

## CONCEPTUAL REVIEW ON MADHU MEHAJA VRANA

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## ABSTRACT

*Pramehas* become a global problem in spite of advances in modern science. India has been projected by WHO as the country with the fastest growing population of Diabetic patients. It is estimated that between 1995- 2025 diabetic patients in India will increase by 195%. One out of every four diabetic will be an Indian. The whole world is looking at diabetes and diabetic ulcers as a threat to mankind. Hence successful and efficient management of diabetes and diabetic ulcer is the need of hour.

**Key words:** *Prameha, Madhumeha, Madhumehaja vrana, diabetes Mellitus, Hyperglycemia*

## INTRODUCTION

Ayurvedic System of Medicine clearly defines *Prameha* and its line of treatment. *Prameha* is a metabolic *kaphaja vyadhi*, in which improper functioning of agni leads to a tendency to increase blood sugar levels. If the disease is not treated properly, this will lead to madhumeha & further complications like *Pidaka's*. *Pidaka's* in due course will become *Dusta vrana's*. In patients of *Madhumeha*, foot ulcers are more common and they occur as a result of a variety of factors. Such factors include mechanical changes in conformation of the bony architecture of the foot, peripheral neuropathy and atherosclerotic peripheral arterial disease, all of which occur with higher frequency and intensity in the diabetic population.

**Prameha:** The word *Prameha* is derived from the root 'Meha- Sechanè' meaning, "watering". In reference to disease of human beings, it may have a meaning of passing urine, qualified by prefix 'Pra' meaning excess in both frequency and quantity. The name *Prameha* is self-explanatory which means *Prabhuta*

(excessive urination) and *Avilmutrata* (turbid urine). It is evidenced that Ayurvedic physicians even three thousand years ago were aware of the extent to which all the body tissues are involved in the pathogenesis of *Prameha*.

A study of the ancient literature indicates that *Prameha* was fairly well known and well-conceived as an entity in ancient India. Description of two types of *Prameha* from management point of view "Krisha" (Lean Diabetic) and "Sthoola" (Obese Diabetic) are classified in Ayurveda. On the very similar pattern we find the classification as *Sahaja prameha* (Congenital) and *Apathaya nimitaj prameha* (Due to overeating and wrong eating habits).

Three types of *Prameha* have been described based on *Doshika* predominance, which have been again sub classified into twenty types. It is a convention to classify every disease according to the predominance of specific *Doshas* in the body. Sub types of *Prameha* which are twenty in number have been described according to different properties

of Pitta and *Kapha* and the quality of *Dhatu* being passed through urine in *Vataja Prameha*. All the twenty subtypes classified depending on the coloration and other physical characteristics of urine can be found in practice with varying incidence. They can be placed under different systemic diseases or under different urological and nephrological problems.

### Genetic Factors in *Prameha*:

Genetic factors regarding *Prameha* are very clearly mentioned by *Charaka* and *Sushruta*. They have given a specific word 'Beej dosha' i.e. defect in genes. *Charaka* has described anatomy of Beej, which may be correlated as:

- ❖ Beej = Semen or *Shukra*
- ❖ Beej *Bhag* = Chromosomes
- ❖ Beej *Bhagavayava* = Genes

Widespread clinical studies of ancient *Acharyas* were so scientific that they could detect genetic factors involved in causation of *Prameha*. *Charaka* has mentioned that *Beejdosha* can occur at any level either at Beej level, Beej *Bhag* level or Beej *Bhagavayava* level. He puts example that parents are not blind but born child may be blind. Just like this, the parents may not be *pramehi* but off springs may be *pramehi* due to genetic defect or Beej *dosha*.

We find description of '*Kulaja*' diseases in *Charaka* and *Sushruta samhitas*, which denotes the knowledge of inheritance at ancient times. *Sushruta* said that *Kshetra*, *Ambu*, Beej & *Ritu* are four factors, which are to be kept in mind while discussing genetic involvement in any disease. Here *Kshetra* may be considered as reproductive organs of body of woman, Beej can be treated as sperm, *Ambu* can be considered as watery contents that give nutrition to

*foetus* and *Ritu* may be considered as the environment around the fertilized ovum or *foetus*. Also the physical and mental stages including dietary habits of mother can cause changes in the body of offspring's.

A *Sahaja* disease is produced due to certain defects in the *Bija* i.e. ovum and sperm from the mother and the father respectively. This can be interpreted as inherited disease. The description of *Kulaja Vikara* i.e., the tendency of *Prameha* running in families has been given by *Charaka*. Specific etiology consists of all these factors which increase their specific *Doshas*. For example those factors which increase or vitiate Pitta *Dosha* in the body are specific for *Pittaja Prameha*. So goes the case with *Kaphaja* and *Vataja Prameha*. This etiology which has been given for *Prameha* in general is specific for *Kaphaja Prameha*. If all the types of *Prameha* are not

### *Prameha Nidana*:

People who are obese, consume fried and heavy food in excess, leads a sedentary life, drink excess milk, curds, and eat new cereals, eat meat of *gramoudakanupa* birds and animals, consume sour preparation made of jiggery, do not like to do any sort of exercises and does not undergo *shodhana* measures are the causes for the *prameha roga*. *Purva Rupa* (*Prodromal symptoms*) of *Prameha*<sup>2</sup>: According to *Acharya Charaka*, the symptoms of *prameha* are *Dantadinam Maldhyatwam*, *Hasta-pada-tala Daha*, *Chikkanata Dehe*, *Swadu Asyata*, *Shithilangata*, *Swapna sukhe rati*, *Netra Jihwa sravan upadeho*, *Kesha-nakhati-vrdhi*, *Sheeta priyatwa*, *Gala-talu-shosha*, *Mutre Abhidhavant* *Pipilika*, *Kesheshu jatili bhavah*, *Tandra*, *Shweta madhura mutrata*, *kasa* and *Shwasa*. The same symptoms in their translated form are as under:

Excessive sleep, Fatigue, apathy, lack of pleasure etc. Excessive growth of nails and hairs, Sweet taste in the mouth., Dryness of palate and throat, Thirst, Attraction towards cold objects, Presence of excessive Mala's all over the body, Greasiness and numbness over body, Burning sensation in hands and feet, Honey like urine.

**Samanya Rupa (General features):** The characteristic features of all types of Prameha are Prabhutamutrata and Avilamutrata meaning excessive urination and turbidity in urine respectively.

**Prameha Samprapti:**

The kapha vitiates meda, mamsa, and the shareeraja kleda present in basti and result in prameha. This along with pitta causes pittaja type and along with vayu causes decrease in dhatus and causes vataja type of prameha. The doshas involved in prameha roga are vata, pitta and kapha. The dushyas are meda, rakta, shukra, kleda, vasa, lasika, majja, rasa and ojus.

**The samprapti ghatakas are as follows.**

Udbhava stana: Medovaha srotas.

Sanchara: Rasayanis [mutra vahinis]

Ashraya: Mutra vaha srotas.

Avayava: Basti.

Srotas: Medovaha, mutravaha and udakavaha.

Stanic dosha: Kledak kapha, pachaka pitta, and vyana vayu and apana vayu.

Samanya dushyas: Meda, mamsa, shareera kleda, rakta, vasa, lasika, majja & ojas

**Classification of Prameha:**

This includes the physical characteristics of urine of twenty types of Prameha, which has been grouped under three major heads of Vataja, Pittaja and Kaphaja Prameha. The names of these twenty types will be explained while explaining classification.

Ekshumeha (Kaphaja), Sheeta Meha (Kaphaja) and Madhumeha (Vataja) are the conditions synonymous to glycosuria where the patient passes sweet urine. Among these, Madhumeha refers to diabetic glycosuria while Ekshumeha and Sheeta Meha are non-- diabetic glycosurias.

Though Prameha is a Tridoshaja, the relative predominance of any one Dosha and dushya enables its classification into Vataja, Pittaja or Kaphaja Prameha. These have further been classified into twenty sub types in all the three classics of Ayurveda. Kaphaja and Pittaja Prameha has been sub classified into ten types and six types respectively. These sixteen types have the physical characteristics of urine i.e. colour, density and volume depending upon the different Gunas of Kapha and Pitta. Vataja Prameha has been sub classified into four subtypes depending upon the Dhātu being excreted through urine.

**Clinical (doshika) Classification of Prameha:**

- a) Vataja Prameha. The vataja premehas are Sarpi meha, Vasa meha, Kshoudra meha and Hasti meha.
- b) Pittaja Prameha. The pittaja premehas are Neela meha, Haridra meha, Amla meha, Kshara meha, Manjista meha, and Shonita meha.
- c) Kaphaja Prameha. Kaphaja premehas are ten in number. They are, Udaka meha, Ekshu meha, Sandra meha, Sandra prasada meha, Shukla meha, Shukra meha, Sheeta meha, Sikata meha, Shanair meha, Alala meha.

**Madhumeha<sup>3</sup>**

Among the Ayurvedic texts Charaka, Vagbhatta and Madhavakara have brought the word Madhumeha into use while, naming 20 subtypes of Prameha whereas Sushruta has used the word Kshoudrameha. 'Madhu', and 'Kshoudra' are literally

synonyms of each other. But at a different place, 'Madhumeha' too has been used and Sushruta has devoted one complete chapter to the treatment of Madhumeha. He has accepted Madhumeha to be the stage of complications of Prameha.

#### **Aetiopathogenesis of Madhumeha:**

General aetiology of Prameha coincides with that of Madhumeha in Charaka Samhita, its etiopathogenesis has been dealt in Sutrasthana. Sushruta and Vagbhata are of the opinion that all Pramehas if left untreated or not treated properly lead to Madhumeha.

Depending upon the description of Madhumeha in different texts, two types of Madhumeha can be said to occur.

(1) Avrit Vatajanya Madhumeha.

(2) Dhatukshaya Janya Madhumeha.

Avrita vatajanya Madhumeha is one which is described as a subtype of Vataja Prameha. This disease seems to be fulminant from the very beginning as there has been said to be loss of vital Dhatus and their essence (Ojas) where the patient is asthenic from beginning of the disease itself. These avrita janya Madhumeha are said to be caused by obstruction of Vata by Kapha and Pitta. Dhatukshaya janya Madhumeha is one which results as a stage of complications of all types of Prameha as described by Sushruta and Vagbhata, where patient has lost much of his body weight and has progressed into many complications like Pidikas (carbuncles). Moreover this type of Madhumeha has been said to be incurable. This stands true for the complications of diabetes mellitus like marked nephropathy, gangrene, carbuncles, and diabetic coma. This dhatuksaya janya Madhumeha is caused by Vata Prakopa due to a loss of Dhatus.

#### **Clinical Features of Madhumeha:**

The patients of Madhumeha pass urine like

'Madhu' or 'honey' in colour and taste, which indicates the sweetness of urine. In other two varieties namely Ikshumeha (Charaka and Sushruta) and Sheetameha (Sushruta), both of Kaphaj type, patients has sweetness in their urine. Both of them can be found when glycosuria is present with/without hyperglycaemia.

Final inferences for understanding Madhumeha/Prameha:

Keeping the above mentioned points in view the following inferences can be drawn:

Whatever is the type of Madhumeha, it has been said to be incurable and very active management is required.

#### **Manifestation of Prameha Pidaka:**

(Aetio-pathogenesis of prameha pidaka)

From the above pramehakaraka nidana sevana, kapha prakopa will occur in the body. The prakupita kapha causes shithilata in body, as it is having similar properties of meda, it vitiates the medas the vitiated kapha and medas further vitiates the mamsa and kleda. Vikrita kapha along with vitiated mamsa causas prameha pidakas in the body

The kapha vitiated by etiological factors exceeds its quantity and develops specific power to manifest the process of the disease, i.e prameha. The specific properties of medas are sweetness, unctuousness, heaviness etc, and those of kapha are heaviness, coldness etc. Thus both these elements have identical properties. In its normal state kapha does not vitiate medas even though they have identical properties. It is only the vitiated kapha which does so. The vitiated kapha along with vitiated medas gets mixed with the muscle tissue and causes prameha pidakas. After prameha roga manifestation occurs in the body, the 3 vitiated doshas, spreads in the tissues with

excessive fat and fatty tissue in the patients suffering from *prameha* produces ten types of *prameha pidakas*.

*Charaka* explains about the *sampapti* of *madhumeha* and *madhumehaja pidakas* very clearly. The ten *prameha pidakas* are *Sharavika*, *Kachchapika*, *Jalini*, *Vinata*, *Alaji*, *Masurika*, *Sarshapika*, *Putrini*, *Savidarika* and *Vidradhi*. *Brihatatryis* have described *Prameha pidaka* as a major complication of *Prameha*. As these may develop without *Prameha* in the individuals having primary *medodushti* these *pidaka* require surgical intervention hence all the *Acharyas* have described them at a length.

Though the nomenclature and number of *Prameha pidaka* differ, the description is almost same

These *pidakas* are mainly found in muscular region, 24 joints and vital points (*marma*).

As *rasayanies* are weakened in *Prameha*, *doshas* remain in lower part of the body hence *pidakas* found below the lumbar region. The detail description of these *pidakas* is given according to *Sushruta Samhita*.

1. *Pidaka* which is raised at the margin and dipped in its center, so as to resemble as Indian Saucer in its shape is called as *Sharavika*.
2. Pimples or pustules of the shape and size as that of white mustard seeds are called *Sarshapika*.
3. An abscess, resembling (the back of a tortoise in shape with burning sensation is called. *Kacchapika*.
4. An abscess studded with slender *vegetations* of flesh and with intolerable burning sensation is called *Jalini*.
5. A large blue- colored abscess (carbuncle) appearing on the back or the wall of the abdomen and exuding as

slimy secretion and with deep-seated pain is called *Vinata*.

6. A thin and extensive abscess (studded with slender pus- tules) is called *Putrini*.
7. Pimples to the size of lentil seeds are called *Masurika*.
8. A dreadful abscess which is of a red and white colour studded over with blisters or exuding vesicles is called *Alaji*.
9. A hard and round abscess as large as a (full - grown) gourd is called *Vidarika*
10. An abscess of the *Vidradhi* type is called *Vidradhika*.

General aetiology of *Prameha* coincides with that of *Madhumeha* in *Charaka Samhita*, its *aetiopathogenesis* has been dealt in *Sutrasthana*. *Sushruta* and *Vagbhata* are of the opinion that all *Pramehas* if left untreated or not treated properly lead to *Madhumeha*.

If further *dosha* and *dhatu* vitiates, *prameha pidakas* will appear in the body. These *prameha pidakas* in due course convert as *madhumehaja vrana*. *Madhumehaja vrana* reference is available in *visha chikitsa* and *Bhandana* chapters. If *pidaka* is present, that should be treated according to *shopha chikitsa* and if *vrana* is present, that should be treated according to *vrana chikitsa*.

Classification based on constitution and Management:

- *Sthula/Balvana* (obese )
- *Krishna/ paridurbala* (Asthenic)

*Sushruta* has noted that the *Sahaja pramehi* is of *Krishna* constitution (asthenic) and *Apathyanimitaja pramehi* is *Sthula* (obese) constitution. This classification of *Sthula* and *Krishna Pramehi* has been given keeping in view the different management for both of them.

From the management point of view, *Sthula Pramehi* is given *Shodhana* therapy, while

the *Krishna pramehi* has first to be given *Brimhana* therapy to gain his strength.

### Prognostic Classification:

*Charaka* has given this classification. Three types according to this classification are:

- ❖ *Sadhya* (curable)
- ❖ *Yapya* (palliable)
- ❖ *Asadhya* (incurable)

*Sadhya* includes the *Kaphaja Prameha* of recent and *Apathyaja* in origin without complications and patients of *Sthula* build.

*Yapya* includes the *Pittaja Prameha* and also the borderline cases. The disease remains suppressed so long as the treatment is continued.

*Asadhya* includes the *Vataja Prameha* and of *Sahaja* origin of long duration with complications and patients of *Krishna* build.

## DIABETES MELLITUS

### Definition

Diabetes mellitus is a syndrome characterized by chronic hyperglycemia and disturbances of carbohydrates, fat and protein metabolism associated with absolute or relative deficiencies in insulin secretion and insulin action.

The complexity of disease 'diabetes' as an entity and syndrome is being equally identified and accepted in both the schools of medical system i.e. in medicine and surgery. None of the approaches are optimum positive and promising to get rid of the ailment in total, despite of several approaches in advance present day. Modern science has accepted the importance of diet, regimen, exercise and yoga in the management of disease entity way back to its predisposition under the concept of 'drug and diet' therapy.

With the introduction of 'Insulin', oral anti-diabetic drugs and antibiotics, diabetes is no longer a dreadful disease and with proper management with diet, drugs and exercise a diabetic patient can enjoy an almost normal life. The etiology of this condition,

however, is still obscure although it definitely has a hereditary tendency.

Diabetes mellitus is a metabolic disorder with an associated insufficiency of the hormone from the pancreatic islets of Langerhans. There is disturbance in the carbohydrate metabolism because,

1. Inability to utilize the glucose by tissues.
2. Liver and skeletal muscles unable to store glycogen.

It is of mainly two types,

1. Insulin dependent diabetes mellitus (IDDM).
2. Non-insulin dependent diabetes mellitus (NIDDM).

Other types of diabetes mellitus are mal-nutrition related and due to pancreatic diseases and acromegaly.

### DIABETIC ULCER (FOOT ULCER) <sup>4, 5</sup>

#### Synonyms and related keywords:

Fetid foot, diabetes, diabetes mellitus, foot infections, cellulitis, osteomyelitis, microvascular disease, group A streptococci, group B streptococci, staph infection Diabetic foot ulcers occur as a result of a variety of factors. Such factors include mechanical changes in conformation of the bony architecture of the foot, peripheral neuropathy, and atherosclerotic peripheral arterial disease, all of which occur with higher frequency and intensity in the diabetic population. No enzymatic glycosylation predisposes ligaments to stiffness. Neuropathy causes loss of protective sensation and loss of co-ordination of muscle groups in the foot and leg, both of which increase mechanical stresses during ambulation. The foot is often the first part of the body to show the adverse effects of diabetic neuropathy and circulatory problems.

Diabetic persons, like people who are not diabetic, may develop atherosclerotic disease of large sized and medium sized arteries, such as aorto-iliac and femoro-popliteal atherosclerosis. However, significant atherosclerotic disease of the infra-popliteal segments is particularly common in the diabetic population. Underlying digital artery disease, when compounded by an infected ulcer in close proximity may result in complete loss of digital collaterals and precipitate gangrene. The reason for the prevalence of this form of arterial disease in diabetic persons is thought to result from a number of metabolic abnormalities, including high low-density lipoprotein (LDL) and very-low-density lipoprotein (VLDL) levels, elevated plasma Von Will brand factor, inhibition of prostacyclin synthesis, elevated plasma fibrinogen levels, and increased platelet adhesiveness. Overall, people with diabetes have a higher incidence of atherosclerosis, thickening of capillary basement membranes, arteriolar hyalinosis, and endothelial proliferation. Calcification and thickening of the arterial media (Mönckeberg sclerosis) also are noted with higher frequency in the diabetic population, although whether these factors have any impact on the circulatory status is unclear.

The pathophysiology of diabetic peripheral neuropathy is multifactorial and is thought to result from vascular disease occluding the vasa nervorum; deficiency of myoinositol-altering myelin synthesis and diminishing sodium-potassium adenine triphosphatase (ATPase) activity; chronic hyperosmolarity, causing edema of nerve trunks; and effects of increased sorbitol and fructose. The result of loss of sensation in the foot is repetitive stress; unnoticed injuries and fractures; structural foot

deformity, such as hammertoes, bunions, metatarsal deformities, or Charcot foot; further stress; and eventual tissue breakdown. Unnoticed excessive heat or cold, pressure from a poorly fitting shoe, or damage from a blunt or sharp object inadvertently left in the shoe may cause blistering and ulceration. These factors, combined with poor arterial inflow, confer a high risk of limb loss on the patient with diabetes.

Foot infections are the most common problems in persons with diabetes. These individuals are predisposed to foot infections because of a compromised vascular supply secondary to diabetes. Local trauma and/or pressure (often in association with lack of sensation because of neuropathy), in addition to microvascular disease, may result in a variety of diabetic foot infections.

The spectrum of foot infections in diabetes ranges from simple superficial cellulitis to chronic osteomyelitis. Infection in-patients with diabetes are difficult to treat because these patients have impaired microvascular circulation, which limits the access of phagocytic cells to the infected area and results in a poor concentration of antibiotics in the infected tissues.

In terms of the infecting microorganisms



and the likelihood of successful treatment with antimicrobial therapy, acute osteomyelitis in people with diabetes is essentially the same as in those without diabetes. Chronic osteomyelitis in-patients with diabetes mellitus are the most difficult infection to cure. Adequate surgical

debridement, in addition to antimicrobial therapy, is necessary to cure chronic osteomyelitis.

Patients with diabetes also can have a combined infection involving bone and soft tissue called fetid foot. This extensive soft tissue and bone infection causes a foul exudate, is chronic, and usually requires extensive surgical debridement or amputation.

Individuals with diabetes also may have peripheral vascular disease that involves the large vessels, in addition to microvascular and capillary disease that results in peripheral vascular disease with gangrene.

Dry gangrene usually is managed with expectant care, and gross infection usually is not present. Wet gangrene usually has an infectious component and requires surgical debridement and/or antimicrobial therapy to control the infection.

Figure 1 Showing Diabetic Ulcer

Except for chronic osteomyelitis, infection in-patients with diabetes are caused by the same microorganisms that can infect the extremities of those without diabetes. Gas gangrene is conspicuous because of its low incidence in-patients with diabetes, but deep skin and soft tissue infections, which are due to gas-producing organisms, frequently occur in-patients with diabetes. In general, people with diabetes have infections that are more severe and take longer to cure than equivalent infections in other people.

## DISCUSSION

Diabetic ulcers are found to be very difficult to treat because of spreading in nature. Usually they are well controlled by achieving systemic treatment for control of hyper glycemia. Mere systemic treatment is not sufficient to achieve healing of Diabetic Ulcer.

A complete homeostasis of *tridosha* and control on their involvement of *dhatu*s and *upadhatus* has to be ascertained and treated accordingly.

Diabetic Ulcer present with discoloration around the wound, edematous, painful or painless, with profuse discharge. Usually such wounds are tend to get infection and very difficult to cure. *Ayurvedic* classics as advocated many *Kashaya's*, *Taila's*, *Ghrita's* *Lepa's*, etc. Medicaments for encouraging wound debridement (*Vrana Shodhana*) and Healing Agents (*Ropana*).

## CONCLUSION

- Patients with chronic history of *Madhumeha* are more prone to get *Madhumehaja vrana*.
- In the treatment of *Madhumehaja vrana* both medical and surgical intervention is necessary.
- *Madhumehaja vrana* if not treated properly can leads to amputation of limb in patient.
- Diabetic neuropathy, Atherosclerosis and infection are the main three factors for non-healing ulcers in the *madhumeha*.

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