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A CRITICAL APPRAISAL OF MOOLASTHANAS OF UDAKAVAHA SROTHAS**MIDHU PARVATHY.B ¹, SREELAKSHMI.B ², SAJINI.T.S ³, NISHA KUMARI ⁴****^{1,3} PG Scholar, Department of Roga Nidana, ² PG Scholar, Department of Samhita & Siddhanta, ⁴ Associate professor, Department of Roga Nidana, SDM college of Ayurveda ,Hassan, Karnataka, India.****ABSTRACT:**

The term udaka refers to the jaleeya amsha present throughout the body .The srothas which carries or controls this water element in the body is called Udakavaha srothas. The moolasthanas of udakavaha srothas are talu and kloma. The fluid balance in the body is maintained by udakavaha srothas. Regarding its moolasthana , there are many controversial statements which makes it difficult to comprehend and leaves the learners in a whirl. The precise understanding of srotomoola helps in the analysis of dushti karanas and lakshanas of the srothas. Hence, an attempt is made to critically analyze the moola sthanas of udakavaha srothas.

KEY WORDS: Kloma,Moolasthana,Talu,Udakavaha srothas

INTRODUCTION

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In the universe, three basic entities are needed for the sustenance of life. This

includes *Prana* (life force), *Udaka* (water) and *Anna*(food) which together comprises the *bahya prana* ,i.e, the external source of energy. These three will be converted into body components with the help of *agni* and are circulated in the systemic circulation for absorption at the tissue level. Although we might be able to survive for weeks without food, without water we would die in a matter of days¹. Nearly all the body's chemical reaction

occur in a watery medium. Water is indispensable for the metabolic activities inside the cell and ,outside of the cell as it is the principle transporting agent in the body. Life is said to have evolved, first and foremost in an aquatic medium. This shows that water is the most essential component for life.

The term *udaka* refers to the *jaleeya amsha*(water element) which is present throughout the body. The terms *jala*, *ambu* and *vaari* are used as synonyms for *udaka*². The term *vaha* refers to carrying, bearing or flowing³. Thus *udaka vaha srotas* is the one which carries or controls the water element in the body.

UNDERSTANDING THE SROTOMOOLA

The *srotomoola*(site of origin of channels) of the *udakavaha srothas* includes *Talu* and *Kloma*. While enlisting the different *srothas* in the body, *Acharya Charaka* considered it as the second *srothas* and *Sushruta* regarded it as the third *srothas*. It's synonyms include *ambuvaha* and *jalavaha srothas*. The precise understanding of *srotomoola* helps in the analysis of *dushti karanas*(causes of pathology) and *lakshanas*(features) of the respective *srothas*(channels).

Talu can be understood in two ways, *Bahya Talu* and *Antha Talu*. *Bahya Talu* refers to the hard and soft palate situated in the oral cavity where the sensation of thirst is felt. *Antha-Talu* can be understood

The term *udaka* has been explained vividly in the classics in different contexts .For instance, while explaining *sweda*, *Acharya Charaka* has used the term *udaka*,viz the *udaka* which is associated with *ushmana* (warmth) and is excreted out through the hair roots of the skin is called *sweda*⁴. Again in the context of defining *lasika*, *Vaghbata* has explained as *vranagatham udaka*,i.e the water which is oozing out through the abrasions of the skin is *lasika*⁵. *Lasika* is also defined as the *udaka* which is located in between the *mamsa* (muscle tissue)and *twak*(skin)⁶. *Acharya Charaka* in *sutra sthana* has defined *kleda* as *shareerastham jalam*⁷.

as the water regulating centre situated in the medulla oblongata of cranial cavity.

There are numerous opinion regarding the interpretation of *Kloma*. The term *Kloma* has been controversial with respect to its understanding. In *Yajur veda* ,Lord *Varuna*(God of Water) has been regarded as the creator of *yakrit*, *kloma* and *pittasthana*. This shows that *Kloma* seems to be attributed towards water.

Kloma has been considered as a *Koshtanga*(organ of thorax and abdomen) by *Acharya Charaka*, *Bhela*, *Kashyapa* and *Vaghbhata*. Therefore it must be a part inside the *antaradhi* (thoraco-abdominal

cavity) and is not a part which is attributed to head, mouth or throat.

Kloma is regarded as "*hridayakloma-naadi*" by *Acharya Sushruta* while explaining about *Mandala Sandhi* in *shareera sthana*⁸. The term *naadi* refers to tubular structure. Thus here *kloma* signifies trachea which runs in the midline of neck and upper chest. It consists of 15-20 semi-cartilaginous ring. *Agnipurana* states that *kloma* is situated towards the right side of the *hrudaya*(heart)⁹ which can be understood as right lung.

Acharya Dalhana locates the position of *kloma*, towards the right side below the liver and is in the shape of *tilaka*¹⁰ (wick of a lamp), which can be understood as Pancreas. Pancreas is a dual organ having an exocrine and endocrine function. The exocrine part secretes the pancreatic juice, which is composed of 99.5% of the water and 0.5% of solids. The endocrine part secretes the hormones insulin and glucagon through the transporting medium of water. Both the hormones take part in the metabolism of carbohydrates and in turn controls the water element of the body. On deficiency of insulin, patient feels polydypsia due to the excessive loss of water due to polyuria. Moreover, thirst is related to *Agni* and pancreas is the seat of *agni* and its secretion pancreatic juice

reaches the duodenum, digests the food and creates the *bhaktaja trishna*.

Anatomically we trace only two organs gall bladder and pancreas which are situated below the liver. But, gall bladder has no effect on water balance of body and doesn't increase the thirst. Thus "*kloma*" can be identified more as pancreas from the above stated explanations.

Amarakosha describes *kloma* as *vrikka agramamsa*¹¹ ie, the muscle tissue which is located at the outer-end of kidneys which can be understood as a pair of adrenal glands. Again in *Vijayarakshita* commentary of *Madhava Nidana*, *kloma* is stated to be located above kidneys. Thus this can be considered as supra-renal glands. Adrenal glands are considered to be the life-saving glands. This is because, the complete loss of adrenocortical hormones leads to death due to dehydration and electrolyte imbalances in a few days.

Kloma has been described as the *Pipasa sthana* located in the *hridaya* by *Acharya Chakrapani*¹². *Pipasa sthana* can be considered as the thirst centre located in the lateral hypothalamic nuclei of the brain. It consists of osmoreceptors, which plays a significant role in water intake and output.

DISCUSSION

Udakavaha srothas plays a fundamental role in maintaining homeostasis of the body. The terms *Talu* and *Kloma* can be understood in manifold ways. The term *Talu* has been interpreted in two ways viz a) the palate, where the sensation of thirst is felt and b) water-regulating centre located in the medulla oblongata which is in approximation to the anatomical placement of *Talu*. Similarly the above assertions suggest that the *kloma* has been related to many structures in the body namely Trachea, Right Lung, Pancreas, Supra-renal glands and thirst centre in brain. The understanding has to be made as per the context where it has been mentioned. Hence it seems that *udakavaha srothas* is not restricted to a particular part in the body.

Adult body has 60 to 70% of its body weight composed of water i.e., around 45 to 49 litres of water is present in the body. The total water content of the body is distributed in two compartments namely, ICF and ECF (55% and 45% respectively). The percentage of water in various tissues can be enlisted as, muscles (75-80%), nervous tissue (80%), plasma (80%), nervous tissue (80%), CSF (99%), and adipose tissue (20%). Water is the most abundant component of the human body within which the major ions like Na, K, Ca, P,

Mg, Cl, bicarbonates and proteins of the body is dissolved. It forms the intracellular medium within which all the metabolic reactions occur.

There are mainly two sources of water in the body, exogenous water obtained from the food and drinks and endogenous water which is formed as an endproduct of various metabolic reactions in the body. The metabolism of 100 gms each of fat, starch and protein in the body produces 107 gms, 55 gms and 41 gms of water respectively.

The understanding of the *srotomoolas* (site of origin of channels) of *udakavaha srothas* can be supportive in comprehending *dushti karanas* and *lakshnas* of *udakavaha srothas*. The *dushti karanas* include indulgence in hot regimens, *ama* (undigested food), *bhaya* (fear), *paana* (excessive intake of water) and *atishushka anna sevana* (intake of dry food). But how these *nidanans* (causes) lead to the *srotodushti* needs to be explored. As *ushna guna* is predominant of *tejo mahabhuta*, increased indulgence in hot regimens leads to manifestation of *bhrama* (giddiness), *trit* (thirst), *glani* (fatigue), *sweda* (perspiration) and *daha* (burning sensation). *Ama* due to its *bahu pichhilata* (excess slimy nature) adheres to the *srothas*, thus causing

srothavarodha(obstruction to flow in channel). *Bhaya* and *ati-shushkanna sevana* leads to *vata dosha prakopa*, which inturn causes dryness of *jihwa*(tongue), *oshta*(lips), *gala*(throat), *talū*(palate) and *kloma* . Increased intake of water causes

agnimandya(poor digestive fire) leading to formation of *ama* which results in *avarodha* of *srothas*. These *dushti lakshanas* stated above reflect the significance of *moolasthana* in disease manifestation.

CONCLUSION

The varied understandings of *moolasthanas* of *udakavaha srothas*, accordingly helps in the comprehension of its *dushti karanas* and *lakshanas*. There are numerous opinion regarding the interpretation of *Kloma*. While considering the *srotomoola*, *talū* and *kloma* have to be understood as per the context where it is mentioned. The *Udakavaha srothas* can be considered as an integration of functional entity of various systems like

gastrointestinal, respiratory system, circulatory system, endocrine system, urinary system and nervous system, which in turn helps in maintaining the homeostasis of the body. The water balance of these systems mentioned above is governed by *Udakavaha Srothas*. The water supply between these systems and distribution to every cell is brought by *Udakavaha Srothas*.

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