

Integrative Analysis of *Artavavaha* and *Mutravaha Srotas*: Ayurvedic and Modern Anatomical Correlations in Female Reproductive and Urinary Health

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ABSTRACT

Ayurveda emphasizes the importance of *Srotas*—subtle channels responsible for transporting biological substances—as foundational to maintaining physiological balance and health. Within this framework, *Artavavaha Srotas* and *Mutravaha Srotas* are fundamentally responsible for the functioning of the female reproductive and urinary systems, respectively. *Artavavaha Srotas*, originating from the *Garbhashaya* and *Artavavaha Dhamanis*, regulate menstruation, ovulation, and reproductive potential, and their vitiation manifests as infertility, menstrual irregularities, and gynecological disorders. *Mutravaha Srotas*, beginning from the *Basti* and *Medhra*, govern urine formation, conduction, and elimination, with disorders presenting as urinary retention, *Prameha*, and urinary calculi. Modern anatomical correlations identify these channels with the uterus, ovaries, fallopian tubes, kidneys, ureters, bladder, and urethra, highlighting a clear structure-function relationship. Comparative analysis reveals convergence between *Ayurvedic* principles—*Moola*, *Marga*, and *Mukha*—and contemporary understanding of organ origin, course, and outlets. This integrative perspective facilitates a holistic approach to diagnosis, prevention, and therapeutics, combining classical wisdom with modern medical insights. Understanding these channels enhances clinical decision-making in gynecology and urology, promotes preventive healthcare, and underscores the relevance of *Srotas* in contemporary integrative medicine.

Keywords: *Artavavaha Srotas*, *Mutravaha Srotas*, *Srotodushti*, Female reproductive system Urinary system, *Ayurveda* and modern correlation

INTRODUCTION

Ayurveda, the time-honored healing system of India, is founded on the principle of maintaining harmony between the body, mind, and soul. Within its physiological concepts, the doctrine of *Srotas Sharir* (networks of body channels) occupies a central position in maintaining balance and explaining the mechanisms of disease. These *Srotas* are defined as channels that transport vital biological materials throughout the body, ensuring nourishment, growth, maintenance, and elimination. In its theoretical framework, the body's channels, or *Srotas*, are grouped into two broad categories—*Bahya Srotas* (those connected with external functions) and *Antah Srotas* (those governing internal processes). The latter are further divided into thirteen principal pairs, each associated with distinct functions and tissues [1].

Ayurvedic compendia such as *Charaka Samhita* and *Sushruta Samhita* describe that *Srotas* may undergo pathological changes in three ways—*Sanga* (obstruction), *Vridhhi* (excessive activity or dilation), and *Vimarga-Gamana* (abnormal or misplaced flow) [2]. These pathological states form the basis of numerous disease processes. Within this system, the *Artavavaha Srotas* and *Mutravaha Srotas* hold particular significance, as they are closely related to the physiology and pathology of the female reproductive system and the urinary system, making them especially relevant in the fields of gynecology and urology.

The *Artavavaha Srotas* are said to carry *Artava*—a term in *Ayurveda* that extends beyond menstrual blood to include ovulatory secretions and the reproductive potential of women. These channels are described to originate from the *Garbhashaya* (uterus) and *Artavavahi Dhamanis* (special vessels transporting reproductive elements), as mentioned by *Charaka* and *Sushruta* [3]. From an anatomical perspective, they can be correlated with the uterus, ovaries, fallopian tubes, and the associated vascular and lymphatic structures that regulate menstruation, ovulation, and overall reproductive functioning.

In contrast, the *Mutravaha Srotas* are described as the channels responsible for the processes of urine formation, conduction, and elimination. Their points of origin are traced to the *Basti* (urinary bladder) and *Medhra* (external genitalia), while some authorities also include the *Guda* (anal region) to symbolically represent the terminal pathways of pelvic excretion. From a modern anatomical viewpoint, these channels can be correlated with the kidneys, ureters, urinary bladder, and urethra—the primary organs of the urinary system responsible for maintaining urine flow, fluid regulation, and electrolyte equilibrium.

Analyzing these channels alongside their modern counterparts offers significant clarity in interpreting classical *Ayurvedic* principles through the lens of contemporary science. Such comparative understanding becomes essential for creating a meaningful bridge between traditional knowledge systems and modern medical thought. The present study therefore seeks to critically evaluate the descriptions of *Artavavaha* and *Mutravaha Srotas*, outline their physiological and pathological relevance, and establish their structural correlations with modern anatomy. This integrative perspective not only enriches academic discourse but also carries practical importance in clinical diagnosis, therapeutic planning, and preventive healthcare.

MATERIALS & METHODS

- A comprehensive review of classical *Ayurvedic* texts including *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya* was conducted to extract detailed descriptions of *Artavavaha* and *Mutravaha Srotas*, their *Moola* (origin), *Marga* (pathway), *Mukha* (opening), and associated functions and pathologies.
- Modern anatomical references such as *Gray's Anatomy*, human embryology texts, and physiology textbooks were consulted to establish anatomical correlates of the reproductive and urinary systems.
- Comparative analysis was performed to correlate *Ayurvedic* concepts of *Srotas* with modern anatomical structures including uterus, ovaries, fallopian tubes, kidneys, ureters, urinary bladder, and urethra.
- Clinical relevance was assessed by reviewing literature on gynecological and urinary disorders such as infertility, PCOS, menstrual irregularities, urinary retention, *Prameha*, and urolithiasis.
- Data were synthesized to provide an integrative understanding of physiological, pathological, and therapeutic implications of *Artavavaha* and *Mutravaha Srotas* from both *Ayurvedic* and modern medical perspectives.

Concept Of *Srotas* In *Ayurveda*

The term *Srotas* originates from the *Sanskrit* root “*Sru*”, which conveys the sense of movement or continuous flow. In *Ayurveda*, these are described as the subtle channels through which various biological substances are transported within the body [4]. *Charaka* emphasizes their role in circulation and nourishment, while *Sushruta* gives a detailed account of their structural aspects. Every *Srotas* is characterized by three essential components:

- *Moola* (root): the point of origin
- *Marga* (pathway): the course of the channel
- *Mukha* (opening): the outlet or inlet

Disturbance in any of these components leads to *Srotodushti* (disorders of the channels), which manifests with characteristic clinical features. Hence, a thorough understanding of their anatomy and pathology is vital for accurate diagnosis and effective treatment.

Artavavaha Srotas

Classical Perspective - In *Ayurvedic* tradition, *Artava* is described as a *Dhatu-Mala* of *Rasa Dhatu*, and is regarded as the essence of the female reproductive system [5].

Moola (origin) of Artavavaha Srotas:

- According to *Charaka*, the *Moola* (root) of the *Artavavaha Srotas* lies in the *Garbhashaya* (uterus) and the *Artavavaha Dhamanis* (vascular channels responsible for reproductive functions). [6]
- According to *Sushruta*, the *Moola* (root) of the *Artavavaha Srotas* lies in the *Garbhashaya* and *Artavavaha Sira* [7]

Functions: They are primarily responsible for regulating the menstrual cycle (*Rituchakra*), facilitating ovulation, and supporting conception and embryonic development.

Vitiation (*Dushti Lakshana*):

- *Nashta Artava* (Absence of menstruation)
- Painful menstruation (Dysmenorrhea)
- Infertility
- *Artava Dushti* (Irregular menstrual cycles)

Mutravaha Srotas

Classical Perspective - The *Mutravaha Srotas* are described as the pathways that conduct *Mutra* (urine), which in *Ayurveda* is considered the excretory product (*Mala*) of *Rasa Dhatu* and *Meda Dhatu*. They are primarily associated with the kidneys and the urinary bladder [8].

Moola (origin) of Mutravaha Srotas:

According to *Charaka*, the *Moola* (root) of the *Mutravaha Srotas* lies in the: *Basti* (urinary bladder) and *Medovaha Dhamanis* [9]

According to *Sushruta*, the *Moola* (root) of the *Mutravaha Srotas* lies in the: *Basti* (urinary bladder) and *Vankshana* (groin region) [10]

Functions: These channels are responsible for the collection, temporary storage, and expulsion of urine from the body.

Vitiation (*Dushti Lakshana*):

Difficulty in urination (*Mutrakrichchhra*)

Excessive urination (*Prameha*)

Suppression or absence of urine (*Mutraghata*)

Burning sensation during micturition (*Mutradaaha*) [11]

Table 1: Modern anatomical correlates of *artavavaha srotas*

Ayurvedic Concept	Contemporary Anatomical Correlates	Physiological Role
<i>Garbhashaya</i>	Uterus	Menstruation, fetal development
<i>Artavavaha Dhamani</i>	Uterine and ovarian arteries	Blood supply to uterus and ovaries
<i>Artavavaha Sira</i>	Uterine and ovarian veins	Venous return from reproductive organs
<i>Yoni</i>	Vagina and external genitalia	Menstrual flow and childbirth passage
<i>Anda Vaha Srotas</i>	Fallopian tubes	Gamete transport

Table 2: Modern anatomical correlates of *Mutravaha Srotas*

Ayurvedic Concept	Contemporary Anatomical Correlates	Physiological Role
<i>Basti</i>	Urinary bladder	Urine storage
<i>Vankshana Pradesh</i>	Groin (inguinal region)	Location of ureters and vessels
<i>Mutravaha Srotas</i>	Kidneys, ureters, bladder, urethra	Filtration, conduction, and excretion of urine
<i>Medovaha Dhamani</i>	Renal arteries	Blood supply to kidneys

Applied Anatomy And Clinical Correlation

Artavavaha Srotas

Clinical Significance: Disorders such as infertility, polycystic ovarian syndrome (PCOS), menstrual irregularities including amenorrhea, and endometriosis are closely associated with dysfunctions of this system.

Ayurvedic Perspective: Vitiation or obstruction of *Artavavaha Srotas* is considered responsible for conditions like *Vandhyatva* (infertility), *Artavakshaya* (scanty or absent menstruation), and various types of *Yonivyapad* (gynecological disorders).

Modern Correlation: Pathologies are usually linked with structural or hormonal imbalances in the ovaries, uterus, or dysregulation of the hypothalamic–pituitary–ovarian axis.

Mutravaha Srotas

Clinical Significance: This system is implicated in urinary tract infections (UTIs), renal insufficiency, and bladder dysfunctions.

Ayurvedic Perspective: Diseases such as *Mutraghata* (urinary retention), *Prameha* (a group of metabolic and urinary disorders, including diabetes mellitus), and *Ashmari* (urinary calculi) are attributed to derangement of *Mutravaha Srotas*.

Modern Correlation: Clinically, these conditions correspond to nephritis, urolithiasis, urinary retention syndromes, and diabetic nephropathy.

Table 3: Correlation between *Ayurvedic* and modern concepts

Conceptual Framework	Ayurvedic Concept	Modern Concept
Embryological development	From <i>Panchamahabhuta</i> and <i>Shukra-Rakta</i>	From mesoderm – urogenital ridge
Functionality	Physical + mental + reproductive roles	Primarily physiological
Pathology	<i>Dosha, Dhātu, Srotas</i> involvement	Cellular, molecular, structural dysfunction
Diagnostic tools	<i>Darshana, Sparshana, Prashna</i>	Imaging, histology, laboratory investigations
Therapeutics	<i>Panchakarma, Rasayana, Shamana Chikitsa</i>	Surgical, pharmacological, dialysis, etc.

DISCUSSION

Integrative Understanding of *Artavavaha Srotas*

The concept of *Artavavaha Srotas* in *Ayurveda* extends beyond a purely structural explanation to encompass functional and reproductive dimensions. Classical texts emphasize their origin in the *Garbhashaya* and *Artavavaha Dhamanis*, signifying the uterus and associated vascular structures. When compared with modern anatomy, this description corresponds to the uterus, ovaries, fallopian tubes, and their vascular supply. Clinically, the dysfunction of these channels manifests as menstrual irregularities, infertility, and gynecological

disorders. This perspective resonates with modern observations where ovarian dysfunction, hormonal imbalance, or uterine pathology underlie conditions such as PCOS, amenorrhea, or endometriosis. Thus, *Ayurveda* provides a holistic viewpoint that integrates structural, functional, and psychological factors, whereas modern medicine emphasizes cellular and endocrine mechanisms. Together, they complement each other in understanding reproductive health.

Insights into *Mutravaha Srotas*

The *Mutravaha Srotas*, described as originating from the *Basti* and *Medhra*, highlight the importance of urine formation and elimination in maintaining homeostasis. Classical texts describe pathologies like *Mutraghata* (retention), *Prameha* (urinary and metabolic disorders), and *Ashmari* (urinary calculi), which closely parallel modern conditions such as urinary retention, diabetic nephropathy, and urolithiasis. Correlation with kidneys, ureters, bladder, and urethra provides a clear anatomical framework that bridges the gap between ancient and modern knowledge. Importantly, while *Ayurveda* emphasizes the role of *Doshic* imbalance and lifestyle in urinary disorders, modern medicine identifies infection, obstruction, and metabolic causes. Together, these insights strengthen the approach toward prevention and management of urological conditions.

Correlation and Clinical Implications

A key observation from the comparative study of *Srotas* and modern anatomy is the shared recognition of structure–function interdependence. *Ayurvedic* descriptions highlight *Moola* (origin), *Marga* (pathway), and *Mukha* (opening), which can be conceptually mapped to organ origin, anatomical course, and outlets of the urinary and reproductive systems. Pathological changes, whether described as *Sanga* (obstruction) or *Vridhhi* (hyperactivity), parallel modern concepts of blockage, dilation, or functional imbalance. This conceptual convergence opens the possibility of integrative approaches in diagnostics and therapeutics. While modern investigations rely on imaging and laboratory tools, *Ayurveda* emphasizes clinical observation through *Darshana*, *Sparshana*, and *Prashna*. Similarly, management strategies range from *Ayurvedic* measures like *Panchakarma* and *Rasayana* to modern pharmacological and surgical interventions.

Bridging Traditional and Modern Perspectives

The comparative evaluation of *Artavavaha* and *Mutravaha Srotas* underscores the importance of dialogue between *Ayurveda* and contemporary medicine. *Ayurveda* provides a multidimensional view, integrating physical, psychological, and lifestyle aspects, while modern anatomy and physiology offer detailed structural and biochemical explanations. Together, they create a comprehensive framework that enriches academic discourse and enhances clinical practice. This integrative perspective not only validates classical concepts in modern terms but also encourages holistic approaches to women's health and urology.

CONCLUSION

1. *Artavavaha Srotas* - Functional and Clinical Significance

- Responsible for menstrual regulation, ovulation, and reproductive potential.
- Anatomically correlated with uterus, ovaries, fallopian tubes, and associated vascular structures.
- Dysfunction manifests as infertility, PCOS, amenorrhea, and other gynecological disorders.
- Integrates structural, functional, and psychological aspects of female reproductive health.

2. *Mutravaha Srotas* – Functional and Clinical Significance

- Governs urine formation, conduction, and elimination.
- Corresponds to kidneys, ureters, urinary bladder, and urethra.
- Vitiating leads to *Mutraghata* (urinary retention), *Prameha* (metabolic/urinary disorders), and *Ashmari* (urinary calculi).
- Emphasizes the role of *Doshic* imbalance and lifestyle alongside anatomical and physiological factors.

3. Integrative Perspective

- Correlation of *Srotas* with modern anatomy provides clarity in diagnosis and therapeutics.
- *Ayurvedic* principles of *Moola* (origin), *Marga* (pathway), and *Mukha* (opening) conceptually align with organ origin, course, and outlets.
- Supports a holistic, patient-centered approach combining *Ayurvedic* and modern medical interventions.

4. Relevance in Contemporary Practice

- Bridges traditional wisdom with modern science, enhancing preventive, diagnostic, and therapeutic strategies.
- Encourages integrative management of reproductive and urinary disorders.
- Validates the continued significance of *Srotas* in contemporary clinical practice.

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