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Ayurvedic Management of Type 2 Diabetes Mellitus – A Case Report

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Abstract

Diabetes mellitus, often simply referred to as diabetes, is a complex and chronic metabolic disorder characterized by elevated levels of glucose in the blood. It remains a significant global health challenge today. This condition develops due to the body's inability to properly regulate blood glucose levels, leading to various complications if not managed properly. Management of type 2 diabetes mellitus in modern medicine involves a combination of lifestyle modifications, medications, and regular monitoring. Modern medicine for treating type 2 diabetes mellitus has several drawbacks, which include side effects such as gastrointestinal issues, weight gain, and cardiovascular risks. The cost of these medications, especially newer ones, can be prohibitively high, limiting access for some patients. Adherence to complex medication regimens can be challenging, reducing treatment efficacy. There is also a tendency to rely heavily on medications instead of addressing crucial lifestyle factors like diet and exercise. Additionally, treatments such as insulin and sulfonylureas carry the risk of hypoglycaemia, which can be dangerous. In the present case study, a 47-year-old female patient with a known history of type 2 diabetes mellitus presented with a glycosylated haemoglobin (HbA1c) level of 12.2%, a postprandial blood sugar (PPBS) of 511 mg/dL, and a fasting blood sugar (FBS) of 346 mg/dL. The patient exhibited symptoms of polyurea, lethargy, increased sweating and burning sensation in the soles. Following traditional Ayurvedic principles and considering her specific clinical issues, she was administered with aqueous extract of Madhunashini (Gymnema Sylvestre), Guluchyadi kashayam, Triphala choornam and Chandraprabha vati, from June 13, 2023, to February 13, 2024. The therapy proved effective, resulting in a significant improvement in her health condition, with her HbA1c level decreasing to 7.4% after eight months. This case study highlights the potential efficacy of Ayurvedic therapy in managing diabetes mellitus, suggesting that these results could prompt further research and advancements in Ayurvedic treatments.

Keywords:- *Madhunashini, Gymnema Sylvestre, Type 2 diabetes mellitus. HbA1c, Ayurvedic treatment*

Introduction

Type 2 diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels due to insulin resistance and/or insufficient insulin secretion. The progression and severity of type 2 diabetes mellitus can vary widely among individuals; some achieve effective glycaemic control through lifestyle modifications

and medical management, while others experience a gradual worsening of glycaemic control, often leading to secondary complications affecting multiple organ systems over time. Diabetes is a growing global health issue, particularly in developing countries like India, where rising rates of overweight, obesity, and unhealthy lifestyles are key contributors. In 2019, around 77 million people in India were estimated to have diabetes, a number projected to increase to over 134 million by 2045. Alarmingly, about 57% of those affected remain undiagnosed.[1] Poorly managed diabetes is linked to complications that can negatively impact health-related quality of life (HRQoL) and elevate the risk of mortality. These complications include macrovascular issues, such as coronary artery disease, stroke, and peripheral vascular disease, as well as microvascular complications, like retinopathy, nephropathy, and neuropathy.[2] The treatment of type 2 diabetes mellitus generally includes lifestyle changes, medications, and regular monitoring to maintain blood sugar control. Key lifestyle adjustments, such as diet, exercise, and weight management, form the basis of type 2 diabetes mellitus management. Pharmacologic treatment typically starts with metformin and may include additional drugs like sulfonylureas, DPP-4 inhibitors, GLP-1 agonists, or insulin based on individual needs. Regular blood sugar monitoring and health checks are essential to adjust treatment and lower complication risks.[3]

In Ayurveda, *Prameha* refers to a condition characterized by excessive urination, akin to type 2 diabetes mellitus. The aetiological factors outlined in Ayurvedic texts closely resemble those associated with type 2 diabetes mellitus, including a sedentary lifestyle, poor dietary choices, stress, genetic predispositions, and environmental influences.[4,5]

Ayurvedic treatments, combined with lifestyle modifications, contribute to favourable clinical outcomes. By promoting a balanced diet and structured daily routines, these interventions address the root causes of the disease and help prevent its progression.

This case report presents the outcome of managing a type 2 diabetes mellitus patient with an Ayurvedic treatment regimen that included *Madhunashini,* known for its anti-diabetic properties; *Triphala choornam,* which promotes digestive health and metabolic function; *Chandraprabha vati,* a classical formulation effective in balancing *doshas* and managing diabetes symptoms; and *Guluchyadi kashayam,* a rejuvenating decoction that strengthens the immune system and improves glucose metabolism. The integration of these treatments resulted in significant improvements in the patient's glycaemic control and overall health, highlighting the potential of Ayurveda as a holistic approach to managing type 2 diabetes mellitus.

Case presentation

Patient information

A 47-year-old heavy built female patient, visited the outpatient department (OPD) presenting several complaints. She reported experiencing lethargy for the past six months, increased frequency of micturition over the last two months, increased sweating for six months, and a burning sensation in the soles of her feet for one month. Notably, she had a maternal history of type 2 diabetes mellitus but did not report any other significant medical conditions. Following a blood glucose test on 2nd June 2023, which indicated elevated levels, her physician diagnosed her with type 2 diabetes mellitus. However, the patient expressed a lack of interest in conventional medication and subsequently sought treatment at the OPD of Government Ayurveda College in Kannur on June 13th 2023, exploring Ayurvedic options for managing her condition.

Clinical findings

General examination

Vital signs

- Temperature: 98.6°F
- Pulse: 74 beats/min, regular
- Respiratory Rate: 18 breaths/min
- Blood Pressure: 130/80 mm Hg

Anthropometric measurements

- Height: 140 cm
- Weight: 75 Kg
- BMI: 38.27
- Waist circumference: 108 cm

General signs

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

Systemic examination

Table No:1 – Systemic examination report

CNS	Conscious, oriented, cranial nerves – intact, sensory & motor examination- no abnormalities detected
CVS	Heart sounds normal; no murmurs noted
Respiratory System	Normal vascular breathing, noadded sounds
Genitourinary system	Frequent urination, more in night
GIT	No abnormalities detected. On palpation - no organomegaly
Locomotor system	No any pathology of bone and joints
Peripheral pulses	Dorsalis pedis and posterior tibial pulses present but diminished on both legs

Lab findings on consultation

- Fasting blood sugar (FBS) - 346 mg/dL
- Postprandial blood sugar (PPBS) - 511 mg/dL
- Glycosylated haemoglobin (HbA1c) level - 12.2%

Diagnostic Assessment

The patient was diagnosed with type 2 diabetes mellitus following the evaluation by her physician. She presented with symptoms such as lethargy, frequent urination, excessive sweating, and a burning sensation in the soles of her feet. By the assessment of her symptoms and clinical examination, her condition was identified as *avarana janya madhumeha*, due to association of *pitha* and *kapha* along with *vatha* in its pathology.[6]

Therapeutic intervention

The patient was treated with internal medications in the OP level itself. The medications included the aqueous extract of *Madhunashini* (*Gymnema Sylvestre*), *Guluchyadi kashayam*, *Triphala choornam* and *Chandraprabha vati.* She was given some *deepana* medications initially as her appetite was reduced. This treatment regimen continued for eight months. In addition to medication, the patient was advised on dietary modifications and encouraged to engage in light physical activities daily. The dietary modifications included reducing carbohydrate intake, incorporating a variety of whole grains, and having steamed vegetables for dinner. The patient was also advised to engage in 30 minutes of brisk walking daily.

A detailed description of the treatment is provided in Table No:2 below.

Table No: 2 – Medicines given during treatment period

Sl. No	Timeline	Dates	Medicines given & Dose
1	Treatment started	13/06/2023 to 25/07/2023	- A 15 ml extract of *Madhunashini* in 15 ml of water (two times a day, thirty minutes before each meal). - *Ashta choornam* – 5gm with Luke warm water – 30 minutes before lunch and dinner for 2 weeks - *Triphala choornam* – 10 gm with Luke warm water before bed
2	First follow up	26/07/2023 to 08/08/2023	- A 15 ml extract of *Madhunashini* in 15 ml of water (two times a day, thirty minutes before each meal). - 15 ml *Guluchyadi kashyam* with 45 ml of Luke warm water twice daily 1 hour before food - *Triphala choornam* – 10 gm with Luke warm water before bed
3	Second follow up	9/08/2023 to 29/10/2023	- A 15 ml extract of *Madhunashini* in 15 ml of water (two times a day, thirty minutes before each meal). - 15 ml *Guluchyadi kashyam* with 45 ml of Luke warm water twice daily 1 hour before food - *Chandraprabha vati* 1 bd along with *Guluchyadi kashayam* - *Triphala choornam* – 10 gm with Luke warm water before bed

4	Third follow up	30/10/2023 to 29/12/2023	Repeated
5	Fourth follow up	30/12/2023 to 12/02/2024	Repeated
6	Fifth follow up	13/02/2024	*Shilajathu* 500 mg – 1 capsule twice daily after food

Outcome and follow up

Improvements in clinical presentations and blood glucose parameters were evaluated at each follow-up, demonstrating consistent improvements. At the fifth follow-up, the patient was advised to take Shilajatu capsules for one month. However, no further contact was made with the patient afterward. A summary of outcome measures is given in the table no 3.

Table No: 3 – Treatment outcome of each visit

Visits	**Clinical symptoms**	**FBS**	**PPBS**	**HbA1c**
Before treatment	Lethargy, Increased frequency of micturition, Increased sweating, burning sensation in both soles	346 mg/dL	511 mg/dL	12.2%
1st follow up	Mild decrease of lethargy, all other symptoms persisting	158 mg/dL	220 mg/dL	-
2nd follow up	Decrease of all symptoms except burning sensation in soles	150 mg/dL	232 mg/dL	-
3rd follow up	Considerable improvement in symptoms	-	-	8.3 %
4th follow up	Symptoms further improved	130 mg/dL	218 mg/dL	-
5th follow up	Great reduction in all clinical presentations noted	128 mg/dL	202 mg/dL	7.4%

Table No: 4 - before and after comparison of Lab parameters

Blood parameters	Before treatment (13/06/2023)	After treatment (13/02/2024)
FBS	346 mg/dL	128 mg/dL
PPBS	511 mg/dL	202 mg/dL
HbA1C	12.2%	7.4%

Discussion

Diabetes mellitus is a widespread disease that significantly threatens human health. It can impact multiple organ systems and lead to serious complications by promoting free radical generation, causing oxidative stress, forming advanced glycation end products, accelerating atherosclerosis, and altering protein gene transcription. Effective glycaemic control is therefore essential to prevent or delay these complications. Diabetes is a multifactorial disease influenced by various factors, including genetic predisposition. In this case study, genetic factors appear to contribute, as the patient's mother also had diabetes.

Diabetes management includes several treatment options, such as insulin therapy and oral hypoglycaemic agents. However, these treatments often fall short of fully managing diabetes without side effects. Consequently, many individuals with diabetes seek alternative treatments. Ayurveda and ancient texts recommend a broad array of herbal remedies for diabetes management, though only a limited number of these herbs have undergone rigorous study to confirm their effectiveness in controlling blood sugar levels and identifying active compounds. Herbal drugs such as *Madhunashini* (*Gymnema sylvestre*), *Triphala*, and *Chandraprabha Vati* are among the remedies used in diabetes management.

Madhunashini (Gymnema sylvestre) is found to be very effective in lowering blood glucose level in type 2 diabetic patients.[7,8]*Madhunashini* (Sanskrit for "sugar destroyer") refers to the plant *Gymnema sylvestre*, a renowned medicinal herb in Ayurveda valued for its potential anti-diabetic properties. *Madhunashini* is having *kashaya thiktha rasa*, *katu vipaka*, *laghu rooksha guna* and *ushna veerya*. It can increase digestive fire, is mild laxative. It is indicated in burning sensations, excessive thirst, diabetes and urinary tract disorders. Hence the selected drug is apt in the case of type 2 diabetes mellitus.[9] *Triphala* is a well-known and highly regarded polyherbal formulation composed of the dried fruits of three plant species: *Emblica officinalis* (Family: Euphorbiaceae), *Terminalia bellerica*, and *Terminalia chebula* (Family: Combretaceae), all native to the Indian subcontinent.

Triphala proved effective in managing diabetes by lowering blood sugar and insulin levels due to its hypoglycemic properties.[10] Studies have demonstrated that *Triphala* can alleviate oxidative stress while also normalizing glucose and lipid homeostasis in individuals with impaired glucose tolerance and type 2 diabetes mellitus.[11]

Chandraprabha Vati is a classical multi-ingredient herbo-mineral formulation in Ayurveda, known for its wide range of pharmacological and therapeutic applications.[12] This versatile formulation is indicated in the management of various conditions, including *Prameha* (metabolic disorders such as diabetes), *Arbuda* (tumors), *Artava* (menstrual disorders), *Mutra Vikaras* (urinary disorders), *Arsha* (hemorrhoids) etc.[12,13] Recognizing its extensive therapeutic potential, *Chandraprabha vati* is referred to as *Sarvarogapranashini*.[14] Its primary action is on the *mutravaha srotas*, aiding in the balance of *vatha* and *kapha doshas*. With its *laghu* and *ruksha* properties, *Chandraprabha vati* facilitates the removal of accumulated *ama* from the *mutravaha srotas* and helps reduce excess *kleda.*

Guluchyadi kashayam is a formulation which is used in the treatment of *pithaja rogas* like *jwara, chardi, daha, trishna,* and *agnimandya*. It is a *tiktha rasa, sheeta veerya, pitha kapha shamaka* and *rooksha* in nature.[15]

Guluchyadi kashayam possesses properties that relieve burning sensations and exhibit antioxidant effects, making it beneficial for managing diabetic neuropathy.[16] In this case study, the combination of drugs such as *Madhunashini, Triphala choorna, Chandraprabha Vati*, and *Guluchyadi Kashayam* effectively facilitated *agni deepana*, balanced the *tridoshas,* alleviated *prameha,* and provided relief from burning sensation. As a result, these formulations significantly helped the patient reduce her symptoms.

Conclusion

Ayurvedic medicines are highly effective in managing type 2 diabetes mellitus, not only by reducing blood glucose levels but also by alleviating the clinical symptoms associated with the condition. In addition to internal medications, implementing lifestyle modifications can significantly enhance the overall well-being of diabetic patients. Remarkably, despite having extremely high blood glucose levels, the patient opted solely for Ayurvedic management without any modern medication. This approach provided her with significant relief and underscores the potential of Ayurveda in managing complex health conditions.

Patient perspective

In the patient's view, the Ayurvedic treatment proved to be remarkably effective in managing type 2 diabetes mellitus. The medication not only successfully lowered blood sugar levels to a manageable range but also provided significant relief from her symptoms. Additionally, the lifestyle modifications recommended by the physician were greatly valued, contributing to an overall improvement in her well-being.

Informed consent

Informed consent was obtained from the patient for the publication of this case and associated clinical data. The patient has been assured that her identity will remain confidential, with no name or initials published, and all necessary precautions have been taken to ensure her anonymity.

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None

Conflicts of interest

None declared

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