

# A CASE REPORT ON AYURVEDIC MANAGEMENT OF TYPE 2 DIABETES MELLITUS

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## ABSTRACT

Diabetes mellitus is a multifactorial metabolic disorder with increasing prevalence, contributing significantly to the global health burden. Given its impact on multiple organ systems, emphasis on prevention, early detection, and appropriate management is crucial. This case report presents a 56-year-old male patient with a 10-year history of diabetes, previously managed with allopathic medication, who sought consultation at the OPD of Government Ayurveda College Hospital, Kannur, Kerala. The patient presented with complaints of increased frequency of urination, excessive thirst, fatigue, foul-smelling sweat, oedema in the feet, and burning micturition. A comprehensive evaluation of the patient's clinical condition, including an assessment of dosha, dooshya, and srothas, led to the administration of a Kapha-Medohara treatment protocol. This Ayurvedic intervention resulted in significant improvement in the patient's symptoms, highlighting the potential of integrative approaches in managing chronic metabolic disorders like diabetes.

## INTRODUCTION

Diabetes mellitus which is simply termed as diabetes, is a chronic clinical condition that arises when the body either fails to produce sufficient insulin or cannot utilize it effectively. Type 2 diabetes mellitus is the most prevalent form, accounting for over 90% of all diabetes cases.<sup>1</sup> The Diabetes Atlas (10th edition) reported that in 2021, approximately 537 million people worldwide were living with diabetes. This figure is projected to rise to 783 million by 2045.<sup>1</sup> Diabetes mellitus comprises a diverse group of disorders characterized by unique genetic, etiological, immunological, and pathophysiological mechanisms, leading to glucose intolerance and elevated blood sugar levels. Type 2 diabetes is influenced by several risk factors, including obesity, physical inactivity, and an unhealthy diet. Other contributing factors include genetic predisposition, family history of diabetes, aging, and associated conditions like hypertension and dyslipidaemia. Certain ethnicities and a history of gestational diabetes also elevate the risk.

Type 2 diabetes mellitus often develops silently, with no obvious symptoms in its early stages. Elevated blood sugar levels can persist for months or years before noticeable signs appear, as the body compensates for insulin resistance by producing more insulin. Early symptoms, such as mild fatigue, thirst, or increased urination, are often vague and easily overlooked. Over time, as insulin resistance worsens and the pancreas struggles to produce sufficient insulin, classic symptoms like excessive urination

(polyuria), thirst (polydipsia), and hunger (polyphagia) gradually emerge, often going unrecognized initially.

Chronic hyperglycaemia in diabetes is linked to long-term damage, dysfunction, and failure of various organs, particularly the eyes, kidneys, nerves, heart, and blood vessels.<sup>2</sup> Cardiovascular risk factors such as hypertension, hyperlipidaemia, and obesity are significantly more prevalent among individuals with diabetes. Studies indicate that 76% of diabetic patients have pre-existing hypertension, while 36% are affected by coronary heart disease.<sup>3</sup> Therefore, early identification and prompt treatment of type 2 diabetes are crucial to prevent complications that may become challenging to manage if left untreated.

In Ayurveda, type 2 diabetes is often classified under the broader category of *Prameha*, with its most distinguishing symptom being excessive urination. In particular, *Madhumeha* is a subtype characterized by the elimination of sweet-tasting urine. From a pathophysiological standpoint, *Madhumeha* involves both *avarana* (obstruction) and *dhatukshaya* (tissue depletion)<sup>4</sup> which can be likened to the processes of insulin resistance and its cascading effects on various bodily systems.

When considering the etiological factors of *Prameha*, multiple elements contribute to its onset. One significant factor is genetics, which is referred to as *Jatha Pramehi*—the inherited predisposition to the condition. Additionally, the consumption of foods and beverages that aggravate *kapha* and *medas* plays a central role in *prameha* manifestation. A sedentary lifestyle,

which also disrupts *kapha* and *medas*, is another key contributor to the development of *Prameha* and *Madhumeha*.<sup>5</sup> These factors, together, highlight the complex interaction between genetics, diet, and lifestyle in the progression of type 2 diabetes in Ayurvedic terms.

In *Ayurveda*, *Prameha* is regarded as one of the *Ashtamahagada*<sup>6</sup> due to its severity, as it involves the imbalance of multiple *doshas* and *dooshyas*. This complexity leads to a diverse clinical presentation, with variations arising from the unique permutations and combinations of *doshas* and *dooshyas* at play. Consequently, *Prameha* is classified as a *mahagada*, a serious condition that is challenging to cure. Therefore, it is crucial to thoroughly assess the status of the *doshas* and *dooshyas* in each individual case of *prameha* before initiating any treatment, ensuring a tailored and effective approach.

This case report highlights the successful management of a type 2 diabetes mellitus patient through an Ayurvedic treatment regimen, which included internal medications and some *panchakarma* therapies. The treatment provided significant symptomatic relief and contributed to notable improvements in the patient's overall health.

#### Case report

##### Patient information

A 56-year-old, heavily built male presented to the OPD on 21/05/2023, with complaints of increased frequency of urination for 2 years, excessive thirst and fatigue for the past 2 years, foul-smelling sweat for 8 months, oedema in the feet for 3 months, and burning micturition for 1 month. He had been diagnosed with type 2 diabetes mellitus and hypertension 10 years ago and had

Table no:1 Systemic examination report

CNS	Conscious, oriented, cranial nerves - intact, sensory & motor examination- no abnormalities detected
CVS	S1 S2 heard normal. No added sounds noted
Respiratory System	Normal breathing sound. No any added sounds.
Genitourinary system	Frequent urination both in day time and night, burning micturition
GIT	No abnormalities detected.
Locomotor system	Mild stiffness of right shoulder joint; Mild pain in knee joint
Peripheral pulses	No abnormalities detected

##### Lab findings

Taken on 2 months before consultation on 23/03/2023

- Fasting blood sugar (FBS) - 289 mg/dL
- Postprandial blood sugar (PPBS) - 320 mg/dL
- Glycosylated haemoglobin (HbA1c) level - 9.8 %

##### Diagnostic Assessment

The patient was diagnosed with type 2 diabetes mellitus by his physician 10 years ago. He presented with classic symptoms, including frequent urination, foul-smelling sweat, excessive thirst, and obesity. A thorough evaluation of his dietary habits, lifestyle, family history, and clinical symptoms, combined with a detailed physical examination, led to the identification of his condition as *Prameha*. This Ayurvedic diagnosis was made based on the observed imbalance in the *doshas* and the patient's symptomatic profile.

Table no:2 - Details of IP treatment

been on allopathic treatment for both conditions since diagnosis. Despite being on medication, his blood sugar levels remained uncontrolled, and his symptoms persisted, significantly affecting his quality of life. He also had a strong family history of type 2 diabetes mellitus from both his maternal and paternal sides. Seeking symptomatic relief and a holistic approach to address his condition, he decided to explore Ayurvedic treatment.

##### Clinical findings

##### General examination

##### Vital signs

- Temperature: 98.6 ° F
- Pulse: 70 beats/min, regular
- Respiratory Rate: 16 breaths/min
- Blood Pressure: 140/96 mm Hg

##### Anthropometric measurements

- Height: 167 cm
- Weight: 101 Kg
- BMI: 36.21
- Waist circumference: 98 cm

##### General signs

- Pallor: Absent
- Icterus: Absent
- Cyanosis: Absent
- Clubbing: Absent
- Lymphadenopathy: Absent
- Oedema: Present

##### Systemic examination

##### Therapeutic intervention

The treatment for the patient was started on the first visit in the OPD on 21/05/2023. The OP level management continued for 2 weeks. The patient was advised to get admitted in the IPD after 2 weeks of internal medication in the OP level. The medicines given during OP level management were, *Guluchyadi kashayam* 90 ml twice daily before food with *Chandraprabha vati* 1-0-1 along with *kashayam* for 2 weeks, *Nishakatakadi kshayam* 90 ml twice daily at 11 am and 3 pm, *Triphala choornam* 10 gm with Luke warm water daily at night 30 minutes before sleep. After 2 weeks of medication at OP level patient was admitted in IPD on 04/06/2023. The treatment given during IP management is given in the table no: 2.

Sl. No	Date	Internal medicines given & dose	Procedures done
1	04/06/2023 to 17/06/2023	- <i>Varanadi kashayam</i> 90 ml bd before food at 6 am & 6 pm - <i>Vyoshadi guggulu</i> , 1-0-1 with <i>Varanadi kashayam</i> - <i>Nishakatakadi kashayam</i> , 90 ml bd at 11 am & 3 pm - <i>Chandraprabha vati</i> , 1-0-1 along with <i>Nishakatakadi kashayam</i>	- <i>Udwarthana</i> with <i>Kolakulathadi choornam</i> for 2 weeks
2	18/06/2023 to 24/06/2023	Same as above	- <i>Dhanyamla dhara</i> for 7 days
3	25/06/2023 to 07/07/2023	- <i>Punarnavadi kashayam</i> 90 ml bd before food at 6 am & 6 pm - <i>Nishakatakadi kashayam</i> , 90 ml bd at 11 am & 3 pm - <i>Chandraprabha vati</i> , 1-0-1 along with <i>Nishakatakadi kashayam</i>	- <i>Kshara vasthi</i> for 7 days

### Outcome and follow up

The patient initially received outpatient (OP) treatment for two weeks, which led to mild relief of his presenting complaints. Notably, the burning sensation during micturition significantly reduced during this period. After completing the OP management, the patient was admitted to the inpatient department (IPD) for further treatment. Regular assessments were conducted throughout the IPD stay, showing gradual and steady improvement in his condition.

During the treatment period, specific dietary modifications were prescribed, emphasizing a low-sugar, low-carbohydrate diet. At

Table no: 3 - Treatment outcome of each stage

Visits	Clinicals symptoms	FBS	PPBS	HbA1C
Before treatment	Increased frequency of micturition, excessive thirst, fatigue, foul smelling sweat, oedema, burning micturition	289 mg/dL	320 mg/dL	9.8%
After 2 weeks of OP level management on 04/06/2023	Burning micturition reduced, frequency of micturition also reduced, oedema reduced and all other symptoms persisting	204 mg/dL	176 mg/dL	-
After IP treatment as on 07/07/2023	Burning micturition and oedema completely relieved. Considerable reduction in all other symptoms	152 mg/dL	180 mg/dL	
follow up 1 month after discharge on 09/09/2023	Considerable improvement in symptoms. Increased vitality and energy	136 mg/dL	168 mg/dL	7.3%

## DISCUSSION

Diabetes mellitus is a metabolic disorder that impacts multiple organ systems, leaving virtually no part of the body unaffected. With the increasing prevalence of lifestyle-related factors such as unhealthy eating habits, sedentary behaviour, and chronic stress, the clinical manifestations of this disease have become increasingly diverse. The severity and presentation of symptoms vary widely among patients, depending on the extent of organ involvement and the complications associated with the condition. Given this variability, it is essential to thoroughly evaluate each patient before formulating a treatment protocol. In Ayurveda, this process involves a detailed assessment of the patient's *prakriti* (constitution), the condition of *doshas* (bio-energetic principles), the involvement of *dooshyas* (affected bodily tissues), vitiation of *srotas* (channels), and the patient's ability to tolerate the prescribed treatment.

In the present case, the treatment plan was developed after an in-depth evaluation of the patient, which included an analysis of

the time of discharge, the patient demonstrated considerable improvement in overall health, with a noticeable reduction in weight to 96 kg.

The discharge plan included *Siva gulika* (1 tablet after meals, twice daily) to be taken continuously for one month. The patient was advised to return for a follow-up after one month.

At the follow-up visit, significant improvement in the patient's health condition was observed, with a marked reduction in symptoms and enhanced vitality.

*dosha* imbalance, *dooshya* involvement, vitiated *srotas*, the patient's *prakriti*, and their physical and mental strength to endure the treatment. This individualized approach ensured that the management strategy was both effective and well-suited to the patient's specific condition.

Based on the clinical presentation, it was evident that the patient exhibited signs of *kapha-medra vridhi*, with involvement of the *rasavaha*, *medovaha*, and *mootravaha srotas*. Consequently, the selected treatment focused on addressing these conditions, particularly emphasizing *Prameha-hara* properties. Initially, a two-week outpatient management plan was implemented, which included the administration of *Guluchyadi kashayam*, *Chandraprabha vati*, *Nishakatakadi kashayam*, and *Triphala choornam*.

*Guluchyadi kashayam* possesses a *tiktha* (bitter) *rasa*, *seetha* (cooling) *veerya*, and *rooksha* (dry) *guna*, making it particularly effective in balancing *pitha* and *kapha doshas*. It aids in *ama pachana* (digesting metabolic toxins) and acts as a *deepana* (digestive stimulant). This formulation is known to alleviate the

burning sensation in the body. *Guluchyadi kashayam*, recognized as one of the most potent *rasayanas*, demonstrates remarkable therapeutic adaptability. Modern scientific research highlights its diverse properties, including anti-inflammatory, antioxidant, hypoglycaemic, anti-stress, hepato-protective, and immunomodulatory effects. Thus, this *kashaya* can help reduce burning micturition in this case while also acting as an effective *prameha-hara* drug.<sup>7,8,9,10</sup>

*Chandraprabha vati* is a renowned classical herbo-mineral formulation in Ayurveda, highly regarded for its broad therapeutic and pharmacological applications. It is especially effective in managing genito-urinary disorders, making it a key treatment in conditions such as *Prameha* and *mutra vikaras* (urinary disorders). Known as *Sarvarogapranashini*, meaning one that eradicates all diseases, this versatile formulation is recognized for its comprehensive therapeutic potential. The primary action of *Chandraprabha vati* is directed toward the *mutravaha srotas* (urinary channels), where it supports the balance of *vatha* and *kapha* doshas. Its *laghu* (light) and *ruksha* (dry) properties are pivotal in promoting the removal of accumulated *ama* (toxins) from the urinary channels and reducing excess *kleda* (fluid retention). Additionally, these qualities facilitate the *sodhana* (purification) of *bahudrava shleshma* (excess mucus and phlegm), helping to decrease vitiated *kleda* and restore the natural functioning of the system.<sup>11,12</sup>

In *Nishakatakadi kashayam*, the majority of the drugs possess *kashaya* (astringent) and *tiktha* (bitter) *rasa*, along with *ushna veerya*. These qualities aid in reducing excess *kapha* and *pitha* doshas. Additionally, the formulation exhibits *medohara* and *lekhana* properties, which contribute to its effectiveness in managing *Prameha*. Hence this *kashaya* was given throughout the treatment period.<sup>13,14</sup>

*Triphala choornam* was prescribed as a *nithya virechana* (daily purgative) to support optimal digestion, elimination, and detoxification, which is a widely used ayurvedic formulation belonging to the "*rasayana*" group, consists of equal parts of three medicinal fruits: *Emblica officinalis* Gaertn., *Terminalia chebula* Retz., and *Terminalia bellerica* Gaertn. Known for its diverse biological properties, *triphala* exhibits activities such as anti-cancer, anti-mutagenic, anti-viral, antioxidant, and free radical scavenging effects. Additionally, it has been recognized for its renoprotective and hepatoprotective benefits. Both *triphala* and its individual components have demonstrated the ability to prevent hyperglycaemia and diabetic cataract.<sup>15</sup> Numerous randomized controlled trials (RCTs) have also demonstrated the anti-obesity effects of *triphala*.<sup>16</sup>

Other internal medicines used during the treatment included *Punarnavadi kashaya*, which proved highly effective in managing oedema<sup>17</sup>, *Vyoshadi guggulu*, and *Varanadi kashayam*, which were prescribed to balance *kapha*, *medas*, and *ama*.<sup>18,19</sup> These formulations are particularly beneficial in addressing obesity and its associated complications.

The *panchakarma* therapies opted during the IP management included *Udwarthanam* with *Kolakulathadi choornam*, *Dhanyamla dhara* and *Kshara vasthi*. Among this both *udwarthana* and *dhanyamla dhara* possess *kapha medo hara* property and *kshara vasthi* also have the same effect. The ingredients used in *Kshara vasti*, including *Gomutra*, *Shatahwa*, *Saindhava*, and *Amlika kalka*, possess *kapha-vatha hara* and *medohara* properties. These components work synergistically to perform *lekhana* of *sneha*, *meda*, and *kleda*, promoting the reduction of excess body weight.

As a result, symptoms associated with *medodushti*, such as *angasada*, *trishna*, *moha*, *alpaprana*, *swedadhiky*, *atinidra*, and *daurgandhya*, are effectively alleviated.<sup>20</sup>

At the time of discharge, the patient was prescribed *Siva gulika* for a duration of one month, to be continued until the next follow-up visit. *Siva gulika* is a well-known and potent Ayurvedic medicine with a wide range of therapeutic actions, making it effective for managing various conditions. It enhances immunity (*Ojaskara*), improves skin tone (*Varna prasadana*), and strengthens the body (*Balya*). Its eliminative properties include reducing excess fat (*Durmedohara*), managing diabetes (*Prameha hara*), and promoting the expulsion of *sareera mala* due to its *chedana* and *lekhana* property. It also acts as a diuretic and

detoxifies the body, thus helping alleviate a wide variety of complications associated with *Prameha*.<sup>21</sup>

## CONCLUSION

In the present case study, the patient had been on allopathic medication for 10 years, yet his blood sugar levels remained uncontrolled, and he continued to experience numerous health issues. This prompted him to seek Ayurvedic treatment. The Ayurvedic approach not only effectively regulated his blood sugar levels but also provided significant relief from his other health concerns. The combination of internal medications and *Panchakarma* therapies proved highly effective in managing his weight, as he was also struggling with obesity. Following the course of treatment, the patient reported a sense of lightness in his body, along with a marked reduction in fatigue, and increased vitality, which enabled him to carry out his daily activities with ease.

## Patient perspective

The patient expressed that the Ayurvedic treatment had a profound impact on his health, significantly increasing his energy levels and reducing the long-standing fatigue he had been experiencing. He also mentioned feeling a remarkable lightness in his body, which he hadn't felt in years. Along with effectively managing his blood sugar levels, the treatment brought a sense of vitality and overall well-being that he deeply valued.

## Informed consent

Consent for publication of this case and the related clinical data was obtained from the patient. Assurance has been provided that the patient's identity will remain confidential, with no personal identifiers such as name or initials disclosed. Furthermore, all measures have been implemented to safeguard the anonymity.

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## Conflicts of Interest

The authors declare no conflict of interest

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