

CONCEPTUAL STUDY OF UDAKVAH SROTAS AND IT'S CORRELATION WITH LYMPH AND INTERSTITIAL FLUID

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ABSTRACT

Background: Ayurvedic classics proclaim “*srotomayam hi shariram*”.

Srotas is used as a generic term indicating all the macro and micro channels and pathway operating in a living organism. These channels are innumerable. As per Sushrut there is 11 pair of *srotas*. *Udakvah srotas* is one of the *srotas* mentioned by Charak and Sushrut. *Udakvah srotas* can be correlated with body fluid channels in the body. Body fluid is of two types, extra cell fluid and intra cell fluid. Extra cell fluid can be correlated with *udakvah srotas*. When body fluid decreases or increases in normal condition and due to some certain causes in some diseases also, we feel particular symptoms out of which one is thirst.

Feeling of thirst is at soft palate and oropharynx. According to Acharya *mulsthan* of *Udakvah srotas* are *Talu* and *Kloma* which can be correlated with soft palate and oropharynx respectively. In this article we have tried to clarify the *mulsthan* and to correlate *Udakvah srotas* with interstitial fluid and lymph. Thorough review of literature related to *srotas* and relevant topic was done through the Ayurvedic Samhita, various Ayurved texts and related textbooks from modern science. Study about cellular fluid was done from various texts. The study initiated for comparison of *udakvah srotas* with body fluid which is interstitial fluid and lymph. *Udakvah srotas* is micro as well as macro channels which can correlated with interstitial fluid and lymph. *Mulsthan* of this *srotas* is *talu* and *klom* which are structurally can correlate with soft palate and oropharynx. Thirst is one of the various symptoms in imbalance of body fluid, which is felt at these structures.

KEYWORD: *Udakvah, srotas, body fluid, klom, talu.*

INTRODUCTION

Ayurvedic classics proclaims *srotomayam hi shariram* means that living body is a channel system and it comprised of innumerable channels which are designed as inner transport system for divergent function, gross and subtle, biological and energetic. Body-mind-spirit organization has as many as *srotamsi* the number of life factors operating in the life process –

‘Yavantah Purushe Murtimanto Bhavavisheshah Tavantevasmin Srotasam Prakara Visheshah’^[1]

According to Charakacharya, the whole body is made up of *srotas*. The number of *srotas* is as many as number of cells, tissues and organs put together. This explains that every human cell and tissue is possibly a *srotas*.

In Ayurved concept of *srotas* has been propogated very specially. They are integral part of the body. Body is composed of numerous *srotas* which have a significant role in maintenance of equilibrium of body elements. *Srotas* is a channel through which different elements undergo transformation, circulation and transportation. Pathological changes occurs in the body are due to *srotodushti*, *srotosang* etc.

Srotas are varying in shape and size and connect different areas, organs and tissues of the body. They carry tissues, raw materials needed for tissue building, food, air, water and many essential things in the body needed for life activities.

Udakvah srotas is one of the *srotas* stated by Ayurved acharyas. These are channels which transport water in the body. Organs related to water balancing mechanism and water regulating centres in the brain can be considered as *udakvah srotas*.^[2] It is not known whether osmoreceptor which stimulate thirst in same or different form the one stimulating ADH (Antidiuretic hormone) release but they are located in the same area of hypothalamus. The osmotic threshold for thirst may be set higher than that for ADH release but this is disputed.

OBJECTIVES

To study about *udakvah srotas* from various ayurvedic text and to explain its mulsthan. To correlate *udakvah srotas* with body fluid, lymph and interstitial fluid.

MATERIAL AND METHOD

Thorough review of literature related to srotas and relevant topics was done through the ayurvedic compendia, various other ayurvedic texts and textbooks of contemporary science. The references from internet and journals were also critically reviewed. The study was initiated for affirmation of mulsthan of *udakvah srotas* and correlation between *udakvahi* channels and body fluid (lymph and interstitial fluid).

REVIEW OF LITERATURE

According to Sushrut there are 11 pairs of srotas. Each bhav is carried by two srotas. Hence there are 22 *srotas*. Their number is according to the symptoms occurring after vitiation of their *mulsthan* (origin).^[3]

According to Vagbhata there are 13 srotas in the body and their *mulsthan* are as follows.^[4]

Sr no.	Srotas	Mulsthan (chief origin)
1	<i>Pranvah srotas</i>	<i>Hridaya</i> and <i>mahasrotas</i>
2	<i>Udakvah (Ambuvah) srotas</i>	<i>Talu</i> (palate) and <i>Klom</i> (pancreas)
3	<i>Annavaaha srotas</i>	<i>Amashaya</i> (stomach), <i>vamparshva</i> (left flank/oesophagus)
4	<i>Rasavaha srotas</i>	<i>Hridaya</i> (heart), ten <i>dhamani</i> (blood vessels)
5	<i>Raktavaha srotas</i>	<i>Yakrit</i> (liver) and <i>pleeha</i> (spleen)
6	<i>Mamsavaha srotas</i>	<i>Snayu</i> (tendons) and <i>Twak</i> (skin)
7	<i>Medovaha srotas</i>	Two <i>Vrikka</i> (kidneys) and <i>mansa</i> (muscles)
8	<i>Asthivaha srotas</i>	<i>Jaghan</i> (pelvis) and <i>Medas</i> (Fat)
9	<i>Majjavaha srotas</i>	<i>Parshva</i> (joints) and <i>Asthi</i> (bones)
10	<i>Shukravaha srotas</i>	Two <i>Stana</i> (breast), two <i>mushka</i> (scrotum or testes to be more precise)
11	<i>Mutravaha srotas</i>	<i>Basti</i> (Urinary bladder) and two <i>Vankshan</i> (groins)
12	<i>Purishvaha srotas</i>	<i>Pakvashaya</i> (large intestine), <i>Sthulantra</i>
13	<i>Swedvaha srotas</i>	<i>Medas</i> (fat) and <i>romakupa</i> (hair follicles)

Study of Udakvah srotas

The channels which carry water or control the balance of udak or water in the body are called *udakvah srotas*. These are water transportation or centers controlling water balance in the body.

According to sushrut *Udakvah srotas* are two in number. They have their roots in origin are *talu* and *kloma*.^[5] *Talu* is the palate or roof of our mouth cavity which lies in contact with the upper surface of our tongue. Whenever we feel thirsty - it manifested first in the palate

followed by lips gums and throat. *Kloma* - is controversial organ. There are different opinions of acharyas. *Kloma* can be correlated with organs - Trachea (windpipe), Pharynx, Pancreas or water regulating centers in the brain.

Viddha Lakshan or Vitiated Symptoms

Trushna (thirst) is main symptom of *Udakvah srotodushti*. Excessive craving for water or fluids is referred to as thirst. A proper water or fluid balance within the body is an essential physiological requirement, dependent on an adequate supply of fluids for all bodily requirements and a proper distribution of fluids within the tissues of the body and blood. One of the major manifestations of water imbalance within the body is thirst. Mechanism of thirst sensation has been ascribed to a drying of the oral cavity and pharyngeal mucous membranes with reduced secretion of saliva, because of inadequate bodily water content.

Udakvah srotas get vitiated by *ama* (uncooked food), fear, excess of alcoholic drinks, dry foods, suppression of thirst etc. The signs of its vitiation are severe thirst, dryness of mouth, ringing in ears and unconsciousness. [6] When srotas get obstructed (blocked), damaged, injured that is vitiating, it causes the symptoms as follows -

1. *Pipasa* - severe thirst
2. *Sadyomaran* - death (when there is water deficit or imbalance for a long duration and has not been compensated)

According to charak symptoms are as follows^[7]

1. *Jivha Shosh* -- Dryness of emaciation of tongue
2. *Talu Shosh* -- Dryness of emaciation of palate
3. *Oshtta Shosh* -- Dryness of emaciation of lips
4. *Kloma Shosh* -- Dryness of emaciation of - Trochea(windpipe), Pharynx, Pancreas or water regulating centers in the brain.
5. *Kantha Shosh* -- Dryness of emaciation of throat
6. *Atipravridha Pipasa* -- Severe thirst

Modern View

The body fluid is mainly intra cellular and extra cellular. The contents of fluid in the body are as follows:

Intra cellular fluid -- 67%

Extra cellular fluid -- 26%

Intra vascular (blood plasma) -- 07%

Cerebrospinal Fluid -- Less than 1%

Extra cellular fluid refers to all fluid outside the cell. Tissue fluid and plasma are two major components of it. Tissue fluid is also called as interstitial fluid. Nutrition and oxygen are provided to each cell in the body by the tissue fluid while moving the metabolic waste. Most of the tissue fluid serves as the extra cellular matrix. On average body fluid (water) can account for 50% of total human body.

Body water is regulated by hormones, including diuretic hormone (ADH), aldosteron and atrial natriuretic peptide. Important function of water in the body include supporting the cellular metabolism, molecular transport, biochemical reaction and physical properties of water such as surface tension.

Lymph is contained within lymphatic vessels, whereas interstitial fluid is the fluid between cells, not contained in any vessels. Interstitial fluid becomes lymph when its taken by up lymphatic capillaries.^[8]

Decreased volume of body fluid is one of two types of thirst and is defined as thirst caused by loss volume (hypovolemia) without depleting the intracellular fluid. This can be caused by blood loss, vomiting, and diarrhea. Thirst is the feeling of needing to drink something. It occurs whenever the body is dehydrated for any reason. Any condition that can result in a loss of body water can lead to thirst or excessive thirst.^[9] Dehydration refers to loss of total-body water, producing hyper tonicity, which now is the preferred term in lieu of dehydration, whereas volume depletion refers to a deficit in extracellular fluid.

DISCUSSION

As per Sushrut, *Udakvah srotas* is related with body fluid.^[10] So in the *udakvah srotodushti* (vitiation), thirst is a natural manifestation. It is mentioned in the modern textbooks also that when body fluid decreases, first symptom is thirst feeling at palate, pharynx, lips and tongue. Trishna is main symptom of *Udakvah srotodushti* excessive craving for water or fluids is referred to as thirst. A proper fluid balance within the body is an essential physiological function, dependent on an adequate supply of fluid for all body requirements and a proper distribution of fluid within tissues of the body and blood. One of the major manifestations of water imbalance within the body is thirst. Mechanism of thirst (sensation) has been ascribed

to drying of the oral cavity and pharyngeal mucous membranes with reduced secretion of saliva, because of inadequate body water content.^[11] After discussion about *udakvah srotas* and body fluid we can say that mulsthan of *udakvah srotas* are talu and kloma (palate and Pharynx). The channels of *udakvah srotas* can be corelated with interstitial fluid (extracellular fluid) and circulating lymph in the body.

CONCLUSION

By the review of literature about srotas, *udakvah srotas* and modern description about interstitial fluid and lymph, we can conclude that *udakvah srotas* is the interstitial fluid and lymph in the body. Mulsthan of *udakvah srotas* in the Samhitas are stated as talu and kloma. When due to cause of *trishna* (thirst) disease, when increased *pitta* and *vat* in the body, absorb the body fluid by the root of tongue, throat, palate and *kloma*. The channels of fluid when vitiated they become shrinked. And symptoms of thirst occur *Trishna* in the form of disease is manifested. Hence we can say that *talua* and *kloma* (palate and Pharynx) are origin of *udakvah srotas*.

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