TREATMENT APPROACH TO MANAGE TANDAVA ROGA THROUGH AYURVEDA (W.S.R TO HUNTINGTON’S DISEASE) - A CASE STUDY

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ABSTRACT
Vayu-Yantra Tantra dhara which is attributed for, sensory – neural, as well as motor functions comprising voluntary and involuntary functions. Vata dosha at its habitualness maintains all the attributes of the body in a harmonious condition. Any etiology which defects the vata circadian rhythm leads to hyperkinetic movements. Tandava roga as narrated by Acharya Sharangadhara is one such disease, which presents with Hyperkinetic movements. Among these hyper kinetic movements chorea is commonest one. Due to the similarities of clinical presentation, this hyperkinetic disorder with chorea can be related to Huntington’s disease or Huntington’s chorea. All the disorders having chorea, involuntary movements are tagged under the heading of vata vyadhi in Ayurveda.

KEYWORDS: Vata dosha, Chorea, Huntington’s disease, Tandava roga.

INTRODUCTION
The word Tandava means Nruthyam, is a divine dance form performed by Hindu god, particularly attributed to lord Shiva with violent and frantic gesticulations. In literature of Ayurveda this Tandava Roja[1] also presents with violent and frantic gesticulations which are involuntarily originated with imbalance or disturbance in the pathway of vata dosha. Tandava Roga Nidana (causes), Lakshanas (signs & symptoms) and Chikitsa (treatment) are explained by acharyas[2,3]

Our literature explains about the prevalence of the disease which is prevalent in adult female and subjects who are having alpa bala[4] (strength and tolerance).

Clinical presentation and the symptoms of Tandava roga explained as literature Vama Bahum Samarakbhy Prayo Tatoparam Tatad Pado Tatosangani Chatyet Tandavanya (flitting type of movements predominantly starts from left hand later proceeds to legs and other parts of the body with time), Mustina Kimapi Dravyam Samyagdharayitum KshmukSamarpuyitumarie Vaapyadaniyam Na Tandavi (the person who is diagnosed with Tandava disease will not be able to hold objects in hands, feed himself and give to anyone), Nrityanniva Chalatyes (dancing like flitting movements), Bibhutasee Mukha cheshittee (different expression and movements of face), Adhirah (disturbed intellect) and Nidrayam Kampavarjitah (loss of movements during sleep).[5]

In comparison with contemporary science, the Tandava roga can be categorized under Hyper kinetic movement disorders, which are characterized by presence of variety of different involuntary movements.[6] Out of these disorders chorea is the most common and major forms of hyperkinetic disorders. Chorea is the term broadly used to describe jerky semi purposive which affects the limbs, face or trunk.[7] In other words chorea can be defined as explosive fidgety movements flitting around the body.[8] The clinical presentation in the patient may vary with the duration of time. The variation in the intensity of symptoms in the same patient makes difficulty in assessing prognosis. The etiology for manifestation of chorea is many. In adult life one of the noted causes of chorea is the inherited disorder Huntington’s disease[9], by which the Tandava Roga can be understood. Since they share similar etiology and clinical presentations.

To be precise with, Huntington’s disease-defined as relentlessly progressive chorea[10] usually with behavioral and cognitive dysfunction. Onset is typically between the age of 25-45years with prevalence of 2-8 cases per 1,00,000.[11] This is genetically inherited disorder with autosomal dominant transmission affecting both males and females in adult life.[12] Huntington’s disease (HD) is
characterized by rapid, non-patterned, semi purposeful, involuntary choreiform movements. In the early stages, the chorea tends to be focal or segmental, but it progresses over time to involve multiple body regions. Dysarthria, gait disturbances and oculomotor abnormalities are common features.\(^{[13]}\)

**OBJECTIVES**
This paper presents a case study of Tandava roga (w.r.t Huntington’s disease) managed through Ayurveda.

**MATERIALS AND METHODS**
A single case study, qualitative analysis.

**DIAGNOSTIC CRITERIA**
1. Signs and symptoms of Tandava Roga
2. Signs and symptoms of Huntington’s disease.

**APPROACH ABOUT THE CASE:** A male patient aged about 42 years belonging to middle class family working as Teacher in Government school from Kanakapura was admitted on 20/5/2020, SDM Institute of Ayurveda & Hospital (SDMIAH), Bengaluru having OPD No.224798 and IPD No.011501, with complaints of involuntary movements of right upper limb, neck and head since 5-6yrs, along with slight movements in the left fingers, uncontrolled body movements, difficulty in maintaining balance while walking, difficulty in speech and pain in neck due to uncontrolled movements, difficulty in holding objects, swallowing, chewing, and hearing.

Patient was asymptomatic 5-6years ago. Later he observed a gradual onset of involuntary movements progressed to the right shoulder and right leg, neck, head, and in the left fingers which was persisting at the time of consultation. The movements are exaggerated during sitting and walking and subside during sleep and supine position.

During this period the patient consulted neurologists at MS Ramaiah medical college and hospital, NIMHANS and Fortis Hospital and was diagnosed as a case of Huntington’s disease and was treated for the same but did not show any improvement. Patients’ complaints are said to be aggravated since 3 years. Two years ago, patient met a road traffic accident while riding the bike and sustained minor abrasion-like injuries. No intracranial injuries were reported.

Later patient consulted at JSS Ayurveda Hospital at Mysore, where he was diagnosed with Tandava vyadhi and underwent Panchakarma treatment, after which he experienced slight betterment. But due to COVID-19 lockdown, patient was unable to continue the treatment and medications there and he was recommended to consult at SDMIAH and he visited our hospital for the same on 20/05/2020.

The patient is not having any significant previous history related to present clinical presentations. Patient was born out of an uneventful pregnancy of a non-consanguineous marriage. Patient’s father was a known case of Huntington’s disease and took his last breath 15 years ago at the age of 70years. Patient’s brother, aged 47yrs is also said to be a known case of Huntington’s disease. Patient has a daughter and a son aged 8yrs and 4yrs respectively, both are said to be apparently healthy.

**GENERAL EXAMINATION**

<table>
<thead>
<tr>
<th>General Appearance</th>
<th>Moderately ill</th>
<th>Cyanosis</th>
<th>Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built</td>
<td>Lean</td>
<td>Lymphnodes</td>
<td>Normal. No Lymphadenopathy</td>
</tr>
<tr>
<td>Nourishment</td>
<td>Moderately nourished</td>
<td>Tongue</td>
<td>Slightly coated</td>
</tr>
<tr>
<td>Pallor</td>
<td>Absent</td>
<td>Tonsils</td>
<td>Normal</td>
</tr>
<tr>
<td>Icterus</td>
<td>Absent</td>
<td>Edema</td>
<td>Absent</td>
</tr>
<tr>
<td>Clubbing</td>
<td>Absent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**VITALS:** Readings were recorded at the time of admission.

<table>
<thead>
<tr>
<th>Pulse Rate</th>
<th>80bpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Rate</td>
<td>17/min</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>130/80 mmHg</td>
</tr>
<tr>
<td>Heart rate</td>
<td>80 bpm</td>
</tr>
<tr>
<td>Temperature</td>
<td>97.5F</td>
</tr>
</tbody>
</table>

**ASTHITA THANA PAREEKSHA**

<table>
<thead>
<tr>
<th>Nadi</th>
<th>Vata- Pitta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mootre</td>
<td>5-6 Times a day</td>
</tr>
<tr>
<td>Mala</td>
<td>1-2times a day</td>
</tr>
<tr>
<td>Jihwa</td>
<td>Ishat liptha</td>
</tr>
<tr>
<td>Shabda</td>
<td>Prakrita</td>
</tr>
<tr>
<td>Sparsha</td>
<td>Prakrita</td>
</tr>
<tr>
<td>Drik</td>
<td>Prakrita</td>
</tr>
<tr>
<td>Akruti</td>
<td>Krusha</td>
</tr>
</tbody>
</table>
DASHA VIDHA PAREEKSHA
The readings of the dashavidha pareeksha are recorded at the time of admission.

Prakriti: Vata pitta
Vikriti: Vata-Prana, Udana, Pitta, Kapha, Rasa, Raktha, Mamsa, Meda, Asthi.
Saara: Avara
Sattva: Avara
Saatmya: Shadrasa satmya
Samhanana: Avara
Ahara shakthi: Abyavaharana: Madhyama
Jarana shakthi: Madhyama
Vyayama Shakthi: Avara
Pramana: Avara
Height=165 cms
Weight=48kgs
BMI=17.5(underweight)
Vaya: Madhyama.

SROTO PAREEKSHA
RASAVAHA: Shithila gaatra
MAMSAVAHA: Anga Shaithilya
MEDOVAHA: Dourbalya
ASTHIVAHA AND MAJJAVAHA: Due to involvement of Vata

SYSTEMATIC EXAMINATION
RESPIRATORY SYSTEM
NVBS heard
Air entry normal
No added sounds heard
GIT System: Soft, No Organomegaly, No fluid collection
CVS: S1, S2 heard, No added sounds

MUSCULOSKELETAL SYSTEM
Muscle hypertrophy/ Atropy- Absent
Joint Swelling/Restricted ROM/Crepitus- Absent

CENTRAL NERVOUS SYSTEM
General Appearance: Moderately ill
Higher Mental Functions: Consciousness- Alert
Orientation- Oriented to time, place and person
Memory- Short term memory
Speech- Repetitive
On 20/05/2020 slow/difficult speech
On 04/06 Mild improvement was seen
Intelligence: Slightly reduced as said by patient’s bystander.

CRANIAL NERVE EXAMINATION
Cranial Nerve 1 (Olfactory): Can perceive & identify smell
Cranial Nerve 2 (Optic): Normal visual acuity & color vision
Visual field couldn’t able to elicit due to excessive involuntary movements.
Cranial Nerve 3: (Oculomotor): Ocular movements-
Difficult to elicit
Cranial Nerve 4: (Trochlear):

Cranial Nerve 5: (Trigeminal): Corneal Reflex normal
Cranial Nerve 6: (Abducent): Pupillary reflex- Normal
Cranial Nerve 7: (Facial): Affected. Motor functions like raising the eye brow, inflation of mouth are performed with difficulty. Jaw clenching: normal
Cranial Nerve 8: (Vestibulocochlear)
Vestibular function: No hearing impairment
Cochlear function: difficulty in maintain balance due to chorea.
Rhombeg’s test- Negative
Tandem walking- Performed with difficulty.
Cranial Nerve 9: (Glossopharyngeal): No abnormality detected
Cranial Nerve 10: (Vagus): No abnormality detected
Cranial Nerve 11: (Accessory): Shoulder Shrug exaggerated on Right more than Left
Cranial Nerve 12: (Hypoglossal): No abnormality detected.

CEREBELLAR SIGNS
• Chorea- Present and profound
• Pronator drift- Negative
• Dysdiodochokinesia- can be performed
• Co-ordination-Finger –shin test- can be performed
Heel to shin test- can be performed.

MOTOR FUNCTION
The motor functions are elicited during the time of admission the findings are as given below.
• Bulk-Normal and symmetrical
• Tone-on 20/05/2020- Rigidity present in B/L upper limbs
• Power-RUL- Grade 4 LUL-Grade-4
RLL-Grade 4 LLL-Grade -4

SENSORY FUNCTIONS
Able to perceive temperature, touch, pain and pressure.

REFLEXES
Superficial reflexes- Babinski-Right-diminished, Left-Normal
Deep reflexes-

Knee jerk Exaggerated (++)
Wrist Exaggerated(++)
Elbow Exaggerated (++)

RADIOLOGICAL EXAMINATIONS
CT scan and MRI have been done but not submitted by the patient.

ROGA PAREEKSHA
• NIDANA- Beeja dosha, Chinta, Under nourishment.
• POORVA ROOPA- Avyakta
• ROOPA
1. Bahu samarambhya prayo tatoparam
2. Tato angaani chaalay
3. Mushtina kimpai dravyam samyak dharyitum
4. Samarpayitum aasye vaapi adaaneyam vaa
5. Nrityanvina chaalayet
6. Beebhatsa cheshta
7. Adheeraha
8. Nidrayam kampavarjitaha

- **UPASHAYA** - Uthana shayana (supine position), Nidra (sleep)
- **ANUPASHAYA** - walking/ sitting (cheshta)

- **SAMPRAPTI GHATAKA**
  
  **Dosha** - Vata pradhana tridosha
  **Dushya** - Rasa, rakta mamsa, meda, asthi, majja
  **Agni** - Dhatwagni
  **Agni dushti** - Dhatwagni mandya
  **Aama** - Dhatwagni mandya janya
  **Srotas** - Rasavaha to majjavaha
  **Udbhava sthana** - Pakwashaya
  **Sanchara sthana** - Sarva shareera
  **Vyakta sthana** - Dakshina parshwa, greeva, shiras
  **Roga margha** - Madhyama
  **Sadhyasdhyata** - Pratyaakhaya

**INTERVENTION**

Therapies were performed in two courses.
From 20/05/2020 to 25/05/2020 (6days)
1. Sarvanga Agnichikitsa lepa.
2. Sarvaga dhara - Dhanyaml+ Dashamoola kashaya (with ratio of 1:4 litres)
3. Matra basti- Sahacharadi taila(30ml)+Kalyanaka ghrita(30ml)
4. Takradhara(shirodhara)

From 26/05/2020 to 04/06/2020 (10days)
1. Sarvanga Abhyanga with Balashwagandha lakshadi taila
2. Takradhara(shirodhara)
3. Anuvasa basti- Mahamasha Taila(30ml)+ Panchatikthaka Guggulu ghrita(30ml)
4. Shirotalam with choorna kalka of Jatamamsi, amalaki, vacha 5gms each/day.

**SHAMANOUSHADH (Oral medication)** 20/05/2020 to 04/06/2020
1. Brihat vata chintamani Rasa(Swadeshi) 1-1-1 A/F
2. Cap. Pasmineuron (SG Phyto)- 1-1-1 A/F
3. Cap. Kapikacchu (SDM)1-1-1 A/F
4. Dhanada Nayanadi Kashaya (AVN)- 3tsp-3tsp-3tsp (with equal quantity of water) A/F

**OBSERVATIONS DURING TREATMENT**

1. Improvement in involuntary movement was observed with stability in neck seen.
2. Balance while walking observed with improvement in gait and posture.
3. On the day of admission (20/05/2020) - the patient presented with rigidity (+++) which reduced to (+) on 28/05/2020 and the rigidity completely relieved by 04/06/2020.
4. Improvement in speech in terms of improved phonation and articulation was observed.
5. Exaggerated reflexes as seen on 20/05/2020 were relieved by 04/06/2020.

**ADVISE ON DISCHARGE**

At the time of discharge certain Shamanaoushadhis were prescribed along with Pathayarahara and Vihara. Follow up visit was advised after 1 month. The patient is advised to take the below mentioned medicines for the period of one month.

- Brihat vata chintamani rasi 1-1-1 tablet A/F
- Cap.Nurod 1-1-1 A/F
- Cap. Kapikacchu 1-1-1 A/F
- Dhanada Nayana kshaya 3tsp-3tsp-3tsp (with equal quantity of water) A/F
- Bhargavaproktha Rasayana 1tsp-0-1tsp A/F (with milk)
- Shirotalam with choorna kalka of amalaka, jatamansi and vacha daily.

**DISCUSSION**

Tandava Vyadhi is narrated in Sharangadhara samhita (Parishista 1) which comprises of neurodegenerative disorders. The aetiology, pathogenesis and symptomatology of Huntington’s disease (Huntington’s chorea) can be better understood with that of Tandava Vyadhi. Specific aetiology of tandava roga is quoted as valavrudhi. Vatavruddi significantly correlated with degenerative changes substantiates the etiology of the disease. The pathogenesis of Tandava Roga starts with Majja Dhatu (Mastulunga Majja Dhatu) and consequently pathology will be seen in terms of Balakshaya and Pratata Vata Rogi.

This serious disease is of autosomal dominant inheritance (1051a) and is due to an expanded CAG repeat(a so-called unstable trinucleotide sequence) on the short arem of chromosome 4. Onset after age 50 is more than twice as common when the patient’s mother rather than father was affected parent. Clinically evident disease usually arises between the age of 30 and 50. Hyperkinesia develops gradually more slowly than in chorea minor and with greater admixture of athetotic movements. Gait is often severely impaired. Mental disturbances are typically found, but their severity need not parallel that of the involuntary movements. Gait is often severely impaired. Mental disturbances are typically found, but their severity need not parallel that of involuntary movements, they may arise earlier. The prognosis of Huntington’s disease is very poor.
The symptomatology of Tandava vyadhi - Huntington’s disease involves the Vata prakopa and Majja Dhatukshaya. The presenting complaints like difficulty in swallowing of food, speech, loss of strength (Balamamsaksahaya) and change in behavior implies for Prana and Udana Vatavikruti.\(^{[10]}\) Symptomatology of Progressive, rapid, non – patterned, semi purposeful movements of whole body gives the clue for Vyana Vatavikruti.\(^{[17]}\) On the other hand, loss of appetite indicates for the pathology of Samana Vata vikritih.\(^{[13]}\) As one of the etiologies of the Huntington’s disease is genetic, it can be interpreted as the vatavruddi affecting the beeaaj leading may to the changes in genetic combination leading to the alteration in gene finger printing. Masthiska being the one of site of Vatasthana, and one of the tri marma, when gets affected leads to vitiation of the all doshas and dhatus resulting into srotorodha. The margaavardha for the path of movement of vata dosha leads to smriti haani, bheebhtsa chesta and brings the changes in voluntary and involuntary functions.

Hence the treatment is planned in accordance with Srotoshodhaka, Sangahara, Amapachana, Agnideepana, Vataanulomana and Brimhana. To achieve this Snehana, Swedana, Rookshana and Basti were included as part of treatment. As it is Dhatukshayajanya and Dhatwagnimandya with srotorodha pathology, Pachana with agnideepana and Brumhana chikitsa was planned.

To achieve this initially started with Agnichikitsa lepa(sarvangalepa) which contains drugs of Ushana, Teekshna, Vatakapharahara quality like Maricha, Lavanga, Lashuna, Sarshapa, Haridra, Saindhava, Agnimanth, Nirgundi, Tulasii, Shigrupatra serve the purpose of Srotoshodhaka, Amapachaka as well as Agnideepana action and also is a variety of Upanaha Sweda which relieves Sthambha, Shoolaa. Takradhara-Murdha chikitsa helps for regulating sensory-neural functions as well as improving cerebral circulation. Matri basti with Sahaharadi taila and kalyanaka gruta will prevent the vata dosha getting agitated during the course of lepa.

After it is assured that the Srotoshodhaka has occurred by assessing features like relief from rigidity or stiffness, Gourava, Shoolaa - Kevala Vaavaysadhi chikitsa was adopted in the form of Snehana-Swedana – Matri basti along with continuation of Takradhara and Shirotalam. Sarvangaa Abhyanga with Balaashwagandhalakshadhi taila was given to address the vata vruddhi, and which is also acts as Brimhana, reduces the stiffness and the taila also acts as Rasayana, Brimhana and Indriya prasadana.\(^{[19]}\) Matri Basti was planned with the combination of (Yamaka Sneha) Kalyanaka Ghrita and Sahacharadi taila for the purpose of giving Chikitsa to all Pancha Vata and especially to give nourishment to the Majja and Mamsa Dhatu. Basti being the choice of treatment in vata prdhana vyadhi, helps in bringing vata to normalcy. Shirotalam, a variety of murdda chikitsa helpful in shirogata vata hence, Heta Sthana Vishesha Chiktsa is planned accordingly in the present case. The internal medications which are specifically beneficial for Mahagadas like Vatayadhi are advised which also attributes the quality like neuro protective, neuro stimulant s by which one can achieve the main function of vata as Yantra Tandradhara where vata being regulated thereby controls the movements of the limbs and also sensory neural function too.

CONCLUSION
Tandava Rogaas mentioned by Acharya Sharangadhara, comprises neurodegenerative disorders which can be co related with Huntington’s disease. Symptomatology of Tandava roga / Huntington’s disease involves the Vatapradhama tridosha vitiation and Majja Dhatu kshayajanya mahagada. As the patient initially exhibited with symptoms indicative of margavarodhajanya and dhatwagnimandya avastha, approach with Rukshana-upanaha sweda in the form of Agnichikitsa lepa was given with due care of vata and later Kevala Vatayadhi chikitsa in the form of Abhyanga, Swedana, Basti with Shirormarma paripalana measures were adopted. After 15 days of treatment, in male patient of tandava Vyadhi - Huntington’s disease/chorea there was remarkable improvement seen in signs & symptoms.

REFERENCES
10. Anthony S. Fauci, Eugene Braunwald, Dennis L.