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REVIEW ARTICLE

A Review on the Concept of Madhumeha in Ayurveda with Special Reference to Diabetes Mellitus

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ABSTRACT

Background: Madhumeha is one of the twenty types of Prameha and is placed in the Vataja group. Ayurvedic classics describe it as a long-lasting disease in which the patient passes a large amount of urine that is sweet like honey, along with slow loss of body tissues and strength. Its causes, early signs, stages of disease formation and line of treatment are explained in detail in the Brihatrayi and Laghutrayi. In modern science, Diabetes Mellitus is a chronic metabolic disorder marked by high blood sugar, and its number is rising fast in India because of faulty diet, lack of exercise and stress. A clear understanding of the classical concept of Madhumeha can help in early diagnosis, prevention and complete management of Diabetes Mellitus.

Aim: To study the concept of Madhumeha in Ayurveda with special reference to Diabetes Mellitus.

Objectives: To collect the classical description of Madhumeha – Nidana, Purvarupa, Rupa, Samprapti, Upadrava, Sadhyasadhyata and Chikitsa. To understand Diabetes Mellitus as described in modern medicine. To find out the correlation between Madhumeha and Diabetes Mellitus.

Materials and Methods: Classical texts such as Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Madhava Nidana, Bhavaprakasha and Chakradatta were studied with commentaries. Modern data was taken from current guidelines and research papers from PubMed and Google Scholar. All data was arranged under Nidana, Rupa, Samprapti and Chikitsa.

Results & Discussion: Weak Agni, excess Kapha and loose Meda explain the obesity-linked insulin resistance of Type 2 diabetes. Diet, daily routine and Shodhana-Shamana therapy act on the root cause.

Conclusion: Madhumeha shows strong conceptual similarity with Diabetes Mellitus. Classical knowledge of its causes and stages can guide early detection, lifestyle correction and integrative care.

Keywords: *Madhumeha, Prameha, Diabetes Mellitus, Samprapti, Avarana, Ojas*

INTRODUCTION

Ayurveda gives great importance to the balance of Dosha, Dhatu, Mala and Agni for a healthy life. When a person regularly eats heavy, oily and sweet food and leads a comfortable life with very little physical work, the body becomes over-nourished. Acharya Charaka has called such disorders Santarpanottha Vyadhi (diseases due to over-nutrition), and Prameha is named first in this list.[1] Prameha is a group of twenty urinary disorders in which the common sign is passing urine in large quantity with turbidity. Madhumeha is the most serious type among them. In this state the urine becomes

sweet like honey (Madhu), and the body slowly loses its strength, Ojas and tissues. For this reason it is counted among the Mahagada (major diseases) that need long-term care.

In modern medicine, Diabetes Mellitus (DM) is a chronic metabolic disease. It is marked by a raised blood sugar level because the body either does not make enough insulin, cannot use insulin properly, or both. It disturbs the metabolism of carbohydrate, fat and protein and, over the years, damages the eyes, kidneys, nerves, heart and blood vessels. India is carrying a heavy burden of this disease. The national ICMR-INDIAB study found that about 11.4% of Indian adults have diabetes and 15.3% have prediabetes, which comes to nearly 101 million people with diabetes and 136 million with prediabetes.[2] Unhealthy food habits, long sitting hours, mental stress and obesity are the main reasons behind this rise.

Modern drugs such as oral hypoglycaemic agents and insulin lower the blood sugar well, but they have to be taken for life and they do not fully stop the long-term complications. Ayurveda looks at the disease in a wider way. It explains the causes, early warning signs, stages of disease formation, types according to body build, and a full plan of diet, lifestyle and medicine. Researchers have pointed out that the single concept of Prameha covers obesity, metabolic syndrome and diabetes in one frame.[3] Hence, a careful review of Madhumeha from the classical texts, in the light of present knowledge of Diabetes Mellitus, is useful for students, clinicians and researchers alike.

AIM AND OBJECTIVES

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Objectives:

- To collect the classical description of Madhumeha – Nidana, Purvarupa, Rupa, Samprapti, Upadrava, Sadhyasadhyata and Chikitsa.
- To understand Diabetes Mellitus as described in modern medicine.
- To find out the correlation between Madhumeha and Diabetes Mellitus.

MATERIALS AND METHODS

This is a conceptual (literary) review. The main material was collected from the Brihatrayi, that is Charaka Samhita, Sushruta Samhita and Ashtanga Hridaya, and from other texts such as Madhava Nidana, Bhavaprakasha and Chakradatta, along with their available Sanskrit and Hindi commentaries. Madhava Nidana was given special attention because it presents the diagnostic features of Prameha in a short and clear form.[4] Modern information on Diabetes Mellitus was taken from standard textbooks, the current guidelines of the American Diabetes Association and research articles searched on PubMed, Google Scholar and the AYUSH Research Portal, using the keywords "Madhumeha", "Prameha", "Diabetes Mellitus" and "Ayurveda". The collected matter was read, compared and arranged under suitable headings, and conclusions were drawn by logical analysis.

CONCEPTUAL STUDY – AYURVEDIC REVIEW

1. Nirukti (Etymology) and Paribhasha (Definition)

The word Prameha is made of Pra (excess) and the root Mih Sechane (to pass water). So Prameha means passing urine in excess, both in amount and in frequency. The word Madhumeha is made of Madhu (honey) and Meha (passing urine). A patient whose urine is sweet and astringent like honey, pale in colour and rough in nature is said to suffer from Madhumeha. Acharya Charaka describes twenty types of Prameha: ten Kaphaja, six Pittaja and four Vataja. The four Vataja types are Vasameha, Majjameha, Hastimeha and Madhumeha.[5] The Vataja group is the most difficult to treat, because by this stage the body tissues are already getting depleted.

A description of urinary disorders is found even in the Vedic period, but a clear and systematic account of Prameha is first seen in the Samhita period. Later authors such as Madhavakara, Bhavamishra and Chakrapanidatta followed the same base and added their own clinical experience and formulations.

2. Nidana (Causes)

Acharya Charaka has given the causes of Prameha in one short verse. Love for sitting for long hours (Asyasukha), love for too much sleep (Swapnasukha), excess use of curd, meat soup of domestic, aquatic and marshy animals, milk, new grains and new drinks, jaggery products and everything that increases Kapha are the causes of Prameha.[6] For easy study these can be grouped as below:

- Aharaja (dietary): Guru (heavy), Snigdha (oily), Madhura (sweet) food, Navanna (new grains), Dadhi (curd), Guda (jaggery), Ikshu (sugarcane), Anupa Mamsa (marshy meat) and excess milk.
- Viharaja (lifestyle): Avyayama (no exercise), Divaswapna (day sleep), Asyasukha, Swapnasukha and laziness.
- Vata-increasing causes: too much fasting, over-exercise, worry, grief and night awakening, which mainly lead to the Dhatukshaya type of Madhumeha.
- Beeja Dosha (hereditary): defect in the Beeja (sperm or ovum) of the parents, which causes the Sahaja (inborn) type.

3. Classification

Acharya Sushruta divides Prameha into two main types according to the cause. Sahaja Prameha comes from the defect in the Beeja of the parents, and Apathyanimittaja Prameha comes from wrong diet and lifestyle. He also says that the Sahaja patient is usually thin, dry, eats less, feels very thirsty and moves about a lot, while the Apathyanimittaja patient is usually obese, eats more, has oily skin and likes to spend time on the bed or seat.[7] Thus, from the treatment point of view, patients are also seen as Sthula Pramehi (obese and strong) and Krisha Pramehi (lean and weak). On the basis of disease formation, Madhumeha is again of two kinds: Dhatukshayajanya (due to loss of tissues) and Avaranajanya (due to blockage of the path of Vata).

4. Purvarupa (Premonitory Signs)

Purvarupa are the early signs that appear before the disease becomes fully clear. Their knowledge is very useful because treatment at this stage can stop or delay the disease. The classics mention the following early signs of Prameha.[8]

- Danta-adinam Maladhyatvam – excess dirt on teeth, eyes, ears and tongue.
- Hasta-Pada Tala Daha – burning sensation in palms and soles.
- Deha Chikkanata – oily and sticky feeling of the body.
- Trishna and Madhurasyata – excess thirst and sweet taste in the mouth.
- Kesha-Nakha Ativriddhi and Jatilibhava – fast growth and matting of hair and nails.
- Alasya, Nidradhikya and Kara-Pada Suptata – laziness, more sleep and numbness of hands and feet.

5. Rupa (Signs and Symptoms)

Acharya Vagbhata says that the common feature of all types of Prameha is Prabhuta Mutrata (large quantity of urine) and Avila Mutrata (turbid urine). In Madhumeha, the urine is sweet, astringent, pale and dry like honey. He also explains that the whole body takes on sweetness in this disease, so Madhumeha is a disorder of the whole body and not only of the urine. The classics further say that any type of Prameha, if not treated in time, finally turns into Madhumeha and then becomes hard to cure.[9] The main clinical features are:

- Prabhuta Mutrata (polyuria) and Madhura Mutrata (sweet urine).
- Pipasadhikya (polydipsia) and Kshudhadhikya (polyphagia).
- Daurbalya (weakness), Karshya (weight loss) and Alasya (lack of energy).
- Kara-Pada Daha and Suptata (burning and numbness of hands and feet).
- Swedadhikya (excess sweating) and Nidradhikya (excess sleep).

6. Samprapti (Pathogenesis)

When the causes are taken for a long time, Jatharagni and Medodhatvagni become weak. Kapha, which is already increased and watery (Bahudrava), mixes with loose Meda (Abaddha Meda), Mamsa and body fluid (Kleda). This mixture is carried down to the urinary bladder (Basti) and is passed out as excess, turbid urine. This is the early Kapha-dominant stage of Prameha. Acharya Charaka explains two ways by which this condition reaches the stage of Madhumeha.[10] In the first way, seen in obese patients, increased Kapha and Pitta block the path of Vata (Margavarana). In the second way, seen in lean patients, Vata gets aggravated due to loss of tissues (Dhatukshaya). In both cases the aggravated Vata drags the sweet Ojas towards the Basti, so the urine becomes sweet and the body becomes weak. The full process is shown in Figure 1.

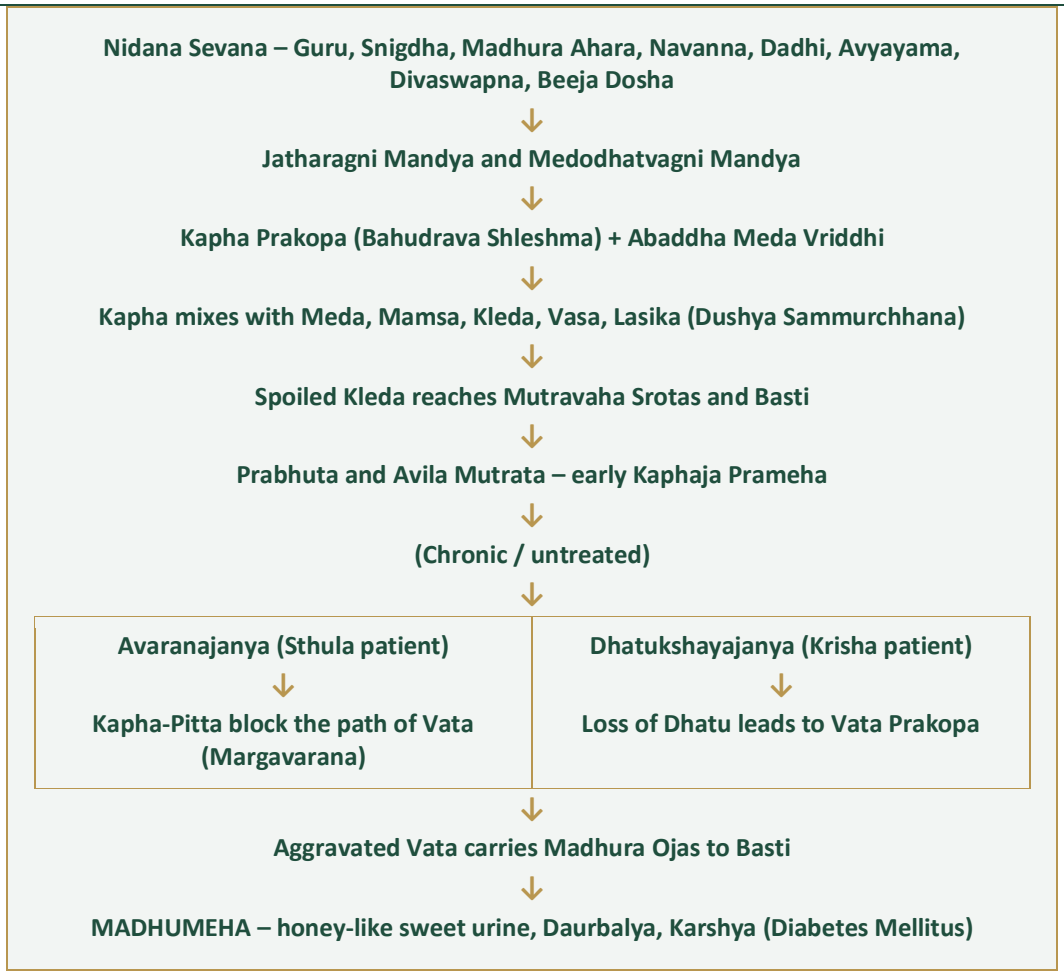


Figure 1. Samprapti of Madhumeha (flow chart)

Table 1. Samprapti Ghataka of Madhumeha

Component	Description
Dosha	Tridosha – Kapha dominant in the beginning, Vata dominant in Madhumeha
Dushya	Meda, Mamsa, Kleda, Rasa, Rakta, Shukra, Vasa, Majja, Lasika, Ojas
Agni	Jatharagni Mandya and Medodhatvagni Mandya
Srotas	Mutravaha, Medovaha and Udakavaha Srotas
Srotodushti	Atipravritti (excess flow)
Udbhava Sthana	Amashaya
Adhishthana	Basti
Vyakta Sthana	Mutra (urine)
Swabhava	Chirakari (slow and long-lasting)
Sadhyasadhyata	Yapya to Asadhya

7. Upadrava (Complications) and Sadhyasadhyata (Prognosis)

When Madhumeha is not controlled, many complications appear. These include Trishna (severe thirst), Atisara (diarrhoea), Jwara (fever), Daha (burning), Daurbalya (weakness), Arochaka (loss of taste), Avipaka (indigestion) and Putimamsa Pidika (boils with rotten flesh). The classics also describe ten Prameha Pidika such as Sharavika, Kacchapika, Jalini, Vinata, Alaji, Masurika and Vidradhi, which appear on the back, joints and other soft areas. As for prognosis, Kaphaja Prameha is curable (Sadhya), Pittaja is controllable (Yapya) and Vataja including Madhumeha is incurable

(Asadhya). Sahaja Madhumeha is called Asadhya, while the acquired type, if found early in a strong patient, can be kept under control.[11]

8. Chikitsa (Management)

The line of treatment depends on the body build, strength of the patient and stage of the disease. The first and most important step is Nidana Parivarjana, which means giving up the causes. An obese and strong patient (Sthula Balavan) is first given Samshodhana (purification) like Vamana and Virechana, followed by Apatarpana (reducing therapy). A lean and weak patient (Krisha Durbala) is given Brimhana (nourishing therapy) and Rasayana. Shamana therapy uses drugs of Tikta (bitter) and Kashaya (astringent) taste, which dry up the excess Kapha, Meda and Kleda. Commonly used single drugs are Haridra, Amalaki, Guduchi, Meshashringi, Vijayasara, Jambu Beeja and Shilajatu, and classical formulations include Nyagrodhadya Churna, Chandraprabha Vati, Shilajatvadi Vati, Vasant Kusumakar Rasa and Vidangadya Lauha.[12]

Vyayama (exercise) is given special place in the treatment of Prameha. Acharya Sushruta even advises a poor patient to walk long distances and dig a well with his own hands. This shows how much the classics stress physical work for a patient of Prameha. Daily walking, Udvartana (dry powder massage) and avoiding day sleep are advised. The diet advice is given in Table 2.

Table 2. Pathya and Apathya in Madhumeha

Type	Pathya (Wholesome)	Apathya (Unwholesome)
Ahara (Diet)	Yava (barley), Purana Shali (old rice), Mudga (green gram), Kulattha, Chanaka, Patola, Karavellaka (bitter gourd), Jambu, Amalaki	Navanna, Dadhi, Guda, Ikshu, sweets, Anupa Mamsa, excess milk products, Madya (alcohol)
Vihara (Lifestyle)	Vyayama, brisk walking, Udvartana, Yoga	Divaswapna, long sitting, lack of exercise, holding natural urges

9. Modern View and Correlation with Diabetes Mellitus

As per the American Diabetes Association, Diabetes Mellitus is mainly divided into Type 1 diabetes (due to destruction of insulin-making beta cells), Type 2 diabetes (due to slow loss of insulin secretion on a background of insulin resistance), gestational diabetes and other specific types. Diabetes is diagnosed when any one of these is present: fasting plasma glucose of 126 mg/dl or more, 2-hour plasma glucose of 200 mg/dl or more during an oral glucose tolerance test, HbA1c of 6.5% or more, or random plasma glucose of 200 mg/dl or more with classic symptoms.[13] The close similarity between the two systems is shown in Table 3.

Table 3. Correlation of Madhumeha with Diabetes Mellitus

Ayurvedic Concept	Modern Correlation
Sahaja Prameha / Krisha Pramehi	Type 1 Diabetes Mellitus (genetic, lean patient)
Apathyanimittaja Prameha / Sthula Pramehi	Type 2 Diabetes Mellitus (lifestyle, obese patient)
Purvarupa stage	Prediabetes / impaired glucose tolerance
Prabhuta Mutrata, Pipasa, Kshudhadhikya	Polyuria, polydipsia, polyphagia
Madhura Mutrata	Glycosuria
Agnimandya, Abaddha Meda	Faulty metabolism, obesity, insulin resistance
Ojas Kshaya, Karshya, Daurbalya	Loss of glucose and protein, weight loss, fatigue
Kara-Pada Daha and Suptata	Diabetic peripheral neuropathy
Prameha Pidika	Diabetic carbuncles, skin infections, diabetic foot

RESULTS AND FINDINGS

- Madhumeha is one of the four Vataja types of Prameha and is the final, most serious stage of all neglected Prameha.

- Its main causes are heavy, oily and sweet diet, lack of exercise, day sleep and Beeja Dosha, which are similar to the risk factors of Diabetes Mellitus.
- Agnimandya, Kapha Prakopa and Abaddha Meda form the base of disease formation.
- Madhumeha develops by two routes – Avarana (in obese patients) and Dhatukshaya (in lean patients).
- Sahaja and Apathyanimittaja types broadly match Type 1 and Type 2 Diabetes Mellitus.
- Purvarupa of Prameha closely resembles the prediabetic stage, which gives a chance for early prevention.
- Prabhuta Mutrata, Madhura Mutrata, Pipasa, Kshudhadhikya and Karshya match the classic symptoms of Diabetes Mellitus.
- Upadrava such as Kara-Pada Daha, Suptata and Prameha Pidika match diabetic neuropathy and skin infections.
- Treatment is planned according to body type – Shodhana and Apatarpana for Sthula, Brimhana and Rasayana for Krisha – along with Pathya Ahara and Vyayama.

DISCUSSION

The Samprapti of Madhumeha explains the disease in a way that is very close to the present understanding of Type 2 Diabetes Mellitus. Agnimandya at the level of Jatharagni and Medodhatvagni can be understood as faulty metabolism of food. The increase of Abaddha Meda (loose, unhealthy fat) is similar to the gathering of excess fat in the body and around the abdomen. Modern studies have shown that excess fat tissue releases free fatty acids, hormones and inflammatory substances, which reduce the action of insulin and slowly damage the beta cells of the pancreas.[14] In the same way, the classics say that Kapha and Meda block the path of Vata (Avarana). The other route, Dhatukshaya, fits well with Type 1 diabetes and the late stage of Type 2 diabetes, where weight loss and weakness are common. The loss of Ojas through urine can be linked with the loss of glucose and body protein.

The treatment plan of Ayurveda is not limited to lowering blood sugar. It works on the root cause through Nidana Parivarjana, corrects Agni, removes excess Kapha and Meda through Shodhana, and gives strength to the tissues through Rasayana. The Tikta and Kashaya drugs advised in the classics, such as Haridra, Amalaki, Meshashringi, Vijayasara and Jambu, have shown blood sugar lowering, antioxidant and fat-reducing actions in many studies. Reviews on this subject also support the idea that the Ayurvedic plan of diet, lifestyle and herbal medicine can be used along with modern treatment for better control and fewer complications.[15] The idea of treating Sthula and Krisha patients differently is also close to the modern way of personalised care in diabetes.

The stress on diet and exercise in the classics is now supported by strong modern evidence. The well-known Diabetes Prevention Program trial showed that diet change and regular physical activity reduced the chance of developing diabetes by 58% in high-risk people, which was better than the drug metformin (31%).[16] This matches the classical teaching of Nidana Parivarjana, Pathya Ahara and Vyayama, and the advice of Acharya Sushruta to walk and work hard. Since the Purvarupa stage of Prameha is similar to prediabetes, early detection and correction of lifestyle at this stage can stop the disease from moving on to Madhumeha. Thus, a sound understanding of the classical concept can help in both prevention and management of Diabetes Mellitus.

CONCLUSION

Madhumeha described in Ayurveda shows a close resemblance with Diabetes Mellitus in its causes, early signs, symptoms, complications and course. The classical view that it starts from Agnimandya, Kapha and Meda and ends in Vata aggravation with loss of Ojas gives a clear and complete picture of the disease. The division into Sahaja and Apathyanimittaja, and into Sthula and Krisha patients, helps in choosing the right treatment for each person. The knowledge of Purvarupa gives a chance for early prevention, and the stress on Nidana Parivarjana, Pathya Ahara, Vyayama, Shodhana, Shamana and Rasayana offers a safe and complete approach. Further well-planned clinical studies are needed to prove the value of these classical principles and formulations in the management of Diabetes Mellitus.

DECLARATIONS

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