



**Case Study**

**AYURVEDIC MANAGEMENT OF ALCOHOL INDUCED POLYNEUROPATHY**

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**ABSTRACT**

Alcoholic neuropathy occurs due to damage to the nerves that results from excessive intake of alcohol. Alcoholic neuropathy's precise cause is uncertain. It probably involves both the direct alcohol poisoning of the nerve and the consequences of poor nutrition linked to alcoholism. A 33- year-old single male patient visited Panchakarma OPD with weakness, numbness and pricking pain of both lower and upper limbs. Onset was gradual, started as numbness of both feet followed by difficulty in walking. Later it affected both lower and upper limbs along with pins and needle sensation and he was unable to walk without support. He also had difficulty to hold or grip objects. Along with that he had burning sensation over both feet and hyperesthesia especially over both feet and hand. At times, the agony was so intense that it prevented him from touching his body. For the previous four to five years, the patient has been a regular and heavy drinker with poor eating habits. Initially consulted an allopathic doctor for the same. Medications were given. The patient got admitted to IPD, Panchakarma, Govt. Ayurveda College Hospital. The clinical presentation closely resembles that of *Sarvanga vata* with *Madya* and *Vishama bhojana* (irregular eating habits) as *Nidana*. The treatment plan was designed in accordance with *Vatavyadhi* and *Madatyaya Chikitsa*. The patient got relief in the above said symptoms with Ayurveda therapies with in a period of 40 days. The potential of Ayurveda to alleviate the symptoms of alcohol-induced polyneuropathy has been explored in this case study. The case highlights the importance of stage-wise selection of drugs and external therapies as per the pathogenesis of the disease.

**INTRODUCTION**

Alcoholic polyneuropathy is a sensorimotor disorder, probably of nutritional origin, that increases with abstinence from an adequate diet. Alcoholism provides an ideal setting for the development of nutritional diseases of the nervous system. A deficiency in vitamin B12, also known as cobalamin, can impair the brain, spinal cord, optic nerve, and peripheral nerves leading to the development of classic neurologic illness. There is experimental and clinical evidence that alcoholic polyneuropathy has a dietary basis.

The prevalence of peripheral neuropathy (PN) in chronic alcoholics is reported to be between 9% and 50%. A study in Eastern India has found that alcoholic/nutritional polyneuropathy was the cause of peripheral neuropathy in 3.55% of patients. Based on nerve conduction investigations, the prevalence of peripheral neuropathy among long-term alcohol drinkers is 46.3% (CI 35.7-57.3%).<sup>[1]</sup>

Paraesthesia is typically the initial symptom, often accompanied by burning or sharp pain and heightened sensitivity in the calves or soles. A reduced ability to sense vibration is usually the first noticeable sign, while proprioception remains intact until a significant sensory loss occurs. Loss of ankle reflexes is another early indicator, and over time, general areflexia develops. Weakness can emerge at any point and may be severe. The distal leg muscles are typically the first to be affected, though weakness in the proximal muscles can also be prominent. Radiological evidence of neuropathic arthropathy in the feet is

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common, as are skin changes such as thinning, glossiness, redness, and cyanosis.<sup>[2]</sup>

In Ayurveda, all neurological functions are believed to be governed by the *Vata dosha* and an imbalance or vitiation of *Vata dosha* is the cause of neurological disorders. Accordingly, alcoholic neuropathy can be classified as a disease within the *Vatavyadhi* spectrum based on its characteristics. Earlier research has shown that Ayurvedic therapies for different forms of neuropathy have resulted in significant improvements in symptoms and overall quality of life for patients. However, alcoholic neuropathy remains an underexplored condition in this context. Thus, this case study may offer valuable evidence regarding the effectiveness of Ayurvedic management in treating alcoholic polyneuropathy.

**Patient Information**

A 33-year-old male who works as a newspaper agent, with no known co-morbidities presented to OPD with complaints of weakness in the lower and upper extremities, numbness and burning sensation in both palms and soles since last 3 weeks. Complaints started gradually in the lower extremities. The patient was not serious about the condition and ignored the same. Later he noticed that symptoms started to appear in his upper extremities also, later on, developed a throbbing, fluctuating discomfort over his entire body one day. It was associated with widespread exhaustion and pins-and-needles sensation across the hands. Gradually he started experiencing difficulties in doing day-to-day activities. He was unable to lift anything or hold it in his hands, and occasionally things would unintentionally fall out of his hands. It was extremely difficult for him to walk even on flat surface. He noticed tremors of hands and looseness of calf muscles. Walking, ascending stairs and squatting position exacerbated the pain. Numbness and burning sensation persisted throughout the day. Pain was severe and more often felt on both hands. It was challenging for him to execute fine motor skills, such as buttoning a shirt. Due to weakness in both lower limbs, he developed a fear of falling, which made his daily life difficult. For these complaints, he consulted an allopathic physician and medicines were prescribed for his concerns. But he refused to take the medications. He thus visited the OPD of Ayurveda Hospital and was admitted for further management.

The patient followed a non-vegetarian diet, but because he was dependent on alcohol, he did not consume enough food or water. For the last 3-4 years he has been regularly consuming at least 3-4 pegs daily.

**Medical, Family and Psychological History**

Patient did not have a history of any known medical co-morbidities and there was no family history of any neuropathic illnesses. The patient was in a severe state of distress.

**Relevant past interventions and their outcome**

No relevant past history

**Clinical Examination**

**General Appearance**

The patient was tall, thin, pale and undernourished with height 175 cm, weight 55kg and BMI 17.97 kg/m<sup>2</sup>. Tremors on upper limbs, antalgic gait, blackish discolouration of teeth (habit of using hans which is a smokeless tobacco) intact level of consciousness, and dull facial appearance were noticed.

**CNS examination**

Cranial nerves were intact

**Motor system Examination**

Muscle tone- Hypotonic calf muscles

Muscle bulk- Reduced

Muscle power- Reflex- Knee jerk and ankle jerk diminished

**Sensory system Examination**

Superficial sensations like touch and temperature sensation were impaired.

Deep sensation- Deep sensations like deep pain and vibrations were absent in dermatomes L4, L5, and S1.

**Neuropathic Pain score (Before Treatment) - 27**

**Ayurveda Parameters**

The patient was of *Youvana vaya* (middle age) and *Vata pitta shareera prakruti* with *Vata* as *Vikrita dosha*, *Rajas-tama* predominating *Manasa prakruti*, *Katu rasa satmya*, *Ahara shakti* and *Vyayama shakti* were *Avara*, *Jarana shakti* was *Heena*.

**Timeline**

The timeline of the patient’s symptoms, diagnosis, treatment and outcomes are given in Table 1.

Year/Month	Observation and Management
April -2023	Insidious onset of numbness and weakness over lower limbs followed by upper limbs. Pins and needle sensation over both hands. Difficulty in doing day-to-day activities. Consulted in modern hospital and prescribed medications for neuropathic pain. The patient declined to take the prescribed drugs. NCS shows sensory dominant asymmetrical sensory motor polyneuropathy mainly affecting the lower limb nerves.

April -23, 2023	Visited OPD, Ayurveda hospital with above complaints. Medicines were prescribed.
May -2023	Admitted to IPD, Government Ayurveda College Both external and internal medicines were given. NPS Score at the time of admission was 27
Follow-up visit after one month of discharge	No recurrence of pain and numbness. The patient was able to perform his daily tasks with satisfaction. NPS score -8

## Diagnostic Assessment

### Diagnostic Methods

Chronic alcohol intake of the patient and clinical presentation leads to a provisional diagnosis of alcohol polyneuropathy. To confirm the same, further investigations were carried out like NCS (nerve conduction study).

### Report of NCS (as of 3/05/2023)

The nerve conduction study shows sensory dominant asymmetrical sensory-motor polyneuropathy mainly affecting the lower limb nerves.

### Blood Test

Baseline haematological investigations (CBC) were within normal limits

Vitamin B12 value was 184 pg/mL. SGOT and SGPT value was 60 U/L and 76 U/L.

### Ayurvedic Assessment and Diagnosis

### Type of Ayurvedic Intervention

Ayurvedic intervention was administered in IPD level

### Initial Phase: 7 Days

S.No	Medicines	Dose	Effects
1	<i>Amrithotharam kashaya + Punnarnavadi Kashaya</i>	Mix it and take 90 ml bd before food	<i>Ama Pachana</i>
2	<i>Gorochanadi Gulika</i>	1-0-1 after food	<i>Vatakapha samana, Dhatugata jwara hara</i>
3	<i>Avipathi churna</i>	1 tsp with warm water at night	<i>Malanulomana, Vishahara, Pittahara</i>

### Second phase: 21 Days

S.No	Medicines	Dose	Effects
1	<i>Drakshadi kashaya</i>	90ml bd before food	<i>Vatapitta samana Dahahara, Sramahara, helpful in managing the complications of alcoholism</i>
2	<i>Gorochanadi Gulika</i>	1-0-1 after food	<i>Kaphavata samana</i>
3	<i>Avipathi Churna+ Sweta Sankhpushpi Churna</i>	1 tsp at bedtime	<i>Pittahara, Malanulomana+ Vatapittaprasamana, Deepana, Pachana, Medhya</i>
4	<i>Balarishtam + Ashwagandha Churna</i>	20ml+1/2tsp-0-20ml+1/2 tsp after food	<i>Vata kapha hara +Vatasamana, Sulaghna, Sophahara, Rasayana</i>
5	<i>Kharjuradi Mandha</i>	In the morning	<i>Indicated in Madathyaya, Madyavikara, Vathapitta samana, Sadyo tarpana</i>

Signs and symptoms of the patient have been correlated with *Sarvanga vata* with *Lakshanas* like *Sula, Toda, Sada, Supti* etc with *Madya* as *Nidana* as per Ayurveda. *Madya* has *Tikshna, Ushna, Ruksha* properties which are opposite to *Ojas* in our body. *Ojas* is the core essence nourishing the *Dhatu*s and provide strength to our body. Overuse of *Madya* and *Vishama bhojana* (irregular eating habits) damages *Rasa* to *Majja dhatu* and its ability to operate, causing *Rukshata* and *Balakshaya*, which eventually lead to *Vatakopa*. The treatment protocol was designed according to *Vatavyadhi chikitsa* and *Madatyaya chikitsa*.

### Therapeutic Intervention

### Type of Conventional Intervention

Medicines listed below were prescribed, but not taken.

Tab. Gabapentin 450 mg 1-0-1-After food

Cap. Methyl cobalamin 1000 mcg – once daily

**Third Phase: 12 days**

S.No	Medicines	Dose	Effects
1	<i>Vidaryadi Kashaya</i>	90ml twice daily before food	<i>Vatapitta samana, Brihmana</i>
2	<i>Dasamoolarishta</i>	20 ml -0-20ml after food	<i>Vatahara, Sulagna, Brihmana, Deepana, Sophaghna</i>
3	<i>Saraswatha ghritha + Sweta Sankhupushpi Churna</i>	10ml <i>Ghritha</i> +1/2 tsp <i>Churna</i> at bedtime	<i>Vataprasamana, Medhya, Dhatuposhana + Vatapitta Samana, Medhya, Deepana, Pachana</i>
4	<i>Kharjooradi mantha</i>	In the morning	<i>Madyavikara, Vathapitta samana, Sadyo tarpana</i>
5	<i>Sahacharadi Taila</i>	External Application	<i>Vatapittasamana, Kampahara, Akshephahara, Sulaprashamana</i>

**External Therapy: 40 Days**

S.No	Procedure	Medicines	No. of Days	Improvements Observed
1	<i>Udwarthana</i>	<i>Kolakulathadi churna</i>	7 days	Symptoms persists
2	<i>Abhyanga</i>	<i>Sahacharadi taila + Chinchadi Taila</i>	7 days	Slight relief from numbness and tingling sensation of upper and lower extremities were noticed
3	<i>Ksheeradhara</i>	<i>Dasamoola + Yashti + Sariba Ksheerakashaya</i>	7 days	Burning sensation reduced
4	<i>Utsadana</i>	<i>Kolakulathadi Churna + Sahacharadi Taila</i>	7 days	Gait improved tremor considerably reduced
5	<i>Annalepa</i>	<i>Shashtika Churna + Godhuma Churna+ Bala ksheera Kashaya</i>	7 days	Balance of the body regained paraesthesia over finger tips and palm reduced
6	<i>Sthiradi niruha vasti</i> <sup>[3]</sup>	<i>Sthiradi Kashaya + Ksheerabala Taila+ Gulgulu Tiktaka Ghritha+ Honey + Saindhava + Satahwa Kalka + Mamsa rasa</i>	5 days	All symptoms subsided

**Neuropathic Pain Score (after treatment) - 8****Discharge Medicines**

S.No	Medicines	Dose
1	<i>Maharasnadi Kashaya</i>	90ml twice daily before food
2	<i>Maharajaprasarini Taila</i>	10 drops with <i>Kashayam</i> twice daily
3	<i>Drakshadi Pana</i>	Frequently- <i>Muhurmuhur</i>
4	<i>Ashta churna</i>	1 tsp before food at noon
5	<i>Ashwagandha Churna+ Swetasankhupushpi churna + Kapikachu churna</i>	1 tsp at bedtime with warm water
6	<i>Sahacharadi taila</i>	External application

**Follow up and Outcomes**

Patient was hospitalized for about 40 days. Both internal and external medicines were provided. The symptoms did not appear to change much at first. With *Abhyanga*, slight improvements were observed in numbness, tingling sensation of extremities. Appreciable changes were noticed in tremors after starting *Utsadana*. Gait and balance improved a lot.

With *Annalepa*, tremor decreased. Almost all symptoms subsided with the administration of *Sthiradi kashaya vasti*. Even though Nerve conduction study done after treatment did not show any improvements, after receiving Ayurveda therapy for about 40 days, practically all symptoms disappeared.

On discharge, the patient was educated about the need of following a healthy lifestyle, diet and exercise. There was no recurrence of discomfort or numbness during the follow-up visit. The patient was able to perform his daily activities with ease.

## DISCUSSION

A progressive sensory-dominant neuropathy, which impacts motor and sensory functioning and is linked to the quantity and duration of alcohol consumption, is one of the initial signs of Alcoholic Polyneuropathy. The main cause is excessive and long-term alcohol consumption. Malnutrition is one of the many inhibitory effects of long-term alcohol consumption. Alcohol-abusing patients typically consume fewer calories and have poor gastrointestinal absorption of nutrients. In the distal lower limbs, alcoholic polyneuropathy frequently manifests as ataxia, paraesthesia, and discomfort. The etiology is complex, involving the toxic effects of alcohol metabolism on neurons and dietary deficits. The foundation of the treatment is the replacement of essential nutrients and alcohol abstinence.

In Ayurveda, intoxication due to *Madya* is mentioned under *Madatyaya adhyaya* which includes various stages of intoxication. In this present case, the patient was showing neurological symptoms due to chronic alcohol use. The etiology was *Atimadyapana* and *Vishama bhojana* (irregular eating habits) and the symptoms are intimately associated with *Vata kopa lakshanas*. Neurological illnesses are categorized under the common pathological processes of *Vatavyadhi*. *Dhatukshaya* and *Avarana* worsen *Vata dosha*. When *Vata dosha* becomes vitiated, it affects the *Srotas* and produces *Ekanga* or *Sarvanga vatavyadhi*. The diagnosis was done as *sarvanga vata*, where in *Sarvanga prakupita vata lakshanas* like *Supti*, *Toda*, *Sula*, *Sada* were shown by the patient. Based on the symptomatology, the treatment plan was carried out in accordance with *Vatavyadhi Chikitsa* and *Madatyaya chikitsa*.

Considering an *Avarana* in the initial phase, *Amruthotharam kashaya* and *Punarnavadi kashaya* along with *Gorochanadi gulika* was given for a period of 7 days for attaining *Rukshana* and *Agni deepthi*. *Avipatti choorna* was administered everyday as a *Nityasodhana* which is *Pittakaphahara* and *Deepana*. *Gorochanadi gulika* is *Kaphavata hara*. Along with internal medicines, external *Rukshana* was done with *Udwartana*. It was done with *Kolakulathadi choorna*. *Udwartana* possess *Kapha meda Vilayana* property and it gives *Sthiratwa* to body parts<sup>[4]</sup>.

In the second phase, considering the *Nirama avastha*, *Brimhana* line of management was preferred. *Drakshadi kashaya* which is *Vatapittahara* and indicated in *Madatyaya chikitsa* was given. *Swetasankupushpi choorna* was added with *Avipatti*

*choorna* and given at bed time with hot water. Addition of *Swetasankupushpi choorna* helped to induce sleep as the patient had a disturbed sleep pattern. There is a study where *Sankupushpi choorna* was studied on alcoholic addictive mice for its anti-addictive behaviour and it showed effective result on cortico hippocampal GABA levels thus reporting anti addictive potential<sup>[5]</sup>. There are several studies that support neuroprotective and hepatoprotective action of *Sankupushpi*. *Kharjuradi manda* which is mentioned in *Madatyaya chikitsa* was also administered to the patient.

In the 3<sup>rd</sup> phase, *Vidaryadi kashaya* was the drug of choice which was aimed at balancing *Vata* and *Pitta dosha*. It is *Brimhana* in action and indicated in *Sosha*, *Gulma*, *Angamarda*. Along with internal *Brimhana* medicines, *Bahirparimarjana chikitsa* like *Abhyanga*, *Ksheeradhara*, *Utsadana* and *Annalepa* were given.

*Abhyanga* was given with *Sahacharadi taila* and *Chinchadi tailam* for 7 days. The central and autonomic nervous systems are stimulated through the benefits of *Abhyanga*. It helps to stimulate the sensory system.

*Ksheeradhara* was done with *Dasamoola kashaya*, *Yashti* and *Sariba*. *Dasamoola* have *Vedanahara* property and *Yashti* along with *Sariba* helps in reducing the burning sensation of the extremities. *Utsadana* was done using *Kolakulathadi choorna* and *Sahacharadi tailam*. Appreciable changes were noticed in tremors after starting *Utsadana*. *Annalepa* nourishes the body tissues, improves muscle tone and muscle bulk. It was prepared by boiling *Shashtika* and *Godhuma* in *Bala ksheera kashaya*. *Godhuma* is *Sthairyakara* and *Sandhana kara* whereas *Shashtika* is *Balakaraka*. In this case, there was reduced strength of lower limbs and decreased calf muscle tone and bulk. Hence *Annalepa* was preferred.

Through the *Guna karma* of its drugs, *Sthiradi Niruha Basti* lowers *Pitta* and *Vata dosha*. *Mamsarasa* which is an ingredient of this *Vasthi* is considered to be the best *Brimhana dravya* and helps in enhancing the *Bala*. It is *Mamsabalapradha*, *Chakshushya* and *Deepana* in action.

As discharge medicine, *Maharasnadi kashaya* with *Maharaja prasarini taila* was given internally. *Maharasnadi kashaya* is indicated in *Sarvanga kampa*.<sup>[6]</sup> *Maharajaprasarini taila* is indicated in all *Vatarogas*. *Ashwagandha choorna*, *Swetasankupushpi choorna* and *Kapikachu choorna* was given at bedtime with hot water. A study was conducted to examine the impact of *Ashwagandha* on Alcohol Withdrawal Syndrome (AWS) in rats. The results showed that oral administration of *Ashwagandha* helped reduce withdrawal anxiety caused by prolonged alcohol use, suggesting that the plant may have a protective role in

managing ethanol withdrawal symptoms.<sup>[7]</sup> A study also confirmed that *Ashwagandha* has positive effects on managing behavioural changes, anxiety, and seizures associated with alcohol withdrawal in rats, while also enhancing locomotor activity<sup>[8]</sup>.

At the time of discharge, weakness, numbness and burning sensation of the lower limbs reduced. Neuropathic pain score became 8 which was 27 earlier. Whole body pain relieved and the patient was extremely satisfied with the treatment as he was able to walk, climb stairs and perform day-to-day activities with ease.

## CONCLUSION

According to Ayurveda classics, *Vata* is the initiator of all type of movements, both motor as well as sensory actions. *Vata* stimulates all *Indriyas* like *Gnanendriya*, *Karmendriya* and *Manas* to perform their normal functions. Neurological illnesses exhibit *Vata* dominant symptoms where *Vata* primarily gets aggravated due to *Avarana* which in turn leads to *Dhatukshaya* leading to aggravation of *Vayu*. Neurological illnesses and related categories are categorized under the common pathological processes of *Vatavyadhi* in Ayurveda. *Vata* get vitiated due to *Dhatukshaya* or by *Avarana*. The clinical symptoms of the patient showed close resemblance with *Sarvanga kupita vatavyadhi lakshana*. The treatment plan was charted considering an *Avarana* initially followed by *Kevalavata chikitsa* and *Rasayana* therapies at the end. The combined Ayurvedic treatment protocol of internal and external therapies was found to be effective in the management of sensory as well as motor symptoms of Alcoholic Polyneuropathy. In view of the encouraging results obtained in the current study, the treatment can be carried out in more patients with alcoholic polyneuropathy to document a definitive outcome.

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