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DIABETIC NEPHROPATHY AS AN *ANUKTA VYADHI*: AN INTEGRATIVE REVIEW WITH AYURVEDIC CONCEPTS AND CONTEMPORARY PERSPECTIVES

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ABSTRACT

Background: Diabetic nephropathy is a progressive kidney disorder occurring as a chronic microvascular complication of diabetes mellitus, characterised by persistent albuminuria, declining glomerular filtration rate, oedema, and eventual progression toward chronic kidney disease. Diabetic nephropathy is defined as an increased urinary albumin excretion (UAE) in absence of the other renal diseases. Diabetic nephropathy is an important cause of morbidity and mortality, and is now among the most common cause of end-stage renal disease (ESRD) in developed countries. It is a specific form of renal complication of Diabetes Mellitus (DM), a major cause of death and disability among diabetics. In Ayurveda, many *Acharyas* analyse the causes and pathogenesis of *Prameha vyadhi* which shows similarities with Diabetes Mellitus described by modern science. Classification of a disease is mainly done for the purpose of proper understanding of the disease and to formulate an effective treatment proptocol. Through this different point of view, many classifications are available from our texts of which most important is according to its Dosha predominance. *Madhumeha* is among the 20 sub types of *Prameha* and is predominantly a *Vata Pradhan* disease. In Ayurveda sign and symptoms of *Madhumeha* are given such as *Prabhutamutrata, Hastapada Daha, Trushna* etc. As Diabetic nephropathy is an *Anukta vyadhi* in Ayurvedic

texts, it can be explained on the basis of Ayurvedic principles viz. *dosha, dushaya, srotasa*. *Doshas* are the very first important factors in pathogenesis of a disease. As said by *Acharyas*, disease formation is not possible without *dosha dushti*. From an Ayurvedic perspective, diabetic nephropathy can be correlated with a chronic complication of Madhumeha, a subtype of *Vataja Prameha*, in which long-standing *Kapha-Medo Dushti* and progressive *Dhatukshaya* lead to vitiation of *Vata*—particularly *Apana Vata*—with localisation in the *Mutravaha Srotas.* This produces features such as *Shotha* (oedema), *Avila Mutrata* (turbid or frothy urine), and *Daurbalya* (weakness), corresponding to the clinical picture of diabetic nephropathy.

KEYWORDS: Diabetic Nephropathy, *Madhumeha, Anukta Vyadhi, Mutravaha Srotas.*

INTRODUCTION

Diabetes mellitus remains one of the fastest-growing chronic conditions globally, and renal involvement is among its most significant complications in terms of morbidity, mortality and healthcare burden. Kidney disease from long standing diabetes mellitus. Diabetes affects the tiny blood vessels in the glomerulus, a key structure in the kidney composed of capillary blood vessels. This structure is critical for blood filtration. Features of Diabetic nephropathy include nephrotic syndrome, which is characterized by excessive protein in the urine, high blood pressure, and progressively impaired kidney function. It is a major cause of premature death, principally from end-stage kidney disease and cardiovascular disease. Diabetic nephropathy is one of the leading causes of chronic kidney disease and end-stage renal disease worldwide, developing in a substantial proportion of patients with long-standing diabetes mellitus. It is characterised clinically by persistent albuminuria, a progressive decline in glomerular filtration rate, and, in advanced stages, hypertension and generalised oedema.

In ancient Ayurvedic texts like Charaka, Sushruta, Madhavnidan, the mentioning of Upadrava has been limited to Prameha only and Upadrava of Madhumeha as a separate entity has been mentioned later by Gananath Sen in his treatise Siddhanta Nidana. Upadrava of Madhumeha mentioned by Gananath Sen, describes the new classification of Diabetic complications covering the aspects of diabetic nephropathy, retinopathy and neuropathy. In Ayurveda, Diabetic nephropathy is considered as *Anukta Vyadhi*. *Anukta Vyadhi* can be studied as the changes i.e. *Vruddhi, Kshaya* and *Sthana*. As well *Sharir, Agni, Bala* and state of *Kshaya, Vruddhi* and *Sthana* are to be studied particularly. *Acharya Charaka* has stated that it is not possible to name every disease, we should understand the disease in term of the

doshya, dushya involved in it. *Acharya Sushruta* has stated that no disease in the body is formed without dosha, hence *Anukta vyadhi* should be understand by the *Doshaja* symptoms presenting in it.

In Ayurveda, direct nomenclature of diabetic nephropathy is not found. Diabetic nephropathy can be correlated with *Vrikka Dushti*. Because Diabetic nephropathy is a disease of *Mutravaha Srotas* and also it is a complication of diabetes so it can be considered under the *Santarpanjanya* disease, where *Kleda* (waste) is main causative factor. Albuminuria is nothing but the excess loss of *Dhatu Saramsha* (finest tissue) due to weakness of *Ayanadourbalya* (system).

As function of membrane of *Mootradharakala* (urinary tract) becomes fully impaired, there is failure in the removal of *Kleda* (waste) and *Udaka Bhavas* (ions), which leads to their accumulation in the body. This will lead the further progression. By diagnosing *Doshapradhanya* in diabetic nephropathy, awareness will be done in the patients of Diabetes Mellitus.

AIM

To provide an integrative conceptual framework for understanding Diabetic Nephropathy based on the Ayurvedic doctrine of *Anukta Vyadhi*.

OBJECTIVES

1. To identify the probable *Dosha, Dushya, Srotas, Srotodushti* involved in diabetic nephropathy.
2. To critically correlate the clinical features of diabetic nephropathy with Ayurvedic *Lakshanas* and to justify its consideration as an *Anukta Vyadhi.*
3. To provide a conceptual basis for Ayurvedic diagnosis and management.
4. Establish Diabetic Nephropathy as an *Anukta Vyadhi* by applying classical Ayurvedic diagnostic methodology.

MATERIAL AND METHODS

This study was designed as a narrative conceptual review

- Relevant literature was collected from classical Ayurvedic texts (Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya/Sangraha), their commentaries, and published research articles related to *Anukta Vyadhi Vijnana*, *Madhumeha*, and diabetic nephropathy.

- A literature search was performed using standard Ayurvedic sources and online databases (PubMed, AYUSH Research Portal, DHARA, Google Scholar) with the keywords "*Anukta Vyadhi, "Madhumeha*," "*Vrikka Dushti*," "*Mutravaha Srotodushti," "Prameha Upadrava*," and "diabetic nephropathy."
- The selected literature was critically reviewed and synthesized to establish the conceptual correlation between the principles of *Anukta Vyadhi Nirupana (Dosha-Dushya-Srotas-Samprapti* based construction of an unenumerated/unnamed disease entity) and the occurrence, staging, and progression of diabetic nephropathy as understood in modern nephrology.

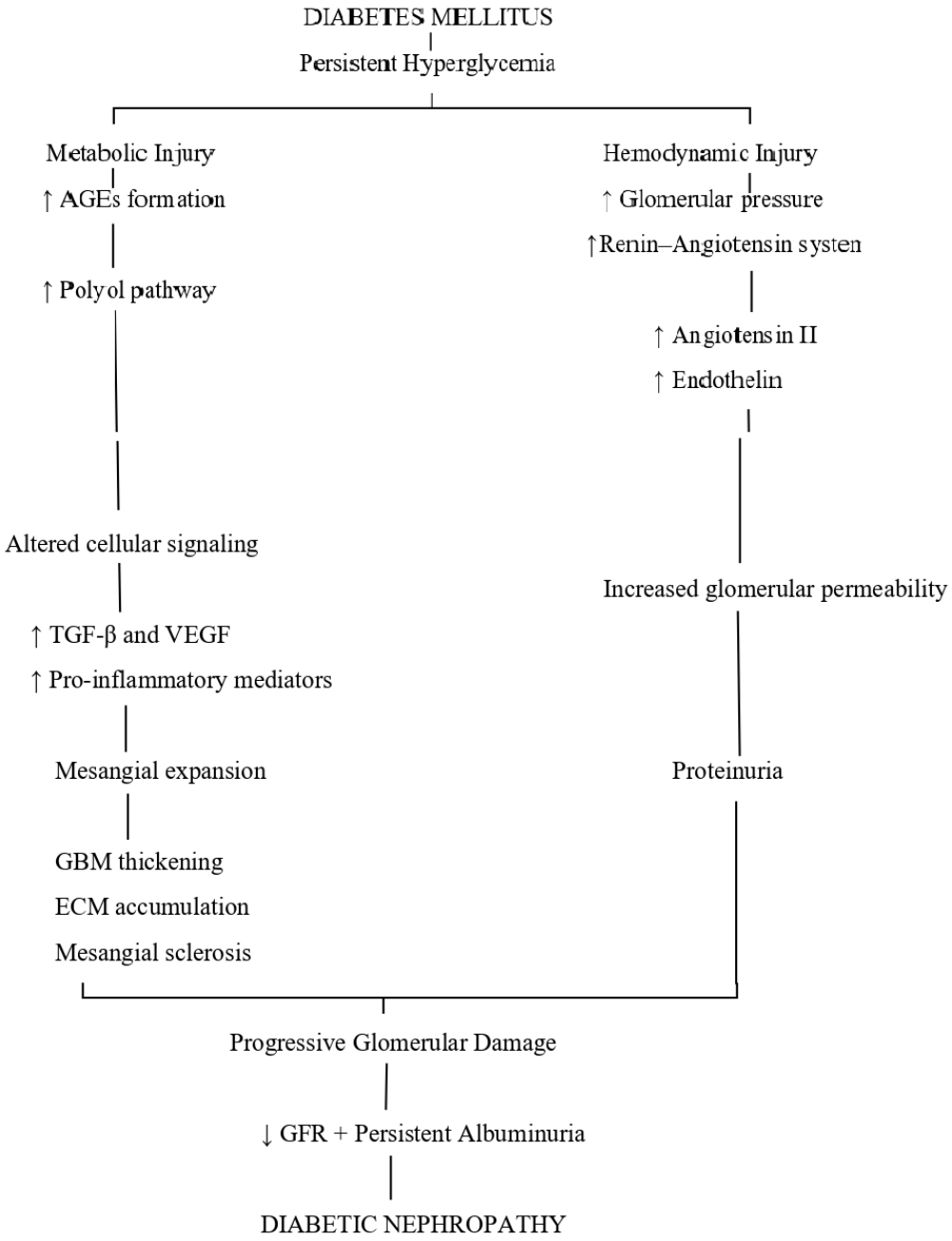
DIABETIC NEPHROPATHY MODERN VIEW

Diabetic nephropathy is a progressive form of chronic kidney disease resulting from long-standing hyperglycaemia and is one of the most common microvascular complications of both type 1 and type 2 diabetes mellitus. It typically progresses through stages beginning with glomerular hyperfiltration, followed by microalbuminuria, macroalbuminuria (overt proteinuria), and a progressive decline in glomerular filtration rate that may culminate in end-stage renal disease requiring dialysis or transplantation.

Clinically, patients may remain asymptomatic in early stages, with microalbuminuria detectable only on laboratory testing. As the disease advances, patients develop overt proteinuria, dependent oedema, fatigue, hypertension, and eventually features of uraemia such as nausea, anorexia, pruritus, and breathlessness in the terminal stages. Diagnosis relies on urinary albumin-to-creatinine ratio, estimated glomerular filtration rate, serum creatinine, blood pressure monitoring, and, in select cases, renal biopsy.

The pathogenesis involves chronic hyperglycaemia leading to the formation of advanced glycation end-products, activation of the polyol and hexosamine pathways, and increased oxidative stress, all of which damage glomerular capillaries. Persistent hyperfiltration and activation of the renin-angiotensin-aldosterone system contribute to glomerular hypertension, mesangial matrix expansion, thickening of the glomerular basement membrane, and podocyte injury. These structural changes progressively impair the filtration barrier, resulting in proteinuria and declining renal function.

PATHOGENESIS OF DIABETIC NEPHROPATHY



AYURVEDIC VIEW

In *Avaranjanya madhumeha*, *Kaphavardhaka Nidanasevana* leads to *Vata Avarana*, which in turn leads to *Ojas Karshana* which comes to the Basti & patient passes *Madhur*, *Kashaya*, and *Ruksha Mutra*, which is said to be *Madhumeha*. Whereas in *Dhatukshayajanya*, due to *Vatavardhak Nidan*, *Vataprakopa* occurs & the *Madhuratwa* of *Oja* is displaced by *Kashaya Rasa* & it is brought to the *Basti* leading to *Madhuvat Mutratyaga*, leading to *Madhumeha*.

Vrikka has developed from refined part of *Rakta* and *Meda Dhatu* So, when *Rakta* and *Meda*

Dushti occurs, it may cause *Dushti* of *Vrikka*. *Acharya charak* has mentioned *Purvaroopa* of *Prameha* in the *Medovaha srotas dushti lakshanas*. *Meda dhatu* is an important *dushya* in the pathogenesis of *Prameha* and its *Upadravas*.

SAMPRAPTI OF PRAMEHA UPADRAVA IN CORRELATION WITH DIABETIC NEPHROPATHY

Nidana Sevana

(Unwholesome *Ahara & Vihara)*

↓

Kapha Prakopa

(Bahudrava shleshma doshvisheshah)

↓

Drava guna vridhi of *kapha* drives disproportionate *Meda* and *Kleda* accumulation ahead

↓

Meda Dushti + Kleda Vriddhi (Abadha)

↓

Margavrodhjanya Dhatu Kshaya & Oja Kshaya

↓

Vata Prakopa

↓

Mutravaha Srotas / Basti Dushti **6**

Shotha (Edema) | *Vankshana–Basti*

Anaha / Distension

↓

Dhatu Shoshana

↓

Mutraghata

(Impaired Urinary Function)

↓

Renal Functional Decline

↓

PRAMEHA UPADRAVA / Renal Involvement

↓

DIABETIC NEPHROPATHY-LIKE MANIFESTATIONS

DISCUSSION

Diabetic nephropathy represents a convergence of **metabolic, vascular, and immunological**

insults in modern medicine, while Ayurveda interprets it as a **multi-*dosha* imbalance with systemic tissue depletion and *Mutravaha Srotas* dysfunction**. The modern model emphasizes biochemical pathways—advanced glycation end-products, oxidative stress, and RAAS activation—as drivers of glomerular injury. Ayurveda, on the other hand, highlights *Dhatvagnimandya* (impaired tissue metabolism), *Srotodusti* (obstruction and misdirection of channels), and *Dhatukshaya* (progressive tissue loss) as the underlying mechanisms.

The clinical overlap is striking: **proteinuria and oedema** correspond to *Avila Mutrata* and *Shotha*, while **progressive renal decline** mirrors *Dhatukshaya*. Both systems recognize the insidious onset and gradual progression, stressing the importance of **early detection and intervention**. Modern nephrology focuses on glycaemic control, blood pressure regulation, and RAAS blockade, whereas Ayurveda emphasizes restoring *Agni*, balancing *Doshas*, and protecting *Ojas* through diet, lifestyle, and herbal formulations.

This integrative perspective suggests that combining **biomedical monitoring tools** (albuminuria, GFR, creatinine) with **Ayurvedic preventive strategies** (*Nidana Parivarjana, Rasayana* therapy, *Panchakarma*) may offer a more holistic approach to slowing disease progression and improving quality of life.

***Dushyas* involvement is as follows**

- ***Rasa*:** Impaired nourishment and fluid regulation.
- ***Rakta*:** Microvascular (glomerular capillary) damage.
- ***Meda*:** Metabolic derangement contributing to Srotodushti.
- ***Mutra*:** Altered composition — proteinuria, reduced output.
- ***Ojas*:** Progressive depletion, correlating with loss of protein through urine and generalised weakness.

***Srotas* involvement is as follows**

- ***Mutravaha Srotas*:** Direct site of *Dushti* — glomerular and tubular damage.
- ***Raktavaha Srotas*:** Microangiopathy affecting glomerular capillaries.
- ***Medovaha Srotas*:** Underlying metabolic dysfunction of *Prameha.*

This integrative interpretation not only bridges contemporary medical understanding of diabetic nephropathy with classical Ayurvedic wisdom, but also enables the application of principles such as *Nidana Parivarjana, Dosha Pratyanika Chikitsa, Mutravaha*

Srotoshodhana, and *Rasayana* therapy, which may help in slowing disease progression, reducing proteinuria, and supporting renal function.

If the *Prameha* condition persists, it can progress to advanced stages, where *Mutraghata* symptoms, particularly *Basti kundala*, become more evident. *Basti kundala* refers to the severe stages of nephropathy where the kidneys are significantly compromised, leading to further complications. *Basti Marmabhighata* can be a sequel due to the *Ksharana* (passage) of *Uttarottara dushya* in the urine (*Chakrapanidatta*).

Overall, *Prameha* involves an intricate interplay of *Doshas*, particularly *Kapha* and *Vata*, along with the role of *Kleda*, leading to disruptions in kidney function, urine production, and the manifestation of various complications associated with nephropathy.

STAGES OF DIABETIC NEPHROPATHY: AN AYURVEDIC PERSPECTIVE

The pathophysiology and clinical manifestations of Diabetic Nephropathy (DN) can be interpreted through the Ayurvedic concept of *Prameha Upadrava*, where persistent *Dosha* imbalance, particularly involving *Kapha*, *Pitta*, and *Vata*, leads to *Mutravaha Srotas Dushti* and progressive renal dysfunction.

1. Early Stage

In the initial phase, DN is usually asymptomatic. With disease progression, early clinical changes become evident, including

- Microalbuminuria
- Mild elevation of blood pressure
- Altered urinary frequency
- Fatigue (*Klama*)
- Gradual rise in serum creatinine

2. Progressive Stage

A. *Mutraghata* (Impaired Urinary Function)

Mutraghata can be correlated with declining renal filtration due to *Vata-Kapha Dushti* and *Mutravaha Srotas Avarodha*.

Key features

- Decreased GFR
- Oliguria

- Proteinuria (frothy urine)
- Retention of metabolic waste
- Fluid overload and electrolyte imbalance

B. *Vankshana Anaha* & *Basti Anaha* (Abdominal and Bladder Distension)

Dosha vitiation affecting the urinary tract results in abdominal fullness and bladder discomfort. Associated findings.

- Fluid retention
- Ascites
- Electrolyte disturbances
- Gastrointestinal bloating
- Lower abdominal pain

C. *Shotha* (Edema)

Kapha predominance causes fluid accumulation due to impaired renal filtration. Clinical features.

- Pedal edema
- Facial and periorbital swelling
- Sodium and water retention
- Hormonal imbalance associated with renal dysfunction

D. *Daurbalya* (General Debility)

Loss of vitality results from chronic *Dhatu Kshaya* and *Oja Kshaya* secondary to long-standing.

Prameha. Clinical features.

- Generalized weakness
- Muscle wasting
- Fatigue
- Electrolyte imbalance
- Reduced physical endurance

3. Advanced Stage

A. Kidney Failure

Persistent and untreated diabetic nephropathy progresses to end-stage renal disease (ESRD),

characterized by irreversible nephron damage and severe loss of renal function.

Advanced *Prameha Upadrava* with severe *Mutravaha Srotas Dushti*, *Dhatu Kshaya,* and *Oja Kshaya.*

Clinical features

- Markedly reduced GFR
- Persistent proteinuria
- Uncontrolled hypertension
- Progressive renal failure

B. Uremic Symptoms

Progressive renal failure leads to the accumulation of metabolic toxins, producing neurological manifestations. These can be correlated with *Tamah*, a *Rasa Pradoshaja Vikara*, characterized by altered consciousness due to systemic derangement.

Clinical features:

- Confusion
- Altered sensorium
- Seizures
- Coma
- Death in terminal stages.

DIAGNOSIS OF DIABETIC NEPHROPATHY

During the regular testing that's part of managing diabetes. Get tested every year if have type 2 diabetes or have had type 1 diabetes for more than five years.

- Routine screening tests may include

1. Urinary albumin test.

This test can detect a blood protein called albumin in urine.

2. Albumin/creatinine ratio.

The albumin/creatinine ratio measures how much albumin compared to creatinine is in a urine sample.

3. Glomerular filtration rate (GFR).

The measure of creatinine in a blood sample may be used to see how quickly the kidneys

filter blood.

- Other diagnostic tests may include

4. Imaging tests.

X-rays and ultrasound can show the makeup and size of the kidneys.

CT and MRI scans can show how well blood is moving within the kidneys.

5. Kidney biopsy.

This is a procedure to take a sample of kidney tissue to be studied in a lab.

Table 1: Correlation of Symptoms with Ayurvedic *Lakshanas.*

Symptoms of Diabetic Nephropathy	**Ayurvedic *Lakshana***	**Reference in Classical Texts**
Frothy / turbid, excessive urination	*Avila Mutrata, Prabhutmutrata, Phenil Mutra*	*Kaphaja Prameha Lakshana*
Pedal / facial oedema	*Shotha, Anga Gaurava*	*Kapha-Medoja Shotha Nidana*
Fatigue, generalised weakness	*Daurbalya, Klama*	*Dhatukshaya Lakshana*
Raised blood pressure	*Raktavritta Vata, Hrudpeeda*	*Raktavritta Vata Lakshana*
Reduced urine output / difficulty in micturition	*Mutraghata, Mutrasanga*	*Mutraghata Samprapti*
Nausea, loss of appetite	*Aruchi, Hrullasa*	*Amashayagata Vikara*
Pallor / anaemia	*Panduta*	*Pandu Roga Lakshana*
Generalised itching	*Kandu*	*Kapha-Pitta Dushti*
Breathlessness (in advanced stage)	*Shwasa*	*Vata-Kapha Avarana Lakshana*

In Ayurvedic classical texts, features such as *Avila Mutrata* (turbid/frothy urine) and *Shotha* (oedema), particularly affecting the face and lower limbs, are described among the *Upadravas* of long-standing *Prameha*, consistent with the clinical progression of diabetic nephropathy.

***Samprapti Ghatak* (Pathogenic Factors)**

Based on these correlations, the Samprapti Ghatak of diabetic nephropathy is assumed as follows.

- ***Doshas*:** *Vata* (mainly *Apana Vata), Kapha, and Pitta*
- ***Dushyas:*** *Rasa, Rakta, Meda, Mutra, Ojas*

- ***Agni:*** *Dhatvagnimandya (*especially *Medodhatvagni)*
- ***Mala:*** *Mutra* is predominantly involve;excessive *Kleda* is eliminated through urine
- ***Srotas:*** *Mutravaha, Medovaha, Rasavaha*
- ***Srotodusti:*** *Sanga* and *Vimarga Gamana*
- ***Udbhava Sthana:*** *Amashaya (*metabolic level involving *Agni* and *Meda)*
- ***Adhisthana:*** *Basti (Vrikka-Mutrashaya Pradesha)*
- ***Rogmarga:*** Predominantly *Abyantara*
- ***Swabhava:*** *Chirakari* (chronic and progressive)

CONCLUSION

Diabetic nephropathy is a **progressive microvascular complication of diabetes** that can culminate in end-stage renal disease. Modern medicine explains its pathogenesis through hyperglycaemia-induced biochemical and structural changes, while Ayurveda contextualizes it as an *Upadrava* of *Prameha* involving *Dosha-Dushya* imbalance, *Agni* derangement, and *Srotas* dysfunction.

The comparative analysis underscores that both systems converge on the importance of **early recognition, systemic correction, and prevention of progression**. An integrative approach—leveraging modern diagnostics and pharmacological interventions alongside Ayurvedic principles of *Agni deepana*, *Srotoshodhana*, and *Rasayana*—may provide a comprehensive framework for managing diabetic nephropathy.

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