



Original Researcher Article

UNVEILING THE MYSTERY OF KLOMA: A COMPREHENSIVE STUDY IN THE CONTEXT OF UDAKAVAHA SROTAS

Article History:

Name of Author:

Dr. Snigdha Sharma^{1*}, Dr. Kuldeep Kumar², Dr. Namrata Tiwari³, Dr. Rajneesh Porte⁴, Dr. Durga Biswas⁵, Dr. Lata Bhoy⁶, Dr. Reshamlal⁷

Affiliation: ¹P.G. Scholar, Postgraduate Department of Rachana Sharir, Shri N.P.A. Govt. Ayurved College, Raipur, Chhattisgarh, India

²Lecturer, Postgraduate Department of Rachana Sharir, Shri N.P.A. Govt. Ayurved College, Raipur, Chhattisgarh, India

³Reader, Postgraduate Department of Rachana Sharir, Shri N.P.A. Govt. Ayurved College, Raipur, Chhattisgarh, India

⁴P.G. Scholar, Postgraduate Department of Kriya Sharir, Shri N.P.A. Govt. Ayurved College, Raipur, Chhattisgarh, India

⁵P.G. Scholar, Postgraduate Department of Rachana Sharir, Shri N.P.A. Govt. Ayurved College, Raipur, Chhattisgarh, India

⁶P.G. Scholar, Postgraduate Department of Rachana Sharir, Shri N.P.A. Govt. Ayurved College, Raipur, Chhattisgarh, India

⁷P.G. Scholar, Postgraduate Department of Rachana Sharir, Shri N.P.A. Govt. Ayurved College, Raipur, Chhattisgarh, India

Corresponding Author:

Dr. Snigdha Sharma

Received: 10-11-2025

Revised: 25-11-2025

Accepted: 06-12-2025

Abstracts: In Ayurveda, Kloma is known as the Moolasthan of Udakavaha Srotas, which regulates water balance and thirst. However, its anatomical correspondence is still a matter of debate, and it has been linked to the gall bladder, adrenals, hypothalamus, and lungs. According to Ayurvedic texts, Kloma viddha causes Atipipasa, dehydration, and even Sadyamarana.

A careful analysis of the Ayurvedic texts, anatomical correspondence, and clinical manifestations points towards the pancreas as the most likely counterpart. The pancreas's role in diabetes mellitus, diabetic ketoacidosis, and pancreatitis causes thirst, dehydration and disturbances in metabolism, which are remarkably similar to the Ayurvedic manifestations. Anatomically, the pancreas's lobulated and sesame seed-like structure and its abdominal position match the description of Kloma.

This article emphasizes the pancreas as the likely counterpart of Kloma and recommends further interdisciplinary research.

Keywords: Udakavaha Srotas, Kloma, Atipipasa.

Published: 28-12-2025

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INTRODUCTION

The Ayurvedic system of medicine describes Srotas (channels) as the basis of understanding physiology, pathology and treatment. Each Srotas has a Moolasthan (root), which regulates its function and pathology. Out of these, the Udakavaha Srotas is very important, as it regulates the balance of udaka (water) in the body. Kloma has been described in Ayurvedic texts and Samhita like Charak and Susruta as one of the Moolasthanas of Udakavaha Srotas.

Though referred to, the anatomical and functional identity of Kloma has been a matter of debate. It has been identified with the pancreas, gall bladder, adrenals, hypothalamus, and lungs etc. by different authors. However, a critical analysis of the classical literature and correlation with modern aspects suggests that the pancreas is the best identical structure. This article presents a detailed study and to know the exact anatomical structure of Kloma in relation to Udakavaha Srotas, with special emphasis on its analytical, clinical, and practical importance.

AIM

To know the exact anatomical structure of Kloma in relation to Udakavaha Srotas, with special emphasis on its analytical, clinical, and practical importance.

MATERIAL AND METHOD

These elements outlined the key sources and methods for research on Kloma:

1. Classical Review: Primary Ayurvedic texts—Charaka Samhita, Ashtanga Hridaya— were reviewed for references on Agni and its effects on mental health.
2. Literature Search: Modern research articles were sourced from PubMed and Google Scholar databases.
3. Analytical Approach: A comparative and integrative analysis was conducted to correlate Ayurvedic concepts with modern scientific findings

LITERARY REVIEW

Kloma in Classical Texts

- Charaka Samhita refers to Kloma as the Moolasthan of Udakavaha Srotas¹ and its viddha (injury) causes Jihva shosha, Talu shosha, Oshta shosha, Kloma shosha, Kantha shosha, Ati pravridham pipasa.²
- According to Acharya Charak, Vagbhata, Kashyap, and Bhel, it is a koshtang.
- Sushruta, while describing Udakavaha Srotas, referred to Talu (palate) and Kloma as the moola of this Srotas² and its viddha (injury) causes pipasa(thirst) and sadyomaran (means sudden death or gradual death within 7 days)³
- In Su. Ni. 9/22, while describing the symptomatology of Kloma Vidradhi, it is stated that one of the symptoms is intense thirst, which makes the patient crave more water.⁴
- The spleen and lungs are below and beneath the heart on the left side, while on the right, the liver and Kloma are below and beneath the heart.⁵
- Kloma is referred to as Pancreas by Ranjit-Roy Desai in Ayurvediya Kriya Sharira.⁶
- Kloma, which is the center of thirst, is located between the spleen and the small intestine. It is also called as Tila or Tilaka. It assists in the digestion of food.⁷

Anatomical Description of Kloma

1. Pancreas – it is the most widely accepted modern comparable organ. The structure is Lobulated structure, appearance is seas am like; located posterior to the stomach; functionally, it is associated with thirst and water regulation through glucose metabolism.

Godbole Shastri said that one of its names is 'Halikshna,' means it is Halakar in shape. The head of the pancreas protrudes towards the lower left part and become the uncinate process and this process looks like Halikshna or Halakar. The uncinate process has been likened to a

Plough (Halikshna) and the pancreas is a lobulated organ, resembling the sesame-like granules of tilakam.

It is located in the middle abdominal part. The head of the pancreas is located in the right upper part of our body, which is required for insulin secretion. The body of the pancreas is located in the epigastric region. The tail is located in the left side of our body. The pancreas' largest part is located in the epigastric and right hypochondriac region (head).

The heart is positioned in the mediastinum between the lungs, behind the sternum, from T5-T8 vertebral levels, slightly to the left of the midline. The pancreas is an upper abdominal retroperitoneal organ, situated posteriorly to the stomach at the level of L1- L2, extending from the duodenal loop (right side) to the spleen (left side).

Vertically, the pancreas is situated below the heart, separated via the diaphragm. Horizontally, the pancreas's head and neck are positioned to the right of the midline compared to the heart.

As per Gray's Anatomy (2020), the pancreas is positioned "posterior to the stomach and inferior to the heart and diaphragm," and Netter's Atlas states that its head "rests within the curve of the duodenum, to the right of the midline."

Hence, anatomically, the pancreas is situated inferior and right to the heart, which corresponds to the Ayurvedic position of Kloma w.s.r. Heart.

2. Gall Bladder –Some scholars considered the gall bladder as kloma. It is related to digestion and bile storage than thirst and water regulation, and its pathology leads to pain, jaundice, dyspepsia, not thirst or sudden death. The gallbladder can be surgically removed without a life-threatening outcome. In contrast, Kloma-vyadhis are often described as fatal so it is weak correlation.
3. Adrenal Glands – They Regulate water-electrolyte balance by hormones, but not anatomically related to the text description and only 2 in number.
4. Hypothalamus – Regulates thirst centrally, but not an abdominal organ; hence, less convincing association.

5. Lungs – Described by a few, as they are involved in water vapor regulation, but these are described separately.

Kloma as a mool of Udakavaha Srotas

1. Regulation of Thirst (Pipasa)

- According to Ayurveda, the function of Udakavaha Srotasa is to maintain Udaka and thirst or level of hydration.
- Udakavaha Srotas viddha can cause Atipipasa.
- Modern Correlation: In diabetes mellitus due to pancreatic malfunction, there is osmotic diuresis which causes dehydration and excessive thirst.
- Pancreas, from the modern point of view, regulates glucose metabolism by insulin. In diabetes mellitus, insulin insufficiency results in osmotic diuresis and polydipsia (atipipasa).

This directly relates to Udakavaha Srotas viddha lakshana.

2. Maintenance of Water Balance

- In Ayurveda, it is told that Kloma is responsible for the regulation of Udaka.
- Pancreatic dysfunction results in glucose metabolism disorders, leading to osmotic imbalance and disturbance in the body's water homeostasis.

3. Fatal Role (Sadyomarana)

- According to Ayurveda, Injury to Udakavaha Srotasa results in sudden death.
- Pancreatic injury results in diabetic ketoacidosis (DKA), a condition of dehydration, electrolyte disturbances, and metabolic acidosis, potentially resulting in rapid death if it is untreated.
- Injury to pancreatic tissue (destruction of beta cells) can causes pathological thirst and may be life-threatening dehydration.
- These clinical symptoms of srotas viddha correlate kloma with the Ayurvedic description very closely.

Clinical Relevance

1. Prameha: Pancreatic disease causes polydipsia, polyuria, and cachexia are symptoms which are described in Prameha and also in Udakavaha Srotas dushti lakshan.

2. Atipipasa: This is a direct outcome of water imbalance symptoms or dehydration symptoms due to Kloma malfunction.

3. Dehydration Syndromes: Acute imbalance of water leads to thirst and shock, which matches Udakavaha Srotas viddha lakshan.

4. Pancreatitis: acute injury to the pancreas can cause systemic imbalance and may lead to death, which is a symptom of udakvaha srotos viddha, thus it confirms pancreases identity with Kloma.

DISCUSSION

Detailed study regarding the Kloma concept designated towards anatomical structures such as Pancreas, gall bladder, adrenal gland, trachea, hypothalamus and lungs. The idea of Kloma represents the Ayurvedic perception of the body not only as a structural entity but also as a functional one. Although classical texts describe it as a function related to thirst and water regulation, contemporary evidence points to the pancreas as the organ best suited to describe these functions. Correlations with the gall bladder and adrenal glands offer some explanations but none of them are fully justified. Injury to the gallbladder is not fatal and the adrenal glands are not anatomically related to the text description and are 2 in number.

The pancreas is a lobulated organ, resembling the sesame-like granules so called tilakam. the pancreas is positioned inferior and right to the heart, which corresponds to the Ayurvedic position of Kloma w.s.r. Heart. From a clinical perspective (srotovidhha lakshan and srotodushti lakshan), the assessment of Kloma as the pancreas offers a stronger understanding of conditions such as Prameha, Atipipasa, and dehydration syndromes and fatal situations as well. This further reinforces the importance of Ayurvedic theory in contemporary clinical practice.

CONCLUSION

Kloma is an important organ described as the Moolasthan of Udakavaha Srotas, which is directly related to thirst regulation and water balance. Injury to this organ causes Atipipasa and may lead to Sadyamarana. On the basis of textual representation and in the view of functional and clinical importance, the pancreas is the organ that closely correspond to the Kloma.

However, the opinions of the Acharyas indicate that the Kloma might not be only anatomical but

could also be physiologically and pathologically an organ that controls water regulation, digestion and metabolism functions. Future studies that include classical interpretations and modern research may shed more light on this mysterious organ.

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