

# Madhumeha: A Term Often Misused for Diabetes Mellitus

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## ABSTRACT

Diabetes is acquiring epidemic proportions despite our deep understanding of underlying molecular mechanisms, ensuing cellular events and availability of interventional modalities to counter its pathogenesis and complications. People are turning towards Ayurveda with a hope to find comprehensive solution for this condition. Ayurveda has a long tradition of treating diabetic patients and has its own strengths over the conventional system of Biomedicine. Neither of these systems, however, seems capable of fully addressing the problem of diabetes. An integrated approach involving both of the systems seems better approach than using either of these. But the adoption of an integrated approach requires a thorough understanding of pathogenesis of diabetes according to both systems. Generally, diabetes is correlated with an Ayurvedic disease called *madhumeha*. We propose that this correlation is erroneous and based on partial understanding of the pathogenesis of diabetes. This article establishes that diabetes mellitus should be correlated with *sthaulya*, *kaphaja prameha*, *pittaja prameha* or *vataja prameha* (including *madhumeha*) depending upon the pathogenesis and clinical manifestations in a particular patient.

**Key Words:** Diabetes, Ayurveda, *Sthaulya*, *Prameha*, *Madhumeha*, *Kriyakala*, Polyuria

## INTRODUCTION

Diabetes mellitus (DM) is a rapidly growing metabolic disorder of multiple etiologies, characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism result from body's inability to produce enough insulin and/or effectively utilize the insulin [1]. The first WHO Global report on diabetes shows that the number of adults living with diabetes has almost quadrupled since 1980 to 422 million adults [2]. Despite deep understanding of underlying molecular mechanisms, ensuing cellular events, prodigious advances in medical

technologies and new drugs development, the Biomedicine is still not in a position to cure diabetes. The economic burden, morbidity and mortality associated with diabetes are increasing day by day. The ancient Indian system of medicine, Ayurveda, originated in the Vedic period (1500-600 BC), [3] aims to protect and maintain the health of a healthy person and to cure the diseased one in a holistic way. Ayurvedic medicine is known for its potential to work on multifactorial interlinked complex pathologies. However, neither Biomedicine nor Ayurveda seems capable of completely addressing the

problem of diabetes. Both systems of medicine have their own strengths, and an integrated approach seems a better option to tackle the problem of diabetes. To make it effective we need to understand the diabetes in terms of Ayurvedic concepts and conditions with similar etiology and presentations. Diabetes is not a new disease. It is a medical condition known since antiquity. There is a group of clinical conditions characterized by polyuria which find place in the writings of Indian physicians as *prameha*. Charaka, Sushruta and Vagbhata were the prominent Indian physicians who had described the disease *prameha* as a set of complex urinary disorders in their famous treatise *Charaka Samhita*, *Sushruta Samhita* and *Astanga Hridaya* respectively. The similar etiology and clinical manifestations correlate diabetes mellitus with *prameha*. However nowadays, diabetes mellitus is being correlated with *madhumeha*, which is actually the terminal stage of *prameha*. The term *madhumeha* has become so popular that it is being used as synonym of diabetes mellitus. We propose that this correlation is erroneous and based on partial understanding of the pathogenesis of diabetes. It is important to recognize that *madhumeha* and diabetes mellitus are not synonyms. Correlations between diabetes and *madhumeha* or *prameha* should be made on the basis of comprehensive study of their pathogenesis in both systems. The whole management protocol depends upon the correct interpretation only. The purpose of this article is to correlate diabetes mellitus in terms of *Ayurveda*.

### EARLY PHASES OF PATHOGENESIS MAY NOT BE DISEASE SPECIFIC

According to Ayurveda “*swastha* or the healthy person is an individual who is in a state in which the *doshas*, *agni* and *dhatu*s are all in equilibrium, the excretion of *mala* (the body wastes) is regular and the mind, senses and the soul are all tranquil” [4] [chapter 15 verse 41] [5]. The disease is defined as a state of disturbed equilibrium

of one or more of above factors. It is a fundamental concept of Ayurveda that the genesis of disease occurs through six successive phases or stages. Etiological factors initiate and sustain a chain of events which ultimately manifest as disorder or disease. The initiation and progression of these events depend upon multiple factors such as intensity and duration of exposure to etiological factors, season, body type (*prakriti*), strength of body tissues (*dhatu*s) etc. The six stages through which a disease develops are known as *kriyakala*. These are *samchaya* (accumulation), *prakopa* (aggravation), *prasara* (spreading or migration), *sthanasamshraya* (localization), *vyakti* (manifestation) and *bheda* (differentiation/complication). Each stage of *kriyakala* produces some features of respective *doshas* on the basis of which it can be diagnosed and subjected to drug or non-drug treatment. Intervention in early stages increases the likelihood of better outcome. At stage of *sthanasamshraya* the prodromal symptoms (*poorvaroopa*) of a disease begin to appear. *Poorvaroopa* may or may not be disease specific. *Vyakti* is the stage of manifestation of disease specific signs and symptoms, and at this stage a specific diagnosis can be made about a disease [4] [chapter 21 verse 18-37].

### DIABETES IN AYURVEDA

The diabetes is a metabolic disorder that may not be correlated with a single disease described in Ayurveda. But it can be correlated with multiple disease conditions on the basis of etiology, pathogenesis and clinical presentations. Following conditions need a close examination in order to make correlations and manage the diabetes and its complications.

1. *Sthaulya*
2. *Prameha*
3. *Madhumeha*

### *Sthaulya* and *Prameha*

*Sthaulya* is described under the heading of eight condemnable conditions

(*ashta-nindaniya*) of human body [6] [chapter 21 verse 3] whereas *prameha* is included under eight major disorders (*mahagada*) [4] [chapter 33, verse 4-6] by Indian physicians, which show the significance and complexity of the disease. *Prameha* is recognized as *sahaja* (due to genetic causes) and *apathyanimittaja* (due to faulty diet and regimens) [6] [chapter 11, verse 3]. Both *sthaulya* and *apathyanimittaja prameha* share similar etiology and caused by excessive nourishment (*santarpanjanya*) [6] [chapter 23, verse 5] and accumulation of excess fat in the body (*medopradoshaja*) [4] [chapter 24 verse 9]. Genetics (*bija-swabhava*) and psychological factors [e.g. gratified life (*harshanityama*) and lack of mental stress (*achintana*)] also play important role in causation of both *sthaulya* and *prameha* [6] [chapter 21 verse 4]. *Sthaulya* in itself is a causative factor (*nidanarthakararoga*) of *prameha* [4] [chapter 15 verse 32]. *Kaphavardhaka* *ahara-vihara* (diet and lack of physical activities which results in energy surfeit) are main causative factors for *sthaulya* [4] [chapter 15 verse 32] and *apathyanimittaja prameha* [8] [chapter 6 verse 4]. *Sthaulya* occurs due to excessive nourishment, impairment of *medodhatwagni* and increase in *meda dhatu* (fat tissue). Impairment of *medodhatwagni* (both in quantity and quality) sets the metabolism in favour of accumulation of *meda dhatu*. It also creates a metabolic state where rest of the body tissues such as *asthi*, *majja* and *shukra dhatus* are adversely affected [6] [chapter 21 verse 4]. *Sthaulya* presents as *udara-parshwa-vriddhi* (accumulation of fat in abdominal area - central obesity) [4] [chapter 15 verse 14] and predispose an individual to *prameha*. But despite this predisposition every obese person does not develop *prameha*. It requires *bahvah abaddha meda* (excess, abnormal and unbound *meda dhatu*), *bahu dravah shleshma* (liquid property of *kapha*) and *sharir-shaithilya* (looseness of body) as additional factors to develop into *prameha*. It is clear from the above discussion that

multiple factors are involved in the pathogenesis of this condition. First it is *kapha* which increases in quantity due to various causes and also gets liquefied (*bahu dravah shleshma*), followed by *shaithilya* or *shithilikarana* (looseness) of body thus preparing a base for the initiation of pathological events i.e. body's susceptibility for the disease. Next the association of *kapha* occurs with excess (*bahu*) and unbound/unutilized (*abaddha*) *meda*, *mamsa* and *kleda* leading to various presenting features of the disease [9] [chapter 4 verse 7-8]. Many of the symptoms of *sthaulya* and prodromal symptoms (*poorvaroopa*) of *prameha* are common such as *meda dhatuvriddhi*, excessive thirst, hunger, bad body-odour etc [4] [chapter 15 verse 32] [10] [chapter 6 verse 5].

### **Prameha and Diabetes mellitus**

Ancient *Ayurvedic* scholars define *prameha* as excessive abnormal micturition [10] [chapter 6 verse 6] whereas diabetes mellitus (DM) is defined as a state of hyperglycemia. Like *prameha*, diabetes mellitus is also categorized into two types; Type I DM or insulin dependent DM and Type II DM or non-insulin dependent DM. Similar etiology and clinical manifestations correlate Type I DM to *sahaja prameha* and Type II DM to *apathyanimittaja prameha*. Both Type I DM and *sahaja prameha* are caused by genetic factors and affected persons are lean, weak, emaciated and need to be treated with nourishing diet (*santarpana*). Type II DM and *apathyanimittaja prameha* are caused by excessive nutrition and sedentary lifestyle and such persons are afflicted with obesity (*sthaulya*), polyphagia, sleepiness, laziness, and need to be treated with reducing (*apatarpana*) therapy [6] [chapter 11 verse 3-4]. In both of the above clinical conditions genetics and psychological factors play major role.

### **Prameha and Madhumeha**

It has become a common practice nowadays to use the term *prameha* and

*madhumeha* interchangeably. The term *madhumeha* is used as synonym of diabetes mellitus. This is creating a lot of confusion and setting a dangerous trend of treating every diabetic on the line of *madhumeha*. Although *prameha* is a *tridoshaja* disease (vitiation of all three *doshas*)<sup>[9]</sup> [chapter 4 verse 3], but initially the *apathyanimittaja prameha* is a *kapha* predominant stage. In later stages, however, other *doshas* may get involved in different proportions and produce *kaphaja*, *pittaja*, *vataja* and *dwandaja prameha*. *Apathyanimittaja pramehi* are usually comparatively *sthoola* and have *kapha* predominance initially, however if disease is not controlled either by diet or/and drugs, the vitiation of *pitta* followed by vitiation of *vata* occurs. Therefore, *kaphaja*, *pittaja* and *vataja prameha* are three different stages of the same disease with the former being the early stage and later the late stage with the stage of *pitta* predominance in between. *Sahaja pramehi* are lean, emaciated and may have *vata* predominant stage of disease from the very beginning. *Madhumeha* is a type of *vataja prameha* which occur either independently due to genetic causes (*sahaja pramehi*)<sup>[8]</sup> [chapter 6 verse 57] or improper management of other types of *prameha* (*apathyanimittaja*)<sup>[10]</sup> [chapter 6 verse 27]. *Madhumeha*, therefore, is a terminal stage of *prameha* characterized by *dhatukshaya* and is incurable<sup>[8]</sup> [chapter 6 verse 7] or extremely difficult to cure<sup>[6]</sup> [chapter 17 verse 80] whereas *kaphaja prameha* is an early stage which is curable if properly managed<sup>[8]</sup> [chapter 6 verse 7]. *Sthoola pramehi* at a later stage can become a *krisha pramehi* due to *dhatukshaya* and predominance of *vata*. *Vata* stage, however, can manifest independently without passing through the stage of *kapha* predominance as happens in case of *sahaja prameha*. Therefore, *prameha* can either be *kapha*, *pitta* or *vata* predominant stage but *madhumeha* is always a *vata* predominant stage of *prameha*. Therefore, it is incorrect to use the term *madhumeha* for all cases of diabetes. Diagnosing every case of diabetics

as *madhumeha* would lead to wrong management of diabetes mellitus.

### **DIFFERENT DIABETIC CONDITIONS AND THEIR POSSIBLE CORRELATION**

#### **A person with hyperglycemia and absence of polyuria**

A person with mild hyperglycemia but without polyuria qualifies to be a diabetic as per current definition of diabetes. But such a person can neither be termed as *pramehi* nor *madhumehi* as the cardinal feature of the former is polyuria, and the later is polyuria associated with emaciation and severe debility. Polyuria occurs due to osmotic diuresis, when glucose level is so high that glucose is excreted in the urine (glycosuria) and water follows the glucose concentration passively, leading to abnormally high urine output<sup>[11]</sup>. However, majority of diabetics without polyuria are those who are over-nourished or obese. Therefore, such patients should be considered as *atisantarpita* and *sthoola*, and treated for *sthaulya*.

#### **A person with hyperglycemia and polyuria without dhatukshaya**

Diabetes with polyuria and without *dhatukshaya* (emaciation) is certainly a *prameha* but cannot be considered as *madhumeha* as it does not meet the criteria of tissue wasting (emaciation) and severe debility. The diabetes of this severity can be diagnosed as one of the *kaphaja pramehas* and not as *madhumeha*.

#### **A person with hyperglycemia, polyuria, debility, susceptibility to other diseases and complications**

This is a person with increasing severity of diabetes, wasting of tissues, increased susceptibility to other diseases and subject to various complications particularly of vital organ systems. This condition qualifies to be called as *madhumeha* or *ojomeha* since it generally occurs due to continuous neglect of *kaphaja prameha*<sup>[10]</sup> [chapter 6 verse 27], represents advanced stage of disease and associated with features of *ojokshaya* (*murchha*, *mamsakshaya*, *moha* and *pralapa*)<sup>[4]</sup>

[chapter 15 verse 24]. It is an incurable condition. Such a condition is usually characterized with absolute insulin deficiency which may occur either in Type I DM or in advanced stages of Type II DM.

## CONCLUSION

It can, therefore, be concluded that all diabetic patients are not *Madhumehi*. Diabetes is a condition that can be correlated with at least four disease conditions mentioned in Ayurveda. It can be correlated with *sthaulya*, *kaphaja prameha*, *pittaja prameha* or *madhumeha* depending upon the clinical features it presents with. Diabetes should not always be treated on the line of treatment of *madhumeha* but an alternate diagnosis of one of the above mentioned conditions should be considered.

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How to cite this article: Kumar R, Mishra D, Kumar M. Madhumeha: a term often misused for diabetes mellitus. *Int J Health Sci Res*. 2018; 8(5):272-276.

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