

A Comprehensive Review of *Srotas* in Ayurveda: Anatomical, Physiological, and Clinical Perspectives

Dr. Ratinder Kaur¹, Dr. Harry Bansal²

^{1,2}Assistant professor, Guruhargobiband ayurvedic college and Bansal hospital, Raikot, Punjab.

Abstract:

In Ayurvedic philosophy, the human body is a complex matrix of countless macroscopic and microscopic channels known as *Srotas*. These channels are responsible for the transformation, transportation, and elimination of biological materials. The fifth chapter of the *Vimana Sthana* in the *Charaka Samhita*, titled *Srotovimana Adhyaya*, serves as a foundational text in Ayurvedic pathology (*Nidana*) and internal medicine (*Kaya Chikitsa*) [1], [6]. It provides a systematic framework for understanding the body's internal transport systems [4]. A profound understanding of these channels is considered indispensable for accurate diagnosis and effective treatment, as any disease is fundamentally a disruption, or *dushti*, within these pathways [10]. This review article explores the etymology, anatomical roots (*Mula*), physiological functions, and pathological manifestations of the thirteen principal *Srotas*, bridging classical texts with modern anatomical science [11], [12].

Keywords: Srotas, Mula, Ayurveda, Dhātu.

1. INTRODUCTION AND ETYMOLOGY

Ayurveda describes the human body as a functional assembly of *Dosha* (bio-energies), *Dhatu* (tissues), and *Mala* (metabolic wastes) [4]. For these entities to maintain equilibrium, a sophisticated transport system is required.

The term *Srotas* is derived from the Sanskrit root '*sru*', which means 'to flow', 'to ooze', or 'to permeate' [9]. It represents any channel or space within the body through which substances flow, ranging from the macroscopic (like the gastrointestinal tract) to the microscopic (like cellular pores) [10]. While the body contains innumerable channels of this kind, Acharya Charaka specifically enumerates thirteen principal *Srotas* for clinical focus [1].

2. SROTODUSHTI: GENERAL CAUSES AND SYMPTOMS OF CHANNEL PATHOLOGY

Disease occurs when aggravated *Doshas* lodge in a weakened *Srotas*. By understanding general causes and symptoms, a physician can perform *Sroto Dushti Pariksha* (diagnostic examination of channel vitiation) [3].

General Causes (*Srotas Samanya Nidaana*)

Acharya Charaka states that foods and lifestyle practices that share the same qualities as the *Doshas*, but are antagonistic to the *Dhatus*, will vitiate the *Srotas*:

आहारश्च विहारश्च यः स्याद् दोषगुणैः समः ।

धातुर्भिविगुणश्चापि स्रोतसां च प्रदूषकः ॥ [1], [6]

General Symptoms (*Srotas Samanya Lakshanas*)

There are four cardinal signs of a pathological channel, marking the transition from physiology to pathology:

अतिप्रवृत्तिः सङ्गो वा सिराणां ग्रन्थयोऽपि वा ।

बिमार्गगमनं चापि स्रोतसां दुष्टलक्षणम् । (च. वि. ५/२३) [1]

- **Atipravritti:** Excessive flow (e.g., diarrhea in *Purishavaha Srotas*) [1], [3].
- **Sanga:** Obstruction (e.g., constipation in *Purishavaha Srotas*) [3].
- **Sira Granthi:** Nodule formation or growth (e.g., tumors in *Mamsavaha Srotas*) [4].
- **Vimarga Gamanam:** Flow in an abnormal direction (e.g., acid reflux, where gastric contents move upwards in the *Annavaha Srotas*) [1].

3. CLASSIFICATION OF SROTAS:

A. The Three External Srotas (*Bahirmukha Srotas*)

These channels are responsible for the intake of life-sustaining substances from the external environment [1].

1. Pranavaha Srotas (Channels Carrying Prana / Vital Life Force)

प्राणवहानां स्रोतसां हृदयं मूलं महास्रोतश्च ।

तद्विद्धास्यक्रोशनविनमनमोहनभ्रमवेपथवो मरणं वा स्यात् । (Ch. Vi. 5/7) [1]

- **Moola Sthana (Roots):** The root of these channels is the heart (*Hridaya*) and the great channel (*Mahasrotas*) [1]. *Hridaya* is the primary pump circulating oxygenated blood throughout the body. The *Mahasrotas* (gastrointestinal tract) is included because digestive health directly impacts respiratory function, a link modern medicine recognizes as the "gut-lung axis" [2].
- **Dushti Hetu (Causes of Vitiation):** क्षयात् संधारणाद्रौक्ष्यात् व्यायामात् क्षुधितस्य च । प्राणवाहीनि दूष्यन्ति स्रोतांस्यन्यैश्च दारुणः ॥ [1]. Suppression of natural urges, consuming rough/dry food, and excessive exertion aggravate *Vata dosha*, leading to erratic breathing [3].
- **Clinical Significance:** Vitiating leads to excessively long or short breathing, obstructed breathing, sighing, and pain [1]. Disorders like asthma (*Tamaka Shwasa*) and dyspnea are treated by addressing this *Srotas* [8].

2. Udakavaha Srotas (Channels Carrying Water/Fluids)

उदकवहानां स्रोतसां तालु मूलं क्लोम (Ch. Vi. 5/7) [1]

- **Moola Sthana (Roots):** The root is the palate (*Talu*) and the *Kloma* [1]. The palate is where the sensation of thirst is perceived. The identity of *Kloma* is classically debated; Chakrapani Datta suggests the soft palate or pharynx, while others correlate it with the pancreas or hypothalamus (the osmoregulation center), highlighting Ayurveda's functional approach [6].

- **Dushti Hetu:** औष्ण्यादामान्द्रयात् पानादतिशुष्कात्रसेवनात् । अम्बुवाहीनि दुष्यन्ति तृष्णायाश्चायातिपीडनात् [1]. Exposure to heat, excessive alcohol intake, and suppression of thirst disrupt fluid homeostasis.
- **Clinical Significance:** Vitiation leads to dehydration, excessive thirst (*trishna*), edema, or diabetes insipidus [3].

3. Annavaha Srotas (Channels Carrying Food)

अन्नवहानां स्रोतसामामाशयो मूलं वामं च पार्श्वम्। (Ch. Vi. 5/7) [1]

- **Moola Sthana (Roots):** The stomach (*Amashaya*) and the left flank (*Vama Parshva*) [1]. The *Amashaya* is the primary site of digestion where food is broken down by digestive enzymes. The left flank anatomically corresponds to the stomach, fundus, and spleen [11].
- **Dushti Hetu:** अतिमात्रस्य चाकाले चाहितस्य च भोजनात् । अन्नवाहीनि दुष्यन्ति वैगुण्यात् पावकस्य च ॥ [1]. Irregular eating, over-eating, and consuming incompatible foods impair the digestive fire, forming metabolic toxins (*ama*).
- **Clinical Significance:** This is typically the first *Srotas* affected in disease, serving as the root cause of indigestion (*ajirna*), anorexia (*aruchi*), hyperacidity (*amlapitta*), and malabsorption syndromes [4].

B. The Seven Dhatu Srotas (Channels for Tissue Nutrition)

These channels govern the sequential nourishment and transformation (*dhatu parinama*) of the body's seven fundamental tissues [8].

Srotas (Channel)	Moola Sthana (Root)	Physiological Correlation & Commentary	Nidana (Causes of Vitiation)
4. Rasavaha (Plasma)	Heart & 10 Great Vessels [1], [10]	The heart pumps freshly assimilated nutrient plasma into circulation. Vitiation affects nutrition and immunity.	गुरुशीतमतिस्त्रिग्धमतिमात्रं समश्रताम्। रसवाहीनि दुष्यन्ति चिन्त्यानां चाति चिन्तनात् ॥ [1]
5. Raktavaha (Blood)	Liver (<i>Yakrit</i>) & Spleen (<i>Pliha</i>) [7]	Central to hematopoiesis, blood storage, and filtration. Dysfunction leads to anemia, jaundice, and skin diseases [7].	विदाहीन्यन्नपानानि स्त्रिग्धोष्णानि द्रवाणि च। रक्तवाहीनि दुष्यन्ति भजतां चातपानलौ [1]
6. Mamsavaha (Muscle)	Ligaments (<i>Snayu</i>) & Skin (<i>Twak</i>) [8]	Ligaments provide structure; the skin/fascia envelops the muscles. Vitiation leads to myopathies, tumors, and hernias.	अभिष्यन्दीनि भोज्यानि स्थूलानि च गुरुणि च। मांसवहानि दुष्यन्ति भुक्त्वा च स्त्रपतं दिवा ॥ [1]
7. Medovaha (Adipose)	Kidneys (<i>Vrikka</i>) & Omentum	The kidneys are surrounded by	अव्यायामदिवास्वप्नान्मेद्यानां चातिभक्षणात्। मेदोवाहीनि दुष्यन्ति वारुण्याश्चातिसेवना [1]

	(<i>Vapavahana</i>) [5]	perinephric fat. Vitiating is the primary cause of obesity and metabolic syndrome [5].	
8. Asthivaha (Bone)	Adipose Tissue (<i>Meda</i>) & Hips (<i>Jaghana</i>) [4]	<i>Meda</i> is the precursor tissue for bone. The hips form the body's foundation. Vitiating leads to osteoporosis and joint pain.	व्यायामातिसंक्षोभादस्थनामनि विघट्नात् । अस्थिवाहीनि दुष्यन्ति वातलानां च सेवनात् [1]
9. Majjavaha (Nerve)	Bones (<i>Asthi</i>) & Joints (<i>Sandhi</i>) [1]	Bone marrow sits in bones, and joints are critical for nerve function. Vitiating causes neurological disorders and vertigo.	उत्पेषादत्यभिष्यन्दादभिधाता प्रपीडनात् । मज्जावाहीनि दूष्यन्ति विरुद्धानां च सेवनात् [1]
10. Shukravaha (Repro)	Testes (<i>Vrishana</i>) & Phallus (<i>Shepha</i>) [1]	Corresponds to ovaries and uterus in females. Governs fertility. Vitiating causes impotence and infertility.	अकालयोनिगमनान्निग्रहादतिमैथुनात् । शुक्रवाहीनि दुष्यन्ति शस्त्रक्षाराग्निभिस्तथा ॥ [1]

C. The Three Mala Srotas (Channels for Waste Elimination)

These channels ensure the timely and efficient excretion of metabolic waste products [4], [7].

• 11. Mutravaha Srotas (Urine):

- **Root:** Bladder (*Basti*) & Kidneys (*Vrikka*) [1], [11].
- **Physiology:** The kidneys produce urine, and the bladder stores and expels it. Vitiating causes urinary tract infections, renal calculi, and incontinence [3], [12].
- **Hetu Shloka:** मूत्रितोदकभक्ष्यस्त्रीसेवनान्मूत्रनिग्रहात् । मूत्रवाहीनि दुष्यन्ति क्षीणस्याभिक्षतस्य च ॥ [1].

• 12. Purishavaha Srotas (Feces):

- **Root:** Colon (*Pakvashaya*) & Rectum (*Guda*) [1], [11].
- **Physiology:** The colon absorbs water and forms feces, while the rectum holds it before defecation. Suppression of the defecation urge causes constipation, IBS, and toxic accumulation [3].

• 13. Swedavaha Srotas (Sweat):

- **Root:** Adipose Tissue (*Meda*) & Hair Follicles (*Romakupa*) [1], [8].
- **Physiology:** Sweat glands sit in the dermis, associated with hair follicles. Adipose tissue aids thermoregulation. Vitiating causes excessive or absent sweating and skin conditions [3], [12].

4. DISCUSSION: THE DIAGNOSTIC AND THERAPEUTIC UTILITY OF SROTAS

The concept of *Srotas* gives an Ayurvedic physician a sophisticated map of the body's internal environment [10]. Classical texts present *Srotas* not merely as functional pathways but as structures with a definite anatomical basis, closely matching the physiological networks (lymphatic, cardiovascular, and microcirculatory) detailed in modern literature [11], [12].

By performing *Sroto Dushti Pariksha* (examination of channel vitiation), practitioners look for the four key signs: excessive flow, obstruction, nodule formation, or abnormal flow direction [1], [3]. By understanding the specific root (*moola*), causes (*hetu*), and symptoms (*lakshana*) of vitiation for each of the thirteen *Srotas*, a clinician moves far beyond symptomatic treatment [4]. Therapies can then target the actual root cause of the disease, aiming to restore normal flow and function within the body's intricate channel network [10].

5. CONCLUSION

Srotas represent the structural and functional core of Ayurvedic biology. The *Srotovimana Adhyaya* provides enduring, systematic insights into how life force, nutrition, and waste travel through the body [1], [6]. Viewing *Srotas* through contemporary anatomical and physiological frameworks bridges the gap between classical wisdom and modern medicine [2], [11]. The continuous, unhindered flow within these pathways is the definition of health, while any structural or functional disruption lays the groundwork for disease.

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