

UNDERSTANDING OF MADHUMEHA AND ITS TEN DUSHYAS IN LIGHT OF CONTEMPORARY KNOWLEDGE

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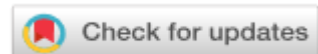
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ABSTRACT

The word *Madhumeha* comprises two words i.e., *Madhu* and *Meha*. The word *Madhu* is gotten from the root '*Manyante Visheshena Janati Jana Yasmin*'. The root "*Manjane*" is applied by *Dha Adesha*, and it shows the similitude of physical and chemical characteristics of urine etc. According to *Acharya Charaka* vitiation of three *Doshas* causes 20 types of *Prameha* and also other innumerable disorders. *Nidan*, *Dosha* and *Dushya* these three factors when combined immediately and in a strong state cause the immediate manifestation of *Prameha*. In *Madhumeha* patient passes a large quantity of urine which looks like *Madhu* (honey) and has *Kashaya* (astringent taste) and *Madhur* (sweet) taste. *Acharya Sushruta* has told *Kshaudrameha* in place of *Madhumeha*. Hereditary inclination additionally expands the liking of an individual getting beset with *prameha*. The unnecessary *Abaddha meda* (loose lipid), *Mamsa* (muscle proteins), *Kleda* (body fluids), *Shukra* (reproductive tissues), *Shonit* (blood), *vasa* (muscle fats), *Majja* (bone marrow), *Rasa* (body liquid with plasma), *Oja* (immunity and immune system of body) are significant components engaged with the pathogenesis of *prameha*.

Keywords: *Madhumeha*, Diabetes, *Meda*, *Mamsa*, *Kleda*, *Shukra*.

INTRODUCTION

Diabetes mellitus is becoming the fastest extensive disease in the world. India has been assessed with the

fastest-growing population of Diabetics. It is a metabolic disorder that may result in deficiency or

dysfunction of insulin production. Diabetes is characterized by a common feature of chronic hyperglycaemia with a disorder of carbohydrate, fat and protein metabolism, which leads over the long run to genuine harm to the heart, brain, veins, eyes, kidneys and nerves.¹ The occurrence of diabetes increasing rapidly day by day. Type-2 diabetes is most common and presents about 90% of all diabetic cases. About 422 million people worldwide have diabetes, the majority living in low-and middle-income countries, and 1.6 million deaths are directly attributed to diabetes each year. In the past few decades, both the number of cases and the prevalence of diabetes have been steadily increasing continuously. In India, according to WHO reports show that 32 million people had diabetes in the year 2000 and by the year 2030 India would have around 80 million diabetic patients and would contribute 20% of the world's diabetic population. A sedentary lifestyle, irregular dietary habits, and stressful conditions may lead to various ailments and diabetes mellitus is one of them. In Ayurveda clinical features, etiopathogenesis and prognosis of *Madhumeha* resemble that of diabetes mellitus. Diabetes mellitus may lead to various longstanding complications like diabetic Retinopathy, Nephropathy, Neuropathy etc. Hence prevention of Type -2 diabetes is a major issue nowadays. The beta cells of the islets of Langerhans in the pancreas gland are responsible for the production of the hormone insulin. The hormone insulin is extremely crucial for the proper utilization of carbohydrates in our bodies. If insulin is absent either due to metabolic disorder, or if it is not carrying out its functions properly, then these carbohydrates accumulated in the bloodstream in the form of glucose. The glucose then passes into the urine, which is seen in the primary features of diabetes mellitus. Hence, this can be supposed to be either A deficiency in the making of insulin by the pancreas or A dysfunction of the insulin formed by the pancreas.² *Madhumeha* comprises of two words; *Madhu* means sweetness/honey and *meh* means excessive urination. The synonyms mentioned in Ayurvedic texts are *Madhumeha*, *Ojo Meha*, *Kshaudrameha*. *Madhumeha* is one of the twenty types of *Prameha*. If these *Prameha* are not cured properly then they might

convert into *Madhumeha* and become incurable. *Acharya Sushruta* portrayed the term *Kshaudrameha*, instead of *Madhumeha*. The *Kshaudra* is one of the assortments of *Madhu*. So, it is obvious to us, that *Kshaudrameha* takes after *madhumeha*. *Ojomeha* is a subtype of *vātajā prameha*. The depletion of *oja* through the urine changes its taste and texture by vitiated *vata* consequences in *Ojomeha*. Alteration in qualities of *Oja* is due to '*Vata Prabhava*'.³ At the gross level, *Prameha* is viewed as an endocrinal and metabolic problem. Characterization of *Prameha* as *Sahaja* (innate) and *Apathyanimitaja* (acquired) favours the connection of *madhumeha* as diabetes mellitus.

1. Genetic (*Sahaja*) occurring at a young age from the very beginning of life has similarities with juvenile-onset diabetes or insulin-dependent diabetes.
2. Acquired (*Apathayaj*) due to an unwholesome lifestyle that occurs in old ages and the obese person has similarities with type 2 diabetes and its incidence is more as compared to type 1 diabetes.⁵

All those etiological factors of *Prameha* mentioned in our Ayurvedic text are also the contributing factors of *Madhumeha* as it is one of the varieties of *Prameha*. Lack of exercise and consumption of food that aggravates *Kapha*, *Meda* and *Mootra* are major causative factors of the disease. These are the inactive habits and increased eating of sweets and fats in daily diet.⁴ Etiological variables (particularly *kapha*-predominant), *doshas*, and *dushyas* can activate the appearance of *kaphaja prameha*. The bothered *kapha* spreads everywhere on the body rapidly on account of limp muscles and greasy tissues. The *kapha* mixes rapidly with the *medas* (fat) – essentially on the grounds that the fats regularly are unreasonable in amount and thick and delicate in great body conditions yet in addition on the grounds that *kapha* and *medas* share indistinguishable characteristics. As *kapha* itself is vitiated, it vitiates *medas* simultaneously. The vitiated *kapha* - *meda* then blends in with *mamsa* (muscle tissues) and *kleda* (dampness/body liquid), in as much as these two should have just surpassed their amount. Vitiating of the muscle tissues gives a suitable environment to the appearance of putrefied carbuncles (*pidika*) like

sharavika and *kacchapika* in the muscle. The fluid dhatus in the body get additionally vitiated and changed into *mutra*. *Vrikka* (kidney) and *basti* (urinary bladder) are at the two finishes of the channels conveying urine; the openings of these channels get influenced by *meda* and *kleda*. The vitiated *kapha* hinders the openings of these channels. This outcome is the sign of *prameha* which gets ongoing or hopeless because of the fondness of all characteristics of *kapha* and concurrent vitiation of homogenous and heterogenous *dhatu*.⁵

Different correlations of all dushyas in the development of prameha *bahuabaddha meda* (loose lipids), *mamsa* (muscle proteins), *kleda* (body fluids), *shukra* (reproductive tissues), *shonita* (blood), *vasa* (muscle fats), *majja* (bone marrow), *rasa* (body liquid with plasma), *rakta* (blood cells) *oja* (immunity and immune system of body)⁶

Following Dushyas are associated with the pathogenesis of Prameha (T2DM)

Meda dhatu:

Meda vitiation is normal and predominant *dushya* in the pathogenesis of *madhumeha*. *Kapha* and *meda* both have close similarities concerning capacities just as to subjective boundaries. Both get vitiated pretty much by same etiological variables. In *madhumeha* vitiation of *meda* results by two different ways

1. **Qualitative: Abaddha (free):** The typical capacity of *meda* is to deliver unctuousness in the body alongside *drudhatva* (conservativeness). This *abaddhatva* (detachment) causes disturbance in the structure of *meda* creating *shaithilya* (heaviness) in the body this can very much correspond with FFA overabundance.
2. **Quantitative: Bahu (excess):** Here in the pathogenesis, *meda* is in abundance amount. This *meda dhatu* is *aparipakva* (youthful). It impedes the way of *vayu* alongside *kapha*. This incited *vata* builds the *agni*, so understanding eats increasingly more food causing an inordinate statement of *aparipakva meda*. This in turn causes serious digestion of the other dhatus and produces different signs and side effects.⁷ Overabundance of fat in the body get changed over into FFA and is used in

energy digestion particularly in the muscles causing maintenance of glucose in the blood. Expanded craving in *Medoroga* is because of expanded body interest, which is disclosed to be because of hyperinsulinism or prolonged release of growth chemicals. Diabetes has been contrasted and the fasting condition of the body, ketosis is nothing else except for the high-level fasting phase of the body, so the injurious impact of long quick extraordinarily in the patient of corpulence is same as in diabetic stage.⁸

Mamsa Dhatu:

It is one of the fundamental *Dushyas* (vitiating factors) portrayed by *Charak* concerning *prameha*. He described it, particularly in *kaphaja prameha* and *Avaranajanya madhumeha*. *Mamsa* and *Kapha* have comparative characteristics, and both invigorate the body. At the point when vitiated, *mamsa* loses its typical consistency and creates *shaithilya* and give space in the middle of the collection greasy tissue. That thus results in *putimamsapidika*. *Mamsa dushti* can be contrasted with disturbed protein digestion which is a vital piece of diabetes mellitus. Examination contemplates have discovered that glucocorticoid exercises and acidosis invigorate protein and amino corrosive catabolism. Amino acids breakdown in liver outcomes in expanded creation of urea and these free amino acids can be contrasted and *abaddhamamsa*. *Putimamsa* and *pidika* are the dismal conditions of *mamsa dhatu*. Two significant changes occur in *mamsa dhatu* - protein debasement and decrease in its blood supply, the two of which alongside raised glucose level structure a great media for the development and duplication of microorganisms. The outcomes are festering and the development of different septic foci in *mamsa dhatu*. Decreased protein amalgamation hampers the mending cycle and these intricacies receive the constant course.⁹

Majja Dhatu:

Majja dhatu isn't vitiated to the greatest degree however *vata* causes its *kshaya* for example exhaustion. Accordingly vitiated *majja* produces indications like *netra gaurava* (heaviness in eyes), *Angagaurava* (heaviness in the body) in inpatient of *madhumeha*.

The ketone body's creation because of unreasonable usage of fat might be suggested to *dushti* of *vasa* and *majja*. *Murccha* (brief loss of cognizance) happens due to *dushti* of *majja* in diabetes mellitus. The state of hyperglycaemic unconsciousness is described by the gathering of ketone bodies. Diabetes also affects the morphology and function of bone marrow and damages the mobilization of immature cells into the bloodstream, thus declining the pool of circulating cells with regenerative potential. Bone marrow is a supple tissue found inside bones. Bone marrow is liable for creating red and white blood cells. White blood cells assume a significant job in how the body battles contamination. Marrowfat emphatically corresponded with bone development and resorption markers, recommending that in more seasoned men, higher marrow fat was related to diabetes and higher bone turnover. More significant marrowfat is related to lower BMD and traded off bone strength. Marrowfat is unmistakably raised in creature models of diabetes. In people, the relationship between marrow fat and diabetes is less clear, in spite of the fact that marrow fat has been appeared to associate with A1c and may have an alternate immersed and unsaturated marrow fat synthesis.¹⁰

Rasa: *Rasa* is the seat of *kapha dosha*. Simultaneously it is the mala of *rasadhātu*. So, vitiation of *kapha* is the consequence of vitiation of *rasadhātu*. The indications like *alasya*, *gaurava* and *karshya* appear, therefore.

Rakta: Mainly associated *dushya* in *Pittaja Meha samprapti*. The manifestations and signs because of its inclusion are *Daha*, *pidika*, *Vidradhi* and so forth.

Shukra: *Shukra* likewise gets vitiated in the pathogenesis and produces indications like *Daurbalya* (weariness) and *kruchravayavayatha* (trouble in sex), since ordinary elements of *shukra* are to keep up *deha bala*. *Vata* causes consumption of *Sukradhātu* and subsequently causes *Shukra Meha*. It likewise assumes a part in the precipitation of *sahaja* (hereditary) *prameha* and happens because of *Beeja Dosha*. Sexual impotency and testicular hypofunctions have been accounted for in diabetes mellitus. DM significantly affects the fertility of men with this sickness both straightforwardly and by implication. DM may influence male conceptive capacity at various levels

because of its impacts on the endocrine control of spermatogenesis, spermatogenesis itself, or by hindering penile erection and discharge. Hence, male barrenness issues may turn out to be more inescapable as diabetes rates rise.¹¹

Ojas: *Ojas* as *dushya* is for the most part associated with *vataja prameha* for example *ojo Meha* (*madhumeha*). The side effects of *ojakshaya* show, as *Gurugatrata* (heaviness in the body), *nidra* (sleepiness), *tandra* (drowsiness) and *Daurbalya* (weakness) can be associated with an immunocompromised stage in diabetes mellitus because of unhinged resistance. Diabetes is a metabolic illness that happens because of irritation in a complex immunological cycle. Insulin opposition because of insulin flagging hindrance brings about a progression of resistant reactions that compound the provocative state, which prompts hyperglycaemia. Both inborn safe reaction deserts (counting brokenness of neutrophils and macrophages) and brokenness of the versatile resistant reaction (counting T cells) are believed to be answerable for insusceptible framework shortcoming against attacking microbes in diabetic subjects. A superior comprehension of the systems of hyperglycaemia that weaken have protection against microorganisms is pivotal for the advancement of novel techniques to treat contaminations in diabetic patients, consequently improving treatment results.¹²

Kleda: This is one of the body constituents fundamentally associated with pathogenesis. The abstract implications of *kleda* are wetness, dampness and so forth. The physiology of *kleda* is fundamentally related to *mutra* and *sweda* alongside *meda*. Consequently, when *kleda* is included then it straightforwardly influences the above components. In ordinary physiology *mutra* and *sweda* keep up the equilibrium of *kleda*. Particularly *sweda* holds it in the body and *mutra* gets discharged out of the body as per the body condition and necessity. In the event that *kleda* gets vitiated it straightforwardly influences the physiology of *mutra* and *sweda* and disturbs the collection of real components causing *shaithilya*. Accordingly, the manifestations show due to *kleda* vitiation are *Prabhoothamoot-rata* (polyuria), *swedavrdhhi* (expanded perspiring),

shaithilya (shortcoming), Daurgandhya (terrible stench) and Avilamutrata (turbid urine). The glycosuria raises the osmolar centralization of the urine and osmotic diuresis bringing about water and sodium misfortune alongside potassium prompts summed up a shortcoming in the patient with diabetes mellitus. The degree of catecholamines being expanded in DM causes unreasonable perspiring that further prompts loss of electrolytes, for example, sodium and chlorides through the skin. The entire wonder portrayed under *kleda* can be associated with water and electrolyte imbalanced.¹³

Vasa: Acharya Charaka portrayed it as a subtype of *vataja prameha* for example *vasameha*. Vasa is the *upadhatu* (minor tissue or sub-tissue) of *mamsa* and the unctuousness present in the *mamsa dhatu* is called *vasa*. Fat tissue is an endocrine organ that impacts both glucose and lipid digestion by delivering adipokines, pro-inflammatory factors, and free unsaturated fats (FFAs), which disable glucose digestion and muscle ATP blend, advance the combination of harmful lipid metabolites and modify insulin flagging. Insulin follows up on fat tissue

1. by animating glucose take-up and fatty oil union and
2. by stifling fatty substance hydrolysis and arrival of FFA and glycerol into the dissemination. Fat tissue insulin obstruction (Adipo-IR), that is, the hindered concealment of lipolysis within the sight of high insulin levels, has been related to glucose bigotry, and raised plasma FFA levels have been appeared to weaken muscle insulin flagging, advance hepatic gluconeogenesis, and disable glucose-stimulated insulin reaction. Insulin likewise is an adaptogenic chemical that expands the take-up of circling unsaturated fats and upgrades fatty oil amalgamation, along these lines invigorating the gathering of subcutaneous fat just as ectopic fat in the liver, muscle, pancreas, heart, and different tissues.¹⁴

Lasika: This is one of the fluid segments presented just underneath the skin. *Lasika* likewise gets vitiated by *vata* coming about *lasika Meha*. The *Dushti* of *Lasika* is depicted in *Hastimeha*. Vitiating *Vata* vitiates

Lasika, which results at last in *Lasikameha*. There is no immediate reference identified with *vasa* and *lasika dushti*.¹⁵

Sweda: Acharya Vagbhata has independently referenced *Sweda* as *Dushya*. *Sweda* is fundamentally identified with *Meda* and *Kleda*. In this way, the *Swedovaha Srotodushti* happens because of the vitiation of *Kleda* and *Meda*. *Sweda* gets upset bringing about indications like *Swedavruddhi*, *Daurgandhya*, *Picchilagrata*, *Snigdhatrata* and so forth *Susruta* has referenced that in *Madhumeha Sweda* turns out to be Sweet in nature.¹⁶

CONCLUSION

In the pathogenesis of *Prameha* ten *dushyas* are *bahuabaddha meda*, *mamsa*, *kleda*, *shukra*, *shonit*, *vasa*, *majja*, *rasa*, *rakta* and *oja* are involved. These ten *dushyas bahuabaddha meda*, *mamsa*, *kleda*, *shukra*, *shonit*, *vasa*, *majja*, *rasa*, *rakta* and *oja* can be correlated with loose lipid, muscle proteins, body fluids, reproductive tissues, blood cells, muscle fats, bone marrow, body liquid with plasma and immunity and immune system.

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