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Review Article

A case report on Functional Recovery and Levodopa Dose Reduction in Parkinsonism- an Integrative approach

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ABSTRACT:

Introduction: Parkinson's disease (PD), a progressive neurodegenerative disorder, is clinically characterized by tremors, rigidity, bradykinesia, and postural instability. In Ayurveda, it is closely correlated with *Kampavata*, a *Vatavyadhi* attributed to *Vata dosha* vitiation. This case explores the effect of Ayurvedic treatment on a diagnosed case of Parkinsonism.

Methods: A 62-year-old female presented with classical symptoms of PD for five years, including tremors, rigidity, slowness of movement, and fatigue. She underwent Ayurvedic management, starting with *Rukshana(Udwarthana)*, followed by *Snehana, Swedana, Basti (Kshara Vaitarana* and *Ksheera Vasti), Shirodhara,* and *Nasya*. Internal medications included *Dhanadanayanadi Kashayam, Yogaraja Guggulu,* and *Partharishta*. Assessment was done using the Unified Parkinson's Disease Rating Scale (UPDRS) before and after treatment.

Results: Significant improvement was observed across UPDRS domains. The total UPDRS score reduced from 60 to 38. Mentation, daily living activities, and motor functions showed notable improvements. Medication dependency was reduced, with decreased dosage of syndopa.

Discussion: The present case illustrates the potential of integrative *Ayurvedic* management in improving functional outcomes in a patient with moderate-stage Parkinson's disease, diagnosed using the MDS Clinical Diagnostic Criteria (2015). Significant clinical improvements were observed, including reduction in tremors, rigidity, and bradykinesia, along with enhanced daily activities. UPDRS assessment confirmed functional improvement, allowing a safe reduction in levodopa dosage from 250 mg to 100 mg

Keyword-*Kampavata*, Parkinson's diseases, *Panchakarma*

INTRODUCTION:

Parkinson's disease (PD) is one among the fastest-growing neurological disorders worldwide, with its prevalence steadily rising due to increased life expectancy and aging populations. As per the World Health Organization, over 8.5 million people were living with PD globally in 2019, with associated deaths and disability having more than doubled over the past 25 years. [1] Additionally, a 2024 systematic review reported a global prevalence of 151 per 100,000 population, with rates rising sharply in those over 60 years of age and among men. These findings reflect an urgent need for sustainable and multidisciplinary approaches to PD care and prevention. [2] Parkinsonism is a neurodegenerative condition marked by classical motor symptoms such as resting tremor, rigidity, bradykinesia, and postural instability. It primarily arises from the degeneration of dopaminergic neurons in the substantia nigra, leading to a significant dopamine deficit in the striatum. [3]

Levodopa-carbidopa (Syndopa) is the gold standard for managing Parkinson's disease due to its superior efficacy in relieving motor symptoms. However, long-term use can lead to complications such as motor fluctuations, levodopa induced dyskinesias, and "on–off" phenomena. [4] These risks highlight the need for individualized dosing and supportive management for sustained patient benefit.

In *Ayurvedic* literature, Parkinsonism resembles Kampavata, a Vata predominant disorder characterized by *Kampana* (tremor), *Stambha* (rigidity), and *Vakragati* (abnormal gait), caused by vitiation of *Vata dosha* within the *Majja Dhatu*. [5] *Kampavata,* classified under *Nanatmaja Vata Vyadhi,* is managed through a comprehensive line of treatment focusing on pacifying vitiated *Vata dosha* and nourishing the nervous system. Integrative *ayurvedic* management of *kampavata* includes *Snehana (oleation), Swedana (sudation), brihmana,* and especially *Basti*, which is considered as the prime treatment for *Vatavyadhi. [6]*

Aim:To document the clinical outcomes and functional changes following an integrative *Ayurvedic* approach in a patient with Parkinson's disease, using the Unified Parkinson's Disease Rating Scale (UPDRS) as an assessment tool.

Objective:To document changes in Parkinson's disease symptoms and functional status before and after the integrative *Ayurvedic* intervention using the UPDRS.

PATIENT INFORMATION

Medical History: A 60-year-old female, a known case of Parkinsonism and hypertension for the past 4 to 5 years, presented with complaints of involuntary tremors occurring

intermittently every 2 hours. The tremors initially involved the distal parts of both upper limbs simultaneously, were more prominent at rest, and worsened with movement. Over time, the lower limbs also became involved, particularly the right leg, leading to progressive difficulty in walking. She tends to fall forward while initiating gait with small and fast steps and has noticed a reduction in arm swing during ambulation. She was initially diagnosed and managed by an allopathic physician and later underwent *Ayurvedic* treatment at our hospital, which provided considerable symptomatic relief and improved quality of life. She now presents for follow-up care and continued management.

Family History: No significant family history was noted.

Medication History: The patient is currently on Syndopa 250 mg, Syndopa Plus, and Amlodipine 5 mg.

Psychosocial History: No relevant psychosocial issues were identified.

CLINICAL FINDINGS

On general examination, the patient appeared alert, cooperative, and well-oriented to time, place, and person. Her facial expression was markedly reduced, giving a masked appearance (hypomimia), and there was a notable reduction in spontaneous gestures and facial movements.

According to the Stanford medicine neurological examinations, reduced coordination during rapid alternating movements, as evidenced by impaired finger tapping. Fist opening and closing, as well as pronation and supination of the forearm, were possible but exhibited slowness. Spontaneous limb movements and arm gestures were diminished. Dyskinetic movements were observed, likely associated with dopaminergic therapy.

Palpation demonstrated lead-pipe rigidity in both upper and lower limbs. Passive joint movements, including wrist rotation, elbow flexion and extension, and ankle movements, were all possible but slightly restricted due to rigidity.

Tremor assessment showed the presence of resting, kinetic, and postural tremors, which are characteristic of Parkinsonian syndromes. Gait assessment revealed a festinating gait pattern with short, rapid steps and a tendency to lean forward.

Overall, the clinical findings were consistent with idiopathic Parkinsonism, characterized by the classical triad of tremor, rigidity, and bradykinesia, along with festinating gait and postural instability.

Ashtavidha pareeksha:

Nadi was mandagati (slow rate) in character, Mala and Mutra (both feces and urine) were Samanya (normal), Jihwa (tongue) was Aavrita

(coated), *Sparsha* (tactile examination) was *anushna sheeta* (normal), *Shabda* (voice) was Manda (slow), Drik (eyes and eyesight) was *prakruta* (normal), and *Akruti* (body stature) was *sthoulya* (obese)

TIME LINE

Table 1: Timeline of Patient

Date	Event	Intervention
	Initial manifestation: Intermittent involuntary tremors in upper limbs	No specific intervention; condition was self-monitored.
2021–2022	Gradual worsening: Noticed decreased hand swing while walking, difficulty in gait, and festinating gait.	Consulted allopathic physician; diagnosed with Parkinsonism and started dopaminergic medications.
Early 2023	Symptoms aggravated despite medications. Lower limb tremors started, difficulty with toe movement.	Continued allopathic medications; limited improvement.
March 2025	Visited Amrita Ayurveda Hospital with complaints of tremors, gait imbalance, and dyskinesia.	Admitted as inpatient for Panchakarma therapies with internal medications.
April 2025	Symptomatic relief noted post-treatment.	Discharged with medications for 2 months and advised Panchakarma OPD follow-up.
May 2025	First follow -up: Patient reported improvement in tremors and gait. Syndopa dose was reduced from 250 mg to 100 mg.	Continued Ayurvedic internal medications.

DIAGNOSTIC ASSESSMENT

Idiopathic Parkinson's Disease (Parkinsonism) – Moderate stage

Diagnosis was established based on the MDS Clinical Diagnostic Criteria for Parkinson's Disease (2015) as follows:

Step 1: Diagnosis of Parkinsonism confirmed: Presence of bradykinesia along with rest tremor, rigidity, and postural instability satisfies the core criteria for parkinsonism.

Step 2: Absence of exclusion criteria: No evidence of cerebellar signs, vertical gaze palsy, early severe autonomic dysfunction, or poor levodopa responsiveness was found.

Step 3: Red flags: While the coexistence of resting and postural tremors could be seen as a red flag, it is plausibly attributed to disease progression and dopaminergic therapy, and thus appropriately counterbalanced.

Step 4: Supportive criteria present — The patient demonstrates a clear and sustained response to dopaminergic therapy (as evidenced by dyskinesia), presence of rest tremor

According to *ayurveda* it can be correlated to *Kampavata*.

Lakshana: Spontaneous tremors *(kampana)*, reduced movement *(sankocha)*, dryness, rigidity, stooped posture, difficulty in walking *(gatisanga)*, decreased *vagbala* (speech power)

Udbhava sthana: Pakvasaya

Adhisthana: Majja dhatu and *Snayu*

THERAPUTIC INTERVENTIONS

Table 1: Internal Medications

S. No	Name of Medication	Dosage	Frequency	Time
1	*Dhanadanayanadi Kashayam*	20 ml + 60 ml lukewarm water	thrice daily	6am,12pm, 6pm
2	*Yogaraja Guggulu*	2 tablets	thrice daily	6am,12pm, 6pm
7	*Partharishtam*	25ml	thrice daily	After food

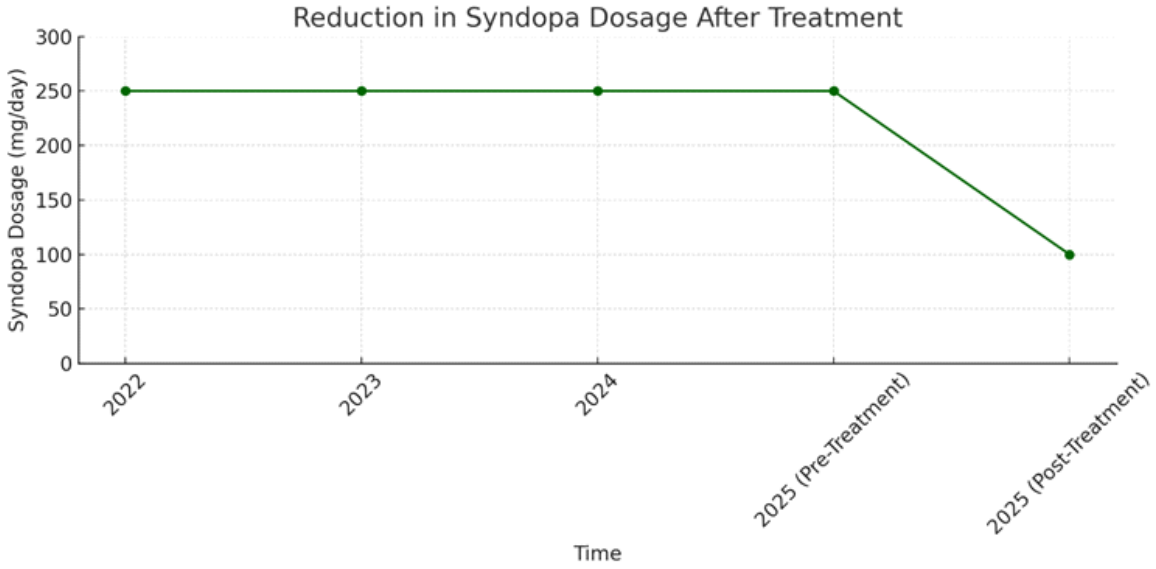
Table 2:External Medications

S. No	Name of Intervention	Day	Medications/Ingredients
1	*Udwartanam*	1-5	*Kottamchukkadi Choornam*
2	*Kshara vaitharana Basti*	1-5	*Amlika(48gm), Guda(24gm), Saindhava(12gm), Gomutra(192ml), Chinchadi taila (48 ml)*
3	*Choornapinda Swedana*	6-8	*Kottamchukkadi Choornam & Nimba Tailam*
4	*Panchatikta Ksheera Basti*	6-8	*Saindhava(12gm), Madhu(100ml), Gugguluthikthaka ghrita(100ml), Dhanwantharam Taila(100ml), Panchathikthaka ksheerapaka (384 ml)*
5	*Sarvanga Abhyanga + Bashpa Sweda*	9-15	*Kottamchukkadi Tailam*
6	*Shirodhara*	9-15	*Mashadi Tailam*
7	*Nasyam*	16-22	*Mashadi Tailam*

FOLLOW-UP AND OUTCOME

The patient was reviewed in the *Panchakarma* OPD one month after discharge. During the follow-up, she reported notable symptomatic improvement, particularly in resting tremors, gait stability, and dyskinesia. Based on clinical assessment, the dosage of Syndopa was successfully tapered from 250 mg to 100 mg, indicating reduced dependency on dopaminergic medication. (Figure: 1) *Ayurvedic* internal medications were continued as per discharge plan. No new adverse symptoms were noted, and the patient was advised to maintain regular follow-up for long-term disease management and prevention of recurrence.

Figure : Syndopa Dosage Timeline Before and After *Ayurvedic* Intervention



RESULT

Assessment Tool: Unified Parkinson's Disease Rating Scale (UPDRS)

To objectively assess the patient's clinical status and response to treatment, the Unified Parkinson's Disease Rating Scale (UPDRS) was employed. The UPDRS is a standardized and widely used tool to evaluate the severity and progression of Parkinson's disease. It consists of four parts:

- Part I – Mentation, Behaviour, and Mood
- Part II – Activities of Daily Living (ADL
- Part III – Motor Examination
- Part IV – Complications of Therapy

Each item is scored on a scale of 0 to 4, with higher scores indicating greater impairment. The cumulative score provides a measure of disease severity.

Assessment Process

The patient was evaluated at two time points:

- Before initiation of *Ayurvedic* inpatient

treatment

· After completion of *Panchakarma* therapies and internal medication course

Results:

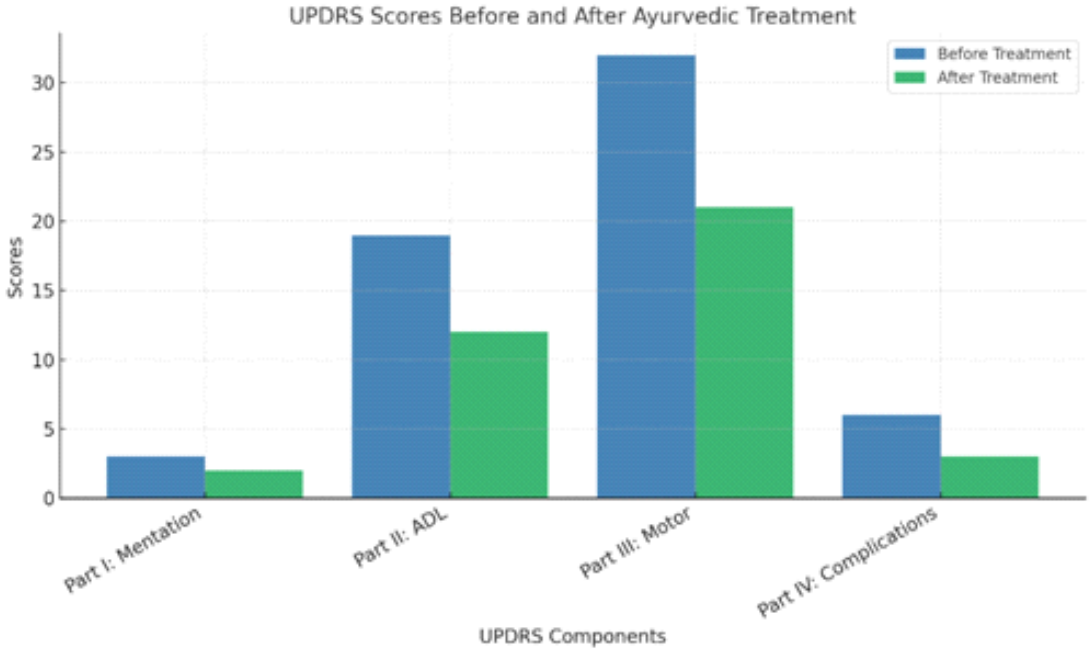
Table 1: UPDRS Assessment Before & After

UPDRS Domain	Score Before Treatment	Score After Treatment	Improvement
Part I: Mentation, Behaviour & Mood	3	2	Mild improvement
Part II: Activities of Daily Living (ADL)	19	12	Better daily functioning
Part III: Motor Examination	32	21	Significant improvement
Part IV: Complications of Therapy	6	3	Reduced side effects
Total Score	60	38	36.67 % improvement

Interpretation

The UPDRS evaluation revealed a 22-point reduction (36.67 %) in the total score after *Ayurvedic* treatment, indicating a moderate to marked clinical improvement. (Fig: 2) The most notable changes were seen in motor symptoms and daily functioning. The reduction in Part IV scores also reflects decreased medication-related complications, suggesting a stabilizing effect of *Ayurvedic* management on both disease symptoms and therapy-related issues. (Table 4)

Figure : UPDRS assessment before & after



DISCUSSION

In the present case, the patient manifested with progressive upper limb tremors, festinating gait, bradykinesia, and postural imbalance. These clinical features are classical to both PD and *Kampavata*. The *samprapt*i (pathogenesis) involves vitiation of *Vata dosha*, particularly in the *majja dhatu* and *snayu*, leading to depletion and functional impairment of the nervous system. Aggravated *Vata* takes *ashraya* in the *shiras* (brain) and spreads through the body, causing the clinical picture of *Kampavata*. The line of management was based on *Vatavyadhi chikitsa*, beginning with *Dhanadanayanad*i *Kashayam*, a classical formulation effective in disorders of the nervous and musculoskeletal systems. Its chief ingredient D*hanadanayana (Alhagi camelorum)* has *vatahara, srotoshodhaka,* and mild *nervine* stimulant properties. [7]

Yogaraja Guggulu was administered as a key formulation for chronic *Vata* disorders. Its ingredients like *Guggulu (Commiphora mukul)* and Triphala possess anti-inflammatory, *neuroprotective*, and *vatahara* actions. Preclinical studies have demonstrated that *guggulsterones* in *Guggulu* modulate inflammatory pathways and protect *dopaminergic* neurons. The formulation also aids in improving metabolism and reducing ama, thus supporting long-term management of neurodegenerative disorders. [8]

Partharishta, prepared from *Arjuna (Terminalia arjuna)*, is traditionally indicated in cardiac and neurovascular disorders. *Arjuna* is known for its antioxidant, adaptogenic, and *Vata-pacifying* actions. Its phytoconstituents, including *arjunolic* acid, help reduce oxidative stress, which is a major factor in PD pathogenesis. [9]

External treatments were selected based on the principle of *Rukshana, Snehan*a, and *brmhana* which are considered as the primary management protocol in *Vatavyadhi*. *Udwarthanam* with *Kottamchukkadi choorna* was initially done to achieve rookshana and helps in *ama pachana* thus preparing the body for further *snehana*. As the patient was obese, *Kottamchukkadi Choorna*m was the choice of drug due to its *ushna, tikshna,* and *medoha*ra actions thus helped in reducing stiffness. [10]

Basti is considered as *Ardha Chikitsa* for *Vatavyadhi,* due to its direct action on *Vata sthana, Pakvashaya* (colon). Through its *Anulomana, Shodhana,* and *Snehana* actions, helps to pacify aggravated *Vata,* remove obstructions in *Srotas,* and restore the normal physiology. *Kshara Vaitarana Basti* was adminstred in the initial phase of management it imparts *rookshana, Vata-shamana*, and *shroto-shodhana*. Clinical observations and studies suggest *Kshara Basti* improves neuromuscular

conduction and helps reduce tremors and rigidity in Parkinsonism. [11]

In *Vatavyadhi, snehana* followed by *swedana* is the line of management, *Swedan*a provides *Snigdha* (unctuous) and *Ushna* (warm) qualities, thereby counteracting the pathogenesis. It improves circulation, neuromuscular function, and reduces pain and stiffness, thereby enhancing mobility and flexibility. *Choorna Pinda Sweda* with *Kottamchukkadi Choornam* further assisted in *Srotoshodhana, Snayu balya*, and *Vedanasthapana*. This helped alleviate joint stiffness and improved gait function.

Sarvanga Abhyanga with Kottamchukkadi Tailam was the choice of drug which helps in Vata alleviation and nourishment to the neuromuscular structures. Kottamchukkadi Tailam has anti-inflammatory and analgesic effects beneficial in neuromuscular conditions. [12]

Murdhnī Taila, the topical application of medicated oil on the head, plays a significant therapeutic role in managing *Kampavata*. As the head is considered as seat of Prana *Vata, Shirodhara* helps in pacifying aggravated *Vata i*n the *Majja dhatu* and *Snayu*. *shirodhara* using *Mashadi Tail*a was done to manage the central nervous system hyperactivity and regulate *Vata* in the head region. *Mashadi Taila* is particularly indicated in *Kampavata* and Pakshaghata. Its *snigdha* and *balya* properties support neuroregeneration and mental calmness. [13]

Nasya with *Mashadi Taila* was performed as *Uttamanga Vatahara chikitsa,* targeting the *shiras* directly. The nasal mucosa provides rapid absorption of lipid-soluble active compounds that can cross the blood–brain barrier, thereby exerting a neuroprotective, anti-inflammatory, and *Vata-pacifying* effect. In disorders like *Kampavata* (Parkinson's disease), *Brimhana* and *Snehana* type *Nasya* strengthens *Majja dhatu*, enhances neuromuscular coordination, and alleviates symptoms such as tremors, rigidity, and facial stiffness. [14]

CONCLUSION

This case highlights the promising role of *Ayurvedic* management in Parkinson's disease *(Kampavata*), particularly when approached through the lens of *VatavyadhiChikitsa*. By integrating internal formulations like *Dhanadanayanadi Kashayam, Yogaraja Guggulu,* and *Partharishta* with carefully chosen *Panchakarm*a therapies including *Udwarthana, Basti, Swedana, Abhyanga, Shirodhara,* and *Nasya*. The patient's functional improvement, reduction in symptom severity, and lowered dependence on allopathic medication were objectively validated using the UPDRS scale, which showed a significant

36.67 % improvement. These outcomes support the efficacy of *Ayurvedic* interventions not only in alleviating symptoms but also in addressing the underlying *dosh*a imbalance and neurodegenerative processes. Further controlled clinical studies are warranted to explore and validate these traditional approaches in the broader management of Parkinsonism.

Author Contributions

· Clinical management & Supervision: Dr. K Parameswaran Namboothiri

· Writing – original draft: Dr. Manu Krishnan

· Reviewing & Editing: Dr. Vishnu, Dr. Kadambari P.B, Dr. Vishnuraj S

· Critical Reviewing: Dr. Vishnu, Dr. Kadambari P.B

· Final approval of manuscript: All authors

PATIENT PERSPECTIVE

"I had been struggling with tremors and walking difficulties for years. After undergoing Ayurvedic treatment and Panchakarma therapies, I experienced noticeable relief. My symptoms reduced, mobility improved, and I feel more confident and hopeful in managing my condition."

INFOMRMED CONSENT

Informed consent was obtained from patient

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