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Effective Ayurvedic management of *Madhumeha* (Diabetes Mellitus): A Case Study

Palki Boruah¹, Manjunatha Adiga²

¹Post Graduate Scholar, Department of Kayachikitsa, Shri Kalabhyraveswara Swamy Ayurvedic Medical College, Hospital and Research Center Vijayanagar, Bangalore, Karnataka, India.

²Professor, Department of Kayachikitsa, Shri Kalabhyraveswara Swamy Ayurvedic Medical College, Hospital and Research Center Vijayanagar, Bangalore, Karnataka, India.

ABSTRACT

Madhumeha known as silent killer needs to be treated as early as possible to stop onset of complication. *Madhumeha* is a *Tridoshap* redominant *Vyadhi* but *Avrutta Vata* and *Bahudrava Shlesma* is the main ailments. It is a subtype of *Vataja Prameha*. Diabetes Mellitus is a chronic metabolic disease of multifaceted etiology prevalent all over the world. However, in the recent years the prevalence of Diabetes is on rise, more upsetting in developed countries. It is a leading cause of morbidity and mortality all over the world. The global prevalence of Diabetes among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014. In India cases of Diabetes Mellitus has shown surprisingly higher susceptibility which is a matter of great concern. The prevalence of Diabetes in India is currently reported to be around 13-15% and by the year 2025 it is estimated that approximately 55 million Indians will be diabetic. **Methodology:** A Case of 23 years female, complaining of increased frequency of Micturition, increased thirst since 7-8 months associated with loss of weight around 12-15 kg within one year, and generalized weakness was reported to Sri Kalabyraveswara Ayurvedic Medical College & Research. Patient was under regular insulin since 1 and ½ years. Along with regular insulin, advised *Shamanaushadi*, *Udvardana*, *Virechanakarma* and *Nidanaparimarjana*. **Discussion:** This Article is a discussion about a case of Diabetic mellitus successfully treated with Ayurvedic approach. **Conclusion:** The above described sets of *Pacnchakarma* treatment along with *Shamanoushadhi* has shown significant result clinically with speedy recovery within a month in present case study.

Key words: *Madhumeha*, *Diabetes mellitus*, *MODY*, *Shamanaushadhi*, *Shodhana Karma*

INTRODUCTION

The term 'Diabetes' means that condition in which a large volume of urine is passed and 'Mellitus' means sweet. It is characterized by polyuria, polydipsia, polyphagia, fatigue etc. In Ayurveda Diabetes Mellitus significantly resembles with *Madhumeha* which is one of twenty types of *Prameha* as described in almost all

Ayurvedic texts. All *Prameha* if not treated properly, may be converted to *Madhumeha* (DM) in due course of time.^[1] Acharya Sushruta has described two types of *Prameha Roga* in *Chikitsa Sthana*: 1. *Sahaja Prameha* (Hereditary Diabetes), 2. *Apathya Nimittaja Prameha* (Acquired Diabetes).^[2]

As Acharya has explained *Madhumeha* is a '*Mahagada*' or '*Maharoga*' i.e., a disease which has grave and serious clinical manifestation. It is a *Tridoshaja* condition with dominance of *Kapha* and *Dushya* involved in it are *Meda*, *Mamsa*, *Kleda*, *Shukra*, *Shonita*, *Vasa*, *Majja*, *Lasika*, *Rasa* and *Oja* which are all *Kapha Vargiya*. Except *Asthi Dhatu* all the *Dhatu* are affected by both etiopathological mechanisms of *Avarana* and *Dhatukshya*. The prodromal features of *Prameha* are excess *Mala* on tooth, palate and tongue, burning sensation of hands and feet, oiliness in the body, excess thirst, and sweet sensation in mouth. The main symptoms of the disease are of *Prabhootha*

Address for correspondence:

Dr. Palki Boruah

Post Graduate Scholar, Department of Kayachikitsa, Shri Kalabhyraveswara Swamy Ayurvedic Medical College, Hospital and Research Center Vijayanagar, Bangalore, Karnataka, India.

E-mail: palkiboruah7@gmail.com

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Mutrata, Avila Mutrata, Karapada Daha, Bahasi, Shrama etc.^[3]

The Ayurvedic classics describe a comprehensive concept of the pathogenesis of Diabetes Mellitus marked with depletion of *Agni*, disturbance in Fat (*Meda*) metabolism and lowering of immune system (*Ojas*). Promotion of *Agni* and *Ojas* and correction of *Medas* seems to be the principle trio of cure approach in this disease along with modified diet and lifestyle. In context of *Ojas*, Acharya Charaka also named *Madhumeha* as *Ojomeha* in *Chikitsa Sthana*. In the present era people are having total sedentary life, having a lot of junk foods and weight gaining these is the main factors which are responsible for causing diabetes.

As we know Maturity onset diabetes of Young (MODY) is subtype of Type 2 DM characterized by single gene defect with autosomal dominant inheritance and presents in Young age (20-25years). Patients are non obese and their hyperglycemia is progressive due to impaired glucose induced secretion of insulin.^[4]

CASE REPORT

A Female patient aged about 23 years, complaining of increased frequency of Micturition, increased thirst since 7-8 months associated with loss of weight around 12-15 kg within one year, and generalized weakness was reported to Sri Kalabyraveshwara Ayurvedic Medical College & Research Center, Bangalore.

History

Patient was apparently healthy before April 2021. Then she developed fever, cough, cold, weakness, during 2nd wave of COVID-19, for that she visited to nearby clinic, where they advised to do RT-PCR. That report showed RT-PCR Positive. There, Physician advised medication (unknown) and she got relief from above mentioned symptoms within.

In June 2021 she observed gradual weight loss in spite of increased appetite and proper intake of nutritious food. She had lost about 5-6 kg along with increased frequency of micturition, increased thirst. But she did not visit any hospital or clinic.

Then in December, 2021 when they observed symptoms were still increasing she visited the nearby clinic and there they advised to do blood investigation and Reports showed FBS-351mg/dl, PPBS-655mg/dl, HbA1C - 14.8%, urine sugar - 3+, total cholesterol level - 250mg/dl on the date of December 14th 2021.

Doctor advised insulin to control her sugar levels with (Inj. Actrapid 8-8-0 units before food and Inj. Lantus 0-0-22 units after food)

Again she did regular blood investigation on 14th June 2022, reports shown HbA1c - 6.8% and urine sugar - 3+, but symptoms such as increased frequency of micturition, increased thirst, increased appetite and weight loss were persisting. Around 12-15 kg weight loss was observed within one year and patient was not ready to take insulin for long duration or lifetime and hence she came to our hospital for treatment.

Medication history

Patient was on Insulin - Inj. Human Actrapid 8-8-0 units s/c before food Since December 2021, Inj. Lantus 0-0-22 units after food since December 2021, Tablet Novastat - TG 10mg 0-0-1 after food since December 2021.

Family History

All the family members are said to be healthy, Her parents are not known case of any metabolic disorder, and Grandfather was known case of type 2 Diabetic mellitus, No history of Consanguineous marriage.

General Examination

Nourishment: Moderately nourished

Respiratory rate: 16 / min

BP: 120/70mm Hg

Height: 156 cm

Weight: 48 kg (one year ago 60-64kg)

BMI: 20 kg/m²

Heart rate: 78/min

Ashtha Sthana Pareeksha

Nadi: 76/min

Mutra: 7-8 times / day, 3-4 times / night

Mala: once in day

Jihwa: *Alipta*

Shabda: *Prakruta*

Sparsha: *Anushnasheeta*

Drik: *Prakruta*

Akruti: *Madhyama*

Systemic Examination

Central Nervous System

No significant abnormalities have been reported.

Respiratory System

No significant abnormalities have been reported.

Cardio Vascular System

The chest appears symmetrical with no visible pulsations or dilated veins. The apex beat is palpable at the 5th intercostal space on the left side, and lung sounds are resonant, except for cardiac dullness. Auscultation reveals normal S1 and S2 heart sounds with no murmurs. Overall, the clinical assessment indicates a healthy chest and heart.

Gastrointestinal System

The patient's tongue is uncoated, maintaining good oral hygiene with no mouth ulcers. Abdominal examination reveals a scaphoid-shaped abdomen with a centrally placed umbilicus, and no visible pulsation, peristalsis, or mass. The abdomen is soft, non-tender, with no organomegaly. Bowel sounds are heard and no abnormal sounds are noted.

Roga Pareeksha

Nidana: *Aharatmaka*; *Guru*, *Snigdha*, frequent use of Paneer, Chocolates, fried items like Chips, Bakery food, soft drinks.

Viharatmaka: *Avyayama*, *Ratrijagarana*, *Divaswapna*

Manasika: Stressful work

Other: Covid 19 Positive and detail treatment unknown

Poorvaroopa

Symptoms	Present/Absent
<i>Sweda</i>	+
<i>Angagandham</i>	+
<i>Anga Shithilatwam</i>	-
<i>Sayyasana</i> <i>Swaonasukhabhishangithwam</i>	+
<i>Hridyopadeham</i>	-
<i>Netrapadeham</i>	-
<i>Jihwopadeham</i>	-
<i>Angaghantwa</i>	+
<i>Keshathivridhi</i>	-
<i>Nakhativridhi</i>	-
<i>Sheetha Priyathwam</i>	+

Roopa

Frequent urination, Increased thirst, Loss of weight

Samprapti

Due to above mentioned *Nidana* lead to an imbalance in the three *Doshas*, with an emphasis on *Kapha Dasha* (*Kapha Pradhana Tridosha Dushti*). This *Doshic* imbalance can result in "*Agnimandhyata*," indicating a weakened digestive fire. This, in turn, can lead to the formation of "*Ama*," i.e., a toxic, undigested substance in the body. *Ama* further disrupts the balance of the "*Rasadi Dhatus*," including *Kapha* and *Pitta*, along with tissues like *Mamsa* (muscle) and *Meda* (fat), and leads to "*Avarana*" or obstruction. This can result in the "*Sithilata*" or debility of the *Dhatus*, Subsequently, the progression describes the accumulation of "*Bahu Dravakapha*" (excess liquid-like *Kapha*), "*Apachita Meda*" (impaired fat metabolism), "*Kleda*" (excess moisture), and "*Drava Roopa Dhatu*" (fluid-like

tissues). These substances reach the "Basti Sthana" or the colon, where they mix with "Mutra" produce symptoms like "Bahu Mutra Tyaga" (frequent urination) and "Prabhuta Avila Mutrata" (increased turbidity in the urine). Which all main symptoms of Madhumeha.^[5]

Modern perspective, the pancreatic beta cells situated in the islets of Langerhans are responsible for producing the vital hormone insulin, which plays a pivotal role in regulating various metabolic processes, especially the utilization of carbohydrates. If insulin is lacking due to a metabolic disorder, as in Type 1 diabetes, where the beta cells are damaged or destroyed, or if it doesn't function effectively, as in Type 2 diabetes where the body's cells become insulin-resistant, it results in the accumulation of carbohydrates in the bloodstream, primarily in the form of glucose. This excess glucose then spills into the urine, a defining characteristic of diabetes mellitus. Effective management of diabetes involves strategies to either replace the missing insulin or improve the body's responsiveness to it, all aimed at maintaining healthy blood glucose levels.

Samprapti Ghataka

Dosha - Kapha Pradhana Tridosha

Dushya - Meda, Mamsa, Kleda, Sukra, Rakta, Vasa, Majja, Lasika, Rasa, Ojas

Srotas - Mutravaha Srotas, Medovaha Srotas

Srotodushti - Sanga and Atipravriti

Agni - Jatharagni, Medodhatu Agni

Udbhavasthana - Amashaya

Vyaktasthana - Mutravaha

Adhishthana - Basti

Rogamarga - Madhyama

Swabhava - Chirakari

Sadhya Asadhyata - Yapy

Diagnosis: Madhumeha, MODY

Adopted Treatment

Table 1: Phase-1 Course of treatment

Name of the treatment	Medicines used	Duration
Sarvanga Udwartana	Mudgachurna + Triphala Churna	10 days
Sarvanga Parisheka	Dashamoolakwatha	10 days
Snehapana	Mahatiktakaghrita	3 days
Virechana	Trivrutlehya + Triphala Kwatha	1 day
Samsharjana Krama	Mudgayusha	3 days

Table 2: Phase-2 Course of treatment

Medicine	Dose	Time	Duration	Anupana
Shiva Gutika	1/2-0-1/2	Before food (6AM-6PM)	30 days (except during Snehapana)	Warm water
Mehabhyakashaya	20ml-20ml-20ml	Before food	20 days	Warm water
Avipattikara Churna	1-0-1	1tsp after food	30 days	Hot water
Insulin - Inj.Human Actrapid	8-8-0 units s/c	Before food	-	-
Inj. Lantus	0-0-22 Units s/c	Before food	-	-

RESULT

Table 3: Improvements

Before treatment	After treatment	On 26/12/2022
1. Increased sugar level	1. Sugar level became normal range	FBS - 79mg/dl, FUS - Nil
2. Increased frequency of urination		PPBS - 110mg/dl,

[day-5-7 time, night 3-4 time]	2. Reduced frequency of urination	PPUS - Nil
3. Increased thirst	3. Reduced frequency of thirst	
4. Reduced appetite	4. Appetite Improved	
5. Generalized weakness	5. Lightness of the body	

DISCUSSION

Probable Mode of action

Udvardana^[6]

In *Madhumeha*, the dominant *Dosha* (morbid matter) and *Dushya* (target tissue) are *Kapha* and *Meda* (fat) so here *Udvardana* was selected for *Deepana-Paachana* as besides increasing the *Agni* (digestive power) it alleviates *Kapha* and *Meda* also. It is indicated in *Prameha*, hence, probably it helps in breaking the pathogenesis of *Prameha* which is produce a loss of fat, maintain integrity of tissues. It helps decrease *Kaphadosha* and *Medodhatu* which is main culprit to increase in diabetes. *Udvardana* improves the metabolic activities in the tissues. The effect of *Udvardana* could be due to its action on the enzymes regulating lipid breakdown. The powders of herbs commonly used for *Udvardana* may stimulate the lipolytic enzymes. Also, the action of brisk rubbing of powder over the skin may produce a mechanical effect on the receptors of the skin. Even though it is a non-invasive procedure it exerts its systemic action as evidenced by its effect on lowering the serum lipids. This shows *Udvardana* may stimulate lipid catabolism throughout the body *Udvardana* has a compound influence on body fat as well serum lipids. This gives the dual advantage of preventing diabetes as well as its vascular complications.

Snehapana

Snehapana with *Mahatiktaka Ghrita* was given for 3 days (Doses 50ml, 100ml & 150ml). This processed *Ghrita* may help to reduce the insulin resistance at cellular level as well as the circulating free fatty acids in

the blood. *Mahatiktaka Ghrita* with its *Sheeta* (cooling) and *Kleda Shoshana* (fluid-absorbing) properties, has the potential to alleviate the *Ushna* (heat-inducing) and *Tikshna Guna Vriddhi* (intense properties) associated with *Pitta Dosha*. In addition to this, when addressing *Pitta Kopa* (aggravation of *Pitta*), it aids in restoring the balance of *Dravarupa Pitta Vriddhi* (excessive *Pitta*) and maintaining *Kledasamaavastha* (proper fluid balance). Perform reduction in peripheral resistance, Beta cell dysfunction, prevent further deposition of *Meda* (fat tissue) and brings normalcy in receptor function. This balanced approach can help prevent the progression of hyperglycemia by ensuring the normal functioning of *Saadhaka Pitta* and the preservation of *Ojas*,

Virechana

Virechana Karma is a potent therapeutic procedure aimed at eliminating excessive *Bahudrava Shleshma*, *Ambu*, and *Kleda*, all of which contribute to the development of *Prameha*.^[7] Through *Virechana*, one can attain a harmonious balance of *Dosha* and *Dhatu* in cases of *Prameha*. In *Prameha*, the primary issue lies in *Dhatwagnimandya*, and addressing this requires a focused approach to manage the *Agnimandya*. given its *Ushan*, *Tiksha*, *Vyavayi*, *Vikasi*, *Sukshma*, and *Laghu* properties, *Virechana* aids in the effective removal of morbid *Doshas* from the subtle channels (*Shukshma Strotas*) and stimulates *Agnivruddhi*. The qualities of *Kleda*, *Meda*, *Rasa*, *Ambu* and *Majja*, which are predominantly affected in *Prameha*, are in direct contrast to the properties of *Virechana Dravya*. Consequently, utilizing *Virechana* can be instrumental in achieving success in the treatment of *Prameha*. *Virechana* is the process that helps in evacuation of toxins. As role of *Virechana* is on the site of *Pitta* it can be assumed that by acting primarily on liver and pancreas it may help to reduce hepatic glucose production and overcome the impaired insulin secretion. Both of these can justify its role in reducing both FBS and PPBS considerably.

Avipattikara Churna

Avipattikara Churna^[8] is a polyherbal Ayurvedic formulation that contains various herbs and spices

such as *Shunthi*, *Maricha*, *Pippali*, *Haritaki*, *Bibhitaki*, *Amalaki*, *Musta*, and others. It is commonly used to treat *Agnimandya* (digestive impairment), *Vibandha* (constipation), *Amlapitta* (hyperacidity), *Arsha* (piles), *Mutraghata* (retention of urine), and *Prameha* (diabetes mellitus). Majority of drugs in *Avipattikara Churna* are possessing *Katu*, *Tikta*, *Madhura Rasa*, *Laghu*, *Ruksha*, *Tikshna*, *Snigdha*, *Ushnasheetavirya*, *Madhura* and *Katuvipaka*. Apart from *Khandasharkara* the main ingredient is *Trivrut* (*Nishoth*). It has *Katu*, *Tikta Rasa*, *Laghu*, *Tikshna*, *Ruksha Guna*, *Ushna Virya* and *Katu Vipaka*. *Trivrut* is *Tikta Rasa*, *Ushna Virya* and *Virechaka*, thereby removes *Kleda* from the body, so it is helpful in *Prameha*. Studies have shown that *Avipattikara Churna* has a hypoglycemic effect, which is due to its ability to enhance insulin secretion. Additionally, the inclusion of *Trikatu*, which contains Piperine, has been shown to improve glutathione levels in diabetic rats. Overall, *Avipattikara Churna* is a useful Ayurvedic formulation that can help improve various health conditions.

Shiva Gutika

The *Shiva Gutika*^[9] is a polyherbal formulation that is believed to have been given to Lord Ganesha by Lord Shiva to cure *Premea*, a syndrome involving conditions such as obesity, metabolic syndrome, and diabetes. The main ingredient in the *Shiva Gutika* is *Shilajathu*, which is believed to enhance immunity by balancing the three humors related to *Vata*, *Pitta* and *Kapha*. This polyherbal formulation can help cure the morbid factors through oral medication and nourishment while also enhancing immunity (*Ojas*). It is believed to act as an antibiotic, anti-diabetic, anti-venomous, anti-hypolipidaemic, anti-inflammatory, analgesic, immuno-modulatory, antiviral, antimicrobial, and antioxidant agent.

Pathya-Apathya^[10]

Pathya: *Pathyapathya* described by *Acharya Charaka* under the management of *Prameha* in *Chikitsasthana* that shows its importance. Advised to take *Mudga Yusa* (green gram), Barley, Roti prepare with *Godhum* (Wheat), Bitter vegetable, *Kushodaka* (warm water)

and regular exercise is recommended, *Pranayama* and *Yoga*.

Apathya: Advised to avoid milk products like curd and pudding rice, milk based desserts, sugarcane items, *Pishtanna* (highly carbohydrate rich food), sitting idle, Day sleeping, *Dhumpana*, controlling natural urges like *Mutravega* (*Vega Dharana*), lethargy and *Ratrijagarana*.

CONCLUSION

Ayurvedic Management such as *Udvartana*, *Virechana* and the use of herbal formulations like *Avipattikara Churna* and *Shiva Gutika* offer promising avenues for managing and preventing diabetes (*Madhumeha*). *Udvartana*, with its potential to stimulate lipid catabolism and maintain tissue integrity, addresses the key factors contributing to diabetes. *Virechana*, by improving *Dhatwagni* and reducing hepatic glucose production, plays a vital role in diabetes management. *Avipattikara Churna* and *Shiva Gutika*, with their unique blend of herbs, demonstrate hypoglycemic effects and enhance insulin secretion. These therapies and formulations provide a holistic approach to diabetes care. *Pathya* and *Apathya*, further complement these therapies to help individuals effectively manage their condition and reduce the risk of diabetes-related complications.

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