Madhumeha and Diabetic Foot Ulcer in Ayurveda:

Madhumeha is a combination of two words Madhu and Meha. Literally the word Madhu means which resembles like honey (in taste) and Meha stands for urination. Thus Madhumeha denotes passage of honey like sweet urine.

In Nidana sthana Sushruta has mentioned that among all twenty variety of Prameha, Madhumeha is the end stage Prameha (vatic Prameha) which is also known as Kshoudrameha and Ojameha.

The word Prameha is a combination of ‘Pra’ upasarga and ‘Meha’, Meha is derived from Dhatu ‘Miha sechane’ meaning to profuse and excessive watering (urination) indicated by the prefix ‘Pra’.

Madhumeha has been a matter of discussion and research since ancient era. It is a complicated disease involving almost all system and foot ulcer (pidaka/vrana/vidradhi) said to be one of the serious sequence needs special care and management which may be otherwise life threatening.

So considering its gravity different approaches have been made regarding its causes, pathogenesis and treatment with reference to the most advanced scientific approach.

Nidan (Aetiology):

General: In charak samhita nidana sthan (Charak Ni. 4/5) has mentioned that high calorie yielding and other fatty diet such as foods having Madhura taste, snighdha, Abhishyandhi, Sita properties such as excess use of curd, meat juice of domestic, aquatic and marshy
animals, milk products, new cereals and other regimen which vitiate kapha dosha and modified life style such as lack of physical exercise, excessive sleep, laziness, obesity are said to be responsible in its occurrence, increase in number with complication and prevention of prameha also Madhumeha mainly Apathyaja Prameha except Sahaja Prameha.

Hence it is a matter of deep concern since ancient time in relation to diets, habits and the disease.

1. **Specific**:

   a) **Causes of kaphaja prameha** –

   Kapha aggravating substances like excessive use of new grains, ghee, meat of domestic animals as well as aquatic animals, milk or milk products, Madhura, Guru, Snigdha Dravyas, different preparations of sugarcane and other Dravyas which are having homologous properties to kapha sand Meda cause Kaphaja Prameha (Ch. Ni. 4/3 and Su. 6/4)

   b) **Causes of Pittaja Prameha** –

   Prolong use of Ahara which is having Amla, Lavan, Katurasa and ushna, Ksara in nature, taking food during indigestion, exposure to heat, srama, anger and eating contradictory food (viruddha bhojan) are considered as causative factors which aggravate pitta and cause, Pittaja Prameha (Ch. Ni. 4/24).

   c) **Causes of vataja prameha** –

   Long term use of Ahara which is having Kashaya, Katu, tikta rasa, Ruksha, Sita, Laghu in nature, excess indulgence in Maithuna and Vyayama, atiyoga of Samsodhan Karma, suppression of natural urges, fasting, injury, mental stress, excess bloodletting etc. are the causes of initiation of vata. If kapha and its Dushyas are already
affected then vata gets vitiated immediately and results vatika prameha (Ch. Ni. 4/36).

**Samprapti (Pathogenesis) of Prameha :**

When Nidan, Doshas, Dushya are similar and conditions are favourable (Charak Ni. 4/3), they combine with each other.

The aggravated kapha due to its dravatwa property when combines with Meda which is identical with kapha decreases compactness of Meda (vitiatted). Now both kapha and Meda mix up with metabolic toxins (Sharija Kleda) derived from dhatus specially Mamsa.

The vitiated Meda (Dyslipidaemia) and metabolic toxins (Sharija kleda) get accumulated in the openings of urinary channels at vanshana and vasti and passes out together with urine in excess causing excessive urination.

The aggravated pitta along with Rakta also involved here (Hyperglycaemia).

The aggravated vata along with deep seated dhatus like vasa and Majja (Sthayi dhatus) causes dhatu ksaya (Ketosis).

Thus charak says there is involvement dushyas in the sequence of Meda, Mamsa, Sharija kleda, Rakta, vasa, Majja, Lasika and ojah (Ch. Ni. 4/6).

So both Charak, Sushruta and their supporter vaghbhat give their opinion that if the Pramehas are not treated properly in the early stage itself they gradually convert into Madhumeha.

It gives an indication that all other prameha except Madhumeha should be treated as early diabetes and Madhumeha is Diabetes Mellitus.
Again Madhumeha is two types. One is due to initial involvement of vata (Sahaja) and another is due to consequence of kapha and paittika prameha (Apathyaja).

**Purvarupa (Premonitory Features)**:

**Impaired Glucose Tolerance IGT**:

This is a metabolic state where prior to manifest prameha by the vitiated doshas the patient manifests following clinical features which can be justified by oral glucose tolerance test (OGTT).

1. Matting of the hairs and rapid growth of the nails.
2. Appearance of different changes in urine e.g. – Avilata (turbidity), Madhurata (sweetness) etc.
3. Swarming of ants and other insect at the urine and body.
4. Dryness of mouth, excessive thirst and Laziness etc.

**Rupa (Signs and symptoms)**:

All pramehas are having excessive, frequently by passage of urination which is turbid (physically changed in character) (Su. Ni. 6/6 AH. Ni. 10/6).

The change in character of turbidity along with other features varying in respect of Dosha and involved Dushya there are different types of prameha.

**Classification (types) of prameha**:

**Boardly of three types**:

1. Doshic types
2. Etiological types
3. Prognostical types

(a) Doshic types : It is a tridoshaja vyadhi. Depending on predominance of doshas, prameha is of twenty types –
a) Kapha prameha – 10 types  
b) Pittaja prameha – 6 types  
c) Vataja prameha – 4 types  

There are some difference among authortives like Charak, Susruta and Vaghbhat in relation to nomenclature of different types of prameha.

**Table showing different types of Pramehas according to Vrihatrayi**

<table>
<thead>
<tr>
<th>Doshas</th>
<th>Charaka</th>
<th>Susruta</th>
<th>Vagbhata</th>
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<tbody>
<tr>
<td><strong>KAPHA</strong></td>
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<td>1.</td>
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<td>Sharkarameha</td>
<td>Sharkarameha</td>
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<td>3.</td>
<td>Sandrameha</td>
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<td>4.</td>
<td>Sandra Prasada Meha</td>
<td>Surameha</td>
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<td>5.</td>
<td>Shuklameha</td>
<td>Pishtameha</td>
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<td>7.</td>
<td>Shitameha</td>
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<td>9.</td>
<td>Shanairmeha</td>
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<td>10.</td>
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<td>Lavanameha</td>
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<td><strong>PITTAJA</strong></td>
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<tr>
<td>1.</td>
<td>Ksharameha</td>
<td>Ksharameha</td>
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<td>2.</td>
<td>Kala Meha</td>
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<td>3.</td>
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<td>Nilameha</td>
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<td>4.</td>
<td>Raktameha</td>
<td>Shonitameha</td>
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<td>5.</td>
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<td>6.</td>
<td>Haridrameha</td>
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VATAJA

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<tr>
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<th>Vasameha</th>
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<td>1</td>
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<tr>
<td>2</td>
<td>Majjameha</td>
<td>Majjameha</td>
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<td>Hastimeha</td>
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<tr>
<td>4</td>
<td>Madhumeha</td>
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</tbody>
</table>

Etiological Types:

Two types of prameha (AH. Ni. 6/8)

(a) Sahaja or kulaja prameha – Type I DM: It is of hereditary in nature transmitted from parents to offsprings. The defect lies in the Beeja (sperm and ovum) and inherited to the progeny.

(b) Apathyaja prameha – Type II DM: Diets with modified life style are equally responsible.

Prognostical Types:

Depending in Doshas, duration, severity and complications, Prameha is of three types –

a) Sadhya prameha (curable)

b) Asadhya (incurable) –

i) Yapya (palliable)/Krichya Sadhya (controlled with the help of strong care and treatment).

ii) Pratyakseya – uncontrolled by all means.

Complications:

Charaka has mentioned complications of Prameha as thirst, Diarrhoea, fever, burning sensation, weakness indigestion and pidakas.

Susrut and Vaghbhat both give more interest on appearance of prameha pidakas in prameha.

Again in last part of the disease kapha comes in contact with the opening of vasti and vankasana, blocks them due to ‘Prakrita vikrita
bhutatvata’ and makes the disease yapya or Asadhya/ Microvascular changes leading to Nephropathy.

**Prameha pidakas/ vrana/ vridhradhi Dustavrana/Diabetic Foot ulcer:**

It is very interesting to describe here that ancient Indian physicians as well as surgeons were aware of so called Diabetic foot ulcer like disease. Susruta has mentioned formation of pidaka in the lower limbs of Madhumeha with a scientific explanation giving its pathogenesis. In the chikitsa sthana sushruta has explained why the lower dependent part of the body of Madhumehi is prone for the occurrence of foot ulcer (Su. Chi. 12/8). In his view the Rasa carrying channels of patients suffering from Madhumeha become weakened. So Doshas fail to come back to the upper part of the body (angiopathy-microvascular and macrovascular changes), hence they cause much problem in the lower half of the body and ultimately give rise to pidaka/vrana/vidhradhi/ulcer.

Acharya charak described Mamsa, Marma and Sandhi sthanas as the sites of prameha pidakas, but did not give much importance to the treatment. While Susruta the great surgeon has given due importance which are formed by opening of pidaka, vidhradi or by direct injury specially in the patient of Madhumeha lies under Krichhosadya vyadhi.

Pidaka is the term literally meanings to create pida/pain.
Pidakas are considered as major complications of prameha which originate due to Dusta vasa and Medadhatu. Pidaka may also be found in persons who are not suffering from Prameha but having Dusta Medodhatu.

**Pathogenesis of Prameha Pidakas :**

According to charak, when all doshas, Dushyas of prameha are activated by its Nidan, the first Kapha gets aggravated. The aggravated Kapha spreads all over body gets mix up with medadhatu which is identical with Kapha, vitiates it. Then both of them jointly viates Mamsa dhatu and when certain suitable situation favours, they form putrified pidakas like Saravika, Kachhapika, Jalini etc.

Susruta also having same opinion that involvement of tridoshas along with Meda, vasa and Mamsa dhatus which result in the formation of prameha pidakas. But vaghbhat has not described any etiology and pathogenesis for Prameha pidakas, though he described Dosha, Dushyas of Prameha pidakas same as that of prameha.

**Types of prameha pidakas :**

Susruta describes – 10 types
Vaghbhat also describes – 10 types
Charaka describes – 7 types

Table showing Prameha Pidakas according to different authoratives –

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Charak</th>
<th>Susruta</th>
<th>Vaghbhat</th>
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<tbody>
<tr>
<td>1.</td>
<td>Sharavika</td>
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<td>Sharavika</td>
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<tr>
<td>2.</td>
<td>Kachhapika</td>
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<td>3.</td>
<td>Jalini</td>
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<td>4.</td>
<td>Sarshapi</td>
<td>Sarshapika</td>
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<td>5.</td>
<td>Alaji</td>
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<td>6.</td>
<td>Vinita</td>
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<td>7.</td>
<td>Vidradhi</td>
<td>Vidhradika</td>
<td>Vidhradhika</td>
</tr>
</tbody>
</table>
### Description of pidakas:

1. **Sharavika** – This pidaka has elevated border, depressed centre, is grey in colour and associated with slough and pain. Due to its appearance like Sharava or Saucer, it is so named as Sharavika.

   ![Image of Sharavika](image1.png)

   Callosities with clawing toes and flat arch (high risk foot).

2. **Kachhapika** – This has described as deep sealed and painful pidaka having broad base and resembling as back of tortoise.

   ![Image of Kachhapika](image2.png)
Clawing and over crowding toes with ulceration. (High risk foot).

(3) **Jalinini** – According to Charaka and Vaghbhata this is hard, and has a net work of vessels on its surface. Its discharge is sticky, and it causes splitting type of pain and has multiple openings.

![Jalinini](image)

(Gangrene of entire foot).

(4) **Sarshap/Sarsapika** – Charaka named it as Sarshapi, but Susruta and vagbhat called it as Sarshapika. This pidaka is small in size and suppurates, quickly, but very painful in nature. It resembles like mustard seeds.

![Sarshap/Sarsapika](image)

Multiple callous with haematoma and ulceration. (Threatening foot)

(5) **Alaji** – This causes burning sensation during eruption. After complete eruption it causes thirst, unconsciousness, fever. It
spreads and produces reddish black blisters. According to Charaka it causes burning sensation like fire.

Superficial ulceration.

(6) **Vinitha** – This has been described as deep seated ulcer and associated with slough. It arises only either on the abdomen or back.

Diabetic ulcer other than foot.

(7) **Vidradhi/vidhradika** – Charaka named it vidradhi but Susruta and vaghbhat called it as vidradhika. According to charak vidradhi is of two types external and internal. Depending on doshiba involvement vidradhi are of four types – vataja, pittaja, kaphaja and Sannipataja. Susruta and vaghbhat have described six types of vidradhis and added Raktaja and Khataja varieties.
(8) **Putrani** – According to Susrut this is big in size and contains many small pidakas as a bunch.

Diabetic ulcer with multiple openings (carbuncle)

(9) **Mashurika** – Shape of pidaka resembles like mashura pulses - Almost same as Sarahapika.

(10) **Vidarika** – According to Susruta this resembles like tuber of vidari which is round shaped and hard.
Vrana (ulcer):

Vranas (ulcer) are broadly of two types viz Nija and Agantaja. Nija vrana are caused by Shariraka Doshas and Agantuja vrana formed by direct injury.

Literally meaning of vrana is Khata. Susruta has described the meaning of vrana as churning of local tissues.

The Madhumehjanita vrana often Nija where injury may help it in the formation. The injury may be mechanical, chemical or insect bile etc.
Dusta Vrana

Again ancient Indian physicians as well as surgeons also mentioned Dusta vranas which are having foul smell, plenty of pus, are painful, looking worst and involving mansa, sira, snaya etc.

So, after considering all above points we can say that the Prameha Pidakas, vidradhi and vrana of lower limb in Madhumeha is quite resembling with the diabetic non healing foot ulcer which is the burning problem of present era of physicians as well as surgeons.