



**Case Study**

**AYURVEDIC MANAGEMENT OF DIABETIC PERIPHERAL NEUROPATHY**

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**ABSTRACT**

The prevalence of diabetic neuropathy is rising in the present society. Despite advances in the field of diabetic care, it is the most common chronic complication of diabetes mellitus. Even before the diagnosis of diabetes mellitus, diabetic peripheral neuropathy (DPN) symptoms appear in patients with pre-diabetes. A 74-year-old male patient with history of diabetes mellitus presented with DPN symptoms. Numbness and burning sensation are described as the *Poorva rupa* of *Prameha*. Acharya Charaka mentioned *Daha* as the complication of *Prameha*. *Vataraktha* and *Prameha upadrava* treatment were adopted which includes both internal and external therapies. Toronto Clinical Scoring System and diabetic neuropathy symptom score were assessed for outcome. The scores showed good improvement after treatment. The result indicates that Ayurvedic medicines are effective in management of DPN.

**INTRODUCTION**

Diabetes Mellitus (DM) denotes to a group of metabolic disorders that share the phenotype of hyperglycemia. The metabolic dysregulation associated with DM causes secondary pathophysiological changes in multiple organ systems that impose a tremendous burden on the individual with diabetes and on the health care system.

Type 2 DM is a heterogeneous group of disorders characterized by variable degrees of insulin resistance, impaired insulin secretion and increased hepatic glucose production.

It is marked by elevated glucose and lipids in the blood as well as oxidative stress, which culminate in chronic complications involving diverse organs, mainly the kidneys, eyes, nerves and blood vessels.

Different treatment options for the management of DM are evolving rapidly because the usual methods of treatment have not completely tackled the primary causes of the disease.

According to the FDA, smokers are 40% more likely to come down with T2DM than non-smokers<sup>[1]</sup>.

Center for Disease Control and Prevention Diabetes Surveillance System, reported in 2022 a prevalence of diagnosed diabetes of approximately 11.3% of adults.

DPN refers to the development of peripheral nerve dysfunction in patients with diabetes when other causes are excluded. 10-15% of newly diagnosed T2DM patients have DPN and the prevalence can exceed 50% in patients with diabetes for more than 10 years. The commonest manifestation of DPN is distal symmetrical limb numbness with loss of sensation and neuropathic pain. Abnormal glucose-lipid and insulin resistance and its sequelae cause alternations in mitochondrial function, inflammation, oxidative stress, specific gene transcription and expression, ultimately leading to neuronal-glia cell damage. In addition, some widely used clinical drugs such as proton pump inhibitors and metformin, which are commonly used in diabetic patients, may also cause DPN by inducing vitamin B12 deficiency<sup>[2]</sup>.

Recent studies suggest that diabetic symmetrical peripheral neuropathy (DSPN) is present in approximately 28% of DM patients.

In Ayurveda, DPN symptoms can be correlated with *Prameha poorvarupa* and *Upadrava*. As micro and macro vascular changes are involved in the pathology, *Vatarakta samprapti* can be taken into consideration. *Raktha prasdana* and *Avarana hara* treatment will be useful. Due to its association with metabolic syndrome, initially the treatment should focus on *Kapha meda hara* therapies.

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**Case History**

A 74-year-old male patient developed burning sensation of both soles and restricted movement of right shoulder joint 18 years back. He had severe work stress during this period. His blood sugar levels were found to be elevated and for this he took Allopathic medications and got symptomatic relief. Patient had bleeding from anus and diagnosed with ulcerative colitis. He is under medication for the past 5 years. He was also diagnosed with prostate cancer and surgery done. Burning sensation and numbness over soles reappeared 4 years back, which aggravates during evening hours and got relief by massaging. Patient also experienced pain over metatarsal region, muscle spasm during night and feeling of walking on sponge. He was admitted in IPD for 3 months.

**Personal History**

Patient used to consume spicy food items, day sleep after lunch and had more exposure to sunlight and wind as part of his job. He also had the habit of taking alcohol daily, tobacco and smoking occasionally. His bowel consistency is hard, appetite altered, sleep disturbed due to numbness and micturition 2-3/day and 1-2/night. Patient is a known case of diabetes mellitus and systemic hypertension for 20 years. His mother had diabetes mellitus.

**Treatment History**

At the time of admission, he was taking Mesacol 400mg, Telma 40mg, Gemer 0.5 and Folvite tablet.

**General Examination**

Moderate built, vitals within normal limits. Pallor, icterus, cyanosis, clubbing and lymphadenopathy absent. Dorsalis pedis pulse and posterior tibial pulse are normal.

**Systemic Examination****Nervous system examination**

Higher mental function is intact. On sensory examination, pin pricking sensation, touch sensation, temperature sensation, joint position sense and vibration perception were diminished on both lower limbs. Wasting absent and deep tendon reflexes on lower limb reduced. Soft touch and deep touch sensations are absent on dermatomes L4, L5, S1 on both foot. Pain sensation and hot touch sensation absent on L4 L5 S1 S2. Vibration sensation reduced on dermatomes L4 S1 S2. Toronto Clinical Neuropathy Score<sup>[3]</sup> was calculated as 13 and Diabetic Neuropathy Symptom Score<sup>[4]</sup> was 4.

**Diagnostic Assessment**

Blood investigations revealed FBS 137mg/dl, PPBS 209mg/dl, HBA1C 6.7%, serum triglycerides 180mg/dl. Patient is *Vata pitha prakruti, Rasa, Raktha, Mamsa, Meda dhatus, Snayu upadhatu and Udakavaha, Medovaha, Mamsa vah* position Sensea, *Asthi vaha, Sweda vaha srotas* are vitiated. The case was diagnosed as diabetic peripheral neuropathy. In Ayurvedic view diagnosed as *Prameha upadrava* (complications include peripheral neuropathy and diabetic retinopathy).

**Toronto Clinical Neuropathy Score**

Symptom Score	Before Treatment	After Treatment	Scoring
Foot pain	1	1	1=Present 0=Absent
Numbness	1	1	1=Present 0=Absent
Tingling	1	1	1=Present 0=Absent
Weakness	1	0	1=Present 0=Absent
Ataxia	0	0	1=Present 0=Absent
<b>Sensory Test</b>			
Pin prick	1	0	1=Present 0=Absent
Temperature	1	0	1=Present 0=Absent
Light touch	1	0	1=Present 0=Absent
Vibration	1	0	1=Present 0=Absent
Position sense	1	0	1=Present 0=Absent
<b>Reflex</b>			
Knee Reflex- Right	1	1	1=Present 0=Absent
Knee Reflex- Left	1	1	1=Present 0=Absent
Ankle Reflex- Right	1	1	1=Present 0=Absent
Ankle Reflex- Left	1	1	1=Present 0=Absent
Total	13	8	

**Diabetic Neuropathy Symptom (DNS) score**

Symptoms	Before treatment	After treatment	Scoring
Unsteadiness on walking	1	0	1=Present 0=Absent
Numbness	1	1	1=Present 0=Absent
Burning and aching pain	1	1	1=Present 0=Absent
Pricking Sensation	1	0	1=Present 0=Absent

**Therapeutic Intervention**

Date	Internal Medication	External Medication	Remarks
21/08/24 to 28/08/24	<i>Manjishtadi kashayam</i> - 90ml BD B/F <i>Nishakathakadi Kashayam</i> - Panam <i>Chandraprabha Gutika</i> - 1 BD	<i>Dhanyamladhara</i> for 7 days	Heaviness and foot pain reduced
29/08/24 to 11/09/24	<i>Sunti baladi Kashaya</i> - 90ml BD B/F <i>Ksheerabala 101 Avarti Thaila</i> 10 drops with <i>Kashayam</i>	<i>Abhyangam</i> <i>Patra Potala Sweda</i> - <i>Madhuyashtyadi thailam</i>	Numbness and walking difficulty reduced
12/09/24		<i>Virechana</i> with <i>Avipathi Churna</i> (30gm) and <i>Draksha Swarasa</i>	Total 5 Vegas. Burning sensation reduced
15/09/24 to 28/09/24	<i>Satawari Chinnaruhadi Kashaya</i> - 90ml BD B/F <i>Kanmada Bhasma capsule</i> 1-0-1	<i>Takradhara</i> - 7 days <i>Nasyam</i> with <i>Ksheerabala thailam</i> - 7 days	Sleep improved

**RESULTS**

After treatment his Toronto Clinical Neuropathy Score reduced to 8 and Diabetic Neuropathy Symptom Score reduced to 2. His symptoms like burning sensation, numbness and muscle spasm got reduced. His sleep and walking difficulty improved after treatment.

**DISCUSSION**

Excess stress during younger age resulted in *Rasa vaha sroto dushti*<sup>[5]</sup> and *Ama* formation, which further cause *Kapha dushti*. Patient has the habit of taking *Ushna katu rasa pradhana aahara* and *Vihara* like *Srama* and *Aatapa seva*<sup>[6]</sup>. These *Nidanas* cause *Pitha prakopa* and *Raktha dushti*, which further results in *Shitilatha* of *Dhatu*s. Thus, *Poorva rupas* like *Daha* and *Supti* occurred. Due to chronicity of *Roga*, *Vata* is involved in the *Samprapthi* which cause numbness, tingling and pricking pain like symptoms.

*Nidana parivarjana* is the first line of treatment. *Rukshana* done in first stage. Later *Sneha swedas*, *Shodana*, *Samana* and *Rasayana* were done. *Manjishtadi kashaya*<sup>[7]</sup> is given in the first stage. It is *Kapha pitha samaka* and *Raktha prasadaka*. The drugs have *Pramehahara* property. The drugs in *Nishakathakadi Kashaya*<sup>[8]</sup> are *Prameha hara*. *Chandraprabha gutika*<sup>[9]</sup> which is indicated in 20 types of *Prameha* and *Mutraghata* is given twice daily. It is *Tridosha hara* and *Rasayana*. *Silajatu* and *Guggulu* in the formulation helps in *Chedana* and *Kapha harana*. Initially, *Dhanyamladhara* administered as *Rukshana*. *Dhanyamla*<sup>[10]</sup> is *Seetha guna* which helped in reducing *Daha*. It removes *Ama dosha* and do *Srothoshodana*. It

helps in improving blood circulation and stimulates the nerve endings.

In the next stage, after considering the *Nirama* state, *Suntibaladi kashaya*<sup>[11]</sup> given with *Ksheerabala 101 Avarti thaila*. *Suntibaladi kashaya* is *Supti vatahara*. *Ksheerabala thaila*<sup>[12]</sup> is mentioned in *Ashtanga Hridaya*, *Vataraktha chikitsa*. It is *Vatapitha samana*, *Brumhana* and nourishes the nerves. *Abhyanga* and *Patrapotala Swedam* done with *Madhuyashtyadi thaila*<sup>[13]</sup>. The drugs used for preparing *Patra potala* are *Vatahara*. *Madhuyashtyadi thaila* cures *Vata rakta dushti* and *Daha*. *Shodana* done with *Avipathi churna* and *Draksha swarasa*. It has *Pitha samaka* action.

*Satawari chinnaruhadi kashaya* given with *Yashti churna*. It is indicated in *Vataraktha chikitsa*. Externally *Takradhara*<sup>[14]</sup> done. It helps in mitigating *Raktha* and *Pitha*. Due to its *Seetha guna* induce sleep. After *Takradhara*, *Nasyam* (*Ksheerabala thailam*) administered.

*Kanmada bhasma* given as *Rasayana katu thikta kashaya rasa*, *Katu vipaka* and *Ushna veerya* helps in *Chedana* and *Shoshana* in *Prameha*. It is *Dehadardyakara* and thus improves *Shithilatwa*<sup>[15]</sup>.

As discharge medicine *Maharasnadi Kashaya*<sup>[16]</sup> is given along with *Dhanwantara ghrita*<sup>[17]</sup>. It is *Brimhana*, *Vatahara* and prevents further progression of disease.

**CONCLUSION**

Internal and external therapies are effective in the management of Diabetic Peripheral Neuropathy.

According to the chronicity of disease and *Bala* of patient, the treatment protocol has to be formulated. *Rasayana* has specific role in *Dhatu kshaya* conditions and prevent progression of disease.

### Patient Perspective

Patient got improvement in both sensory and motor symptoms of Diabetic Peripheral Neuropathy.

### Patient Informed Consent

Authors certify that they have obtained patient consent form, where the patient/caregiver has given his consent for reporting the case along with the images and other clinical information in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his/her identity, but anonymity cannot be guaranteed.

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