

Comprehensive Review on Madhumeha

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ABSTRACT:

Madhumeha is a type of Vataja Prameha and it is considered as one of the *Mahagada Madhumeha*. In our classics also there is detailed explanation about *Madumeha* and its Nidana, Samprapti, Poorvaroop, Roopa. There is need for the better understanding of these signs and symptoms, as most of these simulates Diabetes Mellitus comprises group of metabolic disorders in which there is reduced utilization of carbohydrate and that of lipid and protein enhance. The prevalence of diabetes in adults globally estimated to be 4.0 percent in 1995 and is projected to rise to 5.4 percent by the year 2025. Hence understanding and knowing madhumeha is need of hour. So here an effort is being made to compile all the details of madhumeha mentioned in various classics.

Keywords: Madhumeha, Diabetes Mellitus

INTRODUCTION:

Ayurveda is a comprehensive system of traditional health care that emphasizes the relationship among body, mind, and spirit. Originating in India roughly three thousand years ago, Ayurveda seeks to restore an individual's innate harmony. The word Madhumeha constitutes two words, "Madhu" meaning sweet/sweetness and "meha" excessive urination. The earliest description of Madhumeha is found in the Atharvaveda, one of the four sacred Vedas, that dates to around 1500 to 1000 B.C. The etiology, symptomatology, pathology, prognosis, and management principles of diabetes are described in detail by Ayurvedic classics. Madhumeha is a type of Vataja Prameha and it is considered as one of the Mahagada Madhumeha. In our classics of Madumeha and its Nidana, Samprapti, PoorvaRoopa, Roopa are explained in detail. Explorative description of disease Madhumaha occurs at Samhita period. Charaka explained the etiology, pathogenesis, symptomatology, complications and treatment. Modalities in detail in Nidana 4th and Chikitsa 6th chapter. While in Sutrasthana 17th chapter he described the Avaranjanya pathogenesis of Madhumeha, this is the unique contribution of this treatise. Sushruta also explained the Madhumeha in elaborative manner with separate chapter on its management. He used 'Kshoudrameha' synonym to Madhumeha in Nidana 6th chapter. He typically mentioned the decoctions according to each type of Prameha and mentioned the body constitution and symptoms related to Sahaja and Apathyanimittaja Prameha. Vagbhata categorized the disease under heading 'Mutraatipravrttija' and mentioned two types of Madhumeha i.e. Dhatukshyat and Avartpathat and added Sveda in the Dooshysangraha. Hence here an attempt is made to review the vtupati, nirukti, paryaya, nidana, samprapti, poorvaroop, roopa of madhumeha in various classical textbooks of Ayurveda. Etymology: the word 'prameha' constitute two sub words. I.e. 'Pra' and 'meha'. The word meha is derived from the root "mih sechane by adding 'lue' pratyaya to it "mehati, sinchati mutraretansi" which means to excrete (halayudhakosha) rigveda mentioned this ward first is mehanadthanam karanallium (rigveda 10/163.15). The commentator of rigveda. Syanacharya interpreted the word mehana as medhra, which denotes to shisna (penis). In sanskrit literature the 'mih' is used to denote. To make water, to wet, to emit semen. So this root 'mih' is added to prefix 'pra' the word becomes 'prameha'. The word madhumeha consists of two words:

(1) madhu and (2) meha

The word madhu is derived from the root manyante visesena jananti jana yasmin. In sanskrit literature madhu word is used in various contests like pushparasa, makarandah, makshikam, madhyam, ksiram, jalam, madhurarasa etc. Now the etymology gets concise and specific, that the disease in which the excretion is having quality concordant with madhu (honey) in its colour, taste, smell and consistency called madhumeha.

Definition of Madhumeha:

So the meha word here mainly related with the excretions through urine. So the definition is the clinical entity in which patient voids the urine having concordance with madhu i.e. Of kashaya and madhura taste, ruksha (dry) texture and honey like colour. Body acquires sweetness called madhumeha (ca. Ni. 4/44, a.h.ni. 10/18)

Sushruta narrated the term in place of madhumeh is kshoudra meha. Kshoudra is nothing but subtype and synonym of madhu (honey). So it is undoubtedly resembles with madhumeha. Further he asserted that when all the pramehas illtreated or neglected get converted into madhumeha and specially he emphasized that the disease prameha along with pidaka should termed as madhumeha.

Paryaya

Following are the few synonyms mentioned in the ancient treatise.

- (1) **Ojomeha:** This is enumerated as a subtype of Vataja Prameha amongst the four. So the depletion of oja through the urine along with changing its taste and texture by vitiated vata resulting ojomeha. Chang in qualities of oja is because of 'Vata Prabhava'.
- (2) **Kshoudrameha:** This synonym narrated by Sushruta because of its close resemblance with madhu. (Su. Ni.)
- (3) **Paushpameha:** Narrated in Anjana Nidana. Paushparasa is again resembles with Madhu.
- (4) **Prameha:** Excessive excretion of urine is known as Prameha.
- (5) **Meha:** This word also carries the above meaning.
- (6) **Mootradosha:** Defective urine is termed as Mootradosha.
- (7) **Bahumootrata:** Excessive excretion of urine.
- (8) **Madhumeha:** Excessive excretion of urine which is similar to Madhu in quality is known as Madhumeha. The Word Madhumeha has been employed to all the Pramehas and even for Madhumeha in particular.
- (9) **Khanda Meha:** Khanda is sugar and the urine is passing along with sugar is known as Khanda Meha

From above synonyms, we can postulate that anonymously all Acharyas mentioned the urine culture concordant with madhu.

For the better understanding of the disease, Nidana is broadly classified in to two types¹.

1. Vyadhibodhaka hetu.
2. Vyadhijanaka hetu.

Vyadhibodhaka Hetu

Vyadhibodhaka hetu is the one which helps a physician to know clearly about the disease, and this will be explained later while explaining about the poorva roopa, Roopa and samprapti².

Vyadhijanaka Hetu

Vyadhijanaka hetu is the one which deals with all those factors which are responsible in producing the disease and this will be explained under the heading of Nidana vivechana. Based on extrinsic and intrinsic factors these Vyadhijanaka hetu are again classified into two types³.

1. Bahya hetu
2. Abhyantara hetu.

Bahya Hetu

Bahya hetu are the external factors like Ahara and Vihara which plays an important role in the manifestation of the disease and it is again divided into two types.

1. Samanya hetu
2. Vishesh hetu

Samanya Hetu

Samanya Nidana of Prameha are the Hetus which causes Kapha, medas and mootra vriddhi⁴. Kpha has been given prime impotence among these three (Kapha kriccha sarvam)⁵ and hence all those Hetus that causes Kapha medas and mootra vriddhi routinely become the Hetus for Prameha.

Kapha and medas is composed of prithvi and Ap Mahabhootas and mootra is composed of Ap mahabhoota and hence the ahara and vihara which are predominant of the qualities of Ap and prithvi mahabhoota invariably vitiates all the three. Hence in the Samanya Nidana, all the factors which causes the vitiation of Kapha, medas and mootra should be studied in detail.

Any ahara or vihara which are having similar qualities of kapaha, medas and mootra are responsible for the manifestation of Madhumeha, and these ahara and vihara should have the mahabhootic constitution of pritvi and Ap, gunas like Guru, Manda, Sheeta, Snigdha, Shlakshna, Sandra, Sthira, Picchila, Madhura and Lavana rasa pradhana, Madhura vipaka and Sheeta veerya. Some of the ahara and vihara which are having qualities above mentioned are enumerated in our classics while explaining about Nidana of Prameha, keeping this as a base I have made an effort to identify some more Nidana in the present day life style. What ever the Nidana which are mentioned below may not cause the disease merely by indulging at once, because Nidanas also depends on Maatra, kala, kriya(method of processing), Bhoomi, Deha, Desha and Gunantara¹⁵.

Ahara

Adhyashana, navannpana, guda vikara, ksheera, dadhi, anoopamamasa, audakamamasa, gramyamamasa, medovardaka ahara, shaka and preparations like tilapalala, pistanna, krushaara, vilepi, ikshuvikara, navamadhya, and mandakadadhi, apart from these some specific aharas have been also mentioned like Hayanka, yvaka, cheenaka, uddaalaka, naisheda, eethkata, mukandaka, mahavrihi, prmodaka, sugandaka and also preparations of navaharenu and masha with ghee and all the food stuffs which are drva guna madura rasa pradana and newly harvested. If these ahara is being taken in excess

quantity increases Kapha which attains 'Aparipakwa Avastha' and mainly effects the Medas and Kleda leading to Madhumeha (Sthoola) due to Avarana.

Shaka: there are six typypes of shaka. patra, pushpa, phala, naala, kanda, and samswedaja (Raja nigantu) and these shakas are considered to be main etioloical factors for many disorders some of the shaka which causes kapha vridi are pindaaluka, bala, Bhindi, and chinchuka (Bhava prakasha).

Palala: is tilakalka (Bhava prakasha).

Pistanna: Grinded rise is called Pistanna, and its gunas are like pitta daaha karaka shleshma karaka and ruchi karaka (Raja ni 16)

Vihara

The following Viharas have been implicated as Kaphamedokara.

Divaswapna: Increases thamo guna in the body and the accumulation of Prithvi and Ap mahabhoota, leading to aggravation of Kapha and medas

Avyayama: As vyama is considerd to be best in case of stoulya, it causes meda kshay if it is done properly⁷. If it is not done and excessive medokara ahara is taken, then there will be excessive accumulation of aparipakva medas and kapha which may act as one of the causative factors of Madhumeha.

Asya atisukha: lying still in bed for long time, this ultimately reduces the physical activity of the person because of which kapha and medas⁸ will be increased leading to Madhumeha.

Alasya: this is mostly related to manas. Alasya is nothing but that state of lethargy of mind where a man is unable to carry out or undertake any enthusiastic task not because he is incapacitated due to ill health but only because he is unwilling to do it⁹. This results in inactivity causing kapaha meda vridi.

Chinta tyaga: An attribute of the mind that is antagonistic to Kapha and Medas. When a person becomes free from Chinta, he starts accumulating excess Kapha and Medas.

Samshodhana varjana: Samshodhana therapy is one among the ten types of langana, it is mainly administerd in the persons in whom there will be excessive accumulation of kapha, pitta and rakta, who is bhalavan and maha kaya¹⁰. If this is not done in its respective time intervals then it causes accumulation of Kapha and Medas.

Mruja varjana⁷: Mruja is Shuddhi and its varjana leads to Kapha dushti. **Manoabhitapakara Bhavas as Nidana**¹¹:

Kama	: Desires for pleasurable sensation.
Krodha	: Attitude to harm others.
Lobha	: Tendency of squeezing others for wealth.
Moha	: Inefficiency to understand the ultimate truth.
Irsha	: Jealousy.
Hri	: Shamefulness
Shoka	: Sadness due to the death of close relation or severe loss.
Mana	: Ego
Udvega	: Explosive feeling due to unfavourable matter.
Bhaya	: Feeling expecting harm from other.

Vishesha Nidana:

All thridosha plays an important role in the manifestation of Madhumeha, though it is thri doshatmakavyadhi kapha is the arambhaka Dosha, in case kaphaja prameha even though all thridoshas are in vrida avasta, kapha will be in the state of more vrida compared to other two Doshas. The same thing applies in Pittaja and Vataja meha i.e in case Pittaja meha pitta is the predominant Dosha and in case of vataj meha vata is predominant Dosha

Kaphaja Prameha Nidana: Are the same as explained in the Samanya Nidana.

Pittaja Prameha Nidana: Pitta is predominantly a Tejo mahabhoota pradhana dosha and all those environmental influences that cause Tejoguna vridi aggravate Pitta. These are subdivided into Ahara and Vihara sambandhi for convenience.

Ahara Sambandhi:

1. Ushna guna ahara atisevana,
2. Amla rasa ahara atisevana,
3. Lavana rasa ahara atisevana,
4. Katu rasa ahara atisevana,
5. Ahara sevana when there is already Ajeerna.
6. Vishama ahara sevana.

B. Vihara Sambandhi:

1. Ati atapa sevana,

2. Ati santapa,
3. Shrama,
4. Krodha

Ushna, Amla, Lavana and Katu rasas are potent Pittavardhakas, hence cause aggravation of Pitta. Ahara sevana when there is already Ajeerna and Vishama ahara sevana leads to aggravation of Tridoshas starting with Pitta first, because this is directly related to Agni. Atapa sevana in excess proportions has a direct bearing on the Pitta that gets aggravated first. Shrama or strain (physical or mental) and Krodha (anger) also leads to Pitta prakopa causing Pittaja Prameha.

Vataja Prameha Nidana: The two main causative factors for the vitiation of vata is 1. Margavarana, 2. Dhatu kshaya. Margavarodha janya vata vriddi occurs in case Sthoulya and dhatukshayajanya vatavridi in case of prameha which is neglected. In case Sthoulya there will be excessive vitiation of kapaha and meadas this vitiated kapha and medas causes obstruction to the marga of vata leading to its vitiation and this vitiated vata causes the vitiation of medovha srotomoola leading to Madhumeha.

The prameha which is neglected in the initial stage leads to dhatu and ojo kshaya in the form of avila mootrata this leads to vata vriddi. If the nidans which are mentioned for vatja prameha is consumed at this stage then the vayu vitiates further ultimately leading to Madhumeha. The ninadans which are mentioned for Vataja prameha are a follows.

Ahara Sambandhi:

1. Katurasa ahara atisevana,
2. Kashaya rasa atisevana,
3. Tikta rasa ahara atisevana
4. Laghu and rooksha guna ahara atisevana

Vihara Sambandhi:

1. Vyavaya atiyoga,
2. Vyayama atiyoga,
3. Vamana atiyoga,
4. Virechana atiyoga,
5. Asthapana atiyoga,
6. Vega sandharana,
7. Anashana,
8. Abhighata,
9. Atapa sevana,
10. Udweaga,
11. Shoka,
12. Shonita ati seka,
13. Ratri jagarana,
14. Vishama shareera nyasa. Abhyantara Hetus:

As explained earlier, abhyantara hetus are the intrinsic factors like Dosha and dooshyas. The role of these Nidana in causing Madhumeha will be explained at the time of explanation of samprapti.

Beeja Dusti as Nidana:

Beeja Dusti also plays an important role in causing the disease Madhumeha Beeja Dusti janya can be broadly classified under the heading of Sahaja prameha it is of two types

Adhibala pravritta it is again classified in to two types based on the type of beeja dusti Matruja Pitruja This above matruja and pitruja classification is according to sushruta acharya and also acharya has given some of the examples of these matruja and pitruja beeja dusti janya vikaras. Prameha is one among them.

Janmabala pravritta is also classified in to two types this is based on the indulging in mityahara and vihara by the mother at the time of pregnancy. Dvauhruda apamanaja Rasaja As per the above classification, we get the reference of Madhumeha under rasa krutaja. If the pregnant woman indulges in excessive intake of madhura rasa ahara then the progeny will suffer from Madhumeha.

Sannikrista Nidana:

The word meaning of Sannikrista is nearer, it means one which is very nearer or main cause for the diseases, these hetus does not depend on any other hetus to cause the disease³. Here in case of Madhumeha the hetu which directly influence for the immediate causation and aggravation of the disease without expecting the Dosha sanchaya, like Madhumeha arambaka bheeja dusti and madhura rasa ahara respectively can be considered as Sannikrista Nidana.

Viprakrista Nidana:

The word meaning of Viprakrista is remote, it means it is one of the Nidana for the causation of the disease, but it may not directly influence the manifestation of the disease². In case of Madhumeha continuous indulgence of kapha and medakara ahara causes the sanchaya of these two which may cause the Madhumeha later and also havisha sevana in daksha yjna¹⁶ is also one of the Viprakrista Nidana.

Vyabhichari Hetu²:

In Vyabhichari hetu, Nidana Dosha and dooshays will not have the enough strength or they may not coordinate each other to produce a disease, in that state it may not produce the disease completely or it will produce the disease with alpa lakshana¹⁷. In case of Madhumeha the person born to madhumehi will have Madhumeharambaka beeja dusti and this may not be balavan to produce disease immediately, later on it attains bala due to indulgence in ahitakara ahara and vihara sevana in the form of Nidana leading to Madhumeha¹⁸.

Asatmendriyarta Samyoga²

Asatmendriyarta Samyoga is the Atiyoaga Ayoga and Mityayoga of both Karmendriya and Jnanendria. Under this the apatyakra ahara and vihara which are mentioned above can be considered.

Prajnaprada²: Prajnaprada is the Nidana which is done by the person who as lost his dheer, dhruti and smriti, like papakarma and Manobhitapakara Bhavas which are mentioned above.

Parinama²: Parinama is Kala, it plays a very important role in manifestation of disease as kapha sanchaya kala is the hemantha and vasantha, and also in Madhumeha predominant Dosha is kapha Dosha it is obvious that in this season there will aggravation of this disease.

Dosha hetu²: The madhuradi rasa dravya which are responsible for the sanchaya, prakopa and prashama of the Doshas are considered as Dosha hetu. In case of Madhumeha all those maduradi rasa dravyas which are explained earlier are Dosha hetu

Vyadhai Hetu²: Sahajaa karna for Madhumeha are considered as Vyadhi hetu, here Madhumeharambhaka beeja dusti and janmabala pravritta rasakrita are Sahajaa karnas.

Utpadka Hetu³: Utpadka Hetu is predisposing factor. In case of Madhumeha beeja dusti and vayas is considered as utpadaka hetu.

Vyanjaka Hetu³: Vyanjaka Hetu is the supporting factor. Here kapha medakara aharas are considered as Vyanjaka Hetu as it worsens the condition of madhumehi.

Anubandya Nidana³: Kapaha is the pradhana dosha in the manifestation of the disease Madhumeha⁵.

Anubandha Nidana³: Pitta and vata are the Anubandha dosha in the manifestation of the disease Madhumeha

Ashyapakarshata³: In Ashyapakarshata vayu plays an important role, it does the apakarsahna of normal or vitiated doshas from its ashaya. In case Madhumeha as explained earlier the vitiated vayu because of margavrana in stool and dhatu kshaya in krusha does ashyapakarshana of doshas and dushyas to basti and excrete it through urine.

Samprapti Vivechana It is wise to start explanation of samprapti with the role of Doshas and Dooshyas in the manifestation of Madhumeha, and also these are considered to be abhyantara nidana. The detailed knowledge of pathogenesis is very necessary to find the extent of Dosha and Dooshyas vitiation, involvement of Avayava, Srotas and prognosis of the disease. The following Doshas and Dooshyas are involved in the manifestation of Madhumeha.

"Doshas: Kapha, Pitta and Vata²⁶.

Dooshyas: Meda, Rakta, Shukra, Ambu, Vasa, Lasika, Majja, Rasa, Oja and Mamsa²⁶.

Doshas: Kapha Dosha: Madhumeha is tridoshatmaka vyadhi²¹ all tridoshas plays a different role in the samprapti, Even though it is tridoshatmka, Kapha Dosha is the prime Dosha which plays an important role in the manifestation of the disease, it is considered as Madumeha arambaka Dosha²². As mentioned earlier when the person indulges in shleshmakara ahara and vihara continuously there will be vitiation of kapha dosha. Now in samprapti it is important to know which gunas of kapha are involved. Before that it is important to know the normal Kapha Gunas and its bhoutika sanghatana, its bhoutika sanghatana is pritvi and ap maha bhoota pradana and it is having gunas like Guru, Sheeta, Mrudu, Snigdha Madhura, Stira and Pichila²³, in case of Madhumeha due to the intake of nidana there will be vitiation of all these gunas but predominantly there will be vitiation of drava guna, it has been also mentioned that bahudrava Shleshma is the Dosha vishesha in case of Prameha²⁴ which in turn affects the stira or badda guna of vitiated kapha, this vitiated Kapha tries to combines with the dhatu which are having similar quality of the kapha i.e. in which it takes ashraya, like Rasa, Mamsa, Meda, Majja and Shukra²⁵, this makes easy for kapaha to vitiate these dhatus by increasing kleda guna of these dhatus, this vitiated Dooshyas along with the kleda will be excreted in the urine leading to Bahumootrata.

Pitta Dosha:

As Madhumeha is tridoshatmka vyadhi and all the Doshas are in aparipakva avasta²⁷. It is important to study the role of pitta in Madhumeha. As it is said earlier Madhumeha is kapha pradhana tridoshatmaka vyadhi, it signifies that apart from Kapha, pitta also has a role in the disease and also its role in the form of six types pittaja pramehas have been explained clearly in classics. It is difficult to demark its role in the samprapti of the disease. From the references like if pittaja prameha is not treated it leads to Madhumeha and also from the symptoms like bahu ashee and kara pada daha, we can infer its role in samprapti. Voracious appetite or Bahu ashi is one of the main symptoms of stool mehi²⁸. as it is known

that agni vriddi is due to the vitiation of pitta dosha and this can be understood as the vitiated meda causes obstruction of vayu and makes it to confined only to the kosta and this causes the vriddi of agni in kosta²⁹ in turn leading to Bahu ashi. All the prameha if left untreated it leads to Madhumeha, in the initial stage, onset of all prameha is due to the vitiation Kapha Dosha, this is because of vyadhi swabhava, this vitiated kapha along with other vitiated Dooshyas starts to eliminate through urine as the kapha dosha also has ashrya in mootra³⁰, this kapha and similar Dooshyas will be excreted in the form of kleda through mootra, this ultimately leads to relative ksheenata of kapha dosha, at this stage if person indulges in pittakara ahara and vihara, leading to the vitiation of pitta, resulting in pittaja prameha.

Vata Dosha: Vata Dosha plays an important role in the Pathogenesis of Madhumeha, as it is mentioned earlier vata will be in aparipakva avasta, its vitiation occurs due to three reasons and all the three reason forms the different pathogenesis in the manifestation of the disease and they are as follows. It gets vitiated by Margaavarana³¹ By Dhatu kshaya³¹ In sahaja Madhumeha due to preexisting Khavaigunyata. Madhumeha caused by the vitiation of Vata Dosha are consider to be Asadhya to treat, since it causes rapid kshaya of the vital dhatu which are already attained dhusti by vitiated kapha, kleda and pitta. This vitiated vata brings vitiated ojas to the bhasti and from there it is excreted as mootra, this causes the oja kshaya ultimately leading to many complications and death of the Madhumehi.

Meda Dhatu: Madumeha is one among the important medo pradoshaja vikara.³² meda dhatu plays an important role in the manifestation of Madhumeha. Its extent of involvement decides the Sadhya Asadyata of the disease³³. The Bhoutika constituent of medha dhatu is Pritvi and Ap mahabhuta Pradhana, same as that of Kapha Dosha, as the Kapha is the Arambhaka Dosha, the vitiated kapha Dosha first targets the medha dhatu due to similarity in its Bhoutika constitution¹³⁵, and increases its Ap mahabhoota ultimately leading to Abadha medas. Excessive Nidana sevana is the root cause of Khavaigunyata in medhovaha Srotas and causes medho Dhatvagni mandhya and at the end there will be formation of bahu and Abadha medas³⁴.

Shareera Kleda: Shareera kleda refers to the Udaka which is present in the body, the amount of udaka alone is about ten Anjali³⁶ apart from this, Udaka also present in drava pradhana dhatus like Rakth etc. and also in mala. Kleda is having similar Guna and Bhaoutik constituent of that Kapha Dosha, but Kleda is predominant in Ap maha bhoota. Udaka is having the Gunas like Drava, Sara, Picchila, Mrudu, Snigdha and Guru³⁷. Kapha Dosha also does the Ambukarma, among five types of kapha it is done by Avalambaka kapha which is situated in uras. With the help of poshaka rasa, it functions in the form of kledana, tarpana and poorana of the other kaphas, which are present in the body. When the person indulges in kleda pradana nidana, it gets vitiated and causes kapha vriddi and also kleda of the body.

Mamsa Dhatu: Mamasa Dhatu³⁴ is also predominant in Pritvi and Ap Maha bhuta, Probably the proportion of mixture of these mahabhoota varies from that of meda dhatu, there may be more Pritvi than Ap mahabhoota, so that it gives stiratva to the Dhatu, after the Meda dhatu the vitiated kapha and Kelda targets the Mamsa dhatu³⁵. Due to increase in keldatva of mamasa dhatu there will be production of Pooti Mamasa Pidakas¹³⁵.

Shonita: Raktha is kleda Pradhana dhatu, it comes into role in the pathogenesis of Madhumeha, when the Pittaja Prameha is neglected, in later course it lead to profuse loss of Rakta from the body. Rakta dhatu kshaya leads to the aggravation of vayu and this drag out the sara amshas of the body in the form of ama, through mootra and causes Madhumeha³⁸.

Rasa Dhatu: The main function of Rasa Dhatu is to nourish the other dhatus, through its Preenana Karma. Kleda guna, Sheeta Guna Guru Snigdha guna of rasa helps in the above said functions, this function is maintained by Kapha Dosha, Amaroopi Kapha is not able to do this function in Madhumeha. The ama sanchaya in the Srotas leads to marga avarodha of vyana vayu. This is due to the vridda kapha and later Khavigunyata lead to Rasa sanga. If the sroto dusti continued for longer period in rasavha Srotas then it will have a direct effect on medovaha Srotas and later results in the khavaigunya of medovaha Srotas because of dhatu kshaya.

Majja Datu: Majja dhatu is gets affected when the Madhumeha reaches to sever form by the vitiation of Vata Dosha. The vitiated Vata Dosha drags the Majja dhatu to the basti and it get excreted in the form of mootra.

Shukra dhatu: Shukra dhatu also attains ksheenatva because of over formation of abadha meda dhatu in the initial stages, due to the lack of nourishment to the Shukra dhatu and in later stages there will be excretion of shukra in the form of Mootra.

Vasa: Vasa is the snehaamsha of the mamasa dhatu.³⁶ kleda vriddi leads to vitiation of vasa, the vitiated vasa will be excreted through urine.

Lasika: Lasika is the Udaka which is present in between twak and mamsa³⁹. When kleda amsha of body is increased because of Ap maha bhoota pradhanata of the Lasika, it gets vitiated and also excreted in the form of urine.

Ojas: Ojas is the sara of all the Dhatu and it is considered to be teja of sapta dhatu. It is the bala of the shareera. Ojas prevents the occurrence of disease, and also it prevents the progression of the disease. Based on the utpatti, it has been classified in to three types they are Sahaja, 2) Kalaja and 3) Yukti krita. Sahajabala inherited from the parents with Beejakshetra guna sampath is best quality of reproductive material. Kalaja Bala is a consequence of Balavriddikara Rutu & Vaya, like for example there is maximum Bala in Yavana avastha and Hemanta rutu. Yuktikruta Bala is a result of indulgence in Pathya sevana like Brimhana ahara & Viharas like Vyayama. Based on its function Ojas is of two types

Para Ojas: This is situated in Hridaya, is Ashtabindu in Pramana and the loss of even a slightest quantity of Para ojas leads to death of a person.

Apara Ojas: This is Ardhanjali in pramana. In Madhumeha, Apara ojas is involved in the initial stages. It is only when the Para ojas gets involved in the terminal stages and the disease becomes Mahatyaya. As mentioned earlier, Ojas is the Bala of the body, even the Prakritha Kapha is considered to be Bala of the body, here the ojas does the function of Vyadutpadaka pratibandaktvam, vyadhi bala Virodakatvam, in case of Madhumeha Ojas is the Dhatu which gets vitiated and excreted in the form of urine, it causes the Vaigunyata of the Ojas. Oja vaigunya is considered to be of three types, they are Ojakshaya, Ojovisramsa or Ojovypat. If the Madhumeha is due to Shaja or Beeja Dhusti janya, then Oja vaigunya starts to take place from the initial stage of Madhumeha itself, hence the madhumehi will have the Lakshanas like Krusha, Alpashee, Rooksha, Paribramanasheela and alpabala. These Lakshanas are due to excessive dhatu kshaya ultimately leading to Ojakshaya, but in case of Apathyanimittaja Madhumeha in the initial stages there will not be considerable dhatu kshaya or ojakshaya here dhatu kshaya starts to take place gradually, if it is left untreated and finally this leading to Ojakshaya, thus Apathyanimittaja Madhumehi develops the symptoms of Ojakshaya at the terminal stage of Madhumeha. Therefore Madumeha is also called as Ojomeha and also Ojas is considered to be one of the important dooshya in Madhumeha.

Agni: For Dosha prakopa⁴⁰ as well as for the manifestation of all disease, Agni mandhya is considered to be important cause¹⁴¹. There are 13 types of Agni which are present in our body viz. one Jatharagni, five Panchamahabhootagnis and seven Dhatvagnis. each of them will have their own important function in the maintenance of our body, once it gets vitiated then there will be manifestation of different diseases. Among 13 types of Agni Jataragni has been given more importance as it regulates the functioning of the rest of the Agnis and accordingly jataragni mandya leads bhootagni and Dhatvagni mandya. When a person starts to indulge in nidana sevana, which causes Madhumeha, as these nidana are considered to be Guru and Kledkaraka, in the initial stage there will be jataragni mandya, if the person continues to take nidana then it causes medo dhatvagnimandya which leads to the formation of abadha medas in excess, this medas causes margavrodha of vata, causing the vitiation of vata and this vitiated vata is confined only to Kosta ultimately leading to jataragni Vriddi, this is the reason for the agni vriddi and Bahu ashee in case of Madhumeha. In case of sahaja madhumehi due to preexisting khavaigunyata jataragni vriddi will be present from the beginning itself.

Ama: (Jatharagnimandya Janya, & Medodhatvagni mandya janya). The Dushta amashayastha rasa produced as a result of the action of Alpabala Agni on the Ahara is called Ama. This Ama causes diseases of the Amashaya while staying there and, of the whole body when absorbed from the Amashaya into the Rasayanis. Here it mixes with the Doshas, Dhatus and Malas and are hence referred to as Sama doshas, Sama dhatus and Sama malas respectively the absorbed Ama lodges in places of Khavaigunya to cause Srotorodha, leading to different diseases. Accordingly, in Madhumeha, the Amaroopi kapha causes Samata of Medodhatu first, leading to increased Kledata. Subsequently, this results in Samata of the other Drava dhatus as well, including the Ojas. Hence, Aparipakva dhatus are presenting in the form of Ama in Madhumeha.

Srotas: The word Srotas means those channels which do the Vahana of parinamapadyamana dhatus from the source of their availability i.e. Srotomoola to the area of its total Parinama. Srotodushti is an essential feature of all diseases that may occur at the level of its Moola or at other levels depending on the existence of Khavaigunya. In Madhumeha, the Medavaha srotas is mainly involved. The Moolas of Medavaha srotas are Vapavahana & Vrukka⁴². There are sufficient descriptions implicating the Vapavahana in the causation of Madhumeha. Vapavahana is an Udarastha avayava located close to Amashaya⁴³. Its shape resembles a Taila varti, with a broad base and thinning at the apex. The Doshas cause Vapavahana dushti resulting in Madhumeha⁴². it is matruja Avayava.

Khavaigunya or Srotovaigunya: Khavaigunya is a defect in the Srotas, which floors the way for Dushta doshas to attain Sthanasamsraya causing Srotodushti. The concept of Khavaigunya can be compared to a situation where the clouds are moving with the Vayu until they are blocked by mountains to cause rain. Similarly the Doshas circulate throughout until encountered by a Khavaigunya, where they lodge to cause Srotodushti in the form of Dosha Dooshyas sammurchana. In Madhumeha, the Khavaigunya in the form of Madhumeharambhaka dosha dushti occurs in the Vapavahana as a result of two mechanisms. Firstly in Sahaja madhumehis, Vapavahana dushti is due to Beeja dosha and in Apathyanimittaja Madhumeha, the Dushti is a result of Kaphamedokara ahara vihara sevana leading to Medodhatvagni mandya. **Srotodushti**⁴⁴: The Khavaigunya created as explained earlier results in the Sthanasamsraya of the Doshas leading to Srotodushti & accordingly the Srotodushti lakshanas are manifested. The Srotodushti in Madhumeha occurs in two mechanisms similar to the occurrence of Khavaigunya. In Sahaja madhumehis, the Vapavahana dushti is due to Beejadosha and Medovaha sroto dushti occurs as a consequence of this, initiated by the Vata at the level of Vapavahana. In case of Apathyanimittaja Madhumeha, the Kaphamedokara nidana sevana begins the process of Medovaha srotodushti. The Nidanas put an unbearable load on the Vapavahana making it difficult to maintain the Samyata of Medovaha srotas. Hence, Vapavahana dushti occurs gradually after sustained Nidana sevana for a long period of time. This also explains why the Sahaja Madhumeha is Asadhya and is more Mahatyaya than Apathyanimittaja Madhumeha. In Sahaja Madhumeha, the patient is Krusha and Vata gets Dushta severely due to Dhatukshayavastha, manifesting the disease in a more Mahatyaya form⁴⁵. Where as in Apathyanimittaja Madhumeha the patient is Sthoola & hence Bala kshaya is not so rapid. The Dhatu kshaya occurs only after a certain period of time involving Vata in a more severe form than it was in the

beginning due to Margavarana. Therefore, in Madhumeha, the Srotodushti lakshanas occur as Sanga of Kapha leading to Vimargagamana and Atipravrutti of Kleda through the mootra.

Udbhava Sthana: The Arambhaka dosha of Madhumeha is kapha, whose Sthana is Amashaya and hence Madhumeha is Amashayotthita vyadhi.

Sanchara Sthana: As almost all the Dhatus are involved in Madhumeha, the Sancharana of Doshas can be seen in Sarvashareera, though the Pratyatma lakshanas are manifested through the Mootravaha srotas.

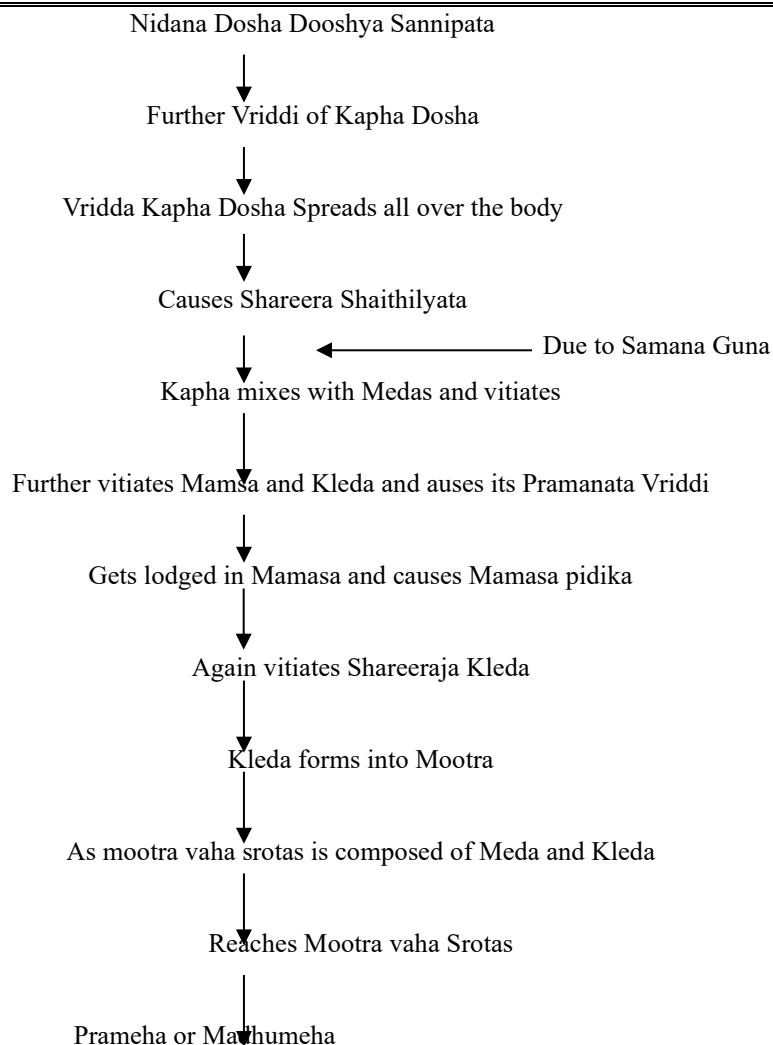
Adhishtana: Medovaha srotas including Vapavahana.

Vyakta Sthana: Mootravaha srotas through which the diseases manifests.

SAMANYA SAMPRAPTI: is the general pathogenesis of the disease. This is same for all the types of disease irrespective of predominance of Doshas. Madhumeha Samanya samprapti have been described in detail in our classics and it is as follows Due to the intraction of Nidana, Dosha and Dooshya there is further vitiation of Kapha Dosha, this vitiated Kapha dosha spreads all over the body and causes shareera shaitilyata. due to the samana guna of kapha with Medas, it mixes with medas and vitiates the same, these vitiated Kapha and Medas further vitiates Mamasa and Shareeraja Kleda and causes its Pramanata vriddi, these vitiated dosha and dooshya gets lodged in Mamas and cause Pidikas like Sharavika and Kachapika, etc. at this stage if one continues to have nidana this causes further vitiation of Shareeraja Kleda and converts it into Mootra. As Mootravaha srotas is composed of Medas and kleda, these Shareeraja Kleda along with other vitiated Doshas and Dooshyas reaches to the Mootravaha Srotas, Ultimately leading to Prameha or Madhumeha⁴⁶. Chart No-8 Nidana Dosha Dooshya Sannipata Further Vriddi of Kapha Dosha Vridda Kapha Dosha Spreads all over the body Causes Shareera Shaithilyata Due to Samana Guna Kapha mixes with Medas and vitiates Further vitiates Mamasa and Kleda and auses its Pramanata Vriddi Gets lodged in Mamasa and causes Mamasa pidika Again vitiates Shareeraja Kleda Kleda forms into Mootra As mootra vaha srotas is composed of Meda and Kleda Reaches Mootra vaha Srotas Prameha or Madhumeha

Further vitiates Mamasa and Kleda and auses its Pramanata Vriddi

Gets lodged in Mamasa and causes Mamasa pidika Again vitiates Shareeraja Kleda Kleda forms into Mootra As mootra vaha srotas is composed of Meda and Kleda Reaches Mootra vaha Srotas Prameha or Madhumeha



VISHESHA SAMPRAPTI

The Vishesha samprapti is usually the manifestation of Bhedavastha. The study of Madhumeha becomes incomplete without the study of Vishesha samprapti of Prameha in its various manifestations depending on Samyoga vishesha of Doshas.

Kaphaja Prameha Samprapti⁴⁶

Kapha attains dushti because of the Kaphakara ahara vihara sevana; this does the Dushti of Medas, increasing its Kleda amsha. Subsequently the Kledamsha of all Dravadhatus is increased and the dushta kapha along with the Shareera kleda is eliminated through the Mootra. There are ten types of Kaphaja Pramehas depending on the Samyoga vishesha of Dosha guna according to Charaka.

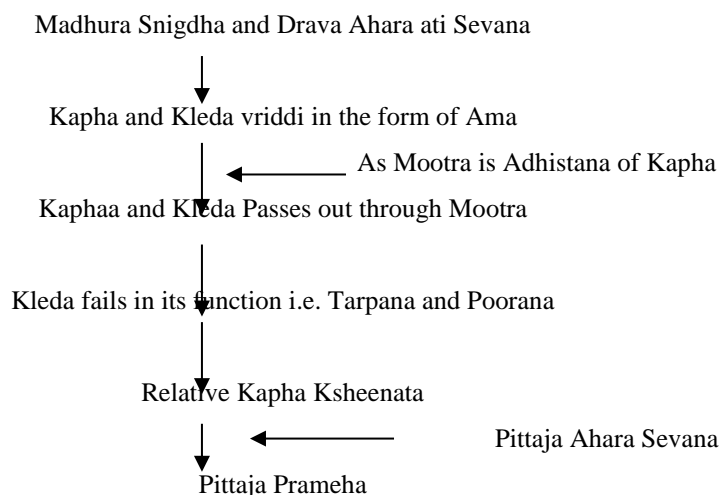
Guna	Prameha
Shweta	Udakameha
Sheeta	Ikshuvalikameha
Moorta	Sandrameha
Picchila	Sandraprasadameha
Accha	Shuklameha
Snigdha	Shukrameha
Guru	Sheetameha
Madhura	Sikatameha
Sandraprasada	Shanairmeha
Manda	Alalameha

Sushruta has mentioned Sura, Lavana, Pishta & Phena mehas and has not identified Sandraparasada, Shukla, Sheetata and Alala mehas. Vagbhata has included Pishta and Suramehas of Sushruta, the rest are similar to Charaka.

Pittaja Prameha Samprapti⁴⁶: In the initial stage due to the intake of excessive Madhura, Snigdha, and drava ahara there will be Kapha and Kleda vriddi in the form of Ama, as the Mootra is said to be adhistanas of Kapha¹⁴⁷, these vitiated Kapha and Kleda passes out through mootra and this leads to Udaka kshaya, in turn there will be lack of Tharpana and Poorana to the Shareera this leads to the relative Kapha ksheenata, at this stage if one indulges in Pittakara ahara and vihara then it leads to Pittaja Prameha.

Guna	Prameha
Kshara	Ksharameha
Amla	Kalameha
Lavana	Neelameha
Katu	Lohitameha
Visra	Manjishta meha
Ushna	Haridrameha

Sushruta has mentioned Amla meha instead of Kala meha. Vagbhata has followed Charaka.



Vataja Prameha Samprapti⁴⁶: In the situation of relative Vriddi of Vata due to the Kshaya avastha of the other Doshas as a result of Dhatukshaya, Vriddha vata does the Adana of Vasa, Majja, Lasika & Oja to the Basti to be eliminated there of. Accordingly, Charaka has identified Vasameha, Majjameha, Hastimeha and Madhumeha respectively. Vagbhata has also mentioned as that of Charaka, Sushruta has mentioned Sarpimeha and called it as Ojomeha as Kshaudra meha.

Vatja Prameha can be studied under following headings. Margaavarodha janya

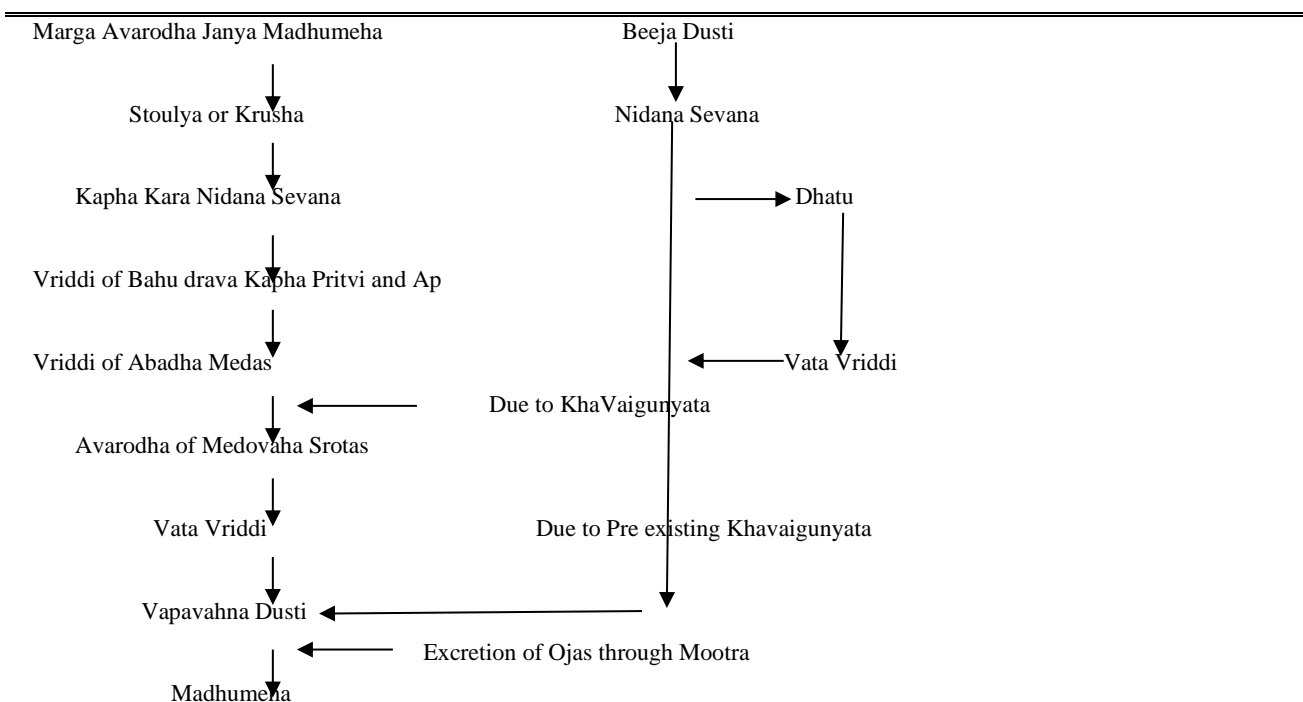
DhatuKshaya janya Sarva prameha leading to Madhumeha if not treated.

Madhumeha due to Margavarana: Vata dosha required to trigger off the process of Madhumeha, aquaires Dhusti by the process of Margavarana as follows. If Stouly person indulges in nidana and also who is not Sthoola but have indulged in excessive Kapha Medakara Ahara and Vihara, it leads to Bahu drava Shleshma vriddi, as guna samyati of Shleshma with medas in turn causes the vriddi of abadha medas this vitiated Medas causes the avarodh of Medovaha Srotas this causes the vitiation of vata, this vitiated vata brings Oja to vasti and will get excreted along with other dooshyas, due to dhatu kshaya there will be further vitiation of vayu, this vitiated vayu affects medovaha vahasroto moola like vapavahana causing Margavarodh janya Madhumeha⁴⁸.

Madhumeha due to Dhatukshaya: This variety of Madhumeha is triggered by Dushta vata due to Dhatu kshaya. The Dhatukshaya avastha is essentially seen in Sahaja madhumehis and as a terminal consequence of other Pramehas. The patients with Sahaja Madhumeha are Krusha, Alpashee, Pipasabhrisham and Paribhramanasheela unlike Sthoola madhumehis, who are Sthoola, Bahvashee and with Shayya asana swapna sukhherati. Madhumeha occurs in Sahaja madhumehis as a direct consequence of Vata because of the inherent nature of such Rogis. But Madhumeha as a result of Dhatukshaya in patients, who were Sthoola in the beginning but became Krusha due to long standing disease, aggravates further due to Dhatukshaya janya vata vriddi. This stage can also be seen a terminal consequence of Pramehas due to other causes⁴⁹.

Samprapti of Sahaja or Kulaja Madhumeha: Madhumeha can also manifest as kulaja vyadhi⁵⁰ in some persons, it is asadhya if it is due to beeja dosha. This is because the vitiated beeja carries predisposing factors (pramehambaka dosha) either from mata or pita to the garbha. It has been also described as a Sahaja vyadhi because it is caused due to Upatapa of Beeja, Beeja bhaga or Beejabhaga awayava, these Beeja and Beeja bhaga avyava dhusti may be Eka (single) or Aneka (multiple)⁵², in case of Madhumeha we have to consider it as aneka because there will be involvement of meny dooshyas in the manifestation of the disease. Hence this disease is transmitted from generation to generation, and it is also mentioned under Adibala pravrutta vyadhi⁵¹. The Beejabhaga awayava responsible for the genesis of Vapavahana undergoes Upatapa during the formation of Garbha depending on the existence of the disease in Mata, Pita or both of them. The extent of Upatapa depends on the predominance of the Doshas during the formation of Garbha. This results in "Jatah khavaigunya". The development of the disease in such people also depends on the predisposition to the disease in the factors like Prakruti, Desha, Kala, Bala, Nidana and the resultant Dosha Dooshyas sammurchana. Accordingly, the disease manifests early in the Balya avastha or in later stages of life depending on when one or more of these factors exert their influence.

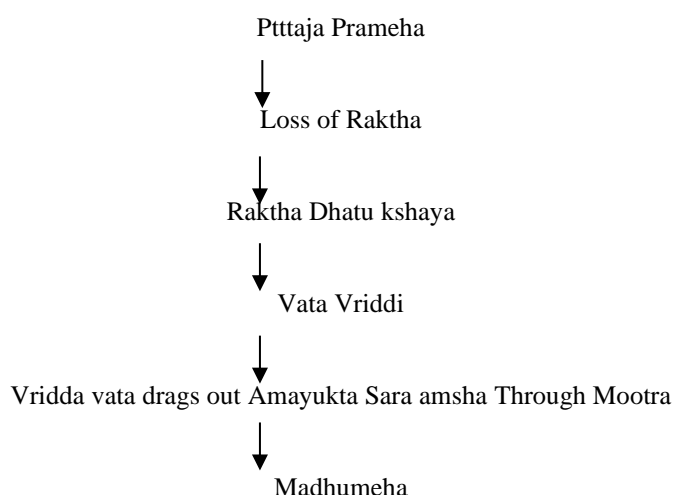
Hence, it can be conveniently inferred that a patient born to parents, both of whom are Madhumehis has a higher chance of developing the disease than a patient one of whose parent is Madhumehi. Moreover, the patient whose Mata is a Madhumehi is more likely to develop the disease than in the patient whose Pita is Madhumehi, because the Dooshyas in Madhumeha are mainly Matruja awayavas and Dhatus like Vapavahana, Medas, Mamsa etc. The Sahaja madhumehi¹⁵³ hence is usually Krusha, Alpashee, Pipasabhrisha and Paribhramanasheela leading to Dhatukshaya janya vata dushti. Therefore a preexisting Khavaigunya in Vapavahana is initiated by Dushta vata leading to Madhumeha.



Sarva prameha leading to Madhumeha if not treated or neglected:

In case of pittaja prameha, if it is left un treated, the vitiated doshas and Dooshyas will continue to excrete through Mootra if it continues, as the Pitta is the ashrayee of Rakta, there will be loss of raktha through Mootra marga and excessive Raktha Dhatu kshaya leads to Vata vriddi, this vitiated vayu again causes medovaha Sroto dhusti which is already affected by Pitta leading to Madhumeha. (A.sa.ni.10/53).

Prameha Leading to Madhumeha if not Treated



Samprapti of Sthoulya and its role in causing Madhumeha:

Sthoulya is considered under Santarponotta Vyadhis as well as Beeja doshajanya. The Nidanas for Sthoulya are same as those described for Madhumeha as “Kaphakriccha sarvam” (all those which cause an abnormal increase in Kapha dosha). A Sthoola rogi can be identified by an abnormal bulk especially of Sphik, Udara and Stana and has the eight Doshas as characteristic features viz. Javoparodha, Kricchravyavayata, Dourbalya, Dourgandhya, Sweda badha, Kshudatimatram, Pipasatiyoga & Ayushohrasa. All these are due to Upachaya of Medas, which occurs as a result Kaphakara ahara and vihara that does the Avarana of Vayu, causing it to confine its activities in the Koshta. This Vayu causes an abnormal increase of the Agni within. Such an Agni digests whatever food the person takes and Vayu does the Shoshana so devastatingly that the patient starts feeling hungry very soon. This vicious cycle continues until all that is taken in causes Upachaya (increase) of only Medodhatu which intern inhibits the development of other Dhatus. Owing to this, the Sthoola patient has a short life span, less strength, Medas, Gurutva and Soukumarya, cannot perform efficient physical work exercise, and absence of sufficient Shukra dhatu resulting in impotence. Increased Medas & its Upadhatu Sweda results in foul body odour. Thus evidently Sthoulya becomes a very potent predisposing factor for Madhumeha more so in a Beeja doshaja sthoulya rogi i.e. an offspring of Sthoola parents. The condition has been described as “hetugarbhavishsha medaswina” which means the defect is inherent in the Garbha (embryo) in such a particular way that the patient tends to accumulate more Medas even though he takes a normal diet.

Understanding of Madhumeha as per the Kriyakala:

Samprapti of Madhumeha can also be explained on the basis of Shatakriyakala. The general Samprapti process begins from the Nidana Sevana.

Sanchaya:

In the person who continuously indulges in Nidana Sevana like Guru, Snigdhadi Ahara and Avyayamadi Vihara lead to Kapha Dosha Sanchaya. The Apripakva Kapha Dosha, which gets Sanchita is having the quality Bahudravatva. In Prakritavastha, the Kapha remains in Badda form (solid or binded), but due to nidana Sevana its Prakrita Badda form changes to Dravatva, which is also excess in quantity i.e. Bahudravatva.

Prakopa: Indicates the interaction between Nidana, Dosha and Dooshyas i.e. these three factors are combined together in such a way that they lead to Prakopa of bahudrava Kapha rapidly and Prameha in future. In the first two stages of Shatakriyakala, the interaction between Nidana and Dosha occurs. The interaction between Vishsha (Anukula) Nidana and Kapha Dosha lead to increase in quantity of Kapha which in future helps in the manifestation of prameha. The Bahudrava Kapha Dosha is the main cause for the manifestation of Prameha and as it is already present in excess quantity

from the beginning, hence it gets provoked rapidly when the Anukula Nidanas are continued. This type of Anukulatva may be seen in person having Kaphaja Prakriti and who are Beeja dusti for Prameha.

Prasara: In this stage, the provoked Kapha gets spread all over the body due to Sharira Shaithilya. Here again, Sharira Shaithilya is also one of the Anukula factors for Nidana towards the Dosha. **Sthana Samshraya:** The provoked Kapha has affinity towards Bahu-abadha Meda due to their similar properties, so they combine with each other. The provoked Kapha (Vikriti) after combining with Bahu-abadha Meda causes its vitiation, the other important Dooshyas are Sharira Kleda and Mamsa, which are already increased in large quantity, prior to vitiation of Kapha. The provoked Kapha with vitiated Meda gets combined with Sharira Kleda or Mamsa or both. This is very important stage because the premonitory symptoms of the disease are manifested in it. So, for the good prognosis it is essential to manage the disease in Sthana Samshraya stage itself.

Vyakta: In this stage, there are two types of manifestation – Pooti Mamsa Pidika due to Mamsa Dhatu vitiation: The Prakupitta Kapha and vitiated Meda when combines with Mamsa lead to Puti Mamsa pidika. Mootravaha Srotodushti due to Sharira Kleda Dushti: If vitiated Kapha and Meda come in contact with Sharira Kleda, then it forms in to Mootra. The vitiated Kapha gets obstructed in the openings of Mootravaha Srotasa, which are already filled with vitiated Meda and Kleda, thus producing the disease Prameha. The above two manifestations of Kleda and Mamsa Dushti will occur simultaneously or in two stages. Among many Poorvaroopas, there are two important Lakshanas which are having an important role in diagnosing the disease at this stage viz. Prabhuta Mootrata and Avila Mootrata. Prabhuta Mootrata is a result of Vriddha Swaroopas Kleda Dushti and Avila Mootrata is one of the signs of Kleda Dushti.

Bheda: If the proper treatment is not given in proper time (Yogya Kriyakala, after Vyakta stage the Samprapti further leads to Bheda stage. In Bheda stage, various types of Upadrava may manifests leading to incurability of disease. The Madhumeha disease attains Sthairya (stability) and Asadhya (incurability) status because of its Prakriti and Vikriti bhutatva. The term Prakriti refers to all the natural properties of Kapha and which becomes abnormal i.e. it attains vikriti bhutatva, the Prameha gets chronic and if Kapha gets provoked further, condition of incurability results. Involvements of Rakthadi Dhatu which are not similar in qualities to Kapha are considered as Vikriti.

SAMPRAPTI BHEDA:

As per the classifications of Samprapti, Madhumeha can be studied under the following headings. Sankhya, Pradhanya, Vidhi, Vikalpa & Balakala. **Sankhya Samprapti:** The Sankhya samprapti of Prameha as described in Ashtodareeya chapter of Charaka samhita is twenty¹⁵⁵ They are the 10 kaphaja mehas, 6 pittaja mehas & 4 vataja mehas

Pradhanya Samprapti: It is clear from the earlier descriptions that Kapha is the Madhumeha arambhaka dosha and Vata is pradhana dosha hence Madhumeha has kapha vata pradhanya samprapti.

Vidhi Samprapti: Based on the Samprapti, Madhumeha can be classified into a) Margavarana janya Madhumeha and b) Dhatukshaya janya Madhumeha Based on Nidanas, it is again classified into a) Sahaja Madhumeha and b) Apathyanimittaja Madhumeha.

Vikalpa Samprapti: The Vikalpa samprapti is based on Amsha amshavikalpana of the Gunas of individual Doshas analysed according to the clinical presentation and this differs from individual to individual but the various lakshanas that can present depending on Amsha amsha guna vriddi and it has been described earlier

Bala Kala Samprapti: The description of Bala kala samprapti helps in knowing the aggravation or production of the disease with respect to the strength of Kala conceived in relation to Rutu, Ahoratra and Bhuktamatrakala. Specific descriptions of Bala kala samprapti have not been conspicuously identified in our classics. One of the multi centered cohort study, which is conducted in Europe suggests that there is no influence seasonality of birth on the occurrence of diabetes. The comment of that study is as follows¹⁵⁷.

Although many of the cohorts from continental Europe were relatively small and had little power to exclude a modest degree of seasonality of birth, none of the cohorts showed any suggestion of abnormal seasonality. Moreover, aggregation of cases into three larger cohorts relating to areas of low, medium, and high incidence of diabetes (data not shown) also showed no abnormal patterns. Only the five cohorts in Great Britain showed any signs of a seasonal trend. The consistency of the finding in these studies and the significance of the overall seasonality suggest that the abnormal seasonal pattern of births is not due to chance, and it is difficult to conceive of any bias that might account for the observation. If the abnormal seasonality of birth of children with diabetes in Great Britain, and that reported in the Netherlands, is a consequence of infection in utero or in early infancy, then the infectious agent(s) responsible would be predicted to be less prevalent, to exhibit a less seasonal pattern of infection, or to be different, in most other parts of Europe. Further studies are required to determine whether abnormal seasonality of birth exists in childhood diabetes in other parts of the world and to identify likely causes. These should be multi centre collaborative studies to avoid bias due to the selective reporting of positive results by single centers.

Poorvaroopo Vivechana

There are six stages in the complete manifestation of any disease, in each stage there will be progressive vriddi of doshas and each stage is considered to be right time for the treatment i.e Kriya kala. If proper treatment is not done in respective time or stage then doshas proceeds to the next stage.³¹ Among these stages Sthana samshraya

is the fourth stage, in this stage due to sthana samshraya of Dosha and Dosha dooshya sammurchana there will be manifestation of some Lakshanas, these are called as Poorvaroopa.³² in this stage if one treats the disease by keeping both doshas and dushyas in mind success will be sure. While explaining about differential diagnosis of prameha, Poorvaroopa as been given prime importance, it is said that if a rogi presents with the complaints of yellowish or bloody micturition, before diagnosing it as prameha one should look for the poorvaroopa of prameha, if these lakshana is manifested without the Poorvaroopa of Prameha then it should be diagnosed as Rakthapitta³³ and also sushruta acharya mentioning that, if the person presents with all the poorvaroopa or some of the Poorvaroopa of Prameha along with little rise in the quantity of mootra, then he must be considered as prameha Rogi³⁴. This above examples signifies the importance of Prameha Poorvaroopabefore its manifestation. As for as Poorvaroopa of Madhumeha is concerned, there is no specific Poorvaroopas have been mentioned in our Ayurvedic classics but we get the detail explanation of the Prameha Poorvaroopa, as madhumeha is considered to be a type of Vataja Prameha, the word madumeha often used as synonymus for Prameha³³ and also any Prameha, if not treated in time it leads to Madhumeha, with these above reasons PoorveRoopas of Prameha can also be considered as the Poorvaroopa of Madhumeha. Some of the Poorvaroopawhich have been mentioned in our different classics are enlisted below

PoorvaroopaPoorvaroopa	Ch.	Su.	A. S.	A.H.	Ma.
Kesheshu Jatilabhava	+	+	+	-	-
Asya Madhurya	+	-	+	+	+
Karapada Daha	+	+	+	+	+
Karapada Suptata	+	-	-	-	-
Mukha Talu Kantha Shosha	+	-	+	+	-
Pipasa	+	+	+	-	+
Alasya	+	-	+	-	-
Kaye Malam	+	-	+	-	-
Kaya Chhidreshu Upadeha	+	-	+	-	-
Paridaha Angesu	+	-	-	-	-
Shatpada Pipilakabhi Mutrabhisaranam	+	-	+	+	-
Mutra Cha Mutra Doshan	+	-	-	-	-
Visra Sharira Gandha	+	+	+	+	-
Nidra Sarva Kalam	+	-	+	-	-
Tandra Sarva Kalam	+	+	+	-	-
Sweda	+	-	+	+	-
Shithilangata	+	-	-	+	-
Shaiyya Asana Swapneshe Sukhe Ratischa	+	-	-	+	-
Hridaya-Netra-Jihva-shravana- Upadeha	+	-	-	+	-
Ghanangata	+	-	-	+	-
Kesha Nakha Ativridhi	+	+	-	+	-
Sheeta Priyata	+	-	+	+	-
Shatpada Pipilika Sharirabhisaranam	+	-	+	+	-
Snigdha Gatrata	-	+	+	-	-
Picchila Gatrata	-	+	-	-	-
Guru Gatrata	-	+	-	-	-
Madhura Mutrata	-	+	-	-	-
Shukla Mutrata	-	+	+	-	-
Sada	-	+	-	-	-
Shwasa	-	+	+	-	-
Deha Chikannata	-	-	-	-	+
Dantadinam Maladhyatvam	-	-	-	-	+
Gala Talu Shosha	-	-	+	+	-

The Amshamsha kalpana of Poorvaroopas are enlisted in Table no 14

Table 18: Amshamsha kalpana of Poorvaroopa.

Poorvaroopa	Dosha	Dushya	Guna
Kesheshu Jatilabhava	Kapha	Medas	Pichila
Asya Madhurya	Kapha	Rasa	Drava
Karapada Daha	Pitta	Raktha	Ushna
Karapada Suptata	Kapha	Rasa	Manda
Mukha Talu Kantha Shosha	Vata	Udaka	
Pipasa	Vata& Pitta	Udaka	Rooksha
Alasya	Kapha	Medas	Guru & Manda
Kaye Malam	Kapha	Medas	Sandra
Kaya Chhidreshu Upadeha	Kapha	Medas	Sandra
Paridaha Angesu	Pitta	Rakta	Ushna
Shatpada Pipilakabhi Mutrabhisaranam	Kapha	Medas	Madhura
Mutra Cha Mutra Doshan	Kapha	Medas	Sandra
Visra Sharira Gandha	Pitta	Medas	
Nidra Sarva Kalam	Kapha	Medas	Manda
Tandra Sarva Kalam	Kapha	Medas	Manda
Sweda	Pitta	Medas	Kleda
Shithilangata	Vata	Medas	Shitila
Shaiyya Asana Swapneshu Sukhe Ratischa	Kapha	Medas	Manda
Hridaya-Netra-Jihva-shravana- Upadeha	Kapha	Medas	Sandra
Ghanangata	Kapha	Medas	Guru
Kesha Nakha Ativridhhi	Kapha	Asthi	
Sheeta Priyata	Pitta	Medas	Ushna
Shatpada Pipilika Sharirabhisaranam	Kapha	Medas	Madhura
Snigdha Gatrata	Kapha	Medas	Snigda
Picchila Gatrata	Kapha	Medas	Pichila
Guru Gatrata	Kapha	Medas	Guru
Madhura Mutrata	Kapha	Medas	Madhura
Shukla Mutrata	Kapha	Medas	Sandra
Saada	Kapha	Mamasa & Medas	Manda & Guru&
Shwasa	Kapha	Medas	Manda& Sandra
Deha Chikannata	Kapha	Medas	Pichila
Dantadinam Maladhyatvam	Kapha	Medas	
Gala Talu Shosha	Vata	Medas	Rooksha

Involvement of different Srotases and its Dhusti Lakshanas of Poorvaroopa.

Poorvaroopa	Srotas	Dusti Lakshana
Kesheshu Jatilabhava	Medas	Atipravritti
Asya Madhurya	Rasa	Atipravritti
Karapada Daha	Raktha	Atipravritti
Karapada Suptata	Rasa	Sanga
Mukha Talu Kantha Shosha	Udaka	Sanag
Pipasa	Udaka	Sanag
Alasya	Medas	Atipravritti
Kaye Malam	Medas	Atipravritti
Kaya Chhidreshu Upadeha	Medas	Atipravritti
Paridaha Angesu	Medas	Atipravritti
Shatpada Pipilakabhi Mutrabhisaranam	Medas	Atipravritti
Mutra Cha Mutra Doshan	Mootra	Atipravritti
Visra Sharira Gandha	Medas	Atipravritti
Nidra Sarva Kalam	Medas	Atipravritti
Tandra Sarva Kalam	Medas	Atipravritti
Sweda	Medas	Atipravritti
Shithilangata	Medas	Atipravritti
Shaiyya Asana Swapneshu Sukhe Ratischa	Medas	Atipravritti
Hridaya-Netra-Jihva-shravana- Upadeha	Medas	Atipravritti

Ghanangata	Medas	Atipravritti
Kesha Nakha Ativridhhi		
Sheeta Priyata	Medas	Atipravritti
Shatpada Pipilika Sharirabhisaranam	Medas	Atipravritti
Snigdha Gatrata	Medas	Atipravritti
Picchila Gatrata	Medas	Atipravritti
Guru Gatrata	Medas	Atipravritti
Madhura Mutrata	Mootra	Atipravritti
Shukla Mutrata	Mootra	Atipravritti
Saada	Medas	Atipravritti
Shwasa	Prana	Sanga
Deha Chikannata	Medas	Atipravritti
Dantadinam Maladhyatvam	Medas	Atipravritti
Gala Talu Shosha	Udaka	Sanag

Roopa Vivechana

The complete manifestation of Lakshana is Linga³⁶. The Roopa, Lakshana or Linga is the one which manifests in the vyaktha avastha of the vyadhi, this avastha is considered to be the fifth avastha of Kriya kala. At the time of SthaanaSamskrya due to Dosha doosha sammooorchana there will be production of Avyaktha Lakshana these are called Poorva roopa, in this stage if doshas further attains vridhi then these lakshanas may completely manifest along with some more Lakshanas and give clear picture of the disease in the form of involvement of Dosha, Dhatu and Mala in that particular disease, at this stage there will be completion of Samprapti. There is none other than Lakshanas which helps in inferring the Aabhyanthara vikruti, so Lakshanas plays a very important role both in the Diagnosis as well as the Treatment of the Disease is concerned.

As for as the Lakshanas of Prameha is concerned the name Prameha itself suggests, it is a disease of Bahumootrata, here the Bahumootrata is the Pratyatma or Pradhana lakshana, which gives the indication of Prameha, in case of Madhumeha along with the Bhumootrata the Mootra resembles the honey in its Rasa, Varna as well as Gandha and these Lakshanas are considered to be Pratyatma Lakshanas of Madhumeha.

The first and foremost Lakshana of Madhumeha is Bhumootrata and also this is the Samanya Lakshana for all kinds of Prameha. The vyakta sthaana of prameha is said to be Mootravha Srotas as mentioned in samprapti the vitiated Doshas and Dhatus are starts to excrete in the form of urine, when these Doshas and Dhatus are excreted in urine there will be production sarvadihika Lakshanas like Dourbalya, alasya and Tandra etc. on this basis Lakshans can be broadly classified into Mootrasambandhi and Saarvadaihika lakshanas.

Mootra Sambandhi Lakshana:

In classics while explaining about lakshans of different prameha, Mootra sambandhi Lakshanas have been given more importance and these Mootrasambandhi Lakshanas can be again classified into Samanya and Vishesh Lakshans.

Samanya Lakshans: Samanya Mootra sambandhi Lakshana are the Lakshana which will be found in all Prameha they are as follows

Prabhoota Mootrata³⁷: The word meaning of Prabhoota is Atimatra³⁸ and Bhuri³⁸ these words signifies the frequency and quantitative increase of urine, this is because in case of Madhumeha all the dooshyas which are involved are ap mahabhoota paradhana like Kleda, Medas and Mamsa etc. as explained in samprapti these vitiated dooshyas are converted into mootra and they are brought into vasti and expelled out.

Avila mootrata³⁷: The word meaning of Avila is Ghanam, Kalusham and Samalam³⁹. So here in this context Avilamootra refers to Kalushitamootra or Samala Mootra or Ghana mootra. This Lakshana of Mootra is because of mootra containing vitiated doosha like abadha medas, Mamsa and Kleda.

Vishishta Mootra sambandhi Lakshana of Madhumeha are as follows. Kashaya, Maadhura, Pandu, Rooksha⁴⁰. Madhura: Madhura refers to the rasa of Mootra, as it is assessed by Anumaana Pramana, by looking at the Saptapadapipeelika, which is attracted towards Madhumehi mootra gives the idia of its Madhura rasa, this madhurata of mootra is due to the presence of Ojas.⁴⁰ as it is explained in Samprapti, Madhumeha is the condition where the dooshita Oja is started to be excreted through Mootra. When the Ojas mixes with mootra the mootra loses its normal rasa i.e. Lavana, hence madhumeha is also called as Ojomeha. Kashaya: The word Kashaya also refers to rasa, here as it is identified that Madhumeha is verity of Vataja Prameha due to the influence of Vata Dosha⁴⁰ (Vayuhu Prabhavaat Kashaya rasa Yuktam) there will be Kashaya rasa. According to Bhava prakasha here the word kashaya refers to the Varna i.e. one has to take the varna of Kashaya (dark brown to blackish). which is mentioned under Kashaya kalpana, but from the practical point of view, its very rare to observe the Kashaya varna Mootra in Madhumehi, hence it is appropriate to consider the word rasa from the point of rasa. As it is also mentioned that the Mootra of madhu mehi resembles the Madhu (Madhumehi madhu Samam),⁴² in the classics, while explaining about the Gunas of madhu, it has been stated that, the madhu or honey also has Kashaya rasa

along with Madhura rasa⁴¹. Rooksha: Rooksha refers to the guna of Mootra, due to the Rookshana karma of Vayu, the Mootra attains Rooksha guna⁴⁰. Pandu: Pandu word refers to the varna of the urine, the normal varna of urine is considered to be peetabha, as in case of Madhumeha or Prameha the Mootra is contaminated with excess amount of Kleda, it loses its normal colour and turns into Pandu varna.

SARVADAIHIKA LAKSHANA:

Based on the lakshana and principal of treatment Madhumeha is broadly classified in to two types they are Sthoola Mehi and Krusha mehi⁴³ and also based on etiology sthoola and Krusha mehi can be named as Apatya Nimittaja and Sahaja⁴⁴ respectively and there Lakshanas are as follows. Sthoola or Apathya nimittaja Madumeha Lakshanas⁴⁴:

1) Sthoulya, 2) Bahvashee, 3) Snigdha, 4) Shayya asana swapna sheela. Sthoulya: initially due excessive greediness person starts to eat food without any limit, it leads to the excessive medo sanchaya and medo dhatvaagni mandya, this vitiated medas does margavaroda of samana vayu, this causes the vitiation of vayu this vitiated vayu is only confined to the annavahasrotas and causes the vriddi of agni, due to this person starts to eat more food ultimately leading to sthoulya.

Bahvashee: as explained above due to excessive medosanchya vitated medas causes marga avaroda of vayu this causes the vitiation of vayu and this vayu is only confined to the annvasrothas an in turn causing the vitiation of Samana Vayu and Pachakagni ultimately leading to Bahvashee.

Snigdha: Snigdha is one of the main and important guna of meda dhatu and Meda dhatu plays an important role in the manifestation of madhumeha, this is the main dhatu which gets vitiated first and this will be in apakva and abaddha avastha that's why there will be increased snigdha of the body in Madhumeha.

Shayya asana swapna sheela: As the Kapha Dosha is the arambaka Dosha in case of madhumeha and it will be in vriddi avasta, it causes Thandra Nidra and Alasya, thus the person who is suffering from madumeha has more of the above symptoms. **Krusha or Sahaja Madhumeha Lakshana⁴⁴:**

Krusha, 2) Alpashee, 3) Rooksha, 4) Paribhramanasheela

Sahja meha is mainly due to Bheeja Dosha. In Shaja madhumehi there will be preexisting khavaigunyata in medovahasrotamoola i.e. Vapavhana. The disease will remain dormant till it gets the suitable nidana, once it gets the suitable nidana it manifests in the form of above mentioned Lakshanas.

Krusha: in case of Sahaja Madhumeha due to the preexisting khavaigunyata, from the beginning of the disease itself there will be excretion of Oja dhatu in excess, as Oja is consider to be the sara of all dhatus, there will be kshaya of all dhatus leading to Krushata.

Rooksa: Rooksha of the body in Sahaja mehi is because of sarva dhatu kshaya in the form of Mootra.

Paribhramanasheela: this Lakshana is due to the vriddi of vata Dosha, due to dhatu kshaya.

Tanu Madhuryata⁴⁵: Tanu madhuryata is considered as a Pratyatma lakshana of Madhumeha. This is due to Aparipakva ojas in the Shareera as evidenced by Makshikopasarpana towards Shareera. **Psychophysiological feature (Characteristic) or manifestation⁴⁶:**

This special manifestation related to behavioural pattern of Madhumehi are the person suffering from Madhumeha always prefer to stand still than walking, sitting than standing, laying down than sitting and sleeping than lying down. This manifestation is mainly because of the Alasya.

Apart from these Pratyatma roopas, the mootrasambadhi Lakshanas of Kaphaja, Pittaja and Vataja pramehas are described as follow

Table 20: Kapha Pradhana Vatanubandha Madhumeha (Kaphaja Prameha):

Prameha nama	Dosha Guna	Mootra lakshana
Udakameha	Shweta, Accha, Sheetha.	Accha, Bahusita, Sheeta, Nirgandha, Udakopama (Udakavarna tulya).
Ikshuvalika rasa meha	Madhura, Sheetha.	Atyarthamadhura, Sheeta, Ishatpicchilam, Avilam, Kandeckshu rasa sankasham.
Sandrameha	Saandra, Picchila.	Paryushita, Sandribhavati bhajane
Sandraprasadameha	Accha,	Samhanyante mootram (Styanibhavati)
Shuklameha	Shweta, Snigdha.	Shukrabham, Shukramishram, Muhurmehati
Sheetameha	Guru, Madhura, Sheetha.	Atyarthamadhuram, Sheetam
Sikatameha	Saandra, Moorta.	Katina mootrata
Shanairmeha	Manda, Moorta	Mandam, Mandavegam, Kruchram
Alalameha	Picchila.	Tantubaddha iva, Alalam, Picchilam
Surameha	Accha	Suratulyam
Lavanameha		Vishada, Lavana tulyam
Pishtameha	Shukla	Pishtarasa tulyam
Phena meha		Vishada, Lavana tulyam

Pitta pradhana Vatanubandha Madhumeha (Pittaja Prameha):

Prameha nama	Dosha Guna	Mootra lakshana
Ksharameha	Kshara	Kshara tulya varna-rasa-sparsha
Kalameha	Kala	Masi varna, Ajasram, Ushnamootra
Neelameha	Neela	Chashapakshi nibham, Amlam
Raktameha	Lohitha	Visra, Lavanam, Ushnam, Raktam
Manjistameha		Manjistodaka sankasha, Visra
Haridrameha	Peetha	Haridrodaka sankasha, Katuka
Amlameha		Amla rasa, Amla gandha

: Vata Anubandhya Madhumeha (Vataja Prameha):

Prameha nama	Mootra lakshana
Vasameha	Vasamishram, Vasabham
Majjameha	Majjanam
Hastimeha	Hastimatta iva ajasram, Lasika
Madhumeha/Kshaudrameha	Kashaya, Madhura, Pandu varnata, Ruksha
Sarpimeha	Sarpiprakasham

DISCUSSION:

The terms Prameha and Madhumeha are synonymous. They indicate the same condition where in the former refers to Prabhoota and Avila mootrata & the latter refers to Tanu & Mootra madhuryata. The Vataja, Pittaja & Kaphaja Pramehas are the stages of the same disease and It is an established fact that Madhumeha is a Tridoshaja Vyadhi (and it has been mentioned that the Kaphaja, Pittaja and Vataja Pramehas are the result of relative dominance of respective Doshas during the manifestation of the disease) nevertheless Kapha and Vata doshas have a more predominant role than Pitta. An environmental factor (Viharaja Nidana) also plays an important role in the manifestation of the disease. Madhumeha is a disease characterized by Prabhoota avila mootrata, Tanu madhuryata & Mootra madhuryata.

apakarshana & Sarva dhatu sara – Ojo dushti is a invariable manifestation of the end stage of the disease. Aparipakva ojas is directly responsible for the Madhuryata of Tanu and Mootra Kapha is the Arambhaka dosha & Vata is the Preraka. Margavarana janya Madhumeha & Dhatukshaya janya Madhumeha are the two forms of the disease. Apathyanimittaja Madhumeha & Sahaja Madhumeha are the two independent forms of presentations, coming under the above classification respectively. Sadhyasadhyata of Madhumeha is directly dependent upon Dhatu apakarshana & Vata anubandha anubadhyatva & Sahaja karana.

The Kaphaja, Pittaja & Vataja Pramehas are nothing but the range of varied symptomatology of Madhumeha manifesting depending upon association of favorable Nidanas for the respective Dosha during the course of the illness. Sahaja Madhumeha can manifest in the Balya avastha also & Apathya nimittaja Madhumeha manifests in the Madhyama to Vriddha avastha.

Conclusion:

In our classics of Madumeha and its Nidana, Samprapti, Poorva Roopa, Roopa and Upadravas are explained in detail. The diagnosis of Madhumeha is only based on its clinical signs and symptoms, there is need for the better understanding these signs and symptoms, as most of these simulates with the Diabetes mellitus and also there is detailed explanation about the Nidana, it has to be understood from the present day's point of view. So one manage the diseases effectively.

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