

**MANAGEMENT OF DIABETES MELLITUS IN AYURVEDA: A CASE STUDY****Ragini Kumari¹, Arunima Kumari², Pankaj Kumar³, Dineshwar Prasad⁴**

^{*1,2} Final year MD Scholar, ³ 2nd year MD Scholar, ⁴Ex-Principal & Guide Department of *Kayachikitsa*, Government Ayurvedic college, and Hospital, Patna. India

Corresponding Author: raginirivansh@gmail.com

<https://doi.org/10.46607/iamj28110120223>

(Published Online: January 2023)

Open Access

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Article Received: 30/11/2022 - **Peer Reviewed:** 07/12/2022 - **Accepted for Publication:** 10/01/2023.

**ABSTRACT**

Diabetes mellitus is a major health pandemic effecting mankind since ancient times. It is a well-known multifactorial metabolic disorder characterized by abnormally high blood glucose levels due to absolute or relative lack of insulin. The incidence of Diabetes has increased drastically in recent times because of sedentary lifestyle and unhealthy dietary habits, which happens to be the main etiological factors for this disease. The latest IDF data shows that currently, 72.9 million people are living with diabetes in India. In ancient Ayurvedic texts, this disease is described as *Madhumeha*, a form of *Vataja Prameha*, characterized by the passing of an excessive amount of sweet urine. The present case study is of a 50-year-old male patient visiting OPD of Government Ayurvedic College & Hospital, Patna with the chief complaints of body ache, sweet taste of mouth, burning sensation at sole, excessive hunger, excessive thirst, excessive mental stress and increased frequency of micturition. On the basis of physical findings and investigations, the diagnosis of *Madhumeha* (Diabetes mellitus, type 2) was made. The treatment plan opted was the use of *Sanshamana Aushadhi* along with modification of diet and lifestyle. After 3 months of treatment, a significant response was observed.

Keywords: *Aushadha*, Diabetes mellitus, Diet, Lifestyle, *Madhumeha*.

INTRODUCTION

Type 2 DM is characterized by impaired insulin secretion, insulin resistance, excessive hepatic glucose production, abnormal fat metabolism and systemic low-grade inflammation. Obesity, particularly visceral or central (as evidenced by the hip-waist ratio) is very common in type 2 DM ($\geq 80\%$ of patients are obese). In the early stages of the disorder, glucose tolerance remains near-normal, despite insulin resistance, because the pancreatic beta cells compensate by increasing insulin output. As insulin resistance and compensatory hyperinsulinemia progress, the pancreatic islets in certain individuals are unable to sustain the hyperinsulinemia state. IGT (Impaired Glucose Tolerance), characterized by elevations in postprandial glucose, then develops. A further decline in insulin secretion and an increase in hepatic glucose production led to overt diabetes with fasting hyperglycaemia. Ultimately, beta cell failure ensues, possibly because of inadequate insulin suppression, glucagon is relatively overproduced and secreted, further augmenting hepatic glucose production. Although both insulin resistance and impaired insulin secretion contribute to the pathogenesis of type 2 DM, the relative contribution of each varies from individual to individual^[1].

Ancient Indian physicians identified Diabetes mellitus as *Madhumeha* because the urine of patients was attracted by ants. *Madhumeha* is a *Vataja* sub-type of the disease *Prameha*. This malady, identified as *Mahagada* in Ayurveda^[2] is troubling mankind since ancient ages and the evidence of this disease with complications is increasing day by day. It is a syndrome, which includes clinical conditions involving obesity, prediabetes, diabetes and metabolic syndrome^[3]. Ayurvedic texts mention the cardinal symptoms of the disease *Prameha* as "*Prabhootavila Mutrata*" i.e., excretion of large quantities of turbid urine^[4], which is akin to the symptom of Diabetes mellitus mentioned in modern texts. Epidemiological studies show the global prevalence of diabetes among adults is increasing and about 424.9 million people had diabetes in 2017^[5]. India is no exception to this global trend and currently has 2nd highest number of

diabetics in the country in the entire world^[6]. Diabetes mellitus is a group of metabolic diseases characterized by chronic hyperglycaemia resulting from abnormalities in insulin secretion, insulin action, or both. This hyperglycaemia (high blood sugar) produces the symptoms of frequent urination (polyuria), increased thirst (polydipsia), and increased hunger (polyphagia). If left untreated, Diabetes mellitus can lead to many complications like diabetic ketoacidosis, non-ketotic hyperosmolar coma, heart disease, stroke, kidney failure (nephropathy), foot ulcers, retinopathy, cataracts and glaucoma's^[7].

Prameha is a *Santarpanajanya tridoshaja vyadhi*. According to *Susruta*, excessive indulgence in *Pramehotpadaka Aahara-Vihara*, leads to vitiation of *Aparipakva Vata, Pitta, and Kapha*, which combines with *Medodhatu*. These vitiated dosha and dhatu proceed downward through the *Mutravaha Srotas* to get localized at *Basti*, causing *Prameha*^[8]. Ayurveda states that *Madhumeha (Vataja Prameha)* is *asadhya* i.e., incurable, however it can be managed with treatment. Ayurvedic management includes *Shamana Chikitsa* (intake of anti-diabetic drugs); *Shodhana Chikitsa* (panchakarma therapy) and *Pathya Aahara Vihara* (dietary modification and lifestyle changes).

CASE REPORT

A 50-year-old, male patient visited Kayachikitsa OPD Room No. 9 (Reg no:7043, CRNo. A34674) Government Ayurvedic College and Hospital Patna Bihar on 20th June 2022, with the chief complains of *Sarvangavedana* (Body ache), *Madhuryamasyata* (Sweet taste of mouth), *Karapadadaha* (Burning sensation at sole), *Pipasadhikya* (Polydipsia), *Mootraadhihikya* (Polyurea) for more than 2 to 3 month, and other associated complains were *Kshudha Vriddhi* (excessive hunger), *Atichinta* (excessive mental stress), and *Nidravridhi* (excessive sleepiness) for last 1 month.

Personal history revealed that the patient is vegetarian but used to taking an extra oily and fatty diet, with a habit of intake of junk food and diurnal sleep. Frequency of micturition is 7-8 times during the day and 4-5 times at night, bowel habits are irregular with

mild constipation (once/10 days, hard stool) and the patient has no addictions.

Past history revealed that the patient was suffering from type 2 Diabetes mellitus and Hypertension form

one year. He was on metformin but was very irregular in taking medicines and routine check-ups of blood sugar levels.

Family history revealed that his mother is diabetic.

General examinations of the patient revealed

- Dryness of tongue.
- Pulse rate = 84/min,
- Respiratory rate = 18/min and
- Blood pressure =140/88 mm of Hg.

Systemic Examination

- Central Nervous System: Conscious & oriented with time and place.
- Respiratory system: No added sound.
- Cardiovascular system: S₁ S₂ Present.
- Gastro-intestinal system : P/A Soft & Non-tender
- Locomotor system: No Abnormality

Blood Investigations

| S No. | Date | Fasting Blood sugar (mg/dl) | Post prandial Blood Sugar (mg/dl) |
|-------|----------------------------|-----------------------------|-----------------------------------|
| 1. | 20 th June 2022 | 190 | 264 |

Treatment Plan: The following oral medicines were given for 30 days:-

| S. No. | Medicines Given | Doses | Anupana |
|--------|--|------------------|--|
| 1. | Tab Glucet forte <i>Arogyavardhini vati</i> | 2 Tab. 500 mg | Twice a day with <i>Phaltrikadi Kwatha</i> 20ml +20 ml water before 30 minutes meal. |
| 2. | <i>Madhunasni Gutika</i> | 500 mg | Twice a day with lukewarm water administrated after the meal. |
| 3. | <i>Chitrakadi Vati</i> | 500mg | With honey twice a day before meals. |
| 4. | <i>Triphala Churna</i> | 3 gm | With lukewarm water at Night. |

Along with the above medications patient was advised to daily outdoor walk for 1 hour and avoidance of *Divaswapna* (sleeping during the day), a sugar-rich diet,

The improvement in blood sugar levels of the patient is as follows: -

| S. No. | Investigations | Before Treatment (20 th June 2022) | After Treatment (23 rd Sept. 2022) |
|--------|-----------------------|---|--|
| 1. | Blood Sugar (Fasting) | 190mg/dl | 131 mg/dl |
| 2. | Blood Sugar (PP) | 264mg/dl | 178 mg/dl |

DISCUSSION

Madhumeha is *Vata-Kapha pradhan tridoshaja vyadhi*. *Sahaja* (type-1) and *Apathyanimittja* (type-2) are types of *Madhumeha*. Other types explained in various classical texts like *Krishna*, *Dhatukshayajan-*

ya, and *Apatarpanjanya* can be correlated with *Sahaja Madhumeha* while *Sthula*, *Avaranjanya*, and *Santarpanjanya* can be correlated with *Apathyanimittaja Madhumeha*. This patient was having *Apathyanimittaja Madhumeha*, so the drugs acting upon the main component of pathology like *Meda Dhatu*,

Kleda, Kapha, Meda Dhatvagni and having *Deepana, Pachana, Lekhana, Vata-Kaphahara, and Medohara* properties are essential for treatment.

Tab. Glucet Forte: - It contains : *Jambu Beej, Mamejak, Gudmar, Vijaysar. Jambu Beej* ^[9] seeds contain Glucoside, Jamboline and Ellagic acid, which are known to have the ability to check the conversion of starch into sugar in case of excess production of glucose. **Mamejak :** Biochemical parameters showed that *mamejak* reduces blood glucose as well as serum insulin levels and prevented the progression of complications in diabetes. **Gudmar:** It lowers blood sugar, reduces amount of sugar absorption, lowers LDL (low density lipoproteins level) cholesterol, stimulates insulin release in the pancreas. **Vijaysar:** It reduces blood sugar level, cholesterol and triglycerides. It also lowers symptoms of diabetes such as frequent urination, excessive thirst and burning pain in limbs. **Arogyavardhini Vati :** - The main content of it is *Kutki* ^[10] which has antidiabetic properties.

Madhunashani Vati ^[11] contains: - *Guduchi, Jambu, Katuki, Nimba, Kirata Tiktakta, Gudamara, Karavellaka, Kutaja, Gokshura, Karcura, Haridra, Kala megha, Babbula, Krishna Jiraka, Ativisha, Ashwagandha, Bilva, Triphala, Vata, Shilajatu and Methika* . It is also an effective antidiabetic, as evidenced by references in ancient writings and research.

Chitrakadi Vati: *Chitrakadi Vati* can be used against various diseases, as anti-inflammatory, anti-microbial, anti-oxidant etc. The therapeutic uses of the plant have been attributed to the presence of number of bioactive compounds, such as elliptinone, zeylanone, sistosterol and plumbagin ^[12] . *Plumbago zeylanica* L. root is widely used in Indian medicine to treat diabetes mellitus. Plumbagin significantly reduced the blood glucose and significantly altered other biochemical parameters to near normal. Further, plumbagin increased the activity of hexokinase and decreased the activities of glucose-6- phosphatase and fructose-1,6-bisphosphatase significantly in treated diabetic rats. Enhanced GLUT4 mRNA and protein expression were observed in diabetic rats af-

ter treatment with plumbagin ^[13]. **Triphala Churna:** Both fasting and postprandial blood glucose were reduced, which may be due to active ingredients such as sorbitol. Constituents in *Triphala*, including ellagitannins and gallotannins, also enhance both PPAR-alpha and PPAR-gamma signalling, which increase insulin responsiveness and glucose uptake without inducing adipogenesis ^[14].

CONCLUSION

Madhumeha is a multifactorial silent killer which needs to be treated as early as possible to avoid complications. From the above data, it can be concluded that Ayurvedic management of *Madhumeha* can be achieved by proper use of *Shamana Aushadha* and following proper dietary habits and lifestyle changes. In this case, *Shamana Aushadhis* have given excellent results and within one week of starting the treatment, raised blood sugar levels dropped to the pre-diabetic range while after 14 days, the sugar levels were in the normal range. Further studies can be carried out on a large population to validate the treatment plan.

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Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Ragini Kumari et al: Management of Diabetes Mellitus in Ayurveda: A Case Study. *International Ayurvedic Medical Journal* {online} 2023 {cited January 2023} Available from: http://www.iamj.in/posts/images/upload/182_186.pdf