



***Prameha* in Ayurveda: A *Dhatu Kshaya Janya Vikara* W.S.R. To Metabolic Disease**

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ABSTRACT

Prameha, often equated with diabetes in Ayurveda, is a metabolic disorder marked by excessive urination and significant tissue depletion. This disease results from imbalances in the Dhatu (body tissues) and Dosha (bodily humors), primarily due to improper diet and lifestyle. The pathology of Prameha involves metabolic disturbances in the Dhatus, disrupting normal carbohydrate, fat, and protein metabolism. Consequently, un-metabolized toxins accumulate, damaging tissues and impacting the Mutravaha Srotas (urinary channels).

Prameha progresses through stages linked to the Tridosha: Kapha in early stages, Pitta in intermediate stages, and Vata in advanced stages. Each Dhatu, except Asthi (bone), is involved in Prameha, with symptoms like muscle wasting, fatigue, and dehydration aligning with tissue depletion. Ayurvedic diagnosis leverages Dosha-Dushya Sammurchchhana, the interaction of doshas and tissues, with characteristic urine examinations, such as variations in smell, touch, color, and taste.

Management involves Nidana Parivarjana (elimination of causative factors), Dosha balancing, and Dushya-specific treatments. Ayurveda's holistic approach, which includes diet, lifestyle modifications, and targeted therapies, offers a natural alternative for managing Prameha and mitigating complications associated with diabetes, focusing on personalized patient care and prevention.

Keywords: Prameha, kshaya, Dosha Dushya Sammurchchana.

Introduction

Prameha, often associated with excess urine production, involves both an increase and a decrease in specific *Dhatu*. It is a metabolic disorder of the urinary system, characterised by the presence of un-metabolized Doshas and Dhatu combined with Meda in the *Mutravahi Srotas*, which are then excreted through the urethra. This condition results from various metabolic errors in the Dhatus due to the deficiency of certain Dhatwagnis. These metabolic disturbances are often caused by unwholesome dietary habits and sedentary lifestyles, affecting the metabolism of carbohydrates, fats, and proteins in the body. Consequently, the normal metabolic cycle is disrupted, leading to the accumulation of half-digested and un-metabolized products that can act as toxic materials and cause tissue damage. The pathology of *Prameha* occurs at an intermediary level of body tissue, specifically the Dhatus, underscoring its nature as a metabolic disease. The signs and symptoms (*Lakshana*) of *Prameha* can indeed be correlated with the involvement of different *Dhatu*. *Prameha* (Diabetes Mellitus) is considered a silent killer in Ayurveda. Recent evidence of insulin resistance and side effects from prolonged use of conventional drugs has triggered interest in safe and effective alternatives. Ayurveda, focusing on *Nidana* (aetiology), *Ahara* (diet), and *Vihara* (lifestyle), offers significant contributions to managing *Prameha*.

The concept of *Dosha Dushya Samgraha* in *Prameha*, as mentioned by *Charaka*, integrates the involvement of the three *Dosha* (*Vata*, *Pitta*, and *Kapha*) and all *Dhatu* except *Asthi* as both *Dosha* and *Dushya* in the disease process. This highlights the intricate interplay between various bodily elements in the pathology of *Prameha* (a group of metabolic disorders including diabetes).

Dosha Dushya Samgraha in Prameha

1. *Tridosha* Involvement:

- *Kapha*: Primarily involved in the initial stages of *Prameha*, leading to an excess of bodily fluids and mucus.
- *Pitta*: Intermediate stage, where there is inflammation and more severe symptoms.
- *Vata*: Advanced stage, often characterised by emaciation and dryness.

2. *Dushya* Involvement:

- All *Dhatu* (except *Asthi*) are implicated as *Dushya* in *Prameha*. These include:
 - *Rasa* (Plasma)
 - *Rakta* (Blood)
 - *Mamsa* (Muscle)
 - *Medas* (Fat)
 - *Majja* (Bone marrow)
 - *Shukra* (Reproductive tissue)
- Other than *Dhatu* parameters like *Vasa* (Fat), *Lasika* (Lymph), *Ojas* (Immunity), *Kleda* (Fluid).

Dosha Dushya Sammurcchana

The pathogenesis of *Prameha* revolves around the concept of *Dosha Dushya Sammurcchana*, where the *Dosha* and *Dushya* amalgamate, leading to the manifestation of disease.

Clinical Observations

1. Variability in Symptoms:
 - The involvement of different *Dosha* and *Dushya* can lead to varied symptoms and their intensities.
2. Practical Application:
 - *Santarpanjanya Prameha*: Often observed in *Kapha*-dominant individuals, may show aggravated symptoms during *Visarga Kala* (period of increasing strength and energy in the body).
 - *Apatarpanjanya Prameha*: Common in *Vata*-dominant individuals, may exhibit worsening symptoms during *Adankala* (period of declining strength and energy).

Comparisons with Modern Medicine

- SYMPTOMS OF DMT2 vs *PRAEMHA*

Dushya of Prameha and Etiology

Charaka describes ten *Dushya* involved in *Prameha*. Understanding the specific involvement of these *Dushya* in each patient can aid in personalised treatment approaches. The 10 *Dushya* include:

1. *Rasa*
2. *Rakta*
3. *Mamsa*
4. *Meda*
5. *Majja*
6. *Shukra*
7. *Vasa* (Fat)
8. *Lasika* (Lymph)
9. *Ojas* (Immunity)
10. *Kleda* (Fluid)

Concept of *Vyadhi Utpatti* (Disease Manifestation)ⁱ

The process of disease manifestation is divided into six stages, described as *Vyadhi Kriyakala*.

Table 01: Disease Manifestation:

| Stage | Description | Dosha Involvement | Symptoms |
|------------------------|--|---|--|
| <i>Sanchaya</i> | Accumulation: <i>Dosha</i> accumulates in their respective sites due to improper diet and lifestyle. | Vata, Pitta, <i>Kapha</i> | <i>Kapha Sanchaya</i> : Fullness, rigidity; <i>Pitta Sanchaya</i> : Yellowish tint, mild heat; <i>Vata Sanchaya</i> : Fullness, rigidity. |
| <i>Prakopa</i> | Aggravation: Accumulated <i>Dosha</i> becomes aggravated and begins to behave erratically. | <i>Vata, Pitta, Kapha</i> | <i>Vata Prakopa</i> : Abnormal movement; <i>Pitta Prakopa</i> : Sourness, thirst, burning sensation; <i>Kapha Prakopa</i> : Dislike for food, heart discomfort. |
| <i>Prasara</i> | Overflow: Aggravated <i>Dosha</i> starts to overflow and circulate throughout the body. | <i>Vata, Pitta, Kapha</i> | <i>Vata Prasara</i> : Erratic movement, distension; <i>Pitta Prasara</i> : Heat, dryness, burning sensation; <i>Kapha Prasara</i> : Loss of taste, indigestion, vomiting. |
| <i>Sthanasanshraya</i> | Localization: <i>Dosha</i> localises to specific body parts or tissues, leading to disease symptoms. | Specific <i>Dosha</i> and <i>Dushya</i> | Localization of <i>Dosha</i> in the urinary system, affecting various tissues such as <i>Meda (Fat)</i> , <i>Mamsa (Muscle)</i> , <i>Kleda (Fluid)</i> , <i>Rasa (Plasma)</i> , <i>Rakta (Blood)</i> , <i>Majja (Bone Marrow)</i> , <i>Vasa (Fat)</i> , <i>Lasika (Lymph)</i> , <i>Shukra (Reproductive Tissue)</i> , <i>Oja (Vital Essence)</i> . |
| <i>Vyakta</i> | Manifestation: Clear symptoms of the disease appear. | Clear Disease Symptoms | Observable and identifiable disease symptoms become evident- <i>Bahumutrata (Polyuria)</i> . |
| <i>Bheda</i> | Differentiation: Complications or differentiation of the disease into various forms or stages. | Disease Complications | The disease may present with different complications or variations in <i>Gandha</i> (Smell), <i>Sparsha</i> (Touch), <i>Varna</i> (Color), and <i>Rasa</i> (Taste) in urine. |

Stages of Disease Development in *Prameha*

1. *Sanchaya* (Accumulation)ⁱⁱ:

- *Dosha* Involved: *Vata, Pitta, Kapha*.
- Symptoms:
 - *Kapha Sanchaya*: Increased fluidity causing excessive urination.
 - Accumulation of: *Meda* (fat), *Mamsa* (muscle), and other impurities.

2. *Prakopa* (Aggravation):

- Aggravated *Dosha*:
 - *Kapha*: Increased fluidity leading to lethargy and frequent urination.ⁱⁱⁱ
 - Symptoms:
 - *Vata*: Abnormal movement and circulation.

- *Pitta*: Increased heat and acidity.
 - *Kapha*: Increased heaviness and laziness.
3. *Prasara* (Overflow):
- *Dosha* Start Circulating presenting as *Purvarupa* (Prodromal Symptoms)^{iv}:
 - *Kapha Prasara*: Symptoms like indigestion, loss of taste, and vomiting.
 - *Pitta Prasara*: Causes burning sensation, dryness, and heat.
 - *Vata Prasara*: Causes erratic movement and distension.
4. *Sthanasanshraya* (Localization):
- *Dosha* Localize: *Dosha* settles in the urinary system, affecting specific tissues.
 - Affected *Dushya*^v:
 - *Meda*: Fat
 - *Mamsa*: Muscle
 - *Kleda*: Fluid
 - *Rasa*: Plasma
 - *Rakta*: Blood
 - *Majja*: Marrow
 - *Vasa*: Fat
 - *Lasika*: Lymph
 - *Shukra*: Reproductive Tissue
 - *Oja*: Vital essence

Table 02: Four-fold Examination for Urine^{vi}

| Aspect | Assessment | Role in Diagnosis | Clinical Examples |
|---------------------------|---|---|---|
| <i>Gandha</i> (Smell) | The scent or odour of bodily secretions or excretions. | Helps to identify imbalances of <i>Dosha</i> based on the characteristic odours they produce. | - <i>Kapha</i> Imbalance: Sweet, oily smell (e.g. thick mucus). - <i>Pitta</i> Imbalance: Sour, acidic smell (e.g. foul breath). - <i>Vata</i> Imbalance: Dry, unpleasant smell (e.g. dry skin). |
| <i>Sparsha</i> (Touch) | The sensation or texture felt when touching the body or examining excretions. | Helps assess the quality of the body's tissues and the state of the <i>Dosha</i> . | - <i>Kapha</i> Imbalance: Cold, heavy, and oily texture (e.g. swollen, soft skin). - <i>Pitta</i> Imbalance: Warm, slightly oily (e.g. rash, hot to touch). - <i>Vata</i> Imbalance: Dry, rough, and irregular texture (e.g. rough skin). |
| <i>Varna</i> (Colour) | The colour of the skin, excretions, and other bodily fluids. | Reflects the balance of <i>Dosha</i> and the state of the <i>Dhatu</i> (tissues). | - <i>Kapha</i> Imbalance: Pale or greyish colour. - <i>Pitta</i> Imbalance: Yellowish or reddish colour. - <i>Vata</i> Imbalance: Dark, uneven colour. |

| | | | |
|---------------------|---|--|---|
| <i>Rasa</i> (Taste) | The taste of food, drink, and bodily excretions (if presented). | Helps diagnose imbalances based on the taste qualities observed. | - <i>Kapha</i> Imbalance: Sweet, salty taste. - <i>Pitta</i> Imbalance: Sour, pungent taste. - <i>Vata</i> Imbalance: Bitter, astringent taste. |
|---------------------|---|--|---|

Dosha-Dushya Sammurchchhana and Sthana Sanshraya

- *Dosha-Dushya Sammurchchhana*:
 - Concept: The intermixing of vitiated *Dosha* and *Dushya* leads to the initiation and progression of the disease. It marks the beginning of disease manifestation with premonitory symptoms (*Purvarupa*).
- *Sthana Sanshraya*:
 - Stage: The *Dosha* localise to specific body parts, beginning the disease process with premonitory symptoms.

Table 03 Prameha and Dhatu Involvement^{vii}

| <i>Dhatu</i> | <i>Lakshana of Kshaya</i>^{viii} | <i>In Prameha</i> |
|-------------------------------------|---|--|
| <i>Rasa</i> (Plasma/Lymph) | Dryness, fatigue, loss of appetite. | Frequent urination leading to dehydration, loss of appetite. |
| <i>Rakta</i> (Blood) | Pallor, weakness, dizziness. | Weakness and pale skin due to loss of nutrients and fluids. |
| <i>Mamsa</i> (Muscle) | Muscle wasting, weakness, emaciation. | Muscle wasting and generalised weakness, especially in advanced stages. |
| <i>Meda</i> (Fat) | Loss of body fat, dry skin, weakness. | Excessive weight loss and loss of adipose tissue. |
| <i>Asthi</i> (Bone) | Weak bones, joint pain, brittle nails. | While <i>Asthi</i> is minimally involved, chronic <i>Prameha</i> may lead to symptoms like debility or severe body weakness causing bone weakness. |
| <i>Majja</i> (Bone Marrow) | Fatigue, decreased immunity, joint pain. | Fatigue and lowered immunity are common due to chronic illness. |
| <i>Shukra</i> (Reproductive Tissue) | Infertility, impotence, low libido. | Sexual dysfunction and infertility due to metabolic disturbances. |

Specific Symptoms of *Prameha* and *Dhatu Kshaya*^{ix}

Rasa: Excessive urination leading to dehydration (*Rasa Kshaya*).

Rakta: Increased urination can lead to anaemia-like symptoms (*Rakta Kshaya*).

Mamsa: Muscle wasting and weakness (*Mamsa Kshaya*).

Meda: Loss of body fat and general debility (*Meda Kshaya*).

Majja: Decreased immunity and joint pain (*Majja Kshaya*).

Shukra: Sexual dysfunction and infertility (*Shukra Kshaya*).

Matching Symptoms in *Prameha* with *Dhatu Lakshana*

Frequent Urination (*Mutravaha Srotodushiti*): Depletes *Rasa* and *Rakta*, leading to dryness and weakness.

Weight Loss and Muscle Wasting: Corresponds to *Mamsa* and *Meda Kshaya*.

Fatigue and Weakness: Indicative of *Rasa*, *Rakta*, *Mamsa*, *Meda*, and *Majja Kshaya*.

Sexual Dysfunction: Matches *Shukra Kshaya*.

Clinical Correlation*

In practice, the symptoms of *Prameha* reflect the combined effect of multiple *Dhatu* being affected. The excessive production of urine (*Mutra*) and its excretion (*Prameha*) lead to the depletion (*Kshaya*) of these *Dhatu*, causing a range of symptoms that match those seen in *Dhatu Kshaya*.

Management of Prameha

1. *Nidana Parivarjana* (Avoidance of Causative Factors):
 - Prime Treatment: Avoiding factors that increase *Kapha* is crucial.
 - Understanding Causative Factors: Recognizing and eliminating the causes of *Prameha*, including improper diet and lifestyle.
2. *Chikitsa* (Treatment):
 - Targeting *Dosha* and *Dushya*: Treatment involves balancing the *Dosha* and addressing the affected *Dushya*.
 - Personalised Approach: Considering the individual's constitution, lifestyle, and seasonal variations.
3. Prevention:
 - Preventive Measures: Advising patients on lifestyle and dietary modifications to prevent *Prameha* and its complications.

Discussion

Prameha is a urinary system and metabolic disorder in which various various risk factors are included that can cause metabolic disturbances in *Dhatu* and *Dosha* occurs. In this disease only *Malabhuta Dhatu* increases in the body not the *Prasada-ansha*. This leads to *Dhatu* excretion through urine and causes *Dhatu Kshaya*.^{xi}

Metabolic syndrome involves a cluster of risk factors that significantly increase the likelihood of developing diabetes, heart disease, and stroke. According to the National Heart, Lung and Blood Institute (NHLBI), the cluster of metabolic factors involved includes- Abdominal obesity (a waist circumference of more than 35 inches for women and more than 40 inches for men), High blood pressure of 130/80 mm Hg or higher, Impaired fasting blood glucose (equal to or greater than 100 mg/dL), High triglyceride levels of more than 150 mg/dL, Low HDL (good) cholesterol (Less than 40 mg/dL for men and less than 50 mg/dL for women).^{xii}

Insulin, a hormone produced by the beta cells in the islets of Langerhans within the pancreas, is essential for regulating metabolism, including the processing of carbohydrates, lipids, and proteins. It also influences cell functions, such as growth, and is vital for the body's utilization of glucose for energy. In insulin resistance, the body's cells become less responsive to insulin's effects, prompting the pancreas to produce more insulin. Over time, the pancreas may fail to produce enough insulin to meet the body's needs, leading to elevated blood sugar levels. This condition is a significant risk factor for developing both diabetes and heart disease.^{xiii}

Table 04: Dhatu Kshaya Lakshana

| Sr. No. | Dhatu | Kshaya Lakshana ^{xiv} |
|---------|-------|---|
| 1 | Rasa | Ghattate (restlessness in the patient); Sahate Shabdham Na (he develops intolerance against loud noises); Hrudrava (palpitations), HrudayamTamyatiAlpaCheshtasyaApi causes cardiac pain, and fatigue even after minimal effort. |
| 2 | Rakta | Parusha (Roughness), Sphutita (Cracks, tear or gaps), Mlana (dullness), TvakRukshata (dry skin) |
| 3 | Mamsa | Sphik, Greeva Udara Shushkata (emaciation of the buttocks, neck, and belly, as well as a direct weakening of the limbs). Rokshyata, Toda (pain), dhamani shaitilaya, sandhivedana (joints pain). |
| 4 | Meda | Sandhi Sphutana (joint cracking), Glani (Lassitude), AkshnoAyasa (eyes that are fatigued) Udara Tanutva, or abdominal thinness, |
| 5 | Asthi | Kesha, Loma, Nakha, Shmashru, and Dvijaprapatana (hair loss, loss of nails and beard hair, including teeth and moustaches) Shrama (fatigue) Sandhi shaitihilya (loose joints) |
| 6 | Majja | AsthiSheeryata, Durbala, and Laghu Asthi (bones being empty, weak, and light), VataRoga (a condition marked by vata imbalance issues) |

| | | |
|---|---------------|--|
| 7 | <i>Shukra</i> | <i>Pandutva</i> (pallor); <i>MukhaShosha</i> – (mouth dryness); <i>Daurbalya</i> (malaise) <i>Sadana</i> (laziness) <i>Shrama</i> (fatigue) <i>Klaibya</i> (impotency or erectile dysfunction) and <i>Shukra.Avisarga</i> (also known as nonovulation or non-ejaculation of sperm) |
| 8 | <i>Oja</i> | <i>Vibheti</i> (person is constantly suffers from a fear complex), <i>Durbaloabhikshanam</i> (physical and mental debility), <i>Dhyayati</i> (Worries always without apparent reason), <i>Dushchhaya</i> (developed impaired or loss of complexion of the body), <i>Durmana</i> (bad mentation or feeble mental stamina), <i>Ruksha</i> (dryness or roughness), <i>Kshama</i> (skin becomes black), <i>Karshya</i> (Emaciation of the body). ^{xv} |

In *Prameha* (diabetes), the symptoms of depletion of various Dhatus (tissues) appears in the body like *Rasa* (Plasma/Lymph) depletion leads to dehydration, fatigue, and loss of appetite. *Rakta* (Blood) depletion results in pallor, weakness, and dizziness. *Mamsa* (Muscle) depletion manifests as muscle wasting and generalized weakness. *Meda* (Fat) depletion causes excessive weight loss and dry skin. Although *Asthi* (Bone) involvement is minimal, it can lead to weak bones and joint pain. *Majja* (Bone Marrow) depletion results in fatigue, decreased immunity, and joint pain. Finally, *Shukra* (Reproductive Tissue) depletion leads to infertility, impotence, and low libido. Frequent urination depletes *Rasa* and *Rakta*, leading to dryness and weakness. Weight loss and muscle wasting correspond to the depletion of *Mamsa* and *Meda*. Fatigue and weakness indicate the depletion of *Rasa*, *Rakta*, *Mamsa*, *Meda*, and *Majja*. Sexual dysfunction matches the depletion of *Shukra*.

Considering the pathogenesis and symptoms, it is clear that *Prameha* is a metabolic syndrome where *Dhatu Kshaya* occurs at various stages, leading to *Ojo Kshaya*. Understanding the pathophysiology and risk factors aids in the effective management of this disease.

Conclusion

The symptoms of *Prameha* closely match the *Lakshana* of *Kshaya* in various *Dhatu*, supporting the Ayurveda understanding of the disease. By identifying which *Dhatu* are most affected, treatment can be tailored to address the specific deficiencies and imbalances in each patient. This integrative approach helps in effectively managing the complex presentation of *Prameha*.

Prameha management in Ayurveda involves understanding the stages of disease development (*Sanchaya*, *Prakopa*, *Prasara*, and *Sthanasanshraya*) and the intermixing of *Dosha* and *Dushya*. By focusing on *Nidana Parivarjana* and personalised treatment approaches, Ayurveda provides a holistic way to manage and prevent Diabetes Mellitus effectively.

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