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AN *AYURVEDIC* PERSPECTIVE OF DIABETIC PERIPHERAL NEUROPATHY W.S.R TO *MADHUMEHA UPADRAVA*: A REVIEW ARTICLE

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ABSTRACT

Diabetes Mellitus (DM) is a prevalent metabolic disorder and a significant public health concern in India, contributing substantially to morbidity due to its chronic complications. Among these, Diabetic Peripheral Neuropathy (DPN) is one of the most common and disabling long-term complications. Its prevalence increases with disease duration—affecting approximately 26% of patients after five years and up to 41% after ten years of diabetes. Over a lifetime, 50–66% of diabetic individuals are estimated to develop DPN. It is characterized by progressive sensory loss starting in the toes and spreading proximally, along with tingling, burning, and aching pain that negatively affects quality of life. Although medicines used for pain management provide symptomatic relief, their long-term use may be limited by adverse effects. This highlights the necessity for exploring alternative therapeutic approaches with minimal side effects; **Methods:** A comprehensive understanding of Diabetic Peripheral Neuropathy from an Ayurvedic perspective through an in-depth literary review, incorporating insights from classical Ayurvedic texts (Samhitas) and contemporary electronic resources. **Result**: Ayurveda views Diabetic Peripheral Neuropathy as more than just a complication of diabetes—it is understood as an expression of internal physiological imbalances. **Discussion**: Ayurveda emphasizes a comprehensive and

personalized approach to the management of Diabetes Peripheral Neuropathy, focusing on restoring systemic balance rather than targeting isolated symptoms.

KEYWORDS: Diabetic Peripheral Neuropathy, Madhumeha Upadrava, Vatavyadhi, Avruthajanya Vata vikara.

INTRODUCTION

Diabetes Mellitus is a widespread metabolic disorder and a major public health challenge in the Indian population. It is a leading cause of premature illness and is often associated with vascular complications—both microvascular and macrovascular—primarily due to delayed diagnosis.[1] Over time, diabetes can affect multiple organ systems, contributing to a range of long-term health issues.[2]

Nerve-related complications of Diabetes Mellitus significantly contribute to both morbidity and mortality. Among these, **Diabetic Peripheral Neuropathy (DPN)** is characterized by the presence of symptoms and/or signs of peripheral nerve dysfunction in individuals with diabetes, after excluding other potential causes.[3] Despite its severity, DPN often remains underdiagnosed and inadequately treated. Studies indicate that approximately one in six individuals with diabetes exhibit signs of neuropathy, with nearly 50% expected to develop the condition over the course of their illness.[4] Clinically, DPN presents as a progressive sensory loss, initially in the toes, extending proximally to the legs, hands, and even trunk in advanced stages. Symptoms such as tingling, burning sensations, and deep, aching pain which gradually hampers quality of life.[5] The management of Diabetic Peripheral Neuropathy (DPN) commonly involves the use of medications such as tricyclic antidepressants, anticonvulsants, and pregabalin, which are effective in relieving neuropathic pain. However, their long-term use is often associated with adverse effects, such as sedation, cognitive impairment, constipation, peripheral edema, and also leading cause of lower limb amputations in diabetic patients.[6] Its occurrence and progression are closely associated with factors such as advancing age, duration of diabetes, and poor glycemic control.[7]

SIGNIFICANCE OF MADHUMEHA IN AYURVEDA

According to ***Acharya Charaka***, *Madhumeha* is classified as a ***Vataja* variety of *Prameha***,[8] which closely parallels the clinical presentation of Diabetes Mellitus in contemporary medicine. Owing to its chronicity and capability to manifest multitude of *upadravas*, *Madhumeha* is considered as one of the ***Ashtamahagadas***[9] (eight major diseases) in

Ayurveda. It fulfills key characteristics of a ***Maharoga***[10] (major disease), including ***Deerghakalanubandhitva*** (chronic progression), ***Prabhoota Dosha Sanchaya*** (excessive dosha accumulation), ***Duschikitsyatva*** (difficulty in treatment), ***Mahamarmashrayatva*** (involvement of vital organs), and ***Bahu Upadravatva*** (multiple complications).

The concept of *Upadrava* refers to secondary conditions that arise due to improper management of the *pradhana vyadhi*, often triggered by the aggravation of the same underlying doshas. Although Diabetic Peripheral Neuropathy (DPN) is not explicitly described in classical Ayurvedic texts, its clinical features are scattered across the *Poorvarupa*[11] (prodromal symptoms), *Roopa*[12] (manifested signs), and *Upadravas*[13] (complications) of *Madhumeha*. Symptoms such as *Padadaha*[14] (burning in the feet), *Padasupti*[15] (numbness), *Padaharsha*[16] (tingling), as well as conditions like *Raktavruta Vata*[17] *Vyanavruta Vata*[18] and *Pittavruta Vata*[19] show close resemblance to DPN. Vitiated *Vata*, *Pitta doshas* along with *Raktadi Dasha Dushyas*, leads to manifestation of symptoms such as *Vedana* (pain), *Daha* (burning sensation), *Suptata* (numbness), *Chumchumayana* (tingling sensation), *Dourbalya* (weakness in extremities), and *Sparshanagnata* (altered tactile sensation), all of which align closely with the clinical picture of Diabetic Peripheral Neuropathy.

MATERIALS AND METHODS

The concept of Diabetic Peripheral Neuropathy (DPN) has been thoroughly reviewed and critically analyzed using a wide range of sources, including classical Ayurvedic texts, contemporary medical literature, research journals, magazines, and online databases. This in-depth literary review provided a strong foundation for the analysis, discussion, and interpretation presented in the article.

NIDANA/ ETIOLOGY[20]

The underlying causes of Diabetic Peripheral Neuropathy (DPN) are varied and may differ based on the specific type of neuropathy involved. Current research suggests that prolonged exposure to elevated blood glucose levels plays a central role in the development of nerve damage However, this damage is likely due to a combination of factors.

- Metabolic factors, such as high blood glucose, long duration of Diabetes Mellitus, abnormal blood fat levels, and possibly low levels of insulin

- Neurovascular factors, leading to damage to the blood vessels that carry oxygen and nutrients to nerves.
- Autoimmune factors that cause inflammation in nerves
- Inherited traits that increase susceptibility to nerve disease
- Lifestyle factors, such as smoking or alcohol use

AYURVEDIC VIEW

Nidanarthakara roga	***Anupashaya Ahara of Madhumeha*[21]**	***Anupashaya Vihara of Madhumeha*[21]**	***Ati apatarpana***
"The progression of *Madhumeha* commonly leads to complications such as Diabetic Peripheral Neuropathy, making it a critical etiological factor."	Excess use of *Madhura Ahara, Navannapaana, Graamaya Mamsa, Audaka Mamsa, Aanoopa Mamsa, Dadhi, Gudavaikruta* etc.	*Aasyasukha, Swapnasukha* etc sedentary life styles, reduced activities such as *Chankramanadwesha* etc. Psychological factors such as *Udvega* and *shoka*.	In the contrary to the diet followed by *pramehi*, use of *ati Katu-Tikta-Kashaya* rasa which leads to *vata prakopa* and are *apatarpaka* in nature.

SAMANYA LAKSHANAS/SYMPTOMS OF DIABETIC PERIPHERAL NEUROPATHY

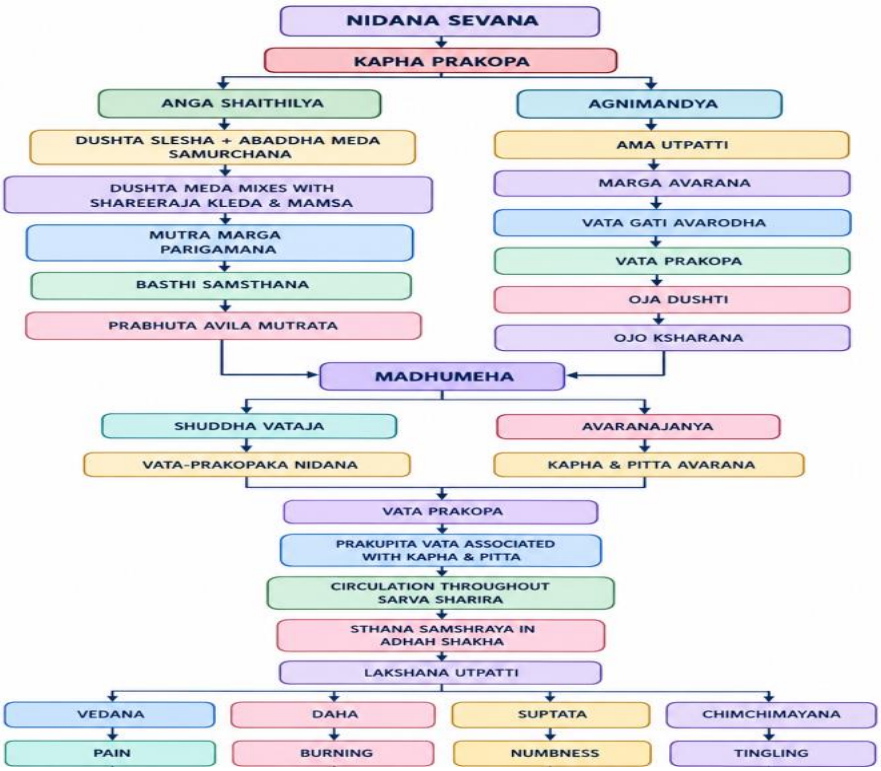
DPN, primarily targets the peripheral nerves, resulting in pain, sensory loss and motor dysfunction, which profoundly diminishes quality of life. Typically it appears as distal symmetric sensorimotor polyneuropathy, initially affecting the feet and legs and progressing proximally in a characteristic ―Stocking-Gloves pattern. Patients experience a wide variety of symptoms ranging from numbness, tingling, pins and needles, burning pain and muscle weakness. The loss of sensation ultimately results in risk of foot injuries, which can progress to ulcers and infections-major contributors to morbidity.[22]

SHOWING THE COMPARISON OF SIGNS AND SYMPTOMS OF DIABETIC PERIPHERAL NEUROPATHY WITH AYURVEDIC CONTEXTS AND RELEVANT DISEASES/DISORDERS

Symptoms	**lakshana**	**References**
Abnormal pain perception	*Shoola*	*Prameha upadrava*[13]
	Toda	*Vyanavruta prana*[18]
	Bheda	*Vataja nanatmaja vikara*[23]
Burning sensation	*Daha*	*Prameha purva rupa*[11] *Prameha upadrava* [13] *Raktavruta vata*[11]
Numbness	*Supti*	*Vataja nanatmaka vikara*[23]

		Prameha purvarupa[11]
Tingling sensation	*Cumcumayana*	*Raktavrata vata*[17]
	Pipeelika sanchara	*Prameha purva rupa*[11] *Mamsavrata vata*[24]
	Harsha	*Pittavrata samana*[19]
Weakness of extrimities	*Dourbalya*	*Prameha upadrava*[13]
	Anga sada	*Prameha upadrava*[13]
Altered tactile sensation	*Sparshanagnata*	*Raktavrata vata*[17] *Majjavrata vata*[25]

SAMPRAPTI



SAMPRAPTI GHATAKA

Dosha:Vata pradhana tridosha

Dushya: Rasa, Rakta, Mamsa, Meda, Majja, Shukra,Vasa, Oja, Lasika, Kleda; sira snayu kandara in later stages.

Agni: Jataragni, Dhatvagni

Agni dushti: Vishamagni, medodhatvagni mandya

Srotas: Rasavaha, Raktavaha, Mamsavaha, Medovaha, Majjavaha, Swedavaha, Mutravaha

Srotodushti: Sanga, Vimargagamana

Udbhava sthana- Amapakwashaya

Vyakta sthana: Shakhas

Sanchara sthana- Rasayani

Rogamarga: Madhyama

Vyadhi swabhava: Chirakari

Sadhyasadhyata: yapya vyadhi

CHIKITSA

As classical Ayurvedic texts do not provide a direct correlation or a specific *Chikitsa Sutra* for diabetic neuropathy, a comprehensive treatment approach should be adopted based on the *doshas*, *samprapthi* and *lakshanas.*

a. ***Nidana parivarjana***: Neuropathy is more common in patients with poor glycemic control; specially associated with hypertension and dyslipidemia. These conditions are primarily *Santarpanaja Nidanas* such as consumption of *Guru*, *Snigdha*, *Pichila*, *Madhura*, *Lavana* and *Amla aharas*, along with lifestyle habits like *Avyayama* (lack of exercise) and *Divaswapna* (daytime sleep) should be strictly avoided. Among the *Doshas*, *Vata* plays a predominant role in the manifestation of neuropathy
b. ***Madhumeha Chikitsa***[26]: Management of *Pradhana Vyadhi* often leads to relief from its complications. Since diabetic neuropathy is considered an *Upadrava* of *Madhumeha*, the treatment should primarily focus on the management of *Madhumeha*.

While discussing the *Chikitsa Sutra* for *Prameha*, two distinct categories of patients are identified

1. *Sthula Pramehi* (obese individuals), and
2. *Krusha Pramehi* (lean individuals).

Samshodhana Chikitsa (purificatory therapy) is recommended for those who are *Sthula*, *Balavan*, and have excess *Doshas*—typically associated with *Apathyaja* (lifestyle-induced) *Prameha*. On the other hand, *Samshamana* (palliative therapy) is advised for patients who are *Krusha* and *Durbala*, which includes individuals who are lean by *Swabhavika* or due to the progression of *Madhumeha*, *Ojasharana* through *mutra* and *Vyadhikarshana*. In both these latter cases, *Samshamana Chikitsa* is the line of treatment.

Shamana chikitsa

Qwatha	*Phalatrikadi qwatha, Salasaradi gana qwatha, Triphaladi qwatha, Darvyadi qwatha, Nishakatakadi Kashaya, Kataka khadiradi Kashaya*
Asava/arishta	*Lodhrasava, Madhvasava, Dantyasava, Devadarvyadyarishta*
Churna	*Nyagrodhadhi choorna, Triphala choorna*

Vati	*Shivagutika, Chandraprabha vati, Shilajatvadi vati*
Rasa oushadhi	*Vasanthakusumakara rasa, Tharakeshwara rasa, Swarna makshika bhasma*
Ghrita/thaila	*Dhanwantaram ghrita, Dadimadya ghrita, Triphaladi ghrita, Prameha mihira thaila*
Leha	*Salasaradi leha, Kushavaleha, Vangavaleha*
Rasayana	*Shilajatu rasayana, Amalaki rasayana, Tuvaraka rasayana*
Udakas	*Sarodaka, Kushodaka, Madhoodaka, Madhvika and seedhu, Triphala rasa*

c. **Vatavyadhi Chikitsa[27]:** All the lakshanas of DPN, primarily arise from *Dhatukshaya* and *Vata Vriddhi*. Therefore, the treatment approach should be *Snehanam, Swedana, Sneha virechana, Basti karma* etc) additionally, *Vatasya upakrama* may also beneficial to DPN. At the same time, it should not aggravate *kapha* and *medas.* Ideally, *aushadha* should possess *Vata-Kaphahara* properties

d. ***Avruta Vata chikitsa[28]:*** Management of *Avrta Vata* conditions varies based on the *Dosha* or *Dhatu* causing the obstruction. The treatment should aim to remove the occlusion, pacify the aggravated *Vata*, and restore normal physiological function.

a. ***Rakthavruta vata chikitsa****: vataraktha kriya*
b. ***Medoavruta vata chikitsa****: prameha chikitsa, vatavyadhi chikitsa.*
c. ***Pittavruta Vata chikitsa****: pittahara along* with *vatashamana.*
d. ***Kaphavruta vata Chikitsa****: kaphahara along* with *vatanulomana*
e. ***Vataraktha Chikitsa[29]*:** In general, external therapies such as *Alepana* (application of medicinal pastes), *Abhyanga* (therapeutic massage), *Parisheka* (medicated pouring), and *Upanaha* (medicated poultice) can be effectively used in the management of *Vātarakta*.

1. When symptoms such as pricking pain (*Toda*), twitching (*Sphuraṇa*), and similar *Vata*-dominant signs are evident, *Vatadika Vatarakta Chikitsa* is recommended.
2. If *Daha* (burning sensation) is more prominent, therapies aligning with *Pittadika Vatarakta Chikitsa* should be considered.
3. When *Supti* (numbness) is the primary complaint, a *Kaphadika Vatarakta* treatment approach may be appropriate.

Pathya	***Apathya***
Ahara- *Mudga, yusha, adhaki, kulatha, tiktashaka, chanaka, puranashali, maricha, saindhava.*	***Ahara-*** Milk, Oils, Curd, Sugar, Different types of rice preparations, *anupa, gramya* and *audakamamsa, Ikshurasa, Pishtanna,*

Patola, Vartaka, Nimba, Karavellaka, Parpata, Haridra, Kiratatikta, Chandana Bajara, lashuna, Draksha, Musta, Jeevanti. *Madhu* is widely indicated in the *chikitsa of madhumeha*. It has *kashayanurasa. ruksha guna.* It is indicated in *sthoola* and also in *sukumara.* *Yava or barley* is one of the *shookadhanya varga* which is extensively used in the context of *prameha.* ***Vihara****- Abhyanga, snana, seka, Vyayama, chankramana,*	*Navanna* ***Vihara****- Eksthanaasana, Divaswapa, Mutravegadharana.*

DISCUSSION

Diabetic Peripheral Neuropathy (DPN) is often linked to a sedentary lifestyle and is seen in both modern medicine and Ayurveda as a condition caused by poor diet, lack of exercise, and emotional stress. In Ayurveda, managing this begins with *Nidana Parivarjana*, which means avoiding the root causes and following a healthy diet (*Pathya Ahara*) and lifestyle (*Vihara*).

Although modern anti-diabetic medicines help control blood sugar levels, they may also come with side effects. That's why Ayurveda plays an important role by offering a more holistic and personalized approach. It focuses on treating the root cause of the disease, balancing the doshas, improving digestion (*Agni*), and supporting healthy fat metabolism.

CONCLUSION

Diabetic peripheral neuropathy is a multifactorial disorder with a range of clinical manifestations. Its prevalence is influenced by factors such as age, the duration of diabetes mellitus, and the quality of glycemic control. It can be effectively managed by adopting *Nidana parivarjana, Antar parimarjarjan chikitsa, bahir parimarjana chikitsa* along with rasayana chikitsa.

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