



Review Article

THE DYNAMICS OF *KLEDA* IN *PRAMEHA* AND ITS MANAGEMENT THROUGH *PANCHAKARMA*

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ABSTRACT

Prameha, a complex metabolic disorder described in Ayurveda, encompasses various clinical conditions similar to diabetes mellitus and its complications. Central to its pathophysiology is the concept of *Kleda*- the pathological accumulation and vitiation of bodily fluid components - primarily attributed to an excess of *Kapha Pitta*. This abstract explores the dynamic interplay of *Kleda* within the *Samprapti* of *Prameha*, highlighting how its formation, aggravation, and spread lead to systemic dysfunction and also emphasizes the relevance of *Panchakarma* therapies in the effective elimination of morbid *Kleda*, thereby breaking the pathogenic chain. Specifically, the *Upakramas* like *Udwartana*, *Takradhara*, *Talapothichil*, *Dhanyamla dhara* and *Sodhana* procedures like *Vamana* (therapeutic emesis), *Virechana* (therapeutic purgation), *Vasti* (medicated enema), *Raktamoksha* (blood-letting) are explored for their role in detoxifying the body, restoring *Doshic* balance, and improving metabolic function. Tailored *Sodhana* protocols, when employed judiciously based on the *Prakriti*, *Roga bala*, and *Roga avastha*, have shown significant outcomes in reducing *Kleda dushti* and mitigating *Prameha* symptoms.

INTRODUCTION

Ayurveda, the ancient Indian system of medicine, rests on deep-rooted conceptual foundations that govern both physiological understanding and pathological interpretations. Among these, *Kleda* is a subtle yet significant concept that has not received as much focused attention as more well-known terms like *Agni*, *Dosha*, or *Dhatu*. However, *Kleda* plays a vital role in the understanding of health and disease, particularly in conditions where fluid imbalance and metabolic dysfunction are central such as *Prameha* (a group of urinary/metabolic disorders), *Sopha* (edema), and *Atisara* (diarrhea)^[1]. In today's context, where diabetes mellitus stands as the most common metabolic disorder and has assumed the status of a global pandemic^[2], the Ayurvedic perspective on *Prameha* offers valuable insights. *Prameha* is classified as a *Santarpanottha Vikara*^[3] (disease arising from over-nutrition), an *Anushangina Vyadhi*^[4] (progressive

and recurrent condition), one of the *Ashta Mahagada*^[5] (eight grave disorders), and a *Kulaja vikara*, highlighting its chronic and severe nature. With the rising prevalence of lifestyle-related diseases, a nuanced understanding of *Kleda* not only enhances clinical acumen in Ayurvedic practice but also offers potential avenues for integrative approaches that bridge classical Ayurvedic thought with modern concepts of fluid and metabolic regulation.

AIMS AND OBJECTIVES

Aim

To explore the Ayurvedic concept of *Kleda* in the pathogenesis of *Prameha* and to critically analyze its management with *Panchakarma*, emphasizing its implications in the selection, planning, and modification of procedures.

Objectives

1. To understand the conceptual framework of *Kleda* and its role in *Prameha* with special reference to the descriptions in Ayurvedic *Samhitas*.
2. To critically evaluate the role of external therapies and *Panchakarma* procedures, particularly like *Vamana*, *Virechana*, *Vasti* and *Raktamoksha* in addressing *Kleda* and *Prameha*.

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3. To correlate the Ayurvedic understanding of *Kleda* with modern perspectives on fluid imbalance, metabolic dysfunction, and microcirculatory changes in diabetes mellitus.
4. To provide a holistic framework for the effective application of *Panchakarma* in mitigating *Kleda* and thereby improving the management outcomes of *Prameha*.

MATERIALS AND METHODS

This study is a conceptual review based on classical Ayurvedic texts, authoritative commentaries, and modern scientific literature. References were collected from *Brihatrayi*, *Laghutrayi*, and relevant *Nighantus*, with focus on *Kleda*, *Prameha*, and *Panchakarma* modalities. Contemporary sources were searched through PubMed, Google Scholar, AYUSH Research Portal, and Scopus using keywords such as *Kleda*, *Prameha*, *Panchakarma* in diabetes, *Raktamoksha*, *Udwartana*, *Utsadana*, *Takradhara*, *Talapothichil*, *Parisheka sweda*, and fluid imbalance.

Inclusion criteria comprised classical Ayurvedic references and modern studies addressing *Kleda*, *Prameha*, and *Panchakarma* interventions. The gathered data were critically analyzed to interpret the dynamics of *Kleda* in *Prameha* and to evaluate the rationale of *Panchakarma* procedures in its management, with correlations drawn to modern perspectives on metabolic dysfunction and fluid imbalance.

Concept of *Kleda*

There is no clear-cut definition or description for '*Kleda*' in the Ayurvedic classics, but scattered references are available. The term *Kleda* is derived from the root word *Klid*, meaning "to moisten" or "to wet." According to *Sabdakalpa dhruma*, *Kleda* means "*Varuna*"^[6]. According to Acharya Dalhana, it is an *Ardrabhava*^[7] and Acharya Arunadatta mentions that *Kleda abhava* is *Sosha*^[8].

Kleda is often described as a fluid component with specific *Snigdha* (unctuous), *Mridu* (soft), *Drava* (liquid) and *Pichilla* (slimy) qualities. These attributes align it closely with the *Jala Mahabhuta*, and it is seen as a representation of moisture necessary for various physiological functions^[9]. *Kleda* is not merely synonymous with water (*Udaka*) but is more nuanced, representing a functional fluid that participates in digestion, tissue nourishment, and excretion within normal physiology.

Prakrita Kleda has a direct connection with *Kapha dosha* and *Pitta dosha*, as both share similar qualities and possess *Jaliya Dharma*^[9]. Specifically, it is associated with *Kledaka Kapha*, which is located in the *Amashaya* (stomach) and plays a vital role in moistening and liquefying the ingested food (*Anna Kledana*)^[10].

The *Samprapti* (pathogenesis) of many diseases in Ayurveda involves the vitiation and accumulation of *Kleda*. Improper digestion (*Agnimandya*) leads to the formation of *Ama* and excessive *Kleda*, which infiltrates the *Srotas*, particularly *Rasavaha*, *Medovaha*, and *Mutravaha Srotas*, creating obstructions and setting the stage for disease manifestation. In *Prameha*, *Kleda* along with vitiated *Meda* and *Kapha* plays a vital role in deranging normal metabolism. This accumulation eventually manifests as excessive urination, sweetness in urine, and loss of tissue integrity, all of which point toward a *Kleda-Pradhana Vyadhi*^[11].

Acharya Charaka listed *Kleda* as one of the six *Ahara Parinamakara bhavas*^[12]- the key factors involved in the transformation of food, thereby supporting digestion and metabolism. It also contributes to several crucial physiological processes such as circulation, respiration, excretion, and thermoregulation through sweating. Being responsible for maintaining bodily moisture, it is essentially comparable to water present in different forms within the body. Typically, *Udaka* functions as a moisturizing element. While *Kleda* and *Udaka* are often considered similar, there are some variations in its *Sandrata*. When *Udaka* specifically carries out the function of moistening, liquefying, or wetting, it is termed *Kleda*. *Sweda* normally holds it in body and the excess amount is eliminated mainly through urine (*Mutra*) and sweat (*Sweda*)^[13].

In *Prameha*, there exists a critical imbalance between *Ojus* and *Kleda*^[14]. When *Agni* becomes impaired, excessive *Vikruta Kleda* accumulates in the body and infiltrates the *Mutravaha srotas*, leading to *Prabhuta Avila Mutrata*. In this process, *Ojus* is also eliminated through urine (*Ojomaha*), causing progressive weakness, *Dhatu kshaya*, and loss of immunity. Thus, in *Prameha*, an inverse relationship is observed - as *Vikruta Kleda* increases, *Ojus* decreases. In *Sthula Prameha*, *Kleda* dominance manifests as heaviness, *Medo vridhhi*, and sluggish metabolism, while in *Krishna Prameha*, depletion of *Ojus* is more pronounced, leading to emaciation, dryness, and debility despite residual *Kleda*. This dynamic highlights the dual focus of management- maintaining homeostasis of *Kleda* alongside *Ojus Pushti* to restore systemic balance and prevent complications.

Modern view of *Kleda*

In modern physiology, the Ayurvedic concept of *Kleda* can be understood in terms of body fluid regulation, electrolyte balance, and metabolic by-products. The human body maintains its internal moisture through compartments such as intracellular fluid, extracellular fluid, plasma, and interstitial fluid, all of which parallel the Ayurvedic description of *Kleda* as the moist, fluid-like element essential for life processes^[15].

Pathological changes in *Kleda* closely resemble modern disorders of fluid imbalance. Fluid retention, edema, interstitial overload, osmotic diuresis, and electrolyte disturbances can be correlated with *Kleda Dusti*. For example, in diabetes mellitus, glycosuria causes osmotic diuresis leading to loss of water, salts, and potassium, while excess catecholamines increase sweating and electrolyte depletion^[16]. This represents an abnormal rise of *Kleda* in *Prameha*.

The kidneys, which regulate body fluids, electrolytes, and excretion of metabolic waste, can be compared to the *Mutravaha Srotas* and the function of *Kleda Pachana*. When kidney function is compromised, fluid overload occurs, as in renal insufficiency or nephrotic syndrome, mirroring improper *Kleda* metabolism^[17]. Similarly, conditions like heart failure

and lymphatic obstruction present with edema, again reflecting disturbed *Kleda*^[18].

Furthermore, mucus hypersecretion and wet-type inflammations in diseases such as rhinitis, bronchitis, eczema, and allergic reactions correspond to excessive *Kleda*. Modern pathology attributes these to immune-mediated responses, cytokines, and histamine release, which parallels the Ayurvedic understanding of *Kleda Dusti* as excess fluid accumulation and improper elimination^[19].

Thus, from a modern perspective, *Kleda* encompasses a spectrum of fluid-regulatory and metabolic processes, with its imbalance manifesting in both systemic and localized fluid-dominant pathologies.

Table 1: Ayurvedic concept of *Kleda* and its Modern equivalents

Ayurvedic Concept	Modern Equivalent
<i>Kleda</i>	Interstitial fluid, mucosal secretions, metabolic moisture
<i>Kleda Vriddhi</i>	Fluid overload, oedema, hypersecretion, glycosuria
<i>Kleda Pachana</i>	Fluid metabolism, diuresis, lymphatic drainage
<i>Kleda Dushti</i>	Diabetes, dermatitis, renal failure, metabolic syndrome, obesity

Pathological Role of *Kleda*

An imbalance or excess of *Kleda* leads to various pathological conditions. When *Kleda* accumulates beyond physiological limits, often due to *Mandagni*, excessive intake of *Snigdha*, *Guru*, *Abhishyandi Ahara*, and sedentary lifestyle, it can vitiate *Pitta* and *Kapha*, leading to diseases marked by increased moisture or fluidity in tissues. In diseases like *Prameha*, *Kushta*, *Visarpa*, *Sopha*, *Sthoulya*, *Udara*, *Vrana* etc the pathological increase of *Kleda* results in fluid retention in interstitial spaces. Thus, *Kleda* is a central pathogenetic factor in conditions where fluid overload, congestion, or improper elimination is observed.

Prameha and *Kleda*

Kleda is a key pathological factor in the manifestation of *Prameha*^[20]. It denotes an excess of fluidity, moisture, and unprocessed metabolic byproducts in the body, arising due to derangement of *Kapha* and *Pitta dosha* and impaired *Medo dhatu agni*. When *Kleda* becomes pathological, it accumulates disrupts the balance of *Doshas* and *Dhatu*s, leading to characteristic features of *Prameha*.

In both *Sthula Prameha* (occurring in obese individuals with excessive *Kapha* and *Meda*) and *Krishna Prameha* (seen in lean individuals with depleted *Dhatu*s), *Kleda* plays a central role though its manifestations differ.

In the condition of *Krishna Prameha*, there is significant depletion of *Prakrutha kleda* and *Apara ojus*. This loss of internal moisture and essence leads to increased dryness, weakness, and instability of bodily

functions. Therefore, treatment should aim at restoring this lost *Kleda*, strengthening the *Agni*, and promoting overall vitality^[21].

In *Sthula* types, excessive *Kapha* and *Abadha Medas* create an overabundance of *Kleda*, resulting in heaviness, sluggish metabolism, and accumulation of turbid body fluids. In *Krishna* types, despite the overall tissue depletion, *Agni* dysfunction leads to improper metabolism and residual *Kleda* that cannot be effectively assimilated or eliminated. This excessive *Kleda* manifests clinically as *Prabhuta Avila Mutrata*^[22] – frequent passage of large quantities of turbid urine. It reflects not only the excretion of unprocessed fluid but also a deeper disturbance in tissue metabolism and microcirculation. The elimination of *Kleda* through urine indicates systemic imbalance, where vital *Dhatu*s undergo depletion, resulting in weakness, emaciation, and progressive metabolic dysfunction.

In the later stages of *Prameha*, complications such as *Prameha Pidaka* (infected boils/abscesses) arise predominantly due to *Raktadushti*. According to the principle of *Ashraya–Ashrayi Bhava*, *Pitta dosha* has an intimate association with *Rakta dhatu*; hence, when *Pitta* is vitiated, *Rakta* also becomes vitiated and vice versa^[23]. This interdependence results in inflammatory and suppurative manifestations on the skin along with further increase of *Kleda*.

Thus, *Kleda* is not merely symptomatic but a core pathogenic substrate in *Prameha*, influencing its onset, progression, and chronicity. Management, therefore, is centered around *Kleda shoshana* and

maintaining its homeostasis through appropriate *Ahara*, *Vihara*, and *Panchakarma* measures, thereby restoring equilibrium in body fluids and metabolism.

Therapeutic Approaches to *Kleda Dushti*

The Ayurvedic approach to *Kleda* related pathologies involves both *Shodhana* (bio-purificatory) and *Shamana* (pacifying) treatments.

Shodhana therapies such as *Vamana*, *Virechana*, *Vasti* and *Raktamoksha* can be selected based on *Doshic* involvement and strength of the patient. For instance, *Lekhana Vasti* and *Tikta-Kashaya-Varga Dravyas* are especially effective in reducing excess *Kleda* and *Meda*. *Shamana* therapies focus on *Shoshana* (drying), *Lekhana* (scraping), and *Mutravirechana* (diuretic) properties. Herbs like *Triphala*, *Guggulu*, *Musta*, *Daruharidra*, *Amalaki*, and *Punarnava* are frequently used for their capacity to absorb excess moisture and normalize the body's internal environment. External applications like *Malar Lepa Yoga* mentioned in *Chikitsamanjari* containing *Malar* (puffed rice) *Hribera*, *Chandana*, *Usheera*, Arrowroot powder and *Guduchi*, helps to reduce localized *Kleda*^[24]. *Rasayanas* such as *Shilajatu* and *Amalaki* rejuvenate and strengthen depleted *Dhatus*^[25].

In *Prameha* management, *Kleda Shoshana* becomes a primary goal, often achieved using *Tikta Rasa*, *Katu Vipaka*, and *Ushna Virya* herbs. Alongside medication, *Adravya chikitsa* especially *Vyayama* (exercise) is crucial. Also, a disciplined lifestyle with regular physical activity, walking, or engaging in simple outdoor tasks helps reduce *Medas* and maintain metabolic balance^[26]. Additionally, *Pathya-Apathya* plays a crucial role in preventing the re-accumulation of *Kleda*.

Role of *Panchakarma* Procedures to Regulate *Kleda* in *Prameha*

Prameha is a *Bahudoshaja vyadhi*, where *Kapha*, *Pitta*, *Kleda* and *Medas* are predominantly vitiated. In general, the *Balavan Sthula pramehi chikitsa* is mentioned as *Sodhana* and the *Durbala Krishna pramehi chikitsa* is mentioned as *Samana* and *Brimhana*^[27]. To address the vitiated *Kleda* and *Bahudoshavastha*, *Panchakarma* treatment is very beneficial^[28]. In *Kaphaja Prameha*, *Langhana* or *Vamana* is recommended, whereas in *Pittaja Prameha*, *Virechana* along with *Santarpana* is advised^[29]. For *Vataja Prameha*, Acharya Charaka does not prescribe *Sodhana*, while *Susruta* mentions *Sodhana* through *Asthapana vasti* as a line of management^[30]. These procedures aids in expelling the morbid *Doshas*, digesting accumulated *Vikrita Kleda*, and restoring the function of *Agni* and *Srotas*.

Purvakarmas

Deepana, Pachana, Rookshana

In the management of *Prameha*, the role of *Purvakarma* becomes highly significant before the administration of *Panchakarma*. *Deepana* and *Pachana* medications will stimulate *Agni*, digest *Ama*, and prepare the channels for detoxification. *Rookshana* procedures can be internal and external; the former includes *Rooksha annapana sevana* and the later include procedures like *Rooksha Udwartana*, *Takradhara* etc.

Bahya kriyas

Udwartana

Udwartana is a frontline external therapy which involves massaging the body with dry herbal powders in an upward direction (opposite to hair root). It is primarily used to reduce *Kapha*, *Meda* and *Kleda*^[31]. Forceful *Udwartana* is a major treatment in *Sthula pramehi chikitsa*^[26]. By promoting *Rukshana* and *Shoshana*, it directly addresses the root pathology of excessive moisture and stickiness in the system. The medicines like *Triphala choorna*, *Kolakulathadi choorna*, *Aragwadhadhi choorna*, *Kulatha choorna*, *Eladi choorna* etc are commonly used for *Udwartana* in *Prameha rogi*. It absorbs surface and interstitial *Kleda* through friction and powder's astringent, absorbent qualities, reduces accumulated moisture and pathological fluids in skin and muscle tissues, scrapes away excess *Kapha* and *Meda* reducing body heaviness and stickiness, clears blocked microchannels, improving tissue perfusion and urine filtration, reduces bulkiness, improves metabolic rate, and reduces insulin resistance-like states.

Utsadana

Utsadana is a type of *Udwartana* where medicated powders are mixed with suitable *Drava dravya* like *Dhanyamla*, *Triphala Kashaya*, *Tila taila* etc and is applied in direction opposite to hair root. This is most beneficial in reducing the symptoms like numbness, burning sensation which are cardinal in the complication stages of diabetic neuropathy. Both *Udwartana* and *Utsadana* acts by removing *Avarana* and *Srotorodha*, improving peripheral blood circulation and lymphatic circulation, also enhances the transport of cholesterol from periphery to the liver^[32].

Takradhara

Takradhara is a form of *Dhara* in which medicated buttermilk (*Takra*) is continuously poured over the forehead or entire body. *Takradhara*, though a *Shamana* and external therapy, plays a significant supporting role in *Prameha Chikitsa*, especially for *Kleda Shoshana* and is highly effective in managing the symptoms like *Karacharana paristhodam*, *Mootradosham*^[33], excessive sweating, skin disorders,

mental stress, moist inflammatory states etc. It is primarily cooling, calming, and *Tridosha samana*, with a special action on *Pitta* and *Kapha doshas*. *Takradhara* acts as a supportive therapy that contributes to mental and hormonal regulation, reduction of internal *Kleda*, due to its *Ruksha Laghu* and *Shoshana* properties^[34]. The conventional *Musta amalaki takradhara* is mostly utilized owing to the *Pitta vata hara* nature of the procedure and *Kapha vata hara* property of medicines used. *Takradhara* stimulates the pituitary gland, regulates the release of ACTH and reduces the secretion of glucocorticoids mainly the cortisol and thus calms the mind, reduces stress, and improves neurohormonal regulation. By controlling cortisol and sympathetic overdrive, it indirectly reducing *Kleda* production also^[35].

Talapothichil

Medicated paste application over the scalp known as *Talapothichil* is a cooling and *Pitta Kapha shamana* therapy that indirectly contributes to *Kleda-shoshana*. The scalp application of herbs like *Musta*, *Amalaki*, *Chandana*, or *Guduchi*, mixed with *Takra* or suitable *Kashaya*, regulates *Pitta* and *Kapha* dominance, calms the mind, reduces stress-related cortisol secretion, and enhances neuroendocrine balance^[34]. By lowering stress-induced metabolic disturbances and excessive sweating, it prevents further *Kleda utpatti*. Its *Ruksha Laghu guna* and *Pitta Kapha hara* nature help in reducing inflammatory moisture, excess secretions, and congestion, thereby indirectly controlling *Kapha Meda Kleda dushti* seen in *Prameha*.

Parisheka swedas

Mild forms of *Swedana* are recommended in *Prameha* to relieve stiffness, heaviness, and *Srotorodha*. Among these, *Parisheka Sweda*, which involves pouring warm medicated liquids in a continuous stream over the body, is particularly suitable. This form of therapy provides gentle sudation, reduces *Kapha Meda Kleda dushti*, and offers symptomatic relief without exhausting the patient. *Parisheka* preparations widely used in *Prameha* include *Takradhara*, *Kashaya Dhara*, *Taila Dhara*, and *Dhanyamla Dhara*. Commonly used *Kashaya Siddha Parisheka* formulations include *Aragwadhadi Kashaya*, *Asanadi Kashaya*, *Guluchyadi Kashaya*, *Triphala Kashaya*, *Surasadi Kashaya*, and *Dashamoola Kashaya*. These decoctions possess anti-inflammatory, detoxifying, and *Kledashoshana* properties, making them highly effective in reducing *Kapha*, *Pitta*, and associated *Kleda* in the body.

Dhanyamla Dhara is especially emphasized due to its potent *Kapha Medahara* and *Kledashoshana* properties. *Dhanyamla* is a fermented liquid prepared from cereals, citrus fruits etc. Its qualities are predominantly *Amla* and *Kashaya rasa*, *Laghu*, *Ruksha*,

Ushna guna, and *Ushna veerya*, which make it ideal for correcting *Kapha-Meda* pathology^[36]. When poured warm over the body, *Dhanyamla* produce vasodilatation, induces mild sweating, stimulates peripheral circulation, and facilitates the absorption of pathological *Kleda*. The sour and astringent qualities digest *Ama*, while the *Ruksha guna* counteracts the heaviness, sliminess, and stickiness characteristic of *Kapha* and *Kleda*.

The role of *Dhanyamla Dhara* becomes even more significant in the management of diabetic neuropathy, a common complication of *Prameha*. Neuropathy presents with numbness, tingling, burning sensation, pain, and heaviness of the extremities, which in Ayurvedic terms can be understood as *Kapha-Meda-Kleda dushti* obstructing *Vata* in the *srotas*. *Dhanyamla Dhara*, by improving circulation and stimulating nerve endings, helps to alleviate these symptoms. The continuous warm stream relaxes muscles and nerves, reduces pain, and restores proper *Vata* function. Its *Kleda-shoshana* and *Kapha-Meda hara* action lightens the body and clears obstructions, while its *Deepana pachana* properties aid in removing *Avarana* that contributes to nerve irritation. In addition, the soothing nature of the therapy provides mental relaxation, which further benefits patients struggling with chronic diabetic complications^[37].

Sneha Sweda

Among *Bahya* and *Abhyantara snehana*, the latter (i.e., *Abhyantara/* internal oleation), plays a vital role in this context. Unlike routine *Sneha*, which is predominantly unctuous and nourishing, the *Sneha* recommended in *Prameha* is specifically designed to counter the excessive *Kapha* and *Meda*. The choice of *Sneha* and the overall line of therapy in *Prameha* is guided by the importance of *Tikta*, *Katu* and *Kashaya rasa*. *Tikta rasa*, with its *Laghu*, *Ruksha*, *Srothosodhaka* properties is especially effective in absorbing pathological *Kleda*, reducing *Medas*, and clearing the blockages in the *Srotas*^[38]. It also prevents the development of secondary complications such as non-healing ulcers and skin oozing, which are common in *Prameha*. *Katu rasa*, on the other hand, is *Ushna*, *Tikshna* and *Sukshma*. It enhances *Agni*, prevents *Ama* formation, and helps in scraping *Kapha* and *Medas* from the tissues^[39]. Alongside these, *Kashaya rasa* holds a special place in *Kleda Shoshana*. Being *Ruksha*, *Stambhana*, and *Sangrahi* in nature, *Kashaya rasa* helps in arresting excessive secretions and abnormal discharges. It dries up pathological moistness, improves tissue tone, and reduces the slimy, turbid quality of urine often seen in *Prameha*. By imparting firmness and compactness to *Dhatu*, *Kashaya rasa* also counters the looseness and laxity brought on by *Kapha* and *Kleda vridhhi*. Its *Stambhana* property makes it particularly beneficial in controlling *Prabhuta Mutrata*

(polyuria) and *Avila Mutrata* (turbid urine), which are cardinal features of *Prameha*^[40]. Together, *Tikta Katu Kashaya rasa* act as natural antagonists to the *Guru snigdha pichilla* qualities of *Kapha* and *Kleda*, thereby making them central to both preparatory and mainline therapies in *Prameha*.

Acharya Vagbhata advise the use of medicated oils such as *Sarshapa*, *Arishta*, *Nikumbha*, *Aksha*, *Karanja*, and *Trikandaka Taila*, all of which are *Tikta, Katu, Kashaya*, and *Lekhana* in nature^[41]. Similarly, formulations such as *Priyanguadi Ghrita* or *Taila*, *Dhanwantaram Ghrita*, *Guggulu Tiktaka Ghrita*, and *Pinyaka Taila* are employed for their *Lekhana*, *Rukshana*, and *Kleda Shoshana* properties. Thus, *Snehapana* in *Prameha* is not simply preparatory lubrication but a therapeutic intervention aimed at correcting the very pathology of the disease.

Swedana, the next step in *Purvakarma*, must be performed with great caution in *Prameha* patients. Since these patients already have excessive *Kleda* and are prone to weakness and fatigue, excessive sudation can worsen their condition. For this reason, *Acharyas* clearly mention that only mild and judicious *Swedana* should be done to facilitate the movement of *doshas* without aggravating *Kleda*.

Sodhana Procedures

Vamana

Vamana is one of the prime *Shodhana* therapies indicated in *Kapha*-dominant disorders, particularly in *Bahukaphaja* and *Sthula Prameha*^[41]. It is specifically designed to eliminate aggravated *Kapha* and excessive *Kleda* from *Kaphasthana*. The procedure helps clear blocked *Srotas*, reduces heaviness, improves *Agni*, enhances metabolism, and prevents further formation of pathological *Kleda*.

In the stage of *Utklistha Doshavastha* when the aggravated *Doshas* are mobilized and ready for elimination *Sadyovamana* (immediate emesis) can be administered for prompt expulsion without extensive preparatory measures^[42]. This is especially useful in acute presentations or outpatient settings.

Classical texts recommend specific emetic drugs for *Vamana*. Among them, *Madanaphala* (*Randia dumetorum*) is considered the foremost due to its safety and efficacy^[43]. Other drugs such as *Ikshvaku* (*Lagenaria siceraria*), *Dhamargava* (*Luffa echinata*), and *Vatsaka* (*Holarrhena antidysenterica*) are also traditionally employed. These agents, by their *Guna* and *Karma*, effectively expel aggravated *Kapha Pitta* and *Kleda*, ensuring purification and restoring the balance of *Doshas*.

Thus, *Vamana* not only eliminates the immediate burden of *Kapha Pitta* and *Kleda* but also re-establishes *Agni* and normal *Srotas* function,

thereby addressing both the pathogenic process and its clinical manifestations.

Virechana

Virechana is a classical *Shodhana* therapy primarily indicated in *Pittaja* and *Pittasamsrishta doshas* where the morbid materials are expelled through the anus^[44]. The therapy works by eliminating aggravated *Pitta dosha* along with associated *Kleda* and *Ama*. In the context of *Prameha*, this is particularly relevant as the excess *Pitta Kapha doshas* further vitiates *Rakta*, *Meda*, and *Mamsa dhatus*, thereby intensifying metabolic disturbances^[45].

The therapeutic effects of *Virechana* extend beyond simple purgation. It helps in detoxification, reduces systemic inflammation, and normalizes hepatic and pancreatic functions^[46]. As *Pitta dosha* is chiefly situated in the *Yakrit* (liver) and *Pliha* (spleen), *Virechana* aids in reducing excessive hepatic glucose production and improving insulin dynamics^[47]. This mechanism aligns well with modern perspectives where impaired liver metabolism and chronic inflammation play a central role in the pathogenesis of diabetes mellitus.

Another key effect of *Virechana* is the regulation of *Agni*. By eliminating deranged *Pitta* and *Kapha*, the digestive and metabolic fire is rekindled, thereby improving nutrient assimilation and preventing further *Kleda* formation. Additionally, *Virechana* acts on *Mutravaha srotas* (urinary channels), reducing turbidity and frequency of urination, which are hallmark features of *Prameha*.

Although classical texts describe *Prameha rogi* as *Durvirechya* (difficult to purgate) due to their sluggish metabolism and obstruction in *Srotas*, careful administration of mild to moderate purgatives can yield effective results.^[48] Commonly employed formulations include *Churna yogas*, *Eranda taila* (castor oil) preparations, and other *Virechana kalpanas*. These are selected depending on the patient's constitution, strength, and *dosha* predominance.

Classical *Virechana* drugs enumerated in *Kalpa Sthana* include *Trivrit* (*Operculina turpethum*), *Sudha* (*Aconitum heterophyllum*), and *Danti-Dravanti* (*Baliospermum montanum* and *Jatropha curcas*), which are known for their potent purgative and *Dosha*-expelling actions. In modern practice, milder agents are often preferred in *Prameha* patients to prevent excessive depletion while still achieving *Kleda shoshana*.

Samsarjana Krama: In the context of Ayurvedic management of *Prameha*, dietary regulation plays a crucial role. The concept of *Samsarjana Krama* - the graduated dietary regimens are often recommended after purification therapies like *Vamana* and *Virechana* in order to augment the diminished *Agni*. Foods like

Peya (thin rice gruel), though light and easy to digest, can increase *Kapha* in diabetic patients. So appropriately modified diet with *Yava* (barley), *Godhuma* (wheat), oats or *Trina Dhanyas* (millets), such as *ragi*, *bajra*, *kodo millet*, *barnyard millet* etc which are *Laghu ruksha* and having *Kapha-Meda hara* properties should be used. These millets help to regulate metabolism and support weight along with diabetes management.

Vasti

Vasti is regarded as the supreme line of management in Ayurveda, especially for *Vata*-dominant and chronic systemic disorders^[49]. In the context of *Prameha*, it plays a vital therapeutic role due to its multi-dimensional actions on *Kapha*, *Pitta*, *Meda*, *Kleda*, and impaired *Vata* functions. Since *Prameha* involves a complex interaction of *Kapha-Pitta-Meda* accumulation, and *Vata* derangement in advanced stages, *Vasti* serves as a comprehensive therapy capable of addressing all three *Doshas* simultaneously^[50].

Acharya Charaka advises avoiding *Brimhana Vasti (Anuvāsana Vasti)* in *Prameha*^[51]. Furthermore, while describing the indications and contraindications of *Vasti*, he states that those unfit for *Anuvasana Vasti* are likewise unsuitable for *Niruha vasti*^[52]. In contrast, Acharya Susruta and Vagbhata in *Astanga Hridaya*, under *Prameha Chikitsa Sutra*, recommend administering *Asthapana Vasti* following *Pragadha Vamana* and *Virechana*^[53,41]. Several formulations of both *Anuvasana* and *Asthapana Vasti* are detailed in the context of *Prameha*.

Among the *Asthapana Yogas* mentioned for *Prameha*, formulations such as *Panchatikta Niruha Vasti*, *Surasadi Vasti*, *Somavalkaladi Vasti*, *Ruksha Vasti*, *Kledahara Vasti*, *Erandamuladi Vasti*, *Madhutailika Vasti*, and *Musthadi Rajayapana Vasti* are frequently used in clinical practice. These are designed based on the patient's *Prakrti*, *Dosha-dushya sammurchana*, and chronicity of the disease.

Kashaya Vasti is particularly effective in reducing *Kapha*, *Meda*, and pathological *Kleda* from the the whole body. *Lekhana Vasti* is emphasized for its scraping (*Lekhana*) and *Kleda-śoṣaṇa* (moisture-absorbing) actions, which directly counter the pathological basis of *Prameha*^[54]. Among these, *Panchatikta Niruha Vasti* has been specifically indicated for *Meha*, *Abhishyanda* (ophthalmic disorders), and *Kushtha* (skin diseases)^[55], conditions that share common *Kapha-Kleda* pathologies owing to the *Tikta rasa pradhana* ingredients and are highly beneficial to reduce *Pitta pradhana* symptoms like burning sensation seen in diabetic complications.

Another *Vasti* is *Kledahara vasti*, also known as *Dasamooladi niruha vasti* which is a formulated *Vasti yoga* used by practitioners in *Kerala* for *Kledaharana*

purpose. The ingredients include *Makshika*, *Saindhava*, *Tila taila*, *Dhanyamla*, *Kalka* and *Kashaya* of *Dasamoola*, *Asana*, and *Aswagandha*. The majority of drugs used in this *Vasti* formulation is dominated by *Kashaya*, *Tikta*, and *Katu rasa*, *Ushna virya*, *Laghu* and *Ruksha guna*, and *Katu vipaka*. These properties promote *Deepana*, *Pachana*, *Tridosha-samana*, *Srotoshodhana*, *Jvaraghna*, *Mutrala*, *Sophahara*, and *Pramehaghna* effects, while ensuring *Vāatanulomana*^[56]. Furthermore, herbs used in *Dasamuladi Asthapana Vasti* are documented to possess anti-diabetic, antioxidant, anti-inflammatory, and detoxifying effects^[57]. These actions contribute to the regeneration of damaged capillaries, enhanced elimination of nitrogenous wastes, improvement in blood circulation, and better glomerular filtration rate (GFR), thereby addressing diabetic nephropathy -a frequent complication of *Prameha*.

Raktamoksha

In case of *Prameha Pidakas*, *Raktamoksha*, one among the *Panchashodhana upakrama*, is advocated to expel vitiated blood, thereby alleviating *Kleda* and restoring equilibrium. *Siravyadha* (venesection) and *Jalaukavacharana* (leech therapy) are the primary modalities mentioned. Charaka states that in cases of *Raktadushti* associated with *Prameha*, *Raktamoksha* is beneficial^[58] while Sushruta and Vagbhata further describe the role of venesection and leech therapy in *Pitta-Kapha dushti* conditions, where excessive *Kleda* manifests through boils and ulcers.^[59,60]

Modern research also provides support that leech therapy exerts anticoagulant, anti-inflammatory, and analgesic actions and significantly reduced neuropathic symptoms in diabetic patients compared to gabapentin, indicating improved microcirculation and reduced inflammatory mediators^[61]. It is also having effectiveness in diabetic foot ulcers, with improved wound healing through reduction of local congestion and enhanced tissue perfusion^[62].

DISCUSSION

Kleda is a dynamic concept in Ayurveda, representing the body's moisture element, essential for digestion, tissue nutrition, and excretion. Its vitiation contributes to fluid-dominant disorders, notably *Prameha*, which manifests as *Kapha-Pitta-Meda-Kleda* dominance, causing *Avila Mutrata*, *Meda vriddhi*, and systemic derangements. Ayurvedic management addresses this through both internal and external treatments. Internal medications in the form of *Kashaya*, *Choorna*, *Gulika* and similar formulations are administered for *Deepana* and *Pachana*. *Rukshana* can be achieved internally through measures such as *Takrapana*, while external *Rukshana* is carried out by procedures like *Udwartana*, *Utsadana*, *Takradhara*, *Talapothishil*, *Dhanyamla Dhara* and other *Parisheka Svedas*. These procedures enhance circulation, reduce

Kapha-Pitta -Meda-Kleda, alleviate neuropathy and inflammation, improve metabolic stability, and prevent complications such as diabetic neuropathy, nephropathy, and ulcers. In addition, *Talapothichil* is also employed as a supportive therapy to enhance the overall effect.

Snehapana with *Tikta-Katu-Kashaya Sneha dravya* and judicial and mild *Swedana*, facilitates *Dosha* mobilization and *Kleda shoshana*. *Shodhana* therapies like *Vamana* and *Virechana* eliminate excess *Kapha-Pitta-Kleda*, improve *Agni*, hepatic-pancreatic function, and clear *Srotas*. *Vasti*, particularly *Lekhana* and *Kashaya Vastis*, addresses *Vata-Kapha* imbalances, reduces *Meda-Kleda*, and supports renal and microvascular health. *Raktamoksha* is also a rational therapy in *Prameha*, particularly when *Raktadushti* and excessive *Kleda* dominate the clinical picture. It not only removes localized vitiated blood but also improves systemic balance by reducing *Kleda*, clearing *Srotorodha*, and restoring tissue metabolism. These treatment modalities, if employed judiciously at the early onset of the disease, are capable of preventing its progression, reducing the risk of diabetic complications, improving quality of life, and potentially minimizing hereditary transmission.

CONCLUSION

Understanding and targeting *Kleda* is central to the holistic management of *Prameha* which represents a multifactorial metabolic disorder marked by *Kapha-Pitta-Meda-Kleda* dominance. By integrating internal cleansing therapies like *Vamana*, *Virechana*, *Vasti*, with supportive external interventions like *Udwartana*, *Utsadana*, *Takradhara*, *Talapothichil*, *Parisheka swedas*, *Raktamoksha* etc, Ayurveda effectively reduces the *Vikruta Kleda*, restores metabolic balance, and strengthens tissue and microvascular function. This multi-dimensional, stage-wise approach not only alleviates symptoms but also prevents long-term complications such as diabetic neuropathy, nephropathy and retinopathy. Highlighting *Kleda* as both a diagnostic and therapeutic cornerstone underscores Ayurveda's unique capacity to address metabolic disorders in a comprehensive, individualized, and sustainable manner.

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