

Exploring the Role of Ayurveda in Managing Huntington's Disease: A Case Study

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ABSTRACT

Introduction: Huntington's disease (HD) is an autosomal dominant degenerative disease characterised by behavioural disturbance, dementia and chorea with prevalence of 4 to 8 per 1,00,000 world over. It is rare in the first two decades, begins in the third to fifth decade of life. It is caused by an expansion in Cytosine-Adenine-Guanine (CAG) triplet repeats in the huntingtin gene which leads to an expanded polyglutamine tract in the huntingtin protein¹. Huntington's disease can be interpreted as *Tandava Roga* as mentioned in *Sharangadhara Samhita*.

Case report: A 50year-old female patient presented with involuntary movements of head, neck, arms, trunk and legs, aggressive behavioural changes, repetitive speech and progressive loss of ability to walk for the past 6years. The condition aggravated over the 6months. The condition was associated with constipation, nausea, vomiting (2-3 episodes/day) for 15days. Clinical Examination revealed impairment of tone, reflexes, higher mental function, cranial nerves and cortical sensation. The patient was treated with *Panchakarma* therapies including *Bahyaupakramas*, *Shirodhara*, *Sadhyovirechana*, *Matra basti* and *Shamanaushadis*.

Result: The patient showed a reduction in symptoms, which was assessed using Abnormal involuntary movement scale, Barnes akathisia rating scale and Agitated behavior scale. The score improved from 37 to 28, 14 to 10 and 36 to 29 respectively.

Conclusion: In *Ayurveda*, *Tandava roga* is primarily attributed to vitiation of *Vata pradhana dosha*. Treatment was planned based on the *lakshanas* followed by involvement of predominant *dosha*, *dushya* and *avastha* of the disease. The present case suggests that Ayurvedic management may help in reducing symptoms associated with HD.

Keywords: Chorea, *Tandava roga*, *Sharangadhara Samhita*.

INTRODUCTION-

Huntington disease is a hereditary neurodegenerative disorder that follows an autosomal dominant pattern of inheritance and has a global prevalence of approximately 4-8 per 100,000 individuals. The condition is uncommon during the first two decades of life and typically manifests between the ages of 30 and 50. It is primarily caused by inherited mutation of gene. It occurs due to cytosine, adenine, and guanine (CAG) trinucleotide repeats on the short arm of chromosome 4p16.3 in the Huntingtin (HTT) gene. This mutation leads to neurodegeneration by producing an abnormal HTT protein that is prone to aggregation and accumulation, thereby disrupting normal protein folding². The signs and symptoms consist of the triad of motor, cognitive, psychiatric disturbances. Motor disturbances include unwanted involuntary movement, chorea, which initially begins in the distal extremities further affects the facial muscles, dysarthria, dysphagia, dystonia, cerebellar signs of ataxia. Motor disturbance in daily activities progresses over time, leading to difficulties in walking, standing, and frequent falls. Behavioural and psychiatric symptoms often appear early in the disease, frequently preceding the onset of motor manifestations. Early features include poor attention, impulsivity, irritability, anger, and aggression. As the disease progresses, patients may develop emotional blunting characterized by prominent apathy, along with a loss of intuition and creativity. Consequently, family members become a crucial source of information and should be involved in decision-making and assessment. Cognitive deficits leading to dementia. Other less common features include weight loss, sleep disturbances and autonomic nervous system dysfunction. Diagnosis can be made based on clinical features, genetic testing and MRI, CT scan shows brain changes. Many agents and surgical procedures have been evaluated in HD for their efficacy in suppressing chorea, including dopamine-depleting agents, dopamine antagonists, benzodiazepines, glutamate antagonists, acetylcholinesterase inhibitors, dopamine agonists, antiseizure medications, cannabinoids, lithium, deep brain stimulation and fetal cell transplantation. Until effective neuroprotective strategies are developed, clinicians can focus on managing the symptoms of this devastating disease.

In *Ayurveda*, *Tandava roga* which is mentioned in *Sharangadhara Samhita*³ can be correlated to HD. Due to *Nidanas* such as *Beeja dushti* (mutation of the Huntingtin gene) and the influence of *Vaya*, *Agnimandya* occurs, leading to *Ama Utpatti*. This results in *Vata-pradhana dosha dushti*, characterized by an increase in the *Chala guna* of *Vata* leading to *lakshanas* like *anga vikshepa*, *gatra kampana*, *vak vikruti*, *chittachanachalata* etc causing *Tandava roga*. Below is a case of diagnosed case of Huntington disease managed effectively through Ayurvedic therapeutic protocols.

CASE REPORT:

A 50-year-old female presented with 6year history of involuntary movements of head, neck, arms, trunk and legs, aggressive behavioural changes, repetitive speech and progressive loss of ability to walk. The condition aggravated over the 6months and associated with constipation, nausea, vomiting (2-3 episodes/day) since 15days.

In regards to personal history, the patient is a vegetarian with a diminished appetite, disturbed sleep patterns and micturition was normal.

Past medications

- Tab. Liofen XL 20mg 0-0-1
- Tab. Qutiapine 25mg 0-0-1
- Tab. Revocon 25mg 1-1/2-1
- Tab. Liofen 10mg 1-0-0

HISTORY OF PRESENT ILLNESS: 6years ago, the patient gradually developed jerky movements in the lower limbs associated with anger issues and constipation (on & off). Over the next 2years, the symptoms progressively worsened and consulted allopathic hospital for management where she was diagnosed with Huntington's disease. After 1year, the patient approached our hospital with the complaints of jerky movements in both upper and lower limbs, anger issues, difficulty in walking and inability to perform household activities. After the treatment, patient noticed betterment in symptoms. However, walking ability continued to decline. Over time, jerky movements began to disrupt her rest as well. Then gradually, anger issues reduced, the patient was able to sit and the severity of jerky movements reduced. At present, the patient presents with involuntary movements of head, neck, arms, trunk and legs, aggressive behavioural changes, repetitive speech and progressive loss of ability to walk. The condition has aggravated over the past six months and was associated with constipation and occasional nausea and vomiting for the past 15 days.

Table.No. 1 Physical examination

GENERAL EXAMINATION	SYSTEMIC EXAMINATION
BP-120/80mmhg PR- 86bpm RR- 18/min Pallor – absent Icterus- absent Clubbing/ Cyanosis – absent Gait-not able to walk	Respiratory system: Chest – bilaterally symmetrical, air entry – both sides normal, no added sounds Cardiovascular system: S1, S2 heard, no murmur Gastrointestinal system: Per abdomen – soft, no organomegaly, no palpable mass.

Table.No. 2 Central nervous system examination

NERVOUS SYSTEM EXAMINATION	MOTOR SYSTEM EXAMINATION
Higher mental function -Conscious Oriented to time, place, person, Appearance and behaviour - Aggressive, lack of awareness of one's own behaviour and abilities, Memory – Intact Judgement & Reasoning –Impaired, Attention -Impaired Speech & Language: Dysarthria, Poor articulation and speech initiation, Slow and slurred speech Cognitive assessment: Mini mental status Examination (MMSE Score) -17/30-moderate cognitive impairment Cranial nerve examination –Facial nerve (blowing of cheeks), Accessory nerve (shrugging of shoulder, neck movement), Hypoglossal nerve affected	Muscle tone -Hypertonic, Muscle power - 5/5 in both upper and lower limbs Involuntary movements – Chorea-rapid, unintentional, jerky movements Rapid finger tapping, Heel tapping, Toe tapping, Dysdiadokokinesia, Forearm rolling test, Straight line walking, Tandem walking, Romberg test –Not possible

Patient's Initial score was based on Abnormal involuntary movement scale⁴-37, Barnes akathisia rating scale⁵-14 and Agitated behavior scale⁶-36 before the treatment.

Table.No 3. Therapeutic intervention

Date	Treatment	Remarks
Day 1 10/02/2025	<i>Sarvanga Dashamoola parisheka</i> <i>Sarvanga Mrudu Churna Pinda sweda with kolakulattadi churna+triphala churna</i> <i>Shirodhara with ksheerabala taila</i> Orally: <i>Brihat vata chintamani rasa</i> 1-0-1 b/f <i>Madiphala rasayana</i> 15ml-15ml-15ml b/f <i>Dhanadhanyadi Kashaya</i> 15ml-0-15ml a/f	c/o Nausea, vomiting (2-3 episodes/day), constipation Involuntary movements of head, neck, arms, trunk and legs Aggressive behavioral changes Repetitive speech
Day2 11/02/2025	<i>Sadhyovirechana</i> with <i>Gandharvahastadieranda taila</i>-50ml+<i>shuntijala</i>-30ml	No. of vegas-7times Tiredness BP-110/70mmhg
Day3-Day10 12/02/2025-19/02/2025	<i>Shirodhara</i> with <i>ksheerabala taila</i> <i>Sarvanga Abhyanga</i> with <i>ksheerabala taila</i> f/b <i>nadi sweda</i> <i>Sarvanga shashtika shali pinda sweda</i> <i>Matra basti</i> with <i>ksheerabala taila</i> (80ml) - Continued with same oral medications - Added <i>Brahmi vati</i> 1-0-1 a/f	12/02/2025 Nausea, tiredness reduced 19/02/2025 Regular Bowel movements Nausea reduced Involuntary movements reduced (20%) Anger issues reduced comparatively
Discharge medications	<i>Saraswatharista</i> 15ml -0-15ml a/f <i>Brahmi vati</i> 1-0-1 a/f <i>Madiphala rasayana</i> sos	

Table.No 4. Follow up findings

FOLLOW UP1	
- Tab. Liv 52 1-0-1 a/f <i>Manasamitravati</i> 1-0-1 a/f <i>Saraswatharista</i> 15ml-0-15ml a/f	c/o Nausea(occasionally), Involuntary movements reduced (25-30%) Anger issues slightly reduced

FOLLOW UP2	
1. <i>Shanka vati</i> 1-0-1 a/f	Appetite improved
2. <i>Manasamitravati</i> 1-0-1 a/f	Involuntary movements reduced (30-35%)
3. <i>Saraswatharista</i> 15ml-0-15ml a/f	Anger issues slightly reduced
FOLLOW UP3	
1. <i>Shanka vati</i> 1-0-1 a/f	Improvement in anger issues
2. <i>Saraswatharista</i> 15ml-0-15ml a/f	Involuntary movements reduced (30-35%)
3. <i>Brahmi ghrta</i> 0-0-1tsp with milk a/f	

Outcome:

Table.No 5. Results

Before treatment	After treatment
Symptoms- Nausea, vomiting, constipation, involuntary movements of head, neck, arms, trunk and legs, Aggressive behavioral changes Repeating the same words	Nausea, vomiting reduced, regular bowel movements, Improvement in anger issues, Involuntary movements reduced (30-35%), However repeating the same words still persisted
Examination- Appearance and behaviour – aggressive, Agitated behavior scale-36 Involuntary movements – Chorea-rapid, jerky, unintentional Assessment- Abnormal involuntary movement scale-37, Barnes akathisia rating scale-14	Appearance and behaviour – Aggressiveness reduced (30%), Agitated behavior scale-29 Involuntary movements – Chorea-rapid, jerky, unintentional reduced (30%) Abnormal involuntary movement scale-28, Barnes akathisia rating scale-10

Discussion:

Huntington disease is an autosomal dominant neurodegenerative disorder characterised by an expansion of CAG trinucleotide repeats in the HTT gene. Ayurvedic parlance, the clinical presentation of HD including chorea, cognitive decline and psychiatric disturbances closely aligns with *Tandava roga*, a condition primarily driven by vitiation of *Vatapradhana dosha*. The involuntary jerky movements observed in HD patients are indicative of *Vata's chala guna* being significantly aggravated within the *Majjavaha srotas*. The treatment strategy followed a systematic progression from *Deepana*, *Pachana*, *Srotoshodana*, *Bruhmana*, *Balya* and *Rasayana* as mentioned in *Bhaishajya Rathnavali*⁷.

Initial treatment focussed on *Amapachana* to pacify *Vata*. The administration of ***Dashamoola parisheka***⁸ solved to regulate *vata*, *kapha* through its *ushna* and *teekshna* properties. This was complimented by ***Churna pinda sweda***, a form of *Ruksha Sankara sweda* that reduces *stambha* (muscle rigidity) and *sheeta*⁹. It also facilitates vasodilation and modulates nerve conduction velocities. ***Sadhyovirechana*** was performed using *gandharvahastadieranda taila* for *koshtashodana*. *Gandharvahastadieranda taila* does *vatanulomana*, *deepana* and *vata* *kaphashamaka* in nature.

Post purification, treatment focus was shifted to ***Vatahara*** and ***Bruhmana*** therapies like *Shirodhara*, *Abhyanga*, *Shastika shali pinda sweda* and *Matra basti*. ***Shirodhara***¹⁰ does *vaak*, *manas sthairyata*, *sharira balajanana* and through prolonged, intermittent stimulation provides afferent inputs to the cerebral

cortex, producing a tranquilizing effect. *Shirodhara* with *ksheerabala taila*¹¹ has *madhura*, *snigdha guna*, *sheeta virya* and *vata shamaka* properties. *Abhyanga*¹² does *shrama*, *vatahara*, improves *Ayu*, induces *swapna*, reduces muscle tension, improves blood circulation, stimulates nervous system and enhances drug absorption. When *Abhyanga* performed with *Ksheerabala Taila*, it further does *vatahara*, *balya*, *bruhmana*. In *vata* predominant conditions, *swedana* should be performed using *snigdha dravyas*. Accordingly, *shastika shali pinda sweda* was adopted, which is a type of *snigdha sankara sweda* and comes under *sagni sweda*. *Shastika shali pinda sweda*¹³ is *snigdha* and *balavardana*, *dehadardhyakrita* in nature. It delays degeneration, enhances muscle tone and improves muscle strength by providing proper nourishment to *dhatu*s. *Matra basti*¹⁴ is *balya*, *bruhmana* and cures *vata vyadhi*. The *Taila* used for *Matra basti* was *Ksheerabala taila* which promotes *snehana* and *bruhmana*. The colon offers neutral pH, reduced digestive enzymatic activity, long transit time and increased absorption. So, administration of drugs in the *Basti* form has faster absorption and acts over the receptors of the ENS to stimulate the CNS.

The initial treatment approach was to correct the *Agnidusti* and *Vata kapha prakopa*, also parallelly provide symptomatic management. Hence *Brihatvatachintamani rasa*, *Dhanadhanayadi Kashaya* and *Madiphala rasayana* were advised. *Brihatvatachintamani rasa*¹⁵ possesses *madhura rasa*, *sheeta virya* and *madhura vipaka*, which acts as a *rasayana*, *balya* and *vatahara*. More specifically it works in neurological debilities and has sedating, quietening effect. *Dhanadhanayadi Kashaya*¹⁶ exhibits *laghu*, *ruksha*, *ushna virya*, *katu vipaka*, *deepana*, *pachana* and *kaphavatahara* properties. It also has anti-inflammatory, antioxidant and neuroprotective properties. *Madiphala rasayana* acts as *agni deepaka*, *pitta shamaka* and Anti-emetic in nature. Once the *lakshanas* were alleviated, treatment was directed toward *manodoshahara* and *medhya rasayana* effects using *Saraswatharitsa* and *Brahmi vati*. *Saraswatharitsa*¹⁷ has *madhura*, *katu*, *tikta rasa*, *ushna virya*, *madhura vipaka*, *vata pittashamaka* properties. It contains constituents such as Eugenol and Serine, which exhibit neuro-protective and neuroplastic molecules by reducing neuronal cell damage in the cerebral cortex. *Brahmi vati*¹⁸ possesses *tikta*, *kashaya rasa*, *sheeta virya*, *madhura vipaka* and does *kaphavata shamana*. Bacoside A present in this formulation has hepatoprotective, memory enhancing and antidepressant activities, while Piperine exhibits antidepressant, antioxidant and hepatoprotective effects. During the follow-up period, to manage the behavioural changes and digestive complaints, *Manasa mitra vati*, *shanka vati* and *Liv 52* were advised. *Liv 52* promotes *agnideepana* and exhibits Hepatoprotective action, anti-inflammatory and immunomodulating properties. *Shanka vati*¹⁹ possesses *shulahara* (Spasmolytic activity) and *ajeernahara* properties. *Manasamitravati*²⁰ acts as *manodoshahara*, *medhya rasayana*, reduces anxiety, severity of the disease and stabilizes the mood.

Conclusion

The occurrence of *Tandava roga* in the present case can be attributed to vitiation of *Vata pradhana dosha*. Management was based on principles of *Amapachana chikitsa* followed by *Vatahara*, *Brhmana* and *Medhya rasayana* therapies. The patient showed significant clinical improvement with a reduction in symptoms severity and improvement in Abnormal involuntary movement scale, Barnes akathisia rating scale score and Agitated behavior scale scores. This case highlights potential effectiveness of an *Ayurvedic* therapeutic approach in the management of *Tandava roga*.

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