	Fat metabolism and storage
<i>Asthivaha</i>	<i>Meda</i> , pelvic region	Support and nourishment of bone
<i>Majjavaha</i>	<i>Asthi, Sandhi</i>	Nourishment of marrow and neural components
<i>Shukravaha</i>	<i>Vrishana</i> , associated structures	Reproductive tissue transport
<i>Mutravaha</i>	<i>Basti, Medhra</i> region	Urine formation and excretion
<i>Purishavaha</i>	<i>Pakvashaya, Guda</i>	Faecal formation and elimination
<i>Svedavaha</i>	<i>Meda, Romakupa</i>	Sweat production and excretion
<i>Artavavaha</i>	<i>Garbhashaya, Artavavaha Dhamani</i>	Female reproductive physiology

Ayurvedic texts use several terms that reflect different aspects of *Strotas*, such as *Sira, Dhamani, Rasavahini, Nadi, Pantha, Marga, Ashaya*, and *Sharira-chidra*.

Collectively, these terms suggest that the *Strotas* concept encompasses veins, arteries, capillaries, lymphatics, ducts, glandular channels, visceral cavities, and various micro-pathways that carry nutrients, waste products, and subtle energies^[3].

3.3 Origin and *Panchabhautik* Nature

Strotas are said to originate during intrauterine life as the embryo differentiates under the influence of *Vayu* and appropriate *Agni*^[4]. All *Strotas* are *Panchabhautik* (composed of five *Mahabhutas*), but *Vayu* and *Akasha* predominance is emphasized because of their roles in movement and space creation. The specific *Mahabhuta* predominance of a *Strotas* is reflected

in the nature of its content—for example, *Aapya* dominance in *Udakavaha Strotas* and *Agneya* components in *Raktavaha Strotas*.

3.4 Characteristics of *Strotas*

Classical descriptions mention that *Strotas* differ in size (*Anu* – microscopic, *Sthula* – macroscopic), shape (*Vritta*-cylindrical, *Dirgha*-long, *Pratan*-reticular),^[5] and colour, which corresponds to the *Dhatu* they carry. This indicates a continuum from gross anatomical channels to subtle networks such as capillary beds, interstitial pathways, and cellular interfaces.

4. CLASSIFICATION OF STROTAS

Strotas may be classified on several bases: number (enumerable/innumerable), visibility (*Drushya/Adrushya*), locus (*Sharirika/Manasika*), and orientation (*Bahirmukha*^[6]: These are nine in number 2 *Akshi* (eyes), 2 *Nasika* (nose), 2 *karna* (ears), 1 *Mukha* (oral cavity), 1 *Guda* (anus), and 1 *Mutrandriya* (urinary tract). *Antarmukha*^[7]: These are thirteen in number *Pranavaha strotas*, *Annavaha strotas*, *Udakavaha strotas*, *Rasavaha strotas*, *Raktavaha strotas*, *Mamsavaha strotas*, *Medovaha strotas*, *Ashtivaha strotas*, *Majjavaha strotas*, *Shukravaha strotas*, *Mutravaha strotas*, *Purishavaha strotas*, and *Swedavaha strotas*^[8].

4.1 Major Sharirika Strotas

Classical texts commonly describe a set of major bodily *Strotas*. A consolidated example list is given below, integrating descriptions from *Charaka*, *Sushruta*, and other *Acharyas*.

5. PHYSIOLOGICAL FUNCTIONS OF STROTAS

The living organism can be conceptualized as an integrated network of numerous *Strotamsi*, which function as dynamic channels responsible for the transport and regulation of various factors leading to *Prakopa* (vitiation) or *Shamana* (pacification) of *Sharira Doshas*. One of the primary physiological roles of *Strotas* is *Poshana*, i.e., the nourishment and maintenance of *Sthayi Dhatus*. The nutritive substances destined for *Dhatu Poshana* undergo *Paka* under the influence of *Ushma* (metabolic activity of *Dhatu Agni*). Subsequently, these processed nutrients are distributed to the respective *Dhatus* through their specific *Strotas*,^[9] ensuring structural integrity and functional homeostasis of the body.

5.1 *Sraavanam* (Oozing and Nourishment)

Strotas govern selective oozing and nourishment of each *Dhatu* from circulating *Rasa* and intermediate *Poshya Dhatus*. Each *Dhatu* receives only those components required for its sustenance through its own specific *Strotas*. This implies a highly regulated filtration and

absorption mechanism, comparable to tissue-specific nutrient uptake and receptor-mediated transport in modern physiology.

5.2 Vahanam (Transportation)

Strotas facilitate the transport of *Ahararasa*, *Dhatu-rasa*, regulatory substances, and waste materials to and from different sites. *Rasa* flows to *Raktavaha Strotas* for *Rakta* formation, and subsequent *Dhatus* are nourished in sequence through their respective channels. This network can be correlated with integrated circulatory, lymphatic, and interstitial transport systems.

5.3 Biotransformation and Metabolism

Ayurveda considers *Strotas* as sites where *Dhatu-parinama* (sequential transformation of *Dhatus*) takes place under the influence of *Dhatu-Agni*. Nutrient fractions of one *Dhatu* are transformed into the next in an orderly manner within specific *Strotas*, which parallels the concept of organ- and tissue-specific metabolism.

5.4 Absorption and Excretion

Strotas possess selective absorptive capacity, as seen in *Mootravaha Strotas* where urine-forming fractions are separated and directed to the bladder, or in *Annavaha Strotas* where nutrients are absorbed and residues directed to *Purishavaha Strotas*. Similarly, excretory *Strotas* ensure the removal of *Mala* such as *Purisha*, *Mutra*, and *Sveda*, as well as structural by-products like hair and nails.

6. STROTODUSHTI: CONCEPT AND TYPES

6.1 Etiological Factors (Hetu)

Any *Ahara*, *Vihara*, or *Manasika* factor that vitiates *Doshas* and injures the integrity of *Strotas* leads to *Strotodushti*^[10]. Common causes include:

- Incompatible, heavy, excessively dry, or unwholesome diet
- Suppression of natural urges
- Sedentary lifestyle, overexertion, irregular routines
- Psychological stress, excessive worry, anger, fear
- Trauma and exposure to toxins or environmental pollutants

These factors first disturb *Doshas* and *Agni*, then produce structural or functional compromise at specific *Strotas*, where disease eventually localizes.

6.2 Classical Types of *Strotodushti*

The main types of *Strotodushti* described in the classics include:

1. *Atipravritti* – Excessive flow or hyperactivity (e.g., polyuria in *Prameha*, diarrhea in *Atisara*).
2. *Sanga* – Obstruction, stagnation, or reduced flow (e.g., constipation, urinary retention).
3. *Siragranthi* – Abnormal dilatation or nodular changes in channels (e.g., varicosities, localized swellings).
4. *Vimarga-gamana* – Diversion of flow to abnormal paths (e.g., bleeding from abnormal sites, fistula)^[11].
5. Some authors further describe *Strotovidrana* (rupture) and *Avarana* (occlusive coverings), adding depth to the understanding of channel pathology.

These patterns can be conceptually correlated with phenomena such as hypersecretion, obstruction, aneurysmal changes, fistula formation, and altered flow dynamics in modern pathophysiology.

7. ROLE OF *STROTODUSHTI* IN PATHOGENESIS

Strotodushti forms a crucial link between *Dosha* vitiation and manifest disease. When *Agni* and *Dosha* become deranged, they interact with vulnerable *Strotas* (*Khavaigunya*) to initiate *Dosha-Dushya Sammurchana* (complex formation), a key step in the *Shatkriyakala* sequence.

- In the stages of *Chaya* and *Prakopa*, *Doshas* increase in their sites.
- During *Prasara*, they spread through general *Strotas*.
- When they encounter a structurally or functionally weak *Strotas* (*Strotovaigunya*), they localize (*Sthanasamshraya*) and early symptoms appear^[12].

If this stage is not addressed, *Vyakti* (full clinical manifestation) and *Bheda* (complications) follow. Thus, early identification of *Strotodushti* provides an opportunity for preventive and interceptive interventions.

8. CLINICAL RELEVANCE OF INDIVIDUAL STROTAS

Each major *Strotas* has characteristic manifestations of *Strotodushti*. Some illustrative examples are:

- *Pranavaha Strotas*: Dyspnoea, cough, hiccups, chest tightness, voice changes, correlating with respiratory and cardiopulmonary disorders.
- *Annavaha Strotas*: Nausea, vomiting, abdominal pain, bloating, indigestion, reflecting a range of upper and lower gastrointestinal disorders.

- *Rasavaha* and *Raktavaha Strotas*: Low-grade fevers, pallor, palpitations, hypertension or hypotension, skin disorders, and bleeding tendencies suggest circulatory and haematological involvement.
- *Medovaha Strotas*: Generalized or localized obesity, metabolic syndrome-like pictures, edema, and lipid-related issues.
- *Mutravaha* and *Purishavaha Strotas*: Diverse urinary and bowel disorders including dysuria, oliguria, diarrhoea, constipation, and haemorrhoids.
- *Svedavaha Strotas*: Anhidrosis or hyperhidrosis, with implications for thermoregulation and skin health.

Recognizing these patterns helps an Ayurvedic physician to localize pathology at the level of specific *Strotas* and to plan targeted treatment.

9. PREVENTIVE AND THERAPEUTIC ASPECTS

Ayurvedic management aims not only to palliate symptoms but also to restore the integrity of *Strotas*.

9.1 *Nidana Parivarjana* and Lifestyle Measures

Primary prevention rests on *Nidana Parivarjana*—avoiding causative factors such as improper diet, irregular routines, and mental stress. *Dinacharya*, *Ritucharya*, *Sadvritta*, and appropriate *Ahara-Vihara* are emphasized to maintain *Strotas* patency and functional harmony.

9.2 *Shodhana* and *Shamana*

In established *Strotodushti*, combinations of *Shodhana* (Panchakarma procedures like *Vamana*, *Virechana*, *Basti*, *Nasya*, *Raktamokshana*) and *Shamana* (herbal formulations, *Rasayana*, *pathya-apathya* regulation) are employed according to *Dosha* predominance and *Strotas* involved. Many *Panchakarma* protocols may be interpreted as intensive channel-cleansing and microcirculatory rejuvenation.

9.3 *Rasayana* and *Strotoshodhana Dravyas*

Rasayana therapies and specific herbs described as *Strotoshodhaka* (channel-purifying) help improve tissue nutrition, enhance immunity, and delay degenerative changes, thus supporting long-term *Strotas* health. This holds special importance in chronic lifestyle disorders where progressive *Strotodushti* underlies the clinical picture.

10. DISCUSSION

The *Strotas* concept offers a unifying framework to understand the interconnectedness of structure and function in the human body from an Ayurvedic perspective. It links digestion, metabolism, circulation, neuro-humoral regulation, and waste elimination into an integrated channel-based model. Modern interpretations increasingly relate *Strotas* to physiological systems such as vascular networks, lymphatics, extracellular matrix pathways, neuroendocrine communication, and cellular signalling.

Strotodushti provides an elegant way to conceptualize how chronic exposure to faulty diet, lifestyle, and psychological stress gradually produces structural and functional damage to these networks, leading to complex, multisystem diseases. Early identification of subtle *Strotodushti* through prodromal signs and comprehensive clinical assessment can guide individualized preventive and therapeutic strategies. Future research integrating classical *Strotas* theory with modern imaging, microcirculation studies, and systems biology may further clarify these correlations and enhance the scientific validation of Ayurvedic concepts.

11. CONCLUSION

Strotas constitute the fundamental channels of life in Ayurveda, enabling the transport, transformation, and disposal of substances essential to human existence. Disturbance of these channels, termed *Strotodushti*, is central to the pathogenesis of disease and is closely linked to the stages of *Dosha* progression and localization. A thorough understanding of the types, functions, and pathological alterations of *Strotas* equips the clinician to detect disease at an early stage, design rational *Panchakarma* and *Shamana* protocols, and prescribe preventive lifestyle measures. Strengthening and protecting *Strotas* through appropriate *Ahara*, *Vihara*, *Shodhana*, *Rasayana*, and mental hygiene thus becomes a cornerstone of Ayurvedic clinical practice and public health.

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