



CASE REPORT

Chitraka Rasayana in the management of rigidity dominant Parkinson's disease – A single case report

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Abstract

Parkinson's disease also known as shaking palsy has now emerged to become the most common neurodegenerative disorder. It is a degenerative condition of the brain caused due to loss of function and number of specialized cells in the substantia nigra compacta region of the brain stem. Environmental factors or a combination of both environmental and epigenetic susceptibility are considered to be the most likely causative factors. There is no direct correlation for this disease in Ayurvedic literature. It may be correlated with *kampavata*, *sira kampa*, *vepathu*, and *avarana vata*. Since it is a neurodegenerative condition, more than a *vyadhi* specific management, *rasayana* therapies are found to be more effective. In *vatavyadhi* the underlying pathology can be either *avarana* or *dhathukshaya*. In an *avarana janya vatavyadhi rasayana* that possesses *ushna*, *theekshna guna* and *srotosodhaka* are beneficial. Considering this aspect, *Chitraka rasayana* mentioned in *Ashtanga Hridaya Rasayana* chapter was selected. Here a case of a 75-year-old female patient presenting with symptoms of tremor, stiffness, postural instability and difficulty in performing daily activities, who was a diagnosed case of Parkinsonism was administered with *Chitraka rasayana* after proper *sodhana*. The symptoms were assessed using the UPDR scale. A significant improvement in motor and non-motor symptoms were obtained after 1 month of administration. This case illustrates that *rasayana* therapies can be effectively used in the management of neurodegenerative disorders.

Introduction

WHO defined Parkinson's disease as a degenerative condition of the brain associated with motor symptoms, (slow movement, tremor, rigidity, walking imbalance) and a wide variety of non-motor complications (cognitive impairment, mental health disorders, sleep disorders, pain and other sensory disturbances). Around 10 million people worldwide are living with Parkinson's disease. Though the incidence of Parkinson's disease increases with age, there are also cases diagnosed before the age of 50 years. Men are 1.5 times more prone to the diseases than women. Parkinson's disease characterized by the degeneration of dopamine neurons in the substantia nigra of the midbrain, with concomitant loss of their axons that project to the striatum along the nigrostriatal pathway. The cardinal motor features include bradykinesia, resting tremor, rigidity, gait disturbances, and postural instability. It is

a progressive neurodegenerative disorder is characterized by nocturnal disabilities, depressive features and ultimately the patient totally becomes dependent on others for his survival. Currently, there is no permanent cure for these diseases other than supportive therapies. Though various treatment protocols have evolved in the management of Parkinson's disease over the past half century, still Levodopa remains as the most potent drug in controlling the symptoms of Parkinsonism. One of the most common complications found among patients taking Levodopa is the delayed onset of responses after ingesting a dose of Levodopa moreover these patients become totally dependent on this drug and reach a peak after which no responses are obtained. Nowadays Young onset Parkinsonism patients are found to develop levodopa induced dyskinesias. Genetic forms of Parkinson's disease such as PARK2 and PARK 8 are at a higher risk of Levodopa related motor complications. There for an effective management protocol should be developed in the management of such neurodegenerative disorders.

In Ayurvedic classics movement disorders are described under *vata vyadhi*. *Kampa* is one among the *vataja nanathmaja vyadhi* mentioned by *acharya Charaka*^[1]. Movement disorders are mentioned in our classics under *vata vyadhi* as *bahuyama*, *antharayama*, *vranayama*, *akshepaka* and *apathantraka*. *Kampa* is mentioned as a minor movement disorder. A detailed description of *kampavata* has been explained in *Basavarajeeyam*^[2]. Here references of *bahukampavata*, *kakavata* etc. are also found. In *Madhava nidana vepadhu* is describes as *sarvanga kampa* and *sirakampa*. The symptoms of *kampavata* such as *karapada tala kampa*, *dehabramana*, *nidra bhanga* and *mathi ksheena* have similarities with Parkinson's disease. It can be either *kampa pradhana* (*vata* predominant), *Sthamba pradhana* (*kapha* predominant). Both *dhatu kshaya* and *avarana* ultimately results in *vata kopa* is the underlying pathology in Parkinson's disease. Therefore, *vata vyadhi chikitsa* can be adopted in the management of Parkinson's disease. Judicious application of *snigdha*, *rooksha*, *ushna* and *seeta prayogas* will provide a certain extent of relief of symptoms. *Rasayana* therapies not reducing the prevalence of the diseases but also increases longevity. It is supposed to reduce the progression of the condition and also provide the healthy regeneration of degenerated tissue. Hence, they place a vital role in the management of neurodegenerative disorders. *Chitraka rasayana*, which is *ushna*, *theekshna*, and *vatakapha* in nature. It removes the *avarana* and act as *srotosodhaka*. A 75-year-old female patient with diagnosed case of Parkinson's disease was given with *Chitraka rasayana* for a period of one month and showed significant improvement in physical and mental parameters.

PATIENT INFORMATION

A 75-year-old female patient who is a known case of Diabetes mellitus and Hypothyroidism was brought to our OPD. She C/O loss of balance since 5 years, tremor over right hand and reduced sleeping hours since 3 years and right leg weakness since 2 years. 5 years back the patient experienced difficulty in coordinated movement of right hand and swaying towards her right side while walking. For these complaints she consulted a renowned private hospital at Ernakulam from there she was diagnosed with Parkinson's disease and medication was started. During the course of treatment, she experienced lack of sleep, mood changes, depressive features, auditory and visual hallucinations. Gradually she developed tremor over right hand. Since the symptoms progressed, she consulted another hospital at Ernakulam and the medicines were revised. Since 7 months she has been experiencing spasm and stiffness of the right hand associated with wrist pain and numbness of thumb. These symptoms aggravate during morning hours, on exposure to cold and stressful environment. In 2021 she was infected with Covid 19 which further aggravated the symptoms. over time, she found difficulty in finding words as well as her speech became slow. She also had multiple falls due to loss of balance. One year before she underwent a marma therapy and got relief in stiffness. She has no known exposure of chemical substances, occupational factors, dietary factors and demographic factors. No relevant family history she was also not under any prolonged medicines. She underwent thyroidectomy 10 years back and is taking Thyronorm 75mcg since then. The patient was socially cooperative. Occasionally she had auditory hallucinations and depressive mood disorders. For further management of symptoms, she got admitted to our hospital.

In general examination BP-110/70 mmHg, PR- 74/ min regular, RR-22/ min, Pallor- absent, Icterus- absent, Bowel habit- Regular, normal consistency, Micturition, 4 times/ day, 3 times/ night, Urgency- present, Clubbing and cyanosis – absent, Sleep – reduced – 2hours at night

SYSTEMIC EXAMINATIONS

In the systemic examination, the following findings were noted.

Respiratory system- chest bilaterally symmetrical, no added sounds heard

Cardiovascular system- S1, S2 heard, no murmurs

Gastrointestinal system- No organomegaly

Locomotory system- flexed right wrist joint- h/o fall and fracture of the right wrist 13 years back

Nervous system- The patient was conscious and oriented

about time place and person and higher mental functions were intact

Cranial nerve affected- facial- glabellar tap -positive

Reflexes :

Reflexes	Right	Left
Knee	+	+
Ankle	+	+
Biceps	+	+
Triceps	+	+
Plantar	Flexor	Flexor

Muscle power :

Muscle	Right	Left
Shoulder		
Adductor	G3	G4
Abductor	G4	G4
Elbow		
Extensor	G4	G5
Flexor	G4	G5
Wrist		
Flexor	G2	G4
Extensor	G2	G4
Hip		
Flexor	G4	G5
Knee		
Extensor	G5	G5
Flexor	G5	G5
Foot		
Dorsi flexor	G4	G5
Plantar flexor	G4	G5

Muscle tone :

Muscle tone	Right	Left
Upper limb	Cogwheel rigidity	Cogwheel rigidity
Lower limb	Hypertonic	Hypertonic

Coordination :

Coordination	Right	Left
Diadochokinesis	Not possible	Slow
Finger nose test	Dysmetria and tremor	Dysmetria and tremor
Heel shin test	Intact	Intact
Toe-tapping	Slow	Intact
Heel tapping	Slow	Intact
Romberg's test	Positive	
Rebound phenomenon	Absent	
Tandem walking	Not possible	
Gait	Festinant gait	

Sensory system- intact

INVESTIGATIONS

There were no variations found in the baseline hematological Investigations.

Urine routine examination was also found to be normal.

Nerve conduction study as on 30/11/2019 showed a conduction block on both median nerves. MRI brain taken on 15/12/2019 showed the following findings.

- 1.Chronic lacunar infarcts in right lentiform nucleus and internal capsule.
- 2.Confluent periventricular and few discrete hyper intensities in bilateral cerebral white matter
- 3.Chronic white matter ischemic change

DIAGNOSTIC ASSESSMENT

This diagnosed case of Parkinson's disease was assessed using MDS -UPDRS Scale^[3]. In the year 2007 the movement disorder society developed a revision of UPDRS Known as MS-UPDRS. It is a modified form of a unified Parkinson's disease rating scale. It was developed during the 1980s. It is used to evaluate the various aspects of Parkinson's disease including non-motor and motor experiences and motor complications. This scale is widely used in clinical settings as well as in research purposes. It evaluates the extent and burden of the disease.

UPDR scale consists of 4 main domains- (1) mentation, behavior and mood (2) activities of daily living (3) motor complication (4) complications of therapy in the past week. Each four segments is made up of 42 items grouped into 4 subscales. The assessment was done initially at the time of admission then before *rasayana* and after one month of *rasayana*.

DIAGNOSIS

Stambha pradhana kampavata/ Rigidity predominant Parkinson's disease

THERAPEUTIC INTERVENTION

RASAYANA

Rasayana is a therapy that bestows excellent Rasa, which maintains young and slows normal ageing, makes the person disease-free, and therefore increases life span, cognition, and strength. *Rasayana* therapy, according to Sushruta, stops ageing (*Vayasthapam*), increases life span (*Ayushkaram*), intelligence (*Medha*), and strength, and so allows one to prevent disease.

Rasayana has a distinct role to play in the maintenance and preservation of health, and its proper

application may help to reduce the prevalence of various diseases, hence decreasing the health-care burden. Some *Rasayanas* are disease-specific and are employed in specific disease states by inducing targeted immunity and bio-strength to combat an illness.

The tissue-specific *Rasayana* drugs can be used in combination with the treatment of the underlying disease to increase tissue strength and disease-fighting capability, allowing for faster and better alleviation and the prevention of recurrences. In general *rasayana* therapy is classified into two types; *kutipravaesika rasayana* and *vatathapika rasayana* and the former is said to be more beneficial^[4].

Rasayana therapies are advised to be administered during the early age or middle age by a self-controlled person, who have undergone oleation, bloodletting and purificatory therapies. If administered without proper purificatory therapies it become useless, just as coloring a dirty cloth. In *kutipravesika rasayana* a *trigarbha kuti* is to be constructed in a place which is devoid of too much breeze and other causes of fear. It should be in such a way that there are 3 rooms one inside the other with small openings and facing towards north. After proper *panchakarma* therapies, the person should stay in this *kuti* and follow a strict regimen.

On the basis of utility *rasayana* can be further classified into *kamya rasayana*, *naimithika rasayana*, and *ajasrika rasayana*. *Kamya rasayanas* are those which are used for the fulfillment of desires for example *medha rasayana dravyas ashwgandha*, *brahmi*, *vacha* etc. promote the intellect. *Naimithika rasayanas* are those which are specifically mentioned in the management of various disorders for example in all *avarana* except *pitha* and *rakta avaranas lasuna rasayana* is specifically indicated. *Ajasrika rasayanas* are those that are consumed on a daily basis for the proper nourishment of the body for example *ksheera* and *grita* are advised to be consume daily.

After proper *sneha swedanas sodhana* should be done with *Haritakyadi choorna* along with hot water *ushnambu*. After proper purgation, one should follow *samsarjana* therapy before the consumption of *rasayana*.

CHITRAKA

Chitraka is a very potent drug and it is said to be sharp like spotted leopard. In *brihatrayees Chitraka* is mentioned under *deepaniya dasaimani*, *triptigna dasaimani*, *soola prasamaniya rasaimani*, *bhedaniya dasaimani*, *arsogna dasaimani*, *lekhaneeya dasaimani*, *panchakola*.

It is included under the following *ganas- pipplyadi gana*, *mustadi gana*, *amalakyadi gana*, *mushkakadi gana*, *varunadi gana*, *aragwadadi gana*.

Its synonyms are all related with *agni*. For example *dipaka*, *analanama*, *jarana*, *ushana*. *Chitraka* is said to be *dipana*, *pachana*, *rochana* and *grahi*.

According to *acharya Vagbhata* 3 varieties of *chitraka* are described- *pita*, *sita* and *asita*. Whereas *Bhavamisra* mentioned *swetha*, *rakta* and *neela* as its three varieties. This drug is highly beneficial in *kaphavarana* conditions^[5].

Chitraka- *Plumbago zeylanica*

Family- *Plumbaginaceae*

Rasa: tikta, katu

Guna: laghu, rooksha

Virya: ushna

Vipaka: katu

Action on *dosha: vata kaphahara, vata hara* because of *ushna virya, kaphahara* because of *ushna virya*^[6]

MORPHOLOGY

Chitraka is a perennial, branched diffuse undershrub. Its roots are long, stout, uniformly cylindrical, sometimes irregularly bent or curved, branched or unbranched. The roots are light yellowish when fresh and become reddish brown on drying. It has a characteristic order with acrid and bitter taste.

PHARMACOLOGICAL ACTIVITIES

Abortifacient, anti-arthritic, anti-cancerous, anti-coagulant, anti-fungal, anti-oxidant, hepato protective, anti-inflammatory, anti-microbial, neuroprotective, CNS stimulating properties, cardiogenic and tumor angiogenesis inhibition.

CHITRAKA SODHANA

Chitraka has a chemical constituent called *plumbagin*, which at the higher dose causes cytotoxicity and paralysis. *Plumbagin* is the major chemical ingredient that is present in higher percentage of roots. It crystallizes as a slender orange-colored needles, soluble in organic solvents, less soluble in water and volatile with steam.

Therefore, it should be done proper purification before use according to *Rasatharangini Chitraka moola* was washed, peeled of the skin, cut into small pieces put in lime water. When the white color of the lime water changes to pink colour it should be taken out and put into fresh lime water for 1 hour. Then it is taken out and should be dried under shade, powdered and preserved for use. *Plumbagin* which is a major chemical constituent of *chitraka* root is found have *rasayana guna*.



Figure 1: Processing of *Chitraka Rasayana*

ACTION OF CHITRAKA ON CNS

In an animal study 50% of ethanol extract of *Chitraka moola* were tested against the locomotor behavior and central dopaminergic activity in rats. The effects on the ambulatory behavior, as well as the level dopamine were assessed after a single oral dose. The results revealed a significant increase in the spontaneous motility of rats. There were marked differences in the ambulatory behavior. The stereotypic behavior which is a characteristic of dopamine agonist showed biphasic effects. Moreover, there was elevated levels of dopamine. These results indicated the CNS stimulating properties of *Chitraka* and its dopaminergic mechanism. An experimental study on the effect of *Plumbago Zeylanica* roots on learning and memory of mice revealed a progressing memory enhancing effect [7].

The effect of ethanol extract of *Chitraka* was subjected to an experimental study on the locomotor behavior and central dopaminergic activity in rats. After a

single oral dose of the extract the ambulatory behavior was assessed along with the level of dopamine and its metabolite Homovanillic acid. The results revealed an increase in the spontaneous motility of rats.

CHITRAKA RASAYANA PRAYOGA VIDHI

After proper purification the *Chitraka* roots are dried in shade and made into fine powder. According to Acharya *Vagbhata*, one *karsha* - 12 gm, of *chitraka churna* should be taken along with ghee or mixture of ghee and honey or along with milk or water for period of 1 month. By the usage of this *rasayana* the person lives for 100 years without any diseases, endowed with intelligence, strength, radiance, pleasant look and good digestive power. When taken along with *tila taila* for a period of one-month cures diseases of *vata* which are difficult to cure when consumed along with *gomutra* it cures *shwitra* and *kushta*. When taken along with *takra* it cures diseases arising in *payu*.

TREATMENT PROTOCOL

Date	Medicines	Remarks
20/09/2023- 22/09/2023	<i>Gandharvahastadi kashayam</i> 90ml bd, before food <i>Vaiswanara choornam</i> 5g	<i>Vatanulomana</i> attained, appetite improved, constipation relieved, normal stool consistency. <i>Dipana pachana</i> was done for 3 days
23/09/2023- 29/09/2023	<i>Sahacharadi taila</i>	<i>Achapana</i> for 7 days with starting dose of 5ml and increased upto 120ml. <i>kampa</i> is a specific indication in this yoga. <i>Samyak Snigda lakshanas</i> attained- <i>vatanulomyata</i> , <i>agnideepiti</i> , <i>Snigda asamhata varchas</i> , <i>anga snigdata</i> , <i>snehadwasha</i>
30/09/2023- 02/10/2023	<i>Abhyanga ushma sweda</i>	<i>Vatasani taila</i> for 3 days
03/10/2023	<i>Virechana</i> with <i>Gandharva eranda</i> 30ml+milk at morning 8 am	Number of vegas- 7 <i>Peyadi krama</i> for one day
05/10/2023- 11/10/2023	<i>Thakradhara</i>	For 7 days, sleep improved, hallucinations reduced, mood elation
12/10/2023- 18/10/2023	<i>Navadhanya kizhi</i>	For 7 days, <i>Abhyanga</i> with <i>Vatasani taila</i> . It was done as <i>balya</i> . It reduces <i>stambha</i> and <i>gourava</i> .
19/10/2023- 25/10/2023	<i>Niruhabasti</i>	Ingredients- <i>Madhu</i> , <i>saindava</i> , <i>Vatasani taila</i> , <i>Rasna dasamoola grita</i> , <i>Yavanyadi kalka</i> , <i>Balukulathakorandadi Kashaya</i> . <i>Basti</i> was done for 7 days

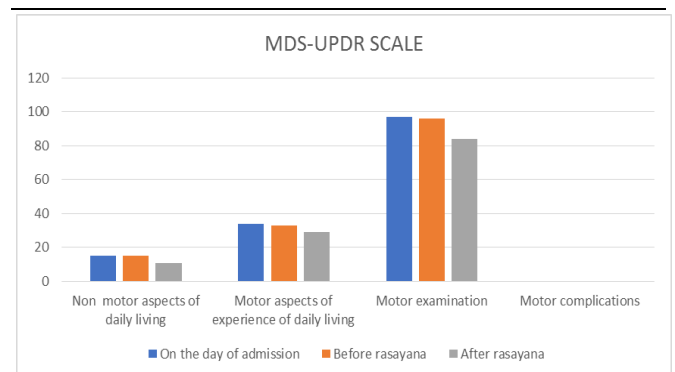
Rasayana was given from 26/10/2023. Initially, 3g of *sodhita Chitraka choorna* was given along with *Varuni taila* at 6am. No complications were observed. Next day 5g *sodhita chitraka choorna* was given along with *Varuni taila*. At this dose the patient developed nausea, burning sensation and dizziness. Since these symptoms got relieved on the same day, the dose was fixed at 5gm. So the dose was fixed at 5g and was given along with *Varuni taila* and *Sahacharadi taila* alternatively for 1 month. *Varuni taila* is specifically indicated in *hasta kampa* and *sira kampa*^[8]. Since it is a *stambha* predominant *kampa vata Sahacharadi taila* which is specifically indicated in *kampa*, *akshepaka* and *stambha* was used^[9]. At the time of appetite she was advised to take *ksheerodhana* mixed with *amalaki swarasa*.

Date	Dose	Remarks
26/10/23- 02/11/23	5g	Duration of sleep improved, dreams and hallucinations reduced
03/11/23- 09/11/23	5g	Tremor on right hand reduced
10/11/23- 16/11/23	5g	Anxiety reduced, slight improvement in movements notes
17/11/23- 26/11/23	5g	Speech improved, fixed gaze reduced, social involvement improved

On 27/11/23 *virechana* was given with *Avipathy choorna* in order to pacify the aggravated *pitha*. On 28/11/23 the patient came for review and was assessed using the UPDRS scale.

FOLLOW-UP AND OUTCOME

SI no	UPDR scale	On the day of admission on 18/09/	Before <i>rasayana</i> (25/10/2023)	After <i>rasayana</i> (27/11/2023)
1	Non motor aspects of	15	15	11
2	Motor aspects of experience of daily living	34	33	29
3	Motor examination	97	96	84
4	Motor Complication	0	0	0
	Total score	146	144	124



Graph 1- MDS UPDR scale

Total score before treatment was 144, after treatment the score became 124. There was a considerable improvement in thought disorders like vivid dreaming benign hallucinations, depressive features like sadness and guilt. She also showed mild improvement in initiating activities. Her tone of speech improved. There was a mild improvement noted in tremor at rest, facial expressions and rigidity on limbs. No adverse events were observed.

Discussions

Parkinson's disease also called shaking palsy was first described by Dr. James Parkinson. It is a chronic progressive neuro degenerative disease characterized by both motor and non-motor features. Loss of striatal dopaminergic neurons is said to be the major cause for motor symptoms in Parkinson's disease. The motor symptoms include resting tremor, bradykinesia and muscular rigidity. Microscopically in Parkinson's diseases there is degeneration of dopaminergic cells in the substantia nigra and presents of Lewy bodies in the remaining neurons. There is also a loss of pigmented catecholaminergic neurons in this region associated with gliosis. In some of the Parkinson's patients, there is pseudo dementia manifesting as forgetfulness in the advanced stage. The findings in the case report can't be generalized in order to generalize this we need a strong cause effect relationship and the representative population. In this case report follow up was done after 1 month, rasayana therapies have long term effects hence the follow up period should be extended.

Symptoms of *kaphavrita udana* like *swaragraha*, *dourbalya*, *gurugatrata*, *aruchi*, *sirasthambha*, *balavarna pranasa* as well as *kaphavrita vyana* like *gatisanga*, *gurugatrata*, *chesta sanga*, *gati skalanam*, *parvagraha*, *asti graha*, *swara graha* are seen in parkinsonism patients. This patient presented with *stambha*, *kampa*, *swaragraha*, *gatiskalana*, *parvagraha*, *dourbalya* and *chesta sanga*. On analyzing the *nidana panchaka* it is evident that here the underlying pathology leading to a *vatakopa* is *avarana*. This *prakupitha vata* results in *mastulungakshaya* which can be evidently seen as the degeneration of dopamine neurons in the substantia nigra. She presented *stambha pradhana kampavata* which revealed the predominance of *kaphadosha* and *vata dosha*. Here there is an *avarana* for *vata dosha* by the vitiated *kapha dosha*. In *vatavyadhi acharya Vagbhata* has advised the use of *chitraka rasayana* with *taila* as *anupana*. In this case, *Chitraka* which is *vata kapha hara*, *ushna virya* and *tikshna guna* was found to be more beneficial introducing the symptoms of Parkinson's disease. Initially *Chitraka rasayana* was given at a dose of 3 gm, later it was increased to 5 gm. At this dose she developed symptoms like nausea, giddiness and burning sensation. As these symptoms got relieved on the same day, also taking her age into consideration, the dose was fixed at 5 gm. *Chitraka rasayana* removes the *avarana*, is *srotosodhaka*, and ultimately results in the proper nourishment of *dhathus*. *Budhiprasada*, *indriya bala*, *vak sidhi*, *smriti*, *medha*, *arogyam* were attained after the *rasayana* therapy. This was well evident from her improvement in the mental and behavioral factors. Thereby her quality of life improved significantly.

Conclusion

Rasayana therapy was found to be effective in improving physical and mental parameters of a neurodegenerative diseases like Parkinson's disease. After treatment the patient has considerable improvement in her quality of life.

Since Parkinson's disease is a progressive neurodegenerative disorder, it is difficult to conclude the study in a short period. Furthermore case studies with large sample size along with a control group is necessary. *Rasayana chikitsa* are usually advised to given in the *poorva* or *Madhyama* age. Since the patient is in *vridhavasta* regeneration of the neurons is difficult so *rasayana* therapy has a limited role in the management of this neurodegenerative disorder.

PATIENT PERSPECTIVE

The patient shared her perspective in her local language (malayalam). Since the patient did not get the desired result from allopathic treatment, she visited our hospital for Ayurvedic management, she was happy and grateful as her quality of life improved.

INFORMED CONSENT

Informed consent was taken from the patient for the management and for reporting the case.

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