



AN AYURVEDIC APPROACH FOR THE EFFECTIVE MANAGEMENT OF PARKINSON'S DISEASE WITH SPECIAL REFERENCE TO *KAMPAVATA* - A SINGLE CASE STUDY

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ABSTRACT

Background -Parkinson's disease is a neurodegenerative disorder characterized by the Pathologic features like degeneration of dopaminergic neurons in the substantia nigra pars compacta, Lewy bodies (abnormal protein aggregates) in remaining neurons, Dopamine depletion in the striatum and exhibits motor symptoms like - Resting tremor (4-6 Hz), rigidity, bradykinesia (slow movement), Postural instability and non- motor symptoms like Cognitive impairment, Mood disorders (depression, anxiety), Sleep disturbances and Autonomic dysfunction (constipation, orthostatic hypotension). The similar set of presentation can be seen in a disease named *Kampavata* which is explained in *Ayurveda*. The text *Basavarajiyam* gives a detailed description of *Kampavata* as *Karapadatale Kampa* (tremor in hands and legs), *Dehabhramana* (whirling sensation), *Nidrabhanga* (loss of sleep) and *Kshinamati* (dementia). It is a *Vata vyadhi* which occurs due to increased *Chala Guna* of *Vata*. Brief Case report - Here, a case of 64 years old male presented with slowness in day to day activities, imbalance while walking, tremors in bilateral upper and lower limb, disturbed sleep, slurred speech since 6 months. Methodology - *Panchakarma* therapies like *Shirodhara*, *Nasya*, *koshtashodhana*, *Sarvanga Abhyanga*, *Shashtikashali pinda sweda*, *Mustadiyapana basti with Ashwagandha ghrita Anuvasana basti and Shamanoushadhis* were given. Conclusion - Patient showed significant improvement in the symptoms. Tremors and rigidity reduced substantially and gait improved considerably. Hoehn and Yahr Scale changed from stage 4 to stage 2 Parkinson's Disease Composite Scale reduced from 34 to 16 after 16 days through the combined effects of *Panchakarma* and *shamanoushadhis*.

KEYWORDS: *Kampavata*, *Mustadiyapana basti*, Parkinson's disease, Tremor.

INTRODUCTION

Parkinson's disease is a neurodegenerative disorder characterized by symptoms like - Resting tremor (4-6 Hz), rigidity, bradykinesia, Postural instability, other non- motor symptoms and Autonomic dysfunction. The similar set of presentation can be seen in a disease named *Kampavata* which is explained in *Ayurveda*. The text *Basavarajiyam* gives a detailed description of *Kampavata* as *Karapadatale Kampa* (tremor in hands and legs), *Dehabhramana* (whirling sensation), *Nidrabhanga* (loss of sleep) and *Kshinamati* (dementia).^[1] *Kampa vata* is one among the *vataja nanatmaja vikaras*.^[2] As patient had presented with the similar set of symptoms the line of management according to Vangasena was adopted and was found to be beneficial.

MATERIALS AND METHODS

CASE REPORT

A 64 years old male patient came to OPD of Government Hi-Tech Panchakarma Hospital, Mysuru with the complaints of tremors in bilateral upper and lower limb since 6 months. Detailed history of the patient revealed that for the past six months, the patient has been having trouble with mobility, balance, and coordination, including a tendency to fall forward and stiffness in both the hands. Associated with difficulty with speech, swallowing, and facial expressions, and has experienced a gradual decline in their ability to perform daily activities. Furthermore, patient has been experiencing constipation and disturbed sleep. For these above complaints patient had consulted a physician and was diagnosed as Parkinson's disease and was prescribed

with medicines but the patient refused to take medications and came with the above complaints to our hospital for Ayurvedic treatment.

Past History - Nothing contributory.

No H/o Hypertension / Diabetes Mellitus / Thyroid dysfunction / Trauma or any other major medical illness.

Surgical history: Nil

Family History- No similar complaints seen in the family.

Personal History: Appetite: Reduced since 1 year.

Bowel: Constipated since 4 months

Micturition: 4-5times/day, 2-3 times at night.

Sleep: Disturbed and Delayed.

Habits: Tea-coffee 2-3 times/day.

General Examination

On the day of examination patient was found to be Moderately nourished, Moderately built, Afebrile, Weight- 58kg Height- 5. 4 ft. BP- 120/70 mm of hg Pulse- 78/min Respiratory rate – 16/min. Other parameters like Pallor was present, Icterus, Clubbing, Cyanosis, Lymphadenopathy, Edema was absent.

Examination findings

Table 1: Showing examination findings.

CVS	S1 S2 Heard, No murmur.
GIT	P/A Soft, non-tender, no organomegaly.
RS	NVBS heard, No added sounds.
CNS HMF	<ul style="list-style-type: none"> ➤ Consciousness - Conscious ➤ Orientation to time - Intact ➤ Orientation to place - Intact ➤ Orientation to person – Intact ➤ Memory immediate - Intact ➤ Memory recent - Intact ➤ Memory remote - Intact ➤ Intelligence - Moderate ➤ Hallucination - Absent ➤ Delusion - Absent ➤ Emotional disturbance - Absent ➤ Speech – Slurred speech ➤ Handedness - Right ➤ Cranial Nerves -All the Cranial nerves are intact
Reflexes	<ul style="list-style-type: none"> ➤ Corneal reflex – within normal limit ➤ Abdominal reflex- within normal limit ➤ Plantar reflex - within normal limit ➤ Biceps jerk – Right ++, Left ++ ➤ Triceps jerk - Right ++, Left ++ ➤ Supinator jerk- Right ++, Left ++ ➤ Knee jerk- Right +++, Left +++) ➤ Ankle jerk- Right ++, Left ++
Sensory System Examination	<ul style="list-style-type: none"> ➤ Superficial touch, temperature and pain - Intact ➤ Deep touch, temperature and pain - Intact ➤ Tactile localization – Present ➤ Tactile Discrimination – Present ➤ Graphesthesia - Present
Tone –	<ul style="list-style-type: none"> ➤ Hypertonic ➤ Rigidity present in both upper limb and lower limb ➤ Cogwheel rigidity +
Co ordination	<ul style="list-style-type: none"> ➤ Romberg Sign - positive ➤ Upper limb: ➤ Finger to nose test - possible ➤ Finger to finger test - possible ➤ Rapid alternate movements - B/L upper limb - possible ➤ Lower limb: ➤ Heel shin test - possible ➤ Tandem walking - not possible ➤ Involuntary movements - Pill rolling tremors present in both hands ➤ Gait – Festinating gait ➤ Posture – Stooped ➤ Masked facies

Ashta sthana pareeksha

- Nadi – Vata pittaja
- Mutra – prakrita
- Mala- Vaikrita (Vibaddha mala)
- Jihwa - Alipta
- Shabda - Prakrita
- Sparsha – Anushna sheeta
- Drik - Prakrita
- Akriti – Madhyama

Dashvidha pariksha

- **Prakruthi** – Vata shleshmala
- **Vikruthi**

- Dosha – vata kapha
- Dushya – Rasa, mamsa, majja
- Mala – Pureesha
- **Sara** – Madhyama
- **Samhanana** – Avara
- **Pramana**- Madhyama
- **Satva** - Avara
- **Satmya** – Madhyama
- **Ahara shakti** –
- Jarana shakti – avara
- Abhyavarana shakti -avara
- **Vyayama shakti** -avar
- **Vaya** – Vriddha

Assessment and Diagnosis**Table 2: Hoehn and Yahr Scale.**

STAGE	MODIFIED HOEHN AND YAHR SCALE
1	Unilateral involvement only
1.5	Unilateral and axial involvement
2	Bilateral involvement without impairment of balance
2.5	Mild bilateral disease with recovery on pull test
3	Mild to moderate bilateral disease; some postural instability; physically independent
4	Severe disability; still able Assessment to walk or stand unassisted
5	Wheelchair bound or bedridden unless aided

Stage 4**Table 3: Parkinson's Disease Composite Scale.**

Symptoms	Total Score	Score found in patient during first evaluation	Score after treatment
Bradykinesia	4	4	1
Tremors	4	4	2
Gait	4	4	1
Balance /Postural Disability	4	3	1
Freezing	4	2	0
Nocturnal Akinesia	4	0	1
Fatigue	4	2	1
Urinary	4	0	1
Cognitive Impairment	4	0	1
Depression / Anxiety	4	3	0
Symptomatic or Orthostatic Hypotension	4	0	0
Hallucination or thought disorder	4	0	0
Dyskinesia	4	4	2
Dystonia	4	2	1
ON/OFF	4	4	2
Dopamine Dysregulation syndrome	4	0	0
Disability	4	2	2
	68	34	16

Diagnosis

Kampavata / Parkinson's disease.

Intervention**Table 4: Therapeutic intervention (Panchakarma and shamanaushadhis).**

Date	Treatment given	Observation
14/11/22 to 20/11/22	<ul style="list-style-type: none"> ➤ Shirodhara with Ksheerabala taila for 45 min ➤ Nasya with Ksheerabala 101 – 10 drops each nostril 	<ul style="list-style-type: none"> ➤ Day 3-Improvement in quality of sleep ➤ Day 7 - Speech and Mental status improved
On 21/11/22	Koshtashodhana with Nimbmitadi eranda taila – 40ml with warm water at 7:30 AM	Had 4 vegas
22/11/22 to 29/11/22	<ul style="list-style-type: none"> ➤ Sarvanga Abhyanga with Balashwagandha lakshadi taila f/b Shashtika shali pinda sweda ➤ Mustadi raajayapana basti – yoga basti 	<ul style="list-style-type: none"> ➤ Rigidity and tremors reduced significantly ➤ Marked improvement in the Gait ➤ Bowel habits improved
	Shamanoushadhis given	
1	Varuni thaila	5ml-0-5ml (with hot water before food)
2	Vatavidhwamsaka rasa	1-1-1 (after food)
3	Powder Zandopa	1tsp -0-1tsp (with milk after food)
4	Tab. Neurevive	1-0-1 (after food)

Anuvasana basti – Ashwagandha ghrita – 80ml
Niruha basti – Following ingredients were added

- Madhu – 50ml
- Saindhava lavana – 6gm
- Ashwagandha ghrita – 80ml
- Mustadi Rajayapana kalka – 30gm
- Mustadi yapana siddha ksheera – 300ml
- Mamsa rasa – 100ml

TOTAL DURATION OF TREATMENT – 16 days.

RESULTS AND DISCUSSION**Outcome and follow-up**

Patient showed significant improvement in the symptoms. Tremors and rigidity reduced substantially and gait improved considerably. Hoehn and Yahr Scale changed from stage 4 to stage 2 after 16 days of intervention. Parkinson's disease Composite Scale reduced from 34 to 16.

Follow up was not done as the patient didn't come again.

Discussion on the disease

Parkinson's disease is a neurodegenerative disorder characterized by the Pathologic features like degeneration of dopaminergic neurons in the substantia nigra pars compacta, Lewy bodies in remaining neurons, Dopamine depletion in the striatum. Mean age of onset is about 60 years characterized by Pill rolling Tremor at rest (4–6 Hz), Cog wheel rigidity, bradykinesia, facial masking with reduced frequency of blinking, hypophonic voice, drooling, impaired rapid alternating movements, micrographia, reduced arm swing, and flexed “stooped” posture with walking, shuffling gait, difficulty initiating or stopping walking, en-bloc turning, retropulsion. Nonmotor aspects of PD include depression and anxiety, cognitive impairment, sleep disturbances, sensation of inner restlessness, loss of smell (anosmia), and disturbances of autonomic function.^[3] The text *Basavarajiyam* for the first time has given a detailed description of *Kampavata* as *Karapadatale Kampa* (tremor in hands and legs), *Dehabhramana* (whirling sensation), *Nidrabhanga* (loss of sleep) and *Kshinamati*

(dementia) which can be correlated with the motor and non-motor symptoms of PD.

Tremor

Basavarajeeyam describes ‘*Hastapadatalakampa*’ tremors of hands and legs are the cardinal features of *Kampavata*. *Acharya madhavakara* – For the first time expounded the disease *Vepathu* in *Vatavyadhi* chapter which is characterized by *Sarvanga Kampa* (tremors all over body) and *Shirokampa* (tremors in head) in the commentary he adds *hastadi kampa* as well (tremors in upper and lower limb).^[4] The *Vata* affecting the *Marma* causes *Vepana*.^[5] This concept provides understanding for the pathology of tremors relating to pathology in brain (Neurodegeneration). *Kampa* results when *Sthira Guna* of *Kapha* decreases and *Chala Guna* of *Vata* increases. *Gati adhikata* which is the *lakshana* of *kaphaavrita vyana vata* can also be taken as tremors. *Kampa* is one of the *vataja nanataja vikaras*. Also while explaining about *Marma prapta vata* *Acharya Charaka* mentions *vepathu* as a *lakshana*.^[6] *Acharya Vagbhata* has explained *Kayasya Vepathu* as symptom of ageing and can be understood as Tremors occurring due to the degeneration of subgroup of midbrain (A8) neurons in the old age.

Rigidity

Acharya Charaka has included *Stambha* as a disorder of *Snayu* and mentions that the conditions where there is *Pitta kshaya* and *Kapha Vata vridhhi* production of *lakshanas* like *Kampa* and *Stambha* are seen^[7] Can be understood in terms of *stambha* which described as *Prakupita Vata Lakshana* by *Acharya Vagbhata*. *Stambha* is considered as a clinical feature of *Kaphavritavyana Vata* by *Acharya Vagbhata*, the symptoms of *Stambha* and *Kampa* are mentioned in *Snayu Prapta Vata*^[8] by *Sushruta* and *Udanavritavyana* by *Charaka*. Rigidity is a prominent feature of many extrapyramidal diseases. Rigidity is characterized by increased resistance, usually accompanied by the “lead pipe rigidity”, “cogwheel” phenomenon, present through out the range of passive movement of a limb (flexion, extension or rotation about a joint).

Bradykinesia

Chestapavartana (motor activities) is the function of Vata specifically Vyana Vata is which responsible for 'Mahajava' i. e, Sheeghragati or fast movement of the body parts. Cheshtahani is mentioned as a feature of Udanavritavyana. The majority of symptoms of *Kampavata* are also mentioned in different *Avaranas*, *Charaka* says *gatisangha* (bradykinesia) and *gatiadhikata* (tremors) as the *lakshanas* of *Kapha avrutha vyana vata*^[9] *Cheshtastambha*, *Skalitagati*, *Adhikagatisanga* described as *Kaphavritavyana Vata Lakshana* explains bradykinesia and akinesia of Parkinson's disease. Bradykinesia (in its most severe form akinesia) refers to slowness of movement and is the most characteristic clinical feature of PD. Bradykinesia is a hallmark of basal ganglia disorders and it encompasses difficulties with planning, initiating and executing movement and with performing sequential and simultaneous tasks. This may include difficulties with tasks requiring fine motor control (e. g., buttoning, using utensils). Reduced arm swing, slow small steps, shuffling gait known as festination, atendency to propel forward with rapid short steps known as propulsion will be seen while walking. Speech disorders are characterised by monotonic, hypo phonic, soft breathy speech, dysarthria and frequent word finding difficulties referred as "tip-of-the-tongue phenomenon." These symptoms can be understood in terms of *Vakgraha* or *Swaragraha* which results from *Kaphavrita Udana* and *Vyana* and *Pranavritasamana*.

Hypophonic voice and drooling of saliva

Dysphagia and drooling of saliva develops due to impairment of 'Annapravesha' which is the function of *Prana Vata*.^[10] *Vaghata* explained swallowing difficulty or *Kantarodha* as a feature of *Prakupitaudana Vata*.^[11] *Vakpravritti* is the function of *Udana*^[12] assisted by *Vyana Vata*.^[13] Therefore *Vakgraha* or *Swaragraha* results from *Kaphavrita Udana* and *Vyana* and *Pranavrita samana*.

Postural deformities

Vinamana i. e, bent body (stooped posture-spine bent) and different parts of the body like extremities (*Anganam Vinamanam*) is the feature of *Majjavrita Vata* as explained in *Ashtanga Hridaya*. This explains postural deformities of Parkinson's disease.

Postural instability

Deha Bhramana, a clinical feature of *Kampavata* as described by *Basavarajeeyam*.

❖ DISCUSSION ON TREATMENT

Vangasena has stressed up on the principle of the treatment of *Kampavata*. It has been asserted that *Abhyanga*, *Svedana*, *Nasya*, *Niruha Basti*, *Anuvasana Basti*, *Shiro Basti* and *Virechana* are the useful measures for the treatment.

► Shirodhara

Acharya Charaka highlights *shirokampa* in the context of *Trimarmiya siddhi* and explains it to be caused by *kupita Vata* due to administration of *rukshadi gunas*. It may be understood as aggravation of *gunas* like *ruksha*, *laghu*, *khara* etc. along with *shitaguna*. *Acharya Sushruta* has mentioned, the main line of treatment in *shirogata vata* under *vatavyadhi chikitsa* as *Murdhni Sneho anilam hanti* – *murdha taila* procedures like *shirodhara* helps in pacifying *shirogatavata*. As *Vepathu* is one of the main symptoms of *Shiromarma prapta vata* here *Shirodhara* was adopted. *Acharya Sushruta* states application of *Taila* on the *Shiras* does *Indriya Tarpana* and removes *Shira Shoonyata*, and does *Mastishka Puna purana*. For *Shirodhara ksheerabala taila* was used as *Ksheerabala taila is brimhana, vatahara, bala veerya prada, pushtikara*. And as the patient had *nidraviparyaya* which was caused due to *vata prakopa* this procedure was selected. A study on Psychoneuroimmunologic A study on Effects of Ayurvedic Oil-Dripping Treatment revealed that the subjects receiving *Shirodhara* treatment showed lowered levels of state anxiety and higher levels of ASC than those in the control position. Plasma noradrenaline and urinary serotonin excretion decreased significantly more after *Shirodhara* treatment than in the control. Plasma levels of thyrotropin-releasing hormone, dopamine, and natural killer (NK) cell activity were different between control and *Shirodhara* treatment.

► *Nasya* – To address the *Shiromarma prapta Vata* and *Vaksangha* (slurred speech), *Brimhana Nasya* was chosen. *Shatapaki ksheerabala taila* is the best *rasayana* which does *indriya prasadana* and *brimhana*. *Balamoola* is a potent antioxidant drug. The antioxidant activity of roots may be attributed to its flavonoid content. *S. cordifolia* extracts have shown reducing capacity. Studies have indicated that the antioxidant effect is related to development of reductones. Reductones are reported to be terminators of free-radical chain reactions (Dorman et al., 2003);^[14]

► *Koshtashodhana* with *nimbamritadi eranda taila* was done as a *poorva karma to basti as eranda taila* helps in *anulomana* of the *mala* which gets accumulated in the *srotas* resulting in occlusion of *vata*.

► *Sarvanga abhyanga* – *Acharya Sushruta* mentions that *sparsharendriya* is predominantly the *vata sthaana* which is located in *twak*. Hence *saravanga abhyanga* helps in pacifying the *vata* and imparts *pushti dardhyata* etc. *Acharya Dalhana* comments that by 900 *Matrakaala* of *Abhyanga* the *Sneha* used reaches the *Majja* through the *Sira Mukha* and pacifies *tridosha*.^[8] Here *ksheerabala taila* was used for *abhyanga* as it is *brimhana, vatahara*.

► *Shashtika shali pinda sweda* is a *brimhana sweda*. It helps in pacifying different types of pain produced by *kevala vata* like *toda*, *bheda* etc it provides *dehapushti*, *bala* and pacifies *sarvanga vata*. Helps in Transdermal absorption through lipid media. The contents of *shashtika shali* when processed gets lipid

soluble. Since the biological membranes has affinity to lipids the drugs diffuse more leading to more absorption of drugs from skin membrane. As the pottali is rubbed gently on the body part during this process, the duration of drug and frequency of the drug on the skin is more which leads to the maximum absorption of drugs. When the pottali is applied, the capillaries at site get dilated due to warmth. Permeability of capillaries allows the absorption of drug locally. Thereby helps transmit nerve impulses with minimum amount of stimulus for muscular contractions and maintains the strength and elasticity of muscles.

► Basti

Mustadi yapana basti is *sadyo balajana and rasayana*. The *veerya* of *basti dravya* is carried all over the body by *pancha vata*. Initially *apanavata* transports it to the site of *Samana Vayu*, and normalizes it. When *Samana Vayu* is normalized it corrects the disorders related to it. From *Samana Vayu* it gets transmitted to *Vyana Vayu* and brings it to normalcy. Thus the symptoms like tremors and altered gait got improved, when *vyana vata* was corrected as *gati* is controlled by *vyana*. The *veerya* of the *basti dravya* spreads side ways by *vyana*, downwards by *apana*, upwards by *pranavata* just as canals transport water to a field. The mechanism of action of Basti karma is through stimulating the Enteric Nervous System (ENS), which is otherwise known as the 'Gut brain'. The sigmoidal, rectal, and anal regions of the large intestine are better supplied with parasympathetic fibers than other portions as they are stimulatory in defecation reflexes. Within the central nervous system, dopamine is mainly produced in the substantia nigra and ventral tegmental areas in the brain. Several neurological disorders such as PD are characterized by dysregulation of the dopamine system. Being the most abundant catecholamine neurotransmitter in the brain, dopamine is synthesized in dopaminergic neurons from tyrosine, which is abundant in diets and can be transported to the brain via the blood-brain barrier. Outside the brain, dopamine production has been detected in *Staphylococcus* in the human intestine, which can take up the precursor L-3, 4-dihydroxy-phenylalanine (L-DOPA) and convert it into dopamine by staphylococcal aromatic amino acid decarboxylase (Sad A) expressed by these bacteria. More than 50% of dopamine in the human body is synthesized in the gut. Dopamine and its receptors are widely distributed in the intestinal tract and affect gastric secretion, motility, and mucosal blood flow. *Mustadi yapana basti* helps in enhancing these gut microbiota.

CONCLUSION

Parkinsons disease can be understood as a *vataja nanatmaja vikara, avaranajanya vatavyadhi* or *Dhatukshayajanya vatavyadhi* depending on *avastha*. *Avasthanusara chikitsa* plays an important role. In case of *avarana* pathology *Avaranaharana chikitsa* followed by *nirupastambha vatavyadhi chikitsa* would be useful. In the present case study the *lakshanas* were more of

kevala vatavyadhi hence *snigdha brimhana* line of management were adopted. *Brimhananga nasya* and *shirodhara* were helpful in Treating *marmaprapta vata* and *Abhyanga Shashtika shalipinda sweda* helped in controlling *sarvadaihika vaata* and *mustadi yapana basti* helped as a *rasayana chikitsa*.

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