



An Integrated approach towards Type 2 Diabetes Mellitus - A Case Report

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Introduction: "Sitting is the new smoking" asserts that leading a sedentary lifestyle can have serious negative consequences because of the rising incidence and poor prognosis, metabolic diseases are a concern for society. In situations where the expected treatment does not yield the anticipated results, this case illustrates how the Ayurvedic approach to management can yield flawless results.

Clinical Findings: A 58-year-old man has had low back pain, burning soles, dizziness, and generalized weakness for three years.

Diagnosis: A pre-diagnosed case of Type 2 Diabetes Mellitus who took high dosages of various anti-diabetic drugs for seven years.

Intervention: Following a suitable Ayurvedic evaluation of the patient, a combination of Shamana treatment and allopathic drugs, as well as recommendations for dietary and lifestyle changes, were administered.

Outcome: The result was a significant decrease in the dosage of his allopathic medication, as well as a reduction of his symptoms and HbA1c values.

Conclusion: The quality of life can be improved by implementing and modifying an Ayurvedic approach to managing Type 2 Diabetes mellitus, which can significantly reduce the need for allopathic medicine and its symptoms.

Keywords: Diabetes mellitus, HbA1c, Ayurveda, Hyperglycemia, Hypoglycemia, Type 1 diabetes, Type 2 diabetes, Gestational diabetes

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Introduction

Diabetes is a serious long-term metabolic condition that develops when the body is unable to use the insulin that is produced or when insulin production is inadequate. A number of other metabolic disorders, including central obesity, hypertension, and dyslipidaemia, are linked to type II diabetes and contribute to the extremely high prevalence of cardiovascular morbidity and death. Excessive hepatic glucose production, peripheral insulin resistance, and impaired beta-cell secretory activity are the primary pathophysiological abnormalities associated with diabetes. Numerous consequences, including diabetic ketoacidosis, non-ketotic hyperosmolar coma, heart disease, stroke, kidney failure (nephropathy), foot ulcers, retinopathy, cataracts, and glaucoma, can result from diabetes mellitus if treatment is not received.[1]

Diabetes affects an estimated 537 million adults worldwide between the age of 20 to 79 (10.5% of all adults in this age range). By 2030, 643 million people will have diabetes globally, increasing to 783 million by 2045.[2] India leads the world with the largest number of diabetic subjects earning the dubious distinction of being termed the "diabetes capital of the world".[3]

Prameha is a *Santarpanajanya Tridoshaja Vyadhi*. According to Sushruta, excessive indulgence in *Pramehotpadaka Aahara-Vihara* leads to vitiation of *Vata, Pitta, Kapha*, which combines with *Medodhatu*. These vitiated *Dosha* and *Dhatu* proceed downward through the *Mutravaha Srotas* to get localized at *Basti*, causing *Prameha*. [4] Ayurveda states that *Madhumeha* (*Vataja Prameha*) is *Asadhya* i.e., incurable, and considered as *Mahagada*. Allopathic management aims at pharmacologic intervention- Insulin and oral hypoglycaemic drugs. Insulin is important in type 2 DM when diet, weight loss, exercise, and oral medications cannot control blood glucose levels. Oral hypoglycaemic agents include sulphonylureas, biguanides, alpha-glucosidase inhibitors, meglitinide analogues, and thiazolidinediones. The main objective of these drugs is to correct the underlying metabolic disorders, such as insulin resistance and inadequate insulin secretion. 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 58-year-old, Indian Hindu male patient, with a known case of Type 2 Diabetes Mellitus visited KLE Ayurveda Hospital on 6th May 2024 with complaints of low back ache, burning soles, dizziness and generalized weakness since 3 years.

He was under oral Anti-Diabetic drugs for 7 years, yet his blood sugar was not under control. After eliciting the history of the patient, it was noticed that he had inactive daily regimen with inappropriate food practices. The patient was a vegetarian, having a good appetite with more intake of fried food and carbohydrate-rich diet.

His bowel habits were consistent and clear, micturition frequency was 3-4 times/day and 2-3 times during the night. He had sound sleep and no remarkable addictions. Past History did not reveal anything significant.

He was on three different classes of oral Hypoglycaemic drugs for 7 years. He was taking a combination of Sitagliptin(50mg) and Metformin (500mg) twice a day after food and a combination of Glimepiride (1mg) and Metformin (500mg) once dose/day.

His Family History revealed his Mother as a known case of DM. His blood investigations on the date of OPD visit (6th May 2024) showed RBS values as 238 mg/dl. Patient was sent for HbA1c test on 8th may 2024, revealing the test vales as 9.96.

Vitals were within the standard limits. The patients BMI was 29.7kg/m² with height of 164cm and weight 80kg. Systemic inspection showed no significant abnormalities.

Table 1: Dashavidha Pariksha

1.	Prakruti	Vatakapaja
2.	Vikruti	Dosha - Tridosha; Dushya - Rasa,Rakta, mamsa, meda.
3.	Sara	Madhyama
4.	Samhanana.	Susamhanana
5.	Pramana	Madhyama
6.	Satva	Madhyama
7.	Satmya	Sarvarasa
8.	Ahara Shakti	Jarana Shakti - Pravara; Abhyavarana Shakti - Pravara
9.	Vyayama shakti	Madhyama
10.	Vaya	Madhyama (58yrs)

Table 2: Ashta Stana Pariksha

1.	Nadi	Vatapradhana Pittanubandhi
2.	Mala	Prakruta
3.	Mutra	Bahumutrata
4.	Jihva	Aliptha
5.	Sparsha	Anushnasita
6.	Drik	Prakruta
7.	Akruti	Prakruta
8.	Shabdha	Prakruta

Treatment Protocol

The patient was Managed by *Shamana* medication and no *Panchakarma* was advised.

Treatment for the first 45days:

1. Cap MM (Proprietary medicine) - 1 capsule thrice a day before food for a period of 45 days.
2. Cap Vayastha (Proprietary medicine) - 1 capsule twice a day for a period of 45 days.
3. Tab Neuron plus - 1 tablet in the afternoon for a period of 45 days.

Treatment for the next 45 days:

1. Cap MM ((Proprietary medicine) - 1 capsule twice a day for a period of 45 days
2. Cap Vayastha (Proprietary medicine) - 1 Capsule twice a day for a period of 45 days.
3. Tab Chandraprabha Vati - 1 Tablet thrice a day for a period of 45 days.

Treatment	1st Follow-up (45 days)	2nd Follow-up (45 days)
Shamana Aushadhi	1. Cap MM 1-1-1 B/F 2. Cap Vayastha 1-0-1 A/F 3. Tab Neuron plus 0-1-0 A/F	1. Cap MM 1-0-1 B/F 2. Cap Vayastha 1-0-1 A/F 3. Tab Chandraprabha vati 1-1-1 A/F
Allopathic medication	1.Sitagliptin (50 mg) + metformin (500 mg) 1-0-1 A/F 2.Glimepiride (1 mg) + metformin (500 mg) 0-0-1 B/F	1.Sitagliptin (50 mg) + metformin (500 mg) 1-0-0 A/F

A rigorous diet that excluded foods high in carbs, fried foods, and sugar was recommended, as well as a daily walk of 5,000–10,000 steps. Millets such as Bajra and Jowar were incorporated into the diet. The dosage of allopathic drugs was subsequently decreased.

The dosage of glimepiride (1 mg) and metformin (500 mg) was maintained for the first forty-five days, while the combination of sitagliptin (50 mg) and metformin (500 mg) was lowered to once daily after meals. The combination of glimepiride and metformin was entirely skipped at the subsequent follow-up, which was conducted 45 days later.

Treatment Outcome

This case's important follow-up diagnostic test of HbA1c, FBS, and PPBS was done on 4th August 2024. After the three-month period, the patient underwent a clinical evaluation to assess changes in symptoms. **Outcome:** Substantial improvements were observed including a reduction in neuropathy symptoms (burning palms and soles), generalized weakness, low back ache and dizziness with reduction in the dosage of Allopathic medications.

Investigation	Before	After
	Treatment(08/05/2024)	Treatment(04/08/2024)
HbA1c	9.96	6.77
FBS	148 mg/dl	125 mg/dl
PPBS	154 mg/dl	184 mg/dl

Discussion

Madhumeha is a *Vata Pradhana Tridoshaja Vyadhi*. *Vataja Prameha* is said to be incurable and extremely difficult to cure. Due to the heterogenous treatment link of *Dosha* and *Dushya*, it is *Mahavinashkari*. "*Vikaranam Ashukalo Na Jirhyat Kadachana, Na Hi Sarvavikaranam Namastoti Dhruva Sthiti*" is discussed in *Charaka Sutra*, Chapter 18, Shloka 44,[5] where it is stated that treating and comprehending disease based on *Dosha*, *Dhatu*, *Adhishtana*, and other factors is more important than naming the disease.

Capsule Vayastha, a proprietary which contains various medications such as *Guduchi Satwa* (*Tinospora cordifolia* Linn.), *Dashamoola*, *Ashwagandha* (*Withania somnifera* Linn.), *Shilajatu* (*Asphaltum*), and *Chitraka* (*Plumbago zeylanica* Linn.). *Chitraka* performs the role of *Deepana Pachana*, which regulates *Rasa Dushti* and impaired metabolism. The adaptogen *Ashwagandha*, (*Withania somnifera* (L.) Dunal,) stabilizes physiological processes by acting as an, antioxidant, immunomodulatory, and hormone-balancing agent. *Shilajatu* consists of micronutrients like Fe, Zn, Mn, Mg, and many organic matters like benzoic acid, amino acids etc.

Shilajatu has been reported to reduce macrophage and lymphocyte activation and migration, as a part of its immunomodulatory activity. Being an antioxidant, it will prevent damage to the pancreatic islet cell induced by the cytotoxic oxygen radicals. [6,7,8] Long-term treatment with *Shilajatu* increases the number of β -cells of pancreas, i.e., which may result in better sensitivity of pancreatic β -cells with prompt secretion of a large quantity of insulin in response to hyperglycemia. Studies reveal the hypoglycemic effect of *Shilajatu* (100 mg/kg) is significantly higher than that of metformin (500 mg/kg).[9]

Madhyama Khanda of *Sharangadhara Samhita* references *Chandraprabha Vati* as *Prameha Hara*. *Karpooora* exhibited inhibitory activities for α -amylase and α -glucosidase assays which are helpful for starch breakdown into glucose. It helps in pancreatic β -cell restoration and insulin secretion also. Ethanolic root extract of *Kiratatikta* showed significant anti-diabetic effect, with a notable decrease in blood sugar levels.[10] The ethanolic extract of *Dhanyaka* had the antidiabetic activity by improving and regenerating the β cell in the pancreas and inhibiting the α -glucosidase enzyme in the small intestine.[11] *Guggulu* contains Z-guggulsterones and E-guggulsterones which are purported to be the compounds responsible for the hypoglycaemic and hypolipidemic activity of the *Guggulu*. [12] *Tridoshaghna* herbs like *Guduchi* and *Guggulu* balance all three *Doshas*, while *Lekhana* and *Vyavaayi* actions are supported by ingredients like *Vacha*, *Ativisha*, and *Vida Lavana* which helps in *Samprapti Vighatana*.

Cap MM is a proprietary medicine containing various herbal drugs like *Guduchi*, *Vrushyagandha*, *Asana*, *Jambu* and *Haridra* with potent anti-diabetic properties as per the recent research activities concerned. The probable hypothesis guides that this formulation stimulates the beta cells of the pancreas.

Along with the above interventions, regular yoga and diet followed by the patient were also to be well thought out for encouraging results.

Conclusion

Diabetes mellitus is a chronic illness that affects not only the individual but also the family and the economy of the community.

Both the economy and manpower are negatively impacted. The majority of hypoglycemic medications are known to have a number of adverse effects. Within three months of beginning the treatment, elevated blood sugar levels and HbA1c levels decreased to the pre-diabetic range, demonstrating the remarkable benefits of this treatment. Together with diet and exercise, a well-thought-out treatment plan can help regulate elevated blood sugar levels and the need for contemporary drugs, greatly improving quality of life.

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