



Journal Homepage: -www.journalijar.com
**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI:10.21474/IJAR01/8848
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/8848>



RESEARCH ARTICLE

AN OVERVIEW OF VIKALPA SAMPRAPTI IN MADHUMEHA W.S.R TO TYPE II DM.

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Manuscript Info

Manuscript History

Received: 08 February 2019
 Final Accepted: 10 March 2019
 Published: April 2019

Key words:-

Diabetes mellitus, Hyperglycaemia,
 Madhumeha, Bahudrava Shleshma,
 Medodushti, Samprapti vighatana.

Abstract

Diabetes mellitus refers to a group of common metabolic disorders that share the phenotype of hyperglycaemia. *Madhumeha* is known to mankind since long, but with brief description. This can be taken as the equivalent of the menace of current era, Diabetes Mellitus. Ayurveda states that it occurs due to *bahudrava shleshma* which leads to *medo dusti*. This *medodusti* in turn vitiates *mamsa, shareera kleda, shukra, shonita, vasa, majja, lasika, rasa* and *ojas* in the *vyadhi samprapti* which are the ten distinct *dushyas* in this disease. Diabetes mellitus is counted among the major diseases which are responsible for morbidity and mortality. At least 171 million people worldwide have diabetes; this figure is likely to be more than double by 2030. Around 3.2 million deaths every year are attributable to complications of diabetes. Ayurveda believes in the tenet of “*Samprapti Vighatanameva Chikitsa*”, hence understanding of *Madhumeha Samprapati* in detail paves ways for an appropriate and fruitful treatment plan.

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Introduction:-

Madhumeha known to mankind since long, is found to share features with Diabetes mellitus. The WHO estimates that as many as 346 million people suffer from diabetes worldwide, with India and China being the largest contributors to the world's diabetic load. India is having 18 % of total diabetic population of the world with 31,705,000 patients **earning India, the title “Diabetes Capital” of the world.**

Madhumeha is one among the 20 sub types of *pramehas* and is predominantly a *vatika* disease. Here Ayurveda believes that it occurs mainly due to *bahudrava shleshma* which leads to *medo dusti* primarily. This *medodusti* in turn vitiates *mamsa, shareera kleda, shukra, shonita, vasa, majja, lasika, rasa* and *ojas*, which means all the *doshas* and *dhatu*s, except *asthi* are involved. The *prameha* is classified as *Sahaja* and *apathya nimittaja, Krishna* and *sthoola, Durbala* and *Balawan*^{1,2}. Similarly the disease diabetes mellitus can be classified into type I (absolute insulin deficiency) and type II (insulin resistance).

Aims & objectives:-

To analyze the *Madhumeha Samprapti* in detail, with special focus on *Vikalpa Samprapti*

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Materials & methods:-

Careful perusal of the *Bruhattrayees*, the Greater Triad of Ayurvedic literature like Charaka Samhita, Sushruta Samhita and Ashtanga Hridayam, the *Laghutrayees* along with the contemporary textbooks and reference books on internal medicine is done.

Etymology:

The word *Madhumeha* consists of two words: *Madhu* and *Meha*. The word *Madhu* is derived from the root “मधु, क्ली, मन्थन्ते विशेषेण जानन्ति जना यस्मिन् ।³ The word ‘*Meha*’ has the following meaning: मेहः, पुं, (मेहति क्षरति शुक्रादिरनेनेति । मिह् + घञ् ।) प्रमेहरोगः । इत्यमरः (2/6/56)

Definition of madhumeha:

Meha word here is mainly related with the excretions through urine. So the definition is: the clinical entity in which patient voids the urine having features in concordance with *Madhu-Kashaya* and *Madhura* taste, *Ruksha* (dry) texture and honey like color and body acquires sweetness is called *Madhumeha*.

However, Sushruta has used the term *Ksaudra Meha* in place of *Madhumeha*. *Kshaudra* is nothing but a variety of *Madhu* (honey), which is *Kapila* (tawny) in color. So it undoubtedly resembles with *Madhumeha*. Further, he asserted that when all the *Pramehas* ill-treated or neglected are converted to *Madhumeha*⁴.

In regard to the above explanation we can easily postulate that the disease *prameha* is resulted because of excessive excretion of something (Atipravrttija).

Synonyms:

Ojomeha, Ksaudrameha, Paushpameha

Observation:

Madhumeha involves the *tridoshas*, *meda*, *mamsa*, *shareera kleda*, *shukra*, *shonita*, *vasa*, *majja*, *lasika*, *rasa* and *apara ojus*. The *vimshati pramehas* manifest as **10 kaphaja pramehas** involving mainly *medas* and *tridosha* with the predominance of *dushta sleshma*^{5a}, **6 pittaja pramehas** mainly involving *shonita*, *medas*^{5b} and *tridoshas* with *dushta pitta* predominance and **4 vataja pramehas** mainly involving *vasa*, *majja*, *meda*^{5c} and *tridoshas* with the predominance of *dushta vata*.

Classification of prameha:

Three important Ayurvedic ancient treatises elaborately classified the disease *Prameha* on the basis of *Dosha* dominance.

	CHARAKA	SUSRUTA	VAGBHATA
KAPHAJA MEHA			
Udaka meha	+	+	+
Ikshuvalika meha	+	+	Ikshumeha
Sandrameha	+	+	+
Sandra prasada meha	+	Pistameha	+
Shukla meha	+	Surameha	+
Shitameha	+	Lavana meha	Sitameha
Sikata meha	+	+	+
Shanairmeha	+	+	+
Alaa meha	+	Phenameha	Lala meha
Shukra meha	+	+	+
PITTAJA PRAMEHA			
Kshara meha	+	+	+
Kala meha	+	Amla meha	Kala meha
Nila meha	+	+	+
Lohitameha	+	Shonita meha	Rakta meha
Manjista meha	+	+	+

Haridra meha	+	+	+
VATAJA MEHA			
Vasa meha	+	+	+
Majja meha	+	Sarpi meha	Majja meha
Hasti meha	+	+	+
Madhu meha	+	Kshaudra meha	Madhumeha

Table 1:-Types of Madhumeha according to Brihatrayees

Acharya Charaka put forth the theory that all these types and their nomenclature are because of the specific qualities and their combinations with each other but, the nomenclature is mainly based on the predominance of one quality⁶. Chakrapani also commented that the nomenclature is because there is close resemblance of urine with a particular quality (guna) i.e. *Shitameha* with *Shita guna*, *Suklameha* with *Shukla guna* etc. When we go through the above details, with this classification we can easily understand the *dosha* predominance, *dusya* involved, nature of urine voided and the disease progression.

Madhumeha:

गुरुस्निग्धाम्ललवणान्यतिमात्रं समश्नताम्।

नवमन्नं च पानं च निद्रामास्यासुखानि च॥७८॥

त्यक्तव्यायामचिन्तानां संशोधनमकुर्वताम्। Ca. Su. 17/78-79

} Avaranajanya
Madhumeha Nidana

These *nidanas* vitiate *Kapha* and *Pitta* which in turn does *malarupi vrudhi* of *Medas-Mamsa*. Further altogether they do *avarana* to the *vata gati* which carries the *Apara oja* into the *basti* and leads to *Madhumeha*.

Purvarupa:

Premonitory symptoms are very much important to diagnose the disease as early as possible. That in turn helps for good prognosis. In Ayurvedic treatises common premonitory symptoms are described but special premonitory symptoms of *Madhumeha* are not mentioned.

Rupa:

Signs and symptoms of the disease are the diagnostic tools which manifest when the pathology of the disease is in full swing. The symptomatology of *madhumeha* by the Acharyas is as follows. The disease *madhumeha* exhibits its characteristic features or *roopa* resulting from the *dosha dushya vishesha* through *mutra varnadi bheda*⁷. Here the word 'adi' refers to *Rasa*, *Gandha*, *Sparsha*. Hence **the disease *prameha* or *madhumeha* must be diagnosed based on the characteristics of *dusta mutra*.**

The *samanya lakshana* of this *roga* are *prabhoota mutra* and *avila mutrata*⁸. Here *prabhoota* must be understood as **excessive quantity and frequency of urine** whereas *avila* refers to **not clear or turbid and foul**. The underlying pathology is the excessive increase in *kapha* and *kledadi* factors.

Specific symptomatology of Madhumeha:

Urine Characteristics:

Madhumeha patient excretes urine having *Kashaya* and *Madhura* taste, *Panduta* in colour and of *Ruksha* Quality. (Cha. Ni. 4/44) Commenting upon this statement of Charaka, Gangadhara opines that the natural *madhura rasa* of *oja* is replaced by *Kashaya rasa* in *Basti*. Chakrapani opines that *Vayu* because of its *Prabhava* converts *Madhura rasa* of *oja* into *Kashaya rasa*⁹. Susruta mentioned the resemblance of urine with honey as described above, seconded by Vagbhata and Madhavakara.

Associated signs and symptoms:

In Chikitsasthana, Susruta before propounding the treatment of *Prameha*, asserted two types of *prameha* along with their features as follows.

Sahaja Pramehi:

Krusha (Asthenic), *Ruksha* (dry body), *Alpashi* (consumes less food), *Bhrusha Pipasa* (Excessive thirst), *Parisaranashila* (restless, always wants to wander).

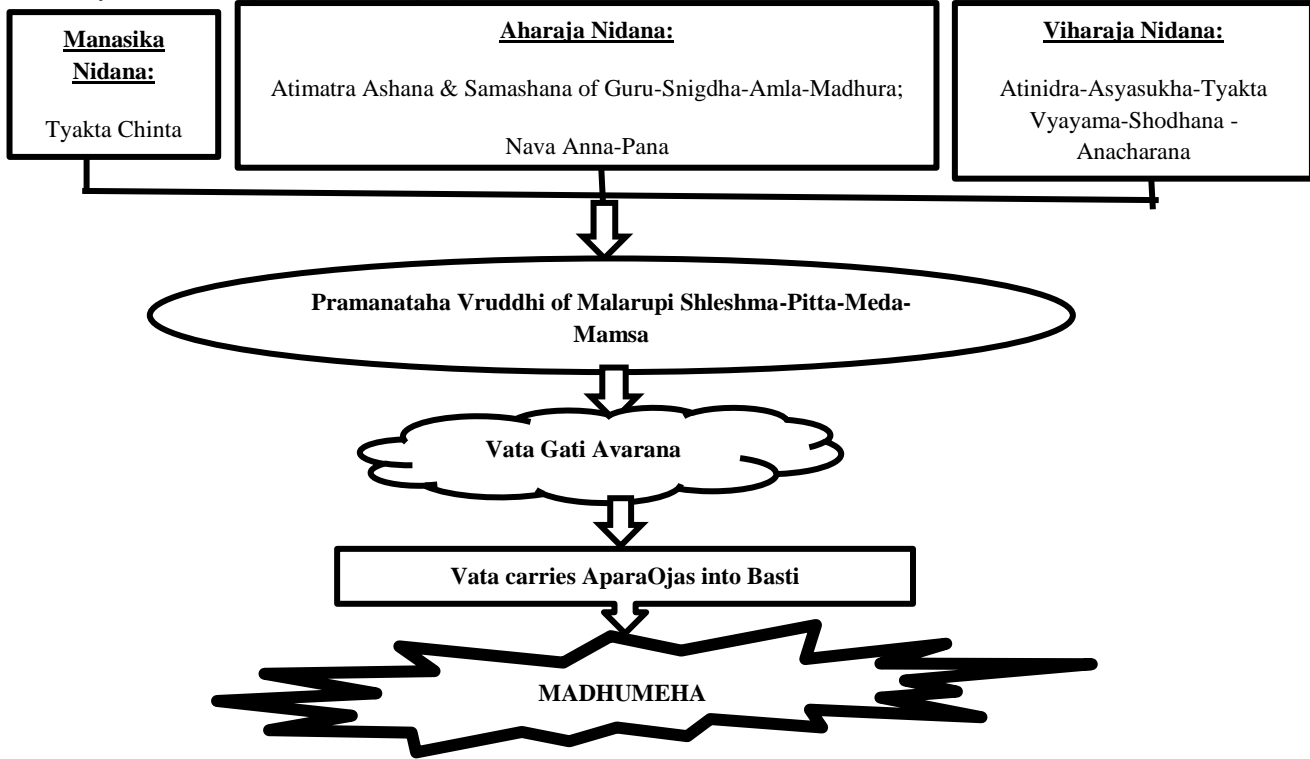
Apathyanimittaja:

Sthula (obese), *Bahvashi* (consumes excessive food), *Snigdha* (unctuous body texture), *Shayya-asana-swapnasheela* (likes to sit down and sleep always).

Samprapti:

The processes which include the different stages of *dosha dushiti* and disease progression till the complete manifestation of *vyadhi* are called *samprapti*.

Acharya Charaka explained the *samprapti* of *madhumeha* in detail as follows¹⁰.



Flowchart 1:-Samprapti of Madhumeha

Kaphaja prameha:

Due to *Sannipatatva* of *Nidana-Dosha-Dushya*, following stages become evident in *Kaphaja Prameha*^{11a}.

STAGES IN SAMPRAPTI	REASONS
1. Kshipra prakopana of Shleshma	Prak Atibhuyastvat
2. Kshipra Visrupthi all over the body	Shareera Shaithilyat
3. Initial combination with Medas	Medasaha Bahu Abaddhatvat and Samana Gunatavat
4. Dushana of medas by prakupita shleshma	Vikrutatvat
5. Samsarga of shareera kleda-mamsa by dushta medas	Kleda mamsayoho atipramanabhivruddhatvat
6. Puti mamsa pidaka formation in mamsa like sharavika kacchapika etc.	Mamsapradoshat, aprakruti bhootatvat.

→Punar dushana of shareera kleda and their parinamana in the form of mutra by Praturndhana of mutravaha srotas emerging from basti and vankshana leading to the manifestation of **10 kaphaja prameha**

Table 2:-Stages in kaphaja Prameha samprapti

Susruta narrated *dusyas* in each dosic type of *prameha*. He narrated vitiation of *Kapha* along with *Vata*, *Pitta* and *Meda* in *Kaphaja prameha* (Su. Ni. 6/4).

Pittaja Prameha^{11b}:

In *kaphaja prameha*, if patient indulges in *pittakara ahara, vihara* and *manasika bhavas* like: *krodha* → *pitta dosha* gets involved and leading to → further progression of *samprapti* towards *yapya avastha* and manifests → **6 pittaja prameha**.

Vataja Prameha^{11c}:

The *prameha* which has reached *yapyavastha* due to involvement of excessively vitiated *pitta* and *kapha*, if patient indulges in *vatacara ahara, vihara* and *manasika bhavas* like: *Udvega* and *Shoka* → *vata dosha* gets involved and leading to → further progression of *samprapti* towards *asadhya avastha* and manifests → **4 vataja prameha**.

Vikalpa samprapti in prameha: (amshamsha kalpana)**Kaphaja prameha**

TYPES	LAKSHANAS OBSERVED IN MUTRA	DASHA GUNA	DOSHA VIKALPA
Udaka meha	<ul style="list-style-type: none"> Accha bahu sita sheeta Nirgandha Udakopama 	<ul style="list-style-type: none"> Shweta Sheeta Accha 	<ul style="list-style-type: none"> Kapha pradhana Tridosha Atyartha dravibhuta kapha due to loss in its sthira guna
Ikshu rasa meha	<ul style="list-style-type: none"> Atyartha madhura Sheeta Ishat picchila Kandekshu rasa sankasha Ishath aavila 	<ul style="list-style-type: none"> Sheeta Picchila Madhura 	
Sandra meha	<ul style="list-style-type: none"> Paryushita Saandri bhavathi bhajane 	<ul style="list-style-type: none"> Saandra 	
Sandra prasada meha	<ul style="list-style-type: none"> Kinchith samhanyate Kinchith praseedati 	<ul style="list-style-type: none"> Saandra Prasada 	
Shukla meha	<ul style="list-style-type: none"> Shukla Pishta nibha Abheekshana pramehati 	<ul style="list-style-type: none"> Shweta 	
Shukra meha	<ul style="list-style-type: none"> Shukrabha Shukra Mishra Muhur mehati 	<ul style="list-style-type: none"> Bahala Madhura Snigdha Guru Shukla Avisra 	
Sheeta meha	<ul style="list-style-type: none"> Sheeta Atyartha madhura 	<ul style="list-style-type: none"> Sheeta Madhura 	
Sikata meha	<ul style="list-style-type: none"> Mutre anu murtha dosha 	<ul style="list-style-type: none"> Murtha 	
Shanai meha	<ul style="list-style-type: none"> Manda Kruchra Avega 	<ul style="list-style-type: none"> Manda 	
Aalala meha	<ul style="list-style-type: none"> Tantu baddha Picchila 	<ul style="list-style-type: none"> Picchila 	

Table 3:-Vikalpa Samprapti in Kaphaja Prameha

Pittaja Prameha

TYPES	LAKSHANA IN MUTRA	GUNA INVOLVED	DOSHA VIKALPA
Kshara meha	<ul style="list-style-type: none"> Kshara gandha varna rasa sparsha 	<ul style="list-style-type: none"> Tikshna Ushna 	<ul style="list-style-type: none"> Pitta pradhana Tridosha

		<ul style="list-style-type: none"> • Laghu 	<ul style="list-style-type: none"> • Increase in vitiated Sara-Sneha-Visra • Change in Prakrutha Rasa-Varna 	
Kala meha	<ul style="list-style-type: none"> • Masi varna • Ajasra • Ushna 	<ul style="list-style-type: none"> • Sara • Ushna 		
Nilā meha	<ul style="list-style-type: none"> • Chasha paksha varna • Amla 	<ul style="list-style-type: none"> • Peeta to • Nila 		<ul style="list-style-type: none"> • Katu to • Amla
Rakta meha	<ul style="list-style-type: none"> • Visra • Lavana 	<ul style="list-style-type: none"> • Visra 		
Manjishta meha	<ul style="list-style-type: none"> • Manjistodaka varna • Bhrusha visra 	<ul style="list-style-type: none"> • Visra 		
Haridra meha	<ul style="list-style-type: none"> • Haridroka varna • Katu 	<ul style="list-style-type: none"> • Peeta • Katu 		

Table 4:-Vikalpa Samprapti in Pittaja Prameha

Vataja Prameha

TYPES	LAKHSANA IN MUTRA	GUNA INVOLVED	DOSHA VIKALPA
Vasa meha	<ul style="list-style-type: none"> • Vasa Mishra • Vasabha • Muhur mehana 	<ul style="list-style-type: none"> • Sukshma • Chala • Ruksha 	<ul style="list-style-type: none"> • Vata pradhana tridosha
Majja meha	<ul style="list-style-type: none"> • Majja yukta mutra • Muhur mehana 		
Hasti meha	<ul style="list-style-type: none"> • Ajasra mutra ksharana • Bhrusha meha 		
Madhu meha	<ul style="list-style-type: none"> • Kasaya madhura rasa • Pandu varna 		

Table 5:-Vikalpa Samprapti in Vataja Prameha

Discussions & result:-

From the above observations we can arrive at these results:

1. The involvement of *tridosha* suggests the seriousness of the illness.
2. *Prameha* is an **acute illness manifested due to chronic pathology** due to *Nidana, dosha* and *dushya sammurchana- ashu abhinirvruttikaranam bhavati*. It is a disease with an **irreversible** pathology- *asadhyan iti utpattitaha*.
3. The pattern and order of involvement of the *dhatu*s indicates the transition of disease *prameha* from a state of curability towards the disease *Madhumeha*, a state of incurability.
4. The *kaphaja prameha* needs to be considered as pre-diabetic stage, since the *dushyas* involved are mainly *medas* with associates like *mamsa* and *shareera kleda*. Thus **obesity with dyslipidaemia and polyuria should be considered as kaphaja meha**.
5. In *pittaja prameha*, *Shonita* is being invaded by *dushta kaphadi* factors. This is the point where the pathognomonic feature of diabetes mellitus- hyperglycaemia sets in. Thus **pittaja meha is the stage where actual pathologic mechanism of diabetes mellitus unfolds**.
6. In *vataja prameha*, there is involvement of *gambheera dhatu*s and *apara ojus* which is the *dhatu sara*, is being forced out of the body due to the indolent and irreversible pathology called *Avarana* at cellular level. Thus **madhumeha is a stage where complications are seen which is again due to Apra ojo kshaya from the body through basti marga**. Also insulin resistance can be considered as *avarana* to the *vata dosha*.

Conclusion:-

Conclusion in a nutshell is the essence of any study. Without finding a conclusion on any study, it would not become successful in its aims. Conclusions drawn from the present study are as follows:

1. **Madumeha is tridoshaja vyadhi initiated by santarpana nidana** leading to quantitative increase of *malaroopi shleshma, pitta, meda* and *mamsa* which leads to *avarana* of the *gati* of *vayu* which in turn leads to *vimargagamana* of *apara ojus* through *basti* by *vayu* leading to *asadhya vyadhi* as it involves *gambhira dhatu*s.

2. The disease *prameha* is essentially a *tridoshaja vyadhi* with initiation by *kapha dosha* and *dhatu*s like *meda* and *mamsa*. This stage can be identified as pre diabetic stage along with obesity, dyslipidaemia and polyuria.
3. The progression of *kaphaja prameha* is *pittaja prameha* where in the *dusta kaphadi* factors invade the *rakta dhatu*. This stage can be correlated to the hyperglycaemia and initial stage of diabetes mellitus.
4. The final stage of *prameha samprapti* involves *vata* and *gambhira dhatu*s like *majja*, *shukra* and even the out throwing of *apara ojus* which can be correlated to the actual phase of DM including its complications.

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