



Case Study

ROLE OF AHAR, VIHAR AND AUSHADHI IN THE AYURVEDIC MANAGEMENT OF MADHUMEH (T2DM): A CLINICAL OBSERVATION

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ABSTRACT

Type 2 Diabetes Mellitus (T2DM), clinically correlated with *Madhumeh* under the broader category of *Prameh* in Ayurveda, is recognised as a *Mahagada* (major disorder) due to its chronicity and systemic complications. This case study documents the Ayurvedic management of a 49-year-old male with a 5-year history of T2DM, who arrived at Jeena Sikho Lifecare Limited Hospital with uncontrolled blood glucose levels despite ongoing allopathic treatment. A comprehensive Ayurvedic intervention- comprising *Ahar* (diet), *Vihar* (lifestyle), and *Shaman* (therapeutic formulations) - was implemented. Over the treatment course, the patient exhibited progressive clinical improvement, with a significant reduction in HbA1c and fasting glucose levels, alongside symptomatic relief. Quality-of-life assessments reflected enhanced physical and psychological well-being. This case underscores the efficacy of a holistic Ayurvedic approach in restoring *Agni* (digestive fire), correcting *Dosha* imbalance, and promoting sustained metabolic regulation in Type 2 Diabetes Mellitus.

INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is a long-term metabolic disorder of significant global public health concern. It is marked by insulin resistance and inadequate insulin secretion, resulting in impaired regulation of blood glucose levels. Unlike Type 1 Diabetes Mellitus- predominantly an autoimmune condition manifesting in early life- T2DM typically arises in adulthood. However, rising obesity rates, unhealthy dietary habits, and sedentary lifestyles have led to an increasing prevalence of T2DM among younger individuals.^[1] The pathophysiology of T2DM is driven by intricate interactions between peripheral insulin resistance- particularly in muscle and liver tissues- and reduced insulin secretion from pancreatic β -cells. This combination results in persistent hyperglycemia, which subsequently induces

glucotoxicity and lipotoxicity, further exacerbating metabolic dysfunction.^[2] In its early stages, T2DM often presents without noticeable symptoms, underscoring the importance of regular screening for timely detection and intervention. Lifestyle modifications- such as weight control, balanced nutrition, and regular physical activity- remain the foundation of both prevention and management. When these measures prove inadequate, pharmacological therapy, including metformin and other oral hypoglycemic agents, is commonly employed.^[3] T2DM represents a major global public health concern. Data from the International Diabetes Federation (IDF) indicate that an estimated 537 million adults were living with diabetes in 2021, a figure expected to escalate to 643 million by 2030 if current trends persist. This projected rise highlights the pressing need for comprehensive approaches encompassing prevention, early diagnosis, and effective disease management.^[4,5]

A 2025 study by the Harvard T.H. Chan School of Public Health reports that increased dietary intake of plant-based phytochemicals may lower the risk of Type 2 Diabetes by approximately 8%, potentially by promoting greater gut microbiome diversity and

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reducing systemic inflammation.^[6] Research indicates that sotagliflozin, a dual SGLT1/SGLT2 inhibitor, can reduce the risk of cardiovascular events by 23% in patients with Type 2 Diabetes who are at elevated cardiovascular risk.^[7] Recent developments in Type 2 Diabetes management include the introduction of novel oral GLP-1 agonists such as orforglipron, the use of AI-driven predictive models, and the identification of critical genetic and epigenetic determinants. Emerging therapies like petrelintide and smart insulin, along with advancements in continuous glucose monitoring and non-invasive sensing technologies, are further enhancing diagnostic and treatment capabilities.^[8,9,10,11,12]

In Ayurveda, Type 2 Diabetes Mellitus (T2DM) is correlated with *Prameh*, particularly *Madhumeh*, which mirrors its clinical features. *Ayurveda* approaches its prevention and management through diet (*Ahara*), lifestyle (*Vihara*), Ayurvedic formulations (*Shaman/Aushadhi*), and purification therapies (*Shodhan*).^[13] Classified among the *Mahagada* (major diseases) due to its chronic nature and complications, *Prameh*- derived from “*Miha*” (to pass urine)-encompasses 20 types, categorised by *Dosha* involvement (*Vata*, *Pitta*, *Kapha*) and urine characteristics. *Madhumeh*, a *Vataja* type, is described as a condition in which urine is sweet-tasting and viscous, resembling honey.^[14]

OBJECTIVE

To evaluate the effectiveness of an integrative Ayurvedic approach in managing Type 2 Diabetes Mellitus (*Madhumeh*) through *Ahara*, *Vihara* and *Shamana Aushadhi*.

Case Report

A 49-year-old male with a 5-year history of Type 2 Diabetes Mellitus (*Madhumeh*) visited Jeena Sikho Lifecare Limited Hospital, Prashant Vihar, Delhi, India, on May 8, 2025, with complaints of poorly controlled blood glucose levels. The patient had been on conventional pharmacotherapy since diagnosis. His past medical history was significant for minor thalassemia (*Pandu Roga*) and nephrolithiasis (*Ashmari*), with a right kidney stone removal performed two years prior. He reported a 5-day history of uncontrolled hyperglycemia (*Madhumeha*), postprandial bloating (*Adhmana*), and generalised weakness (*Daurbalya*). Family history revealed

maternal diabetes mellitus and hypertension, and paternal coronary artery disease and diabetes mellitus. Clinical evaluation, including vital parameters, is presented in Table 1, with *Ashtasthana Pareeksha* findings summarised in Table 2. Pre-treatment laboratory results are outlined in Table 3. Following a comprehensive Ayurvedic assessment, an individualised treatment plan was implemented, comprising *Aushadhi* (Ayurvedic pharmacological interventions), along with customised *Ahara* (dietary modifications) and *Vihar* (lifestyle interventions). The patient underwent two follow-up assessments, during which marked clinical improvement was noted, including attainment of glycemic stability without the use of allopathic medications.

Table 1: Vitals from each consult

Date	Blood Pressure	Weight
08-05-2025	130/70 mm Hg	73.8 kg
12-06-2025	120/80 mm Hg	71.7 kg

Table 2: Ashtasthana Pareeksha of the patient

Parameters	Findings
<i>Nadi</i> (pulse)	<i>Vataja Pittaj</i>
<i>Mala</i> (stool)	<i>Saam</i> (undigested food)
<i>Mutra</i> (urine)	<i>Avikrit</i> (normal)
<i>Jiwha</i> (tongue)	<i>Saam</i> (coated)
<i>Shabda</i> (voice)	<i>Spasht</i> (clear)
<i>Sparsha</i> (touch)	<i>Ruksh</i> (dry)
<i>Akriti</i> (physical constitution)	<i>Sthool</i> (obese)
<i>Drikk</i> (vision)	<i>Prakrit</i> (normal)

Table 3: Pre-treatment laboratory findings as of May 08, 2025

Tests	Values
Glycated haemoglobin (HbA1c)	7.50%
Average blood glucose	168.55 mg/dL
Triglycerides	191 mg/dL
Fasting blood sugar (FBS)	147 mg/dL

A comprehensive flowchart illustrating the *Samprapti* (pathogenesis) is provided in Figure 1, while the *Samprapti Ghataka* (components of pathogenesis) are outlined in Table 4.^[15]

Figure 1: Samprapti of Madhumeh

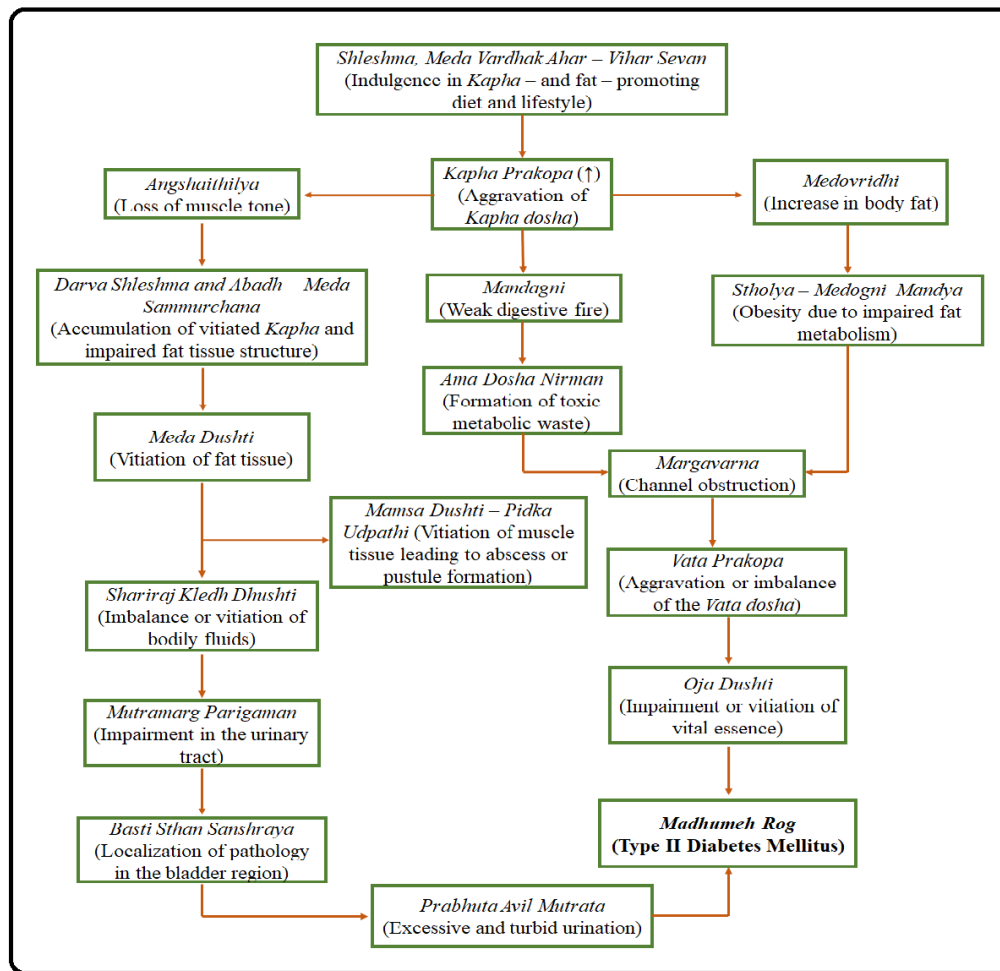
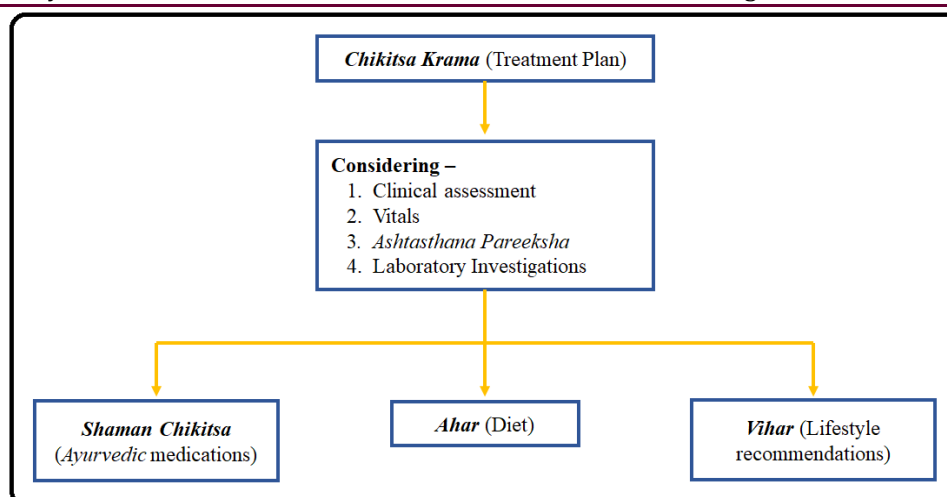


Table 4: Samprapti Ghatak

Dosha (bio-energetic forces)	Dravya Shleshma Pradhan Tridosha (Kapha - dominant Tridoshic state with fluidic properties)
	Apaan - vyaan vayu (Vata subtypes governing excretion and circulation)
Dushya (affected tissues)	Abadha Meda (vitiated fat), Mamsa (muscle), Kleda (fluid), Shukra (reproductive tissue), Rakta (blood), Vasa (adipose tissue), Majja (bone marrow), Lasika (lymph), Rasa (plasma) & Oja (vitality essence)
Strotas (body channels)	Mootravaha Strotas (urinary channels), Medovaha Strotas (transport and metabolism of fat tissue)
Strotodushti (vitiation in the channels)	Sanga (obstruction), Atipravriti (abnormal increase)
Agni Dushti (impairment of digestive fire)	Dhatvagnimandhya (impairment of digestive fire at the tissue level)
Udbhav Sthan (origin site of the disease)	Antakoshtha (intestinal tract)
Vyaktisthan (site where the disease manifests)	Mutravah Strotas (urinary channels)
Vyadhisvabhav (nature of a disease)	Chirkari (chronic)

Treatment Plan



Shaman Chikitsa

Based on the clinical evaluation, a detailed and patient-specific medication protocol was devised, as outlined in Table 5. The patient was previously managed with oral hypoglycemic agents, namely Metformin (BD) and Glimepiride (OD). These were stopped before transitioning to the Ayurvedic treatment course.

Table 5: Ayurvedic medicines prescribed

Date	Medicine	Dosage with Anupana (Medium)
08-05-2025	Prameh Har Powder	Half teaspoon BD (<i>Adhobhakta</i> with <i>Sama Matra Koshna Jala</i>)*
	Liv DS	1 Cap BD (<i>Adhobhakta</i> with <i>Koshna Jala</i>)**
	DM Capsule	1 Cap BD (<i>Adhobhakta</i> with <i>Koshna Jala</i>)
	Yakrit Shoth Har Vati	1 Tab BD (<i>Adhobhakta</i> with <i>Koshna Jala</i>)
	Mutra Vardhak Vati	1 Tab BD (<i>Adhobhakta</i> with <i>Koshna Jala</i>)
	Madhumeh Nashak Syrup	2 teaspoon BD (<i>Adhobhakta</i> with <i>Sama Matra Koshna Jala</i>)
	GE-LIV Forte Syrup	2 teaspoon BD (<i>Adhobhakta</i> with <i>Sama Matra Koshna Jala</i>)
12-06-2025	Liv DS	1 Cap BD (<i>Adhobhakta</i> with <i>Koshna Jala</i>)
	Yakrit Shoth Har Vati	1 Tab BD (<i>Adhobhakta</i> with <i>Koshna Jala</i>)
	Mutra Vardhak Vati	1 Tab BD (<i>Adhobhakta</i> with <i>Koshna Jala</i>)
	Madhumeh Nashak Syrup	2 teaspoon BD (<i>Adhobhakta</i> with <i>Sama Matra Koshna Jala</i>)
	GE-LIV Forte Syrup	2 teaspoon BD (<i>Adhobhakta</i> with <i>Sama Matra Koshna Jala</i>)
<i>Adhobhakta</i> with <i>Sama Matra Koshna Jala</i> - After Meal with Equal Amount of Lukewarm Water		
<i>Adhobhakta</i> with <i>Koshna Jala</i> - After Meal with Lukewarm Water		

Ahar

A targeted dietary strategy, notably the incorporation of a diabetes-specific meal plan, is essential in mitigating the progression of Type 2 Diabetes Mellitus. In this case, a personalized diet regimen was meticulously formulated to address the patient's specific clinical requirements.^[16]

Pathya (allowed)^[17]

- Fresh and homemade food
- Millet diet
- Fresh fruits

Apathya (avoid)^[17]

- Wheat, packed food, refined food, dairy food/ animal food, coffee and tea
- Nutritional supplements
- Never eat after 8 PM
- Non-steroidal anti-inflammatory drugs (NSAIDs)
- In solid, take small bite and chew 32 times
- In liquid, take sip and drink slowly

Hydration^[18]

- Boil 2 litres of water, reduce it to half (1 litre) and consume
- Alkaline water - 3-4 times a day (1 litre)
- Herbal tea (32 herb tea)

- Living water
- Coconut water and Coconut milk
- Almond milk

Millet Meal^[19]

- Foxtail (*Setaria italica*)
- Barnyard (*Echinochloa esculenta*)
- Little (*Panicum sumatrense*)
- Kodo (*Paspalum scrobiculatum*)
- Browntop (*Urochloa ramosa*)

Grains^[18]

- Chanaka (Bengal gram) – *Cicer arietinum*
- Adhaki (Toor dal) – *Cajanus cajan*

- *Mugda* (Green gram) – *Vigna radiata*
- *Kulattha* (Horse gram) – *Macrotyloma uniflorum* Lam.

Special Instructions^[16]

- Brisk walking 30 min with barefoot
- Sit in sunlight for 1 hour
- 10 min slow walk after every meal
- One day fasting is recommended
- Get quality sleep (8 hours)
- Cook millets in a steel cookware using only mustard oil.
- Sit in *Vajrasana* after every meal

Meal Structure^[16, 20]

Early Morning (5:45 AM) • 4 Crushed tulsi leaves + 1 gm ginger + 2 spoons of honey + hot water = on empty stomach / Herbal Tea	Breakfast (09:00 - 10:00 AM) • Plate 1: Seasonal fruits (4-5 types) + <i>Mugdayusha</i> • Plate 2: Millet <i>Khichdi</i> / Millet <i>Poha</i> / Millet <i>Upma</i>	Morning Snacks (11:00 AM) • Red Juice (Beetroot, Carrot, Tomato & Pomegranate) – 150 ml • Soaked Almonds (4-5)
Lunch (12:30 - 02:00 PM) • Plate 1: Steamed Salad (Cucumber, Onion, Carrots, Beetroot, Tomato, Radish, Lettuce leaves, Capsicum, etc.) • Plate 2: Fermented Millet Meal	Evening Snacks (04:00 - 04:20 PM) • Green Juice (Spinach, Fenugreek, Bathua, Amaranth, Mint, Coriander, Curry leaves & betel leaves) – 100 – 150 ml • Soaked Almonds (4-5)	Dinner (06:15 - 07:30 PM) • Plate 1: Steamed Salad • Plate 2: Green Vegetable Soup

Herbal Tea: ^[20]

Gauzaban (*Borago officinalis*), **Kulanjan** (*Alpinia galanga*), **Badi Elaichi** (*Amomum subulatum*), **Laung** (*Syzygium aromaticum*), **Badiyan Khtayi** (*Illicium verum*), **Banafsha** (*Viola odorata*), **Jufa** (*Hyssopus officinalis*), **Ashwagandha** (*Withania somnifera*), **Mulethi** (*Glycyrrhiza glabra*), **Punarnava** (*Boerhavia diffusa*), **Brahmi** (*Bacopa monnieri*), **Chitrak** (*Plumbago zeylanica*), **Marich** (*Piper nigrum*), **Adoosa** (*Justicia adhatoda* / *Adhatoda vasica*), **Saunf** (*Foeniculum vulgare*), **Shankh Pushpi** (*Convolvulus pluricaulis*), **Arjun** (*Terminalia arjuna*), **Tulsi** (*Ocimum sanctum*), **Motha** (*Cyperus rotundus*), **Senaye** (*Cassia angustifolia*), **Sounth** (*Zingiber officinale*, dried ginger), **Majeeth** (*Rubia cordifolia*), **Sarfoka** (*Tephrosia purpurea*), **Dalchini** (*Cinnamomum zeylanicum*), **Gulab** (*Rosa damascena*), **Green Tea** (*Camellia sinensis*), **Giloy** (*Tinospora cordifolia*), **Tej Patta** (*Cinnamomum tamala*), **Lal Chandan** (*Pterocarpus santalinus*), **White Chandan** (*Santalum album*) and **Pudina** (*Mentha piperita*)

Green Vegetable Soup: ^[20]

- Spinach, Peas, Carrots, Cabbage, Capsicum, Ghee, Zucchini, Cucumber, Green Gram, etc. (10 grams each)
- Add Ginger, Garlic and Black Salt
- Grind & boil for a minute
- Add lemon as per taste & serve

Red Juice ^[20]

- A 150 ml formulation was prepared using a combination of beetroot, carrot, tomato, and pomegranate.

Green Juice ^[20]

- A 150 ml preparation was formulated using spinach, fenugreek, bathua, amaranth, mint, coriander, curry leaves, and betel leaves,

Vihar ^[20]

- **Meditation:** The patient was advised to incorporate a one-hour daily meditation practice as part of the prescribed therapeutic protocol.
- **Yoga:** The patient was recommended to practice *Sukshm Pranayam* and *Sukhasan* for 40 minutes daily.
- **Sleep:** The patient was advised to maintain 6 to 8 hours of continuous and restorative sleep each night.
- **Walking:** The patient was instructed to perform a daily 30-minute brisk walk without footwear.
- **Daily Routine:** The patient was advised to follow a structured and disciplined daily regimen.

OBSERVATIONS & RESULTS

Over the treatment period, the patient demonstrated consistent and progressive clinical

improvement. Quality-of-life assessments revealed marked enhancement in both physical and psychological domains. Significant positive changes were documented across two outpatient follow-up visits. Laboratory evaluations indicated a notable decrease in HbA1c levels, as presented in Table 6. At follow-up, the patient reported substantial symptomatic relief, which was substantiated by corresponding improvements in biochemical parameters. Continued progress was confirmed during additional follow-up visits, supporting sustained therapeutic effectiveness. Table 7 presents a marked reduction in the severity of symptoms. Symptomatic improvement was consistently reported at the next follow-up visit and was supported by corresponding enhancements in biochemical parameters.

Table 6: Pre and Post – treatment laboratory evaluations

Tests	Values	
	08-05-2025	12-06-2025
Glycated haemoglobin (HbA1c)	7.50%	5.50%
Average blood glucose	168.55 mg/dL	111.15 mg/dL
Triglycerides	191 mg/dL	93 mg/dL
Fasting blood sugar (FBS)	147 mg/dL	100 mg/dL

Table 7: Comparative Analysis of Symptoms Pre- and Post-Treatment

Symptoms before treatment	Symptoms after treatment
Uncontrolled hyperglycemia (<i>Madhumeha</i>)	Controlled
Postprandial bloating (<i>Adhmana</i>)	Relieved
Generalized weakness (<i>Daurbalya</i>)	Relieved

DISCUSSION

This case study presents a 40-year-old male patient diagnosed with Type 2 Diabetes Mellitus (*Madhumeh*) and Dyslipidemia (*Medoroga*), who sought care at Jeena Sikho Lifecare Ltd. Hospital with concerns of poorly controlled blood glucose. A thorough clinical assessment was conducted, including vital signs, *Ashtasthana Pareeksha*, and relevant laboratory investigations, to inform a personalized treatment strategy. The integrative management plan emphasized *Nidan Parivarjan* (elimination of causative

factors), along with individualized dietary (*Ahar*), lifestyle (*Vihar*), and palliative Ayurvedic (*Shaman Chikitsa*) interventions.

Nidan Parivarthan: As part of the therapeutic approach, the patient was advised to refrain from consuming heavy, oily, fermented, and spicy foods. The treatment strategy prioritized optimal management of blood glucose and blood pressure levels, with the discontinuation of any medications known to raise blood sugar. A diabetes-specific diet was

recommended, focusing on reduced intake of salt and sugar, along with increased consumption of protein and potassium. Lifestyle modifications included maintaining adequate hydration, avoiding physical overexertion, and following a stable, structured daily routine. These interventions were guided by the Ayurvedic principle of *Nidana Parivarjana* (elimination of causative factors), with the goal of slowing disease progression, restoring metabolic equilibrium, and supporting overall health and well-being.^[16,17]

Samprapti: The *Samprapti* of this case is depicted in the flowchart in Figure 1, illustrating the Ayurvedic pathogenesis of *Madhumeh* (Type II Diabetes Mellitus) as a progressive, multifactorial condition. The diagram illustrates the Ayurvedic pathogenesis (*Samprapti*) of *Madhumeh Rog* (Type II Diabetes Mellitus), rooted primarily in *Kapha* imbalance due to indulgence in *Kapha* – aggravating diets and sedentary lifestyle. This leads to *Mandagni* (weak digestive fire) and *Medo Dushti* (vitiation of fat tissue), causing accumulation of toxic metabolic waste (*Ama*) and impaired metabolism (*Medogni Mandya*). The resulting *Medovridhi* (fat accumulation) and *Sthoulya* (obesity) contribute to *Marga avarodha* (obstruction of channels), *Vata Prakopa*, and *Oja Dushti*, ultimately impairing urinary and tissue functions. This cascade leads to *Prameh*, manifesting as *Madhumeh*, characterized by excessive, turbid urination (*Prabhuta Avil Mutrata*), reflecting systemic metabolic dysfunction.^[15]

Ahar: A tailored dietary and lifestyle intervention was implemented to support glycemic regulation and slow the progression of Type 2 Diabetes Mellitus. The nutritional plan focused on the incorporation of wholesome, *Pathya*– compliant foods, including freshly prepared meals, high-fiber millets (such as foxtail, barnyard, and browntop), pulses, and fresh fruits. The regimen excluded refined and processed foods, dairy and animal products, and stimulants such as tea and coffee. Behavioural guidance emphasized mindful eating, avoidance of late-night meals, and maintaining adequate hydration through the consumption of boiled water, herbal infusions, and plant-based milk alternatives. Lifestyle modifications included daily barefoot brisk walking, postprandial ambulation, exposure to natural sunlight, periodic fasting, consistent sleep hygiene, and the adoption of traditional cooking practices, including the use of steel cookware and mustard oil. The practice of *Vajrasana* (a seated posture aiding digestion) after meals was also recommended. A structured meal plan was followed, beginning with a detoxifying herbal drink at dawn, followed by a breakfast of fruits and moong dal, a mid-morning red juice with almonds, a lunch comprising steamed vegetables, raw salad, and fermented millet preparations, an evening green juice with almonds,

and a light dinner of steamed salad and vegetable soup. This plant-based, fiber-rich, and integrative protocol was specifically designed to enhance metabolic balance, support digestive function, and aid in the natural regulation of blood glucose levels, aligning with evidence-based principles of lifestyle medicine and *Ayurvedic* dietary therapy.^[16,17,18,19,20]

Vihar: As part of the integrative therapeutic protocol, the patient was advised to incorporate specific lifestyle practices aimed at enhancing overall health and supporting disease management. These included a daily one-hour meditation practice to promote mental clarity and emotional stability, along with 40 minutes of *Sukshma Pranayam* and *Sukhasan*, intended to support respiratory efficiency and musculoskeletal balance. To facilitate physiological recovery and hormonal regulation, the patient was encouraged to maintain 6 to 8 hours of uninterrupted, restorative sleep each night. Additionally, a 30-minute session of barefoot brisk walking was recommended daily to stimulate circulation and metabolic activity. Emphasis was also placed on adhering to a consistent and well-structured daily routine, aligned with circadian rhythms, to optimize metabolic regulation and enhance therapeutic outcomes.^[20]

Chikitsa: The physician advised an integrative treatment approach centered on *Shaman Chikitsa* (palliative care). Following a detailed clinical evaluation, a customized medication regimen was formulated to address the patient's specific needs. A comprehensive overview of the Ayurvedic formulations used in this case is provided in Table 8. *Kutaki* and *Haritaki* are the principal herbs commonly incorporated in Ayurvedic formulations. Their therapeutic efficacy is determined by their *Ras Panchak*– a comprehensive analysis of taste (*Rasa*), qualities (*Guna*), potency (*Virya*), post-digestive effect (*Vipaka*), and specific action (*Prabhava*)– as follows.^[19]

Kutaki

Kutaki (*Picrorhiza kurroa*) is known for its *Tikta* taste (bitter) and slightly astringent quality (*Kashaya*). It has a *Ushna* potency (hot) and a *Katu* (pungent) post-digestive effect. Its *Prabhava* (primary action) is to detoxify the liver, support digestion, and purify the blood. It helps balance the *Pitta* and *Kapha doshas*, making it useful for conditions such as digestive dysfunction and liver disorders. It is commonly used for liver detoxification, digestive issues, and skin conditions caused by *Pitta* imbalance, as well as for managing fevers, jaundice, and gastrointestinal discomfort like indigestion and bloating.^[22]

Haritaki

Haritaki (Terminalia chebula) has *Kashaya* taste (astringent) with a *Madhur* (sweet) post-digestive effect. It also has *Ushna* (hot) potency Its *Prabhav* special action is as a rejuvenator and cleanser for the digestive system, particularly the colon.

Haritaki balances all three *doshas* (*Vata*, *Pitta*, and *Kapha*), with special benefits for *Vata* imbalance, and is known for treating constipation, dysentery, and intestinal infections. It is also used for improving immunity, enhancing skin health, and boosting metabolism.^[23]

Table 8: Detailed description of medicines prescribed

Medicine	Ingredients	Therapeutic Effects
Prameh Har Powder	<i>Kutaki (Picrorhiza kurroa)</i> , <i>Chiraita (Swertia chirata)</i> , <i>Nimba (Azadirachta indica)</i> , <i>Karvellaka (Momordica charantia)</i> , <i>Rasonth (Berberis aristata)</i> , <i>Imli Beej (Tamarindus indica)</i> , <i>Krishna Lavana (Black Himalayan salt)</i> , <i>Guduchi (Tinospora cordifolia)</i> , <i>Shunthi (Zingiber officinale)</i> , <i>Babool Chaal (Vachellia nilotica)</i> , <i>Sarpagandha (Rauvolfia serpentina)</i> , <i>Trivang Bhasam (Traditional metallic preparation containing tin, lead, and zinc)</i> , <i>Yashad Bhasam (Zinc calx)</i> , <i>Revend Chinni (Rheum emodi)</i> , <i>Sodhit Guggulu (Commiphora mukul)</i> , <i>Methika (Trigonella foenum-graecum)</i> , <i>Jambu (Syzygium cumini)</i> , <i>Babool Fruit (Vachellia nilotica)</i> , <i>Karanj (Milletia pinnata)</i> , <i>Shilajeet (Asphaltum)</i> , <i>Haridra (Curcuma longa)</i> , <i>Haritaki (Terminalia chebula)</i> , <i>Inderjaun (Holarrhena antidysenterica)</i> , <i>Vanshlochan (Bambusa arundinacea)</i> , <i>Bibhitaki (Terminalia bellirica)</i> , <i>Amalaki (Phyllanthus emblica)</i> , <i>Shweta Musli (Chlorophytum borivilianum)</i> , <i>Gurmar (Gymnema sylvestre)</i> .	<i>Prameh-har</i> (lowers blood sugar levels), <i>Madhur-asakti nashak</i> (reduces sugar cravings), <i>Vibandh-har</i> (relieving constipation), acidity.
Liv DS	<i>Bhumi Amalaki Ext. (Barleria prionitis)</i> , <i>Kasani Ext. (Cichorium intybus)</i> , <i>Himsra (Leptadenia reticulata)</i> , <i>Punarnava Ext. (Boerhavia diffusa)</i> , <i>Guduchi Ext. (Tinospora cordifolia)</i> , <i>Kakamachi (Solanum nigrum)</i> , <i>Arjun (Terminalia arjuna)</i> , <i>Biranjaisipha (Berberis aristata)</i> , <i>Kasamarda Jhavuka (Solanum xanthocarpum)</i> , <i>Vidanga (Embelia ribes)</i> , <i>Chitrak (Plumbago zeylanica)</i> , <i>Kutaki (Picrorhiza kurroa)</i> , <i>Haritaki (Terminalia chebula)</i> , <i>Bhringraj (Eclipta prostrata)</i> .	<i>Deepan</i> (appetizers), <i>Pachan</i> (digestives) and <i>Rasayan</i> (rejuvenation therapy)
DM Capsule	<i>Amba Haridra (Curcuma Amada)</i> , <i>Guduchi (Tinospora cordifolia)</i> , <i>Shweta Musli (Chlorophytum borivilianum)</i> , <i>Methika (Trigonella foenum-graecum)</i> , <i>Nimba (Azadirachta indica)</i> , <i>Karvellaka (Momordica charantia)</i> , <i>Jambu (Syzygium cumini)</i> , <i>Bilva Patra (Aegle marmelos)</i> , <i>Gudmar (Gymnema sylvestre)</i> , <i>Shuddh Shilajeet</i>	<i>Medomeh har</i> (stimulate insulin production), beneficial for managing blood glucose levels and (<i>Agni deepan & Bala vardhak</i>) increases metabolism and energy levels
Yakrit Shoth Har Vati	<i>Punarnava (Boerhavia diffusa)</i> , <i>Krishna Marich (Piper nigrum)</i> , <i>Pippali (Piper longum)</i> , <i>Vaya vidanga (Embelia ribes)</i> , <i>Devdaru (Cedrus deodara)</i> , <i>Kutha (Saussurea costus)</i> , <i>Haridra (Curcuma longa)</i> , <i>Motha (Cyperus rotundus)</i> , <i>Kalajira (Cuminum cyminum)</i> , <i>Chitrak (Plumbago zeylanica)</i> , <i>Haritaki (Terminalia chebula)</i> , <i>Vibhitaki (Terminalia bellirica)</i> , <i>Amalaki (Embelia officinalis)</i> , <i>Danti (Baliospermum montanum)</i> , <i>Chavya (Piper chaba)</i> , <i>Indra Jon (Taraxacum officinale)</i> , <i>Pippali-Mool (Piper longum)</i> , <i>Kayphal (Myrica esculenta)</i> , <i>Kutaki (Picrorhiza kurroa)</i> , <i>Nishoth (Operculina turpethum)</i> , <i>Shunthi (Zingiber officinale)</i> , <i>Kakad Singhi (Cucumis sativus)</i> , <i>Ajwain (Trachyspermum ammi)</i> , <i>Mandoor Bhasam (Ferrum)</i> .	<i>Yakrit Pitta Shodhak</i> (liver detoxifier), <i>Agni Deepan</i> (improves digestion), <i>Ama Pachan</i> (eliminates toxins) and <i>Rasa-Dhatu Pushtikara</i> (nourishes body tissues)

<i>Mutra Vardhak Vati</i>	<i>Gokshur (Tribulus terrestris), Guggulu (Commiphora wightii), Shunthi (Zingiber officinale), Krishna Marich (Piper nigrum), Pippali (Piper longum), Vibhitaki (Terminalia bellerica), Haritaki (Terminalia chebula), Amalaki (Phyllanthus emblica), Motha (Cyperus rotundus).</i>	<i>Mutrakrichrahar</i> (reliever of painful urination), <i>Ashmarighna</i> (anti-urolithic), <i>Mutravirechan</i> (diuretic), <i>Shirovirechan</i> (nasal cleansing), <i>Shothahar</i> (anti-inflammatory)
<i>Madhumeh Nashak Syrup</i>	<i>Karvellaka (Momordica charantia), Jambu (Syzygium cumini), Nimba (Azadirachta indica), Chirayta (Swertia chirayita), Gurmar (Gymnema sylvestre), Kutaj (Holarrhena antidysenterica), Chavya (Piper retrofractum), Chitrak (Plumbago zeylanica), Bael (Aegle marmelos), Ashwagandha (Withania somnifera) and Vijaysar (Pterocarpus marsupium)</i>	<i>Prameh-har</i> (manages blood sugar levels)
<i>GE- LIV Forte Syrup</i>	<i>Bhringraj (Eclipta prostrata), Kuchri (Strychnos nux-vomica), Kalmegh (Andrographis paniculata), Kutaki (Picrorhiza kurroa), Vidhang (Embelia ribes), Nishoth (Operculina turpethum), Daruharidra (Berberis aristata), Chitrak (Plumbago zeylanica), Mool Bhumi Amalaki (Phyllanthus niruri), and Shadashan (Crinum asiaticum).</i>	<i>Yakrit Uttejak</i> (liver stimulant) and <i>Shodhak</i> (liver detoxifier), <i>Ojovardhak</i> (immunity enhancer), <i>Agnivardhak</i> (digestive fire enhancer) and <i>Amlapittahar</i> (reliever of hyperacidity)

The patient exhibited marked improvements in both physical health and emotional well-being, underscoring the efficacy of the Ayurvedic treatment in enhancing overall quality of life. This positive clinical outcome was further validated by post-treatment laboratory assessments. Consistent progress was observed throughout the treatment period, reflecting a steady and favourable response to the prescribed therapeutic regimen.

Future Research Aspects

Standardization and Mechanism of Action of Classical Formulations: Future research should emphasize standardizing classical Ayurvedic formulations and exploring their pharmacological mechanisms and active constituents.^[24]

- 1. Genomic and Prakriti-Based Personalization (Ayurgenomics):** Future research should focus on validating Prakriti-genotype correlations to enable personalized Ayurvedic management of Madhumeh.^[25]
- 2. Rasayan Therapy as Adjunct to Glycemic Control:** Future research should evaluate Rasayan therapies such as Shilajeet, Guduchi, and Ashwagandha for their potential in preventing diabetes-related complications through long-term clinical studies.^[26]
- 3. Role of Panchakarma (Shodhan) in reversing insulin resistance:** Future research should assess the efficacy of Panchakarma therapies- Vamana, Virechana, and Basti- in improving insulin sensitivity through randomized controlled trials.^[27]
- 4. Dietary Interventions Based on Dosha and Agni Status:** Future research should investigate personalized Ahar – Vihar protocols based on Agni

and Dosha for Madhumeh management, with a focus on their impact on glycemic control.^[28]

- 5. Synergistic Use of Herbo-Mineral Compounds:** Future research should assess the safety, bioavailability, and pharmacokinetics of herbo-mineral preparations like Trivang Bhasm and Yashad Bhasm in combination with plant-based drugs.^[29]
- 6. Role of gut microbiota and Ama in Diabetes:** Future research should explore the correlation between the Ayurvedic concept of Ama and gut microbiota, focusing on the impact of Ayurvedic interventions on microbial balance and metabolic health.^[30]

CONCLUSION

This case study highlights the effective Ayurvedic management of Type II Diabetes Mellitus (Madhumeh), in a 49-year-old male who initially presented with concerns of poorly controlled blood glucose levels. A detailed assessment of clinical symptoms, laboratory findings, and overall health guided the development of a personalized treatment plan. The intervention comprised Nidan Parivarjan (elimination of causative factors), tailored Ahar-Vihar (diet and lifestyle modifications), and Shaman Chikitsa using hepato protective and Rasayana formulations.

- During the initial consultation at Jeena Sikho Lifecare Limited Hospital, the patient presented with an HbA1c level of 7.5%, which subsequently decreased to 5.5% following Ayurvedic intervention.
- Additionally, the patient's average blood glucose levels improved, reducing from 168.55mg/dl to 111.15mg/dl.

- Significant symptomatic relief was observed, particularly in postprandial bloating and generalized weakness.

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