



## CONCEPTUAL STUDY OF *KLOMA* WITH SPECIAL REFERENCE TO MEDIASTINUM

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### ABSTRACT

In *Ayurveda* texts 13 *srotasa* have been described. One of them is *udakavaha srotas*. The *udakavaha srotas*, consists of the various channels which maintain the fluid balance of the body derive their origin from two places - *Talu* (The hard and soft palates) and *Kloma*. This age old authentic science seems incomplete as it has being either destroyed or carried away from our country by invaders. This results into a lacuna giving rise to controversies and a limitation to our evaluating, analysing and understanding capability. Out of many of such unresolved aspects there is a term called *Kloma*, which along with *Talu* is the *moolshthana* or originating point of *Udakavaha Srotas*.

**Keywords:** *Kloma, udakvaha srotas, trishna, talu, srotas, udak*

**INTRODUCTION** *Kloma* is a large visceral organ present in trunk region and probably present in mediastinum as it is *Kaphasthana*. *Kloma* is considered as a *Kaphasthana* then the claim of other organs like Pancreas, Gall bladder, Caecum etc. is being automatically rejected as no one has properties of *Kapha*. *Kloma* is *Moolsthana* of *Udakvaha Srotas* and probably disposing organ of this *Srotas*.

### OBJECTIVE

Conceptual study of *kloma* is carried out as per *Ayurvedic* literature to finalize position of *Kloma*. The symptoms of *Udakvaha srotas* vitiation is correlated with modern anatomy to finalize position of *Kloma*.

### MATERIALS AND METHODS

#### Materials

#### Literary review :-

*Ayurvedic* :- *Bruhatrayi* along with their commentaries.

Modern science :- Modern anatomy texts.

**Methods:** Concept of *Kloma* is studied through various modern and *Ayurvedic* texts.

Methods: Study of *Kloma* will be done using various texts to determine the organ position.

### LITERARY REVIEW OF *KLOMA* AS PER *AYURVEDA* TEXTS

#### Origin (roots) and location of *Udakavaha Srotas*

*Udakavaha Srotas* roots are channels responsible for water circulation or centres controlling water balance in the body

The *Udakvaha Srotas* or the channels responsible for water regulation and supply in the body are 2 in number. They have their roots of origin in –

*Talu* – Palate or roof of our mouth cavity which lies in contact with the upper surface of our tongue. Whenever we feel thirsty, the thirst is first manifested in the palate followed by the lips, gums and throat<sup>1,2</sup>.

Dryness of the mouth lips and tongue all point towards ‘thirst’. Thus, thirst or *trishna* is the main symptom of vitiation of *udakavaha srotas*. Thirst manifests only when there is shortage of water component of the body so as to maintain the functions

which are water dependent, water driven and water controlled.

Excess vitiation of *Vata* or the heat element of *pitta* increases, the fluid element present in the *kapha* and *pitta dravyas* will get dried up or evaporated<sup>3,4</sup>.

*Kloma* – It is a controversial organ, the detailed explanation of which is not available in the Ayurvedic texts. It is anyhow compared to:

- *Trachea or windpipe*
- *Pharynx*
- *Pancreas*
- *Lungs*
- *Gall bladder*
- *Water regulating centres in the brain*

#### Analysis of *Udakavaha Srotas*

Both Charaka and Sushruta have mentioned *Talu* and *Kloma* as the roots of *Udakavaha Srotas*. ‘Roots’ means the places of origin or controlling stations of the regulatory mechanisms of water balance in the body.

The signs and symptoms of injury (or vitiation) to the *Udakavaha Srotas* as explained by both *Charaka* and *Sushruta*, points out towards the ‘disturbance of imbalance of the water controlling and transportation mechanism’ in the body. Here injury or damage need not occur due to external injury, it is also due to the damage affected on the *Udakavaha Srotas* by the vitiated *doshas* (internal injury or damage).

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*Udakavaha srotas* vitiation definitely has something to do with want of water due to imbalance or deprivation of water which may be an acute shortage or long standing shortage.

In fact, the vitiation or damage of *udakavaha srotas* by injury or vitiation by morbid *doshas*, imbalance between the want and compensation of water and feeling of thirst form the key components of *udakavaha srotas* vitiation.

The recovery of vitiation of *udakavaha srotas* depends on the balance and restoring the water deprivation. One should maintain the water stores of the body by regular intake of water.

The treatment of *Udakavaha srotas* vitiation mainly depends on quenching the thirst and bringing back the balance of the water component of the body. This can best be achieved by supplying the needed quantity of water to the system and maintaining the balance by regularly refilling the loss. Any thirst relieving drink can be given but nothing is as refreshing as water.

#### LITERARY REVIEW OF MODERN ANATOMY

The *Talu* and *Kloma* are considered as *Moolsthana* of *Udakvaha Srotas*. It means that both of these have their role in maintenance of water or body fluids. One thing is remarkable in case of *Moolasthanas* is that one of its counterpart acts as reservoir or helps in formation of that material and the other part destroy or releases the material of concerned *Srotas*. In case of *Udakvaha Srotas*, *Talu* and other component of gastrointestinal tract help for water preservation through absorption from mucous membrane. The *Kloma* must be releasing or disposing organ of *Udakvaha Srotas*.

Around 0.5% water vapours are present in atmospheric air while approximately 5% vapours and trace gases are present in expired air of human lungs. It means water vapour quantity is higher in case of expelled air. This indicates the role of lungs in maintenance of body fluids. Example of dog can be noted here; in summer season dog breaths fast to normalize body temperature. Lungs can be considered as disposing organ of *Udakvaha Srotas*.

The circulatory system can be novel instinct for understanding this concept. The right ventricle receives deoxygenated blood from all body parts. It is pumped through pulmonary trunk to both the lungs for oxygenation. The pulmonary arteries form a large capillary and vascular network which in turn provide huge amount of blood to the lungs. Blood is a connective tissue which constitutes 8% of total body weight. This contains around 52 to 62% blood plasma which is rich in water quantity i.e. 91%. Pulmonary function is important for normal functioning of circulatory system. Failure of pulmonary function causes right ventricular failure which results in pedal oedema and fluid retention in body. It can be said that lungs have great role in maintenance of body fluids.

#### ***Kaphasthana*(As a location of *Kapha Dosh*)**

*Vagbhata* in *Ashtanga Hridaya* has clearly mentioned '*Kloma*' as a *Kaphasthana*. He specifically mentions *Urah* (chest) as a prominent location of *Kapha*<sup>3</sup>. If these two statements are joined together and try to interpret then it can be said that *Kloma* must be an organ present in thoracic cavity. Another amazing thing can be added here that if *Kloma* is considered as a *Kaphasthana* then the claim of other

organs like Pancreas, Gall bladder, Caecum etc. is being automatically rejected as no one has properties of *Kapha*. The Lungs which are continuously active in a vital process of respiration can be a site of *Kapha*. Lungs are lined by mucous membrane inside the entire bronchial tree and are easily affected by diseases related to *Kapha dosha*. These are also situated in *Ura (or chest)* which is special site of *Kapha*. Once it is accepted that '*Kloma*' belongs to *Kaphasthana* then possibility of lung or the cavity which contains the lungs i.e the mediastinal cavity as a *Kloma* is augmented. As discussed earlier *Klomanadi* is also situated in thorax region then lungs are more likely to replace *Ayurveda Koshtanga 'Kloma'*.

Some points to consider in Ayurveda while studying about *Kloma*:

- It is *Koshtanga* as per Charak and other compendia so it must be an organ present in trunk region.
- Sushruta added *Phupphusa* as *Koshtanga* & not *Kloma* so possibility of synonym.
- It is placed on right side of *Hridaya*
- Trachea is a structure present in cervical & thoracic region which corresponds to *Klomanadi*
- *Kantha* and *Kloma* are two different organs as stated by Charak
- *Kloma* is *Moolsthana* of *Udakvaha Srotas* and probably disposing organ of this Srotas.
- *Kloma* is *Kaphasthana* as per Vagbhata so possibly present in thoracic region
- It is located in superior aspect of *Vrukka* as per *Shrikanthadatta*
- The basic information about *Kloma* was known in Vedic period as many references are available

**RESULT:** *Kloma* is an organ which forms the flank of the *Yakrit* and the *Hridaya* and

is situated in the chest. It should surround the heart from all sides, without being attached to it and be mainly on the right side of the chest cavity. Looking at all the references found in various texts it can be seen that the most relatable organ to *Kloma* is a cavity near chest and heart.

**DISCUSSION:** This study will help *Sharir* students and faculties to enlighten their knowledge on *kloma* and compilation on *kloma* topic which is scattered in all Ayurveda texts, It will also help to properly use this knowledge in diagnosis and treatment of patients with *Udakavaha srotasa* problems and symptoms. According to Sushruta –

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*Kloma* – It is a controversial organ, the detailed explanation of which is not available in the Ayurvedic texts. It can be compared to:

- *Trachea or windpipe*
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- *Lungs*
- *Gall bladder*
- *Water regulating centres in the brain*

The disparity about *Kloma* found in Ayurveda texts is in later stage and in some newer texts.

*Kloma* – *Unduka* (Caecum) – Kaviraj Gangadhar (*Cha. Sha. 7/7*)

*Kloma* – *Agnyashaya* (Pancreas) – Damodar Sharma Gaud (Parishadya Shabdārtha Sharir)

*Kloma* – *Pittashaya* (Gall bladder) – Pandit Hariprapanna

*Kloma* – *Annalika* (Oesophagus) – P. K. Warior (Bruhad-Shariram Chapt.2/p.7)

*Kloma* – *Phupphusa* (Lungs) – G. K. Garde (*Sartha Vagbhata*)

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Now if we try and fit one of the previously enumerated hypotheses, each one of them falls short on one or more important aspect. We therefore need to view the issue from a fresh angle in an objective manner. If we compare above symptoms, references in Ayurveda texts to the literature in modern Anatomy, we find an organ described which fulfills most of the criteria admirably and can safely be termed as *Kloma*. It is the MEDIASTINUM.

#### CONCLUSION

Conclusion is the essence of any study thus, any research work is to be completed by giving a final conclusion which reflects the work accomplished as well as paves the path for further works.

a. A difference of opinion is found in Ayurvedic texts regarding the *Kloma*. Some organs which are usually considered in context of *Kloma* are *Pittashaya*, *Agnyashaya*, *Kanthanadi* and *Phupphusa*.

b. *Kloma* is an organ which forms the flank of the *Yakrit* and the *Hridaya* and is situated in the chest. It should surround the heart from all sides, without being attached to it and be mainly on the right side of the chest cavity.

c. In modern Anatomy, we find an organ described which fulfils most of the

criteria admirably and can safely be termed as *Kloma*. It is the MEDIASTINUM.

d. The *Kloma* is an organ which can be correlated to mediastinum because of its anatomical position and its contents which are the oesophagus, trachea, lungs, heart and vessels. The fluid volume of the body passes through it at one time or the other during the cyclic movement either in the form of *Rasa*, *Rakta* (Blood) or *Udaka* (Lymph) and *Anna* (Bolus). Therefore, any abnormality of these channels results in subsequent impairment, either functional or structural of the *Kloma*, or conversely, an acute or chronic functional or structural impairment of the *Kloma* subsequently results in the impaired functioning of either *Rasavaha*, *Pranavaha*, *Raktavaha*, *Udakavaha* and *Annavaha Srotas*.

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