



## RESEARCH ARTICLE

# THE AYURVEDIC PATH: MANAGING SPINO CEREBELLAR ATAXIA - A CASE STUDY SERIES

\*Vishnu, S., Gopala Krishna, G. and Sowmyashree, U.P

<sup>1</sup>PG Scholar, Dept. of PG Studies in Kayachikitsa, Sri Sri College of Ayurvedic Science and Research, 21st Km Kanakapura Rd, Udayapura PO, OB Chudahalli, Bengaluru, Karnataka; <sup>2</sup>HOD, Dept. of PG Studies in Kayachikitsa, Sri Sri College of Ayurvedic Science and Research, 21st Km Kanakapura Rd, Udayapura PO, OB Chudahalli, Bengaluru, Karnataka; <sup>3</sup>Associate Professor, Dept. of PG Studies in Kayachikitsa, Sri Sri College of Ayurvedic Science and Research, 21st Km Kanakapura Rd, Udayapura PO, OB Chudahalli, Bengaluru, Karnataka

### ARTICLE INFO

#### Article History:

Received 20<sup>th</sup> September, 2024  
Received in revised form  
17<sup>th</sup> October, 2024  
Accepted 24<sup>th</sup> November, 2024  
Published online 30<sup>th</sup> December, 2024

#### Key Words:

Abhyanga, Basti, Shastika shali pinda sweda, Shirodhara, spinocerebellar ataxia.

#### \*Corresponding author:

Vishnu, S.,

### ABSTRACT

**Background:** Spino Cerebellar Ataxias (SCAs) are a highly heterogeneous group of disorders that often present as progressive in-coordination of walking. Studies are underway globally to find a cure for this genetic disease. Despite limited Ayurvedic case studies on Spino Cerebellar Ataxia (SCA), this report presents a unique time-series analysis of a single case. **Methods:** A patient with SCA was admitted twice to our IPD between July and October 2024, receiving treatment for 15 days and 8 days respectively and was treated with Sarvanga Abhyanga (~external oleation), Shastika shalipinda svedana (~bolus fomentation), Shirodhara with Brahmi taila, Yavana basti (~medicated enema) with Ashwagandha ghrita anuvasana for 15 days in kala basti krama, Matra basti, Jihwa Nirlekhana with saraswatha churnam and Physiotherapy along with a combination of Ayurvedic oral drug. **Results:** The interrupted time series analysis was done with the help of Scale for Assessment and Rating of Ataxia (SARA) score on July 12, 2024, July 25, 2024, August 24, 2024, September 30, 2024, October 08, 2024, October 30, 2024 and December 20, 2024. **Conclusion:** This study suggests Ayurvedic treatment may effectively manage SCA.

Copyright©2024, Vishnu et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Vishnu, S., Gopala Krishna, G. and Sowmyashree, U.P. 2024. "The Ayurvedic Path: Managing Spino Cerebellar Ataxia - A Case Study Series". *International Journal of Current Research*, 16, (12), 31076-31083.

## INTRODUCTION

Spino Cerebellar Ataxias (SCA) are a group of autosomal dominant cerebellar ataxias (ADCA). Since the identification of the genetic mutation responsible for SCA1 in 1993<sup>1</sup>, 49 different subtypes of SCA have been recognized<sup>2-4</sup>. The core symptoms of SCAs typically include gait ataxia, in-coordination, nystagmus/visual disturbances, and dysarthria. Some SCA types also present with additional features, such as pyramidal and extrapyramidal signs, ophthalmoplegia, and cognitive impairment<sup>5</sup>. Although the onset of symptoms usually occurs after the age of 18 (adult-onset), there are exceptions<sup>6</sup>. The primary mechanisms behind SCAs involve toxic RNA gain-of-function, mitochondrial dysfunction, channelopathies, autophagy issues, and transcription dysregulation<sup>5</sup>. SCAs are classified based on the specific mutated gene responsible. A recent systematic review indicates that the global prevalence of SCA is 3 per 100,000 people, classifying it as a rare disease<sup>5</sup>.

A study in India analyzing molecular data from a central reference laboratory over three years found that SCA12 showed the highest positivity<sup>7</sup>. The prognosis of SCA varies depending on the subtype, but with few exceptions (such as SCA6), SCAs are typically relentlessly progressive and fatal. Currently, no drugs for SCAs are approved by the FDA or the European Medicines Agency. However, multiple studies have demonstrated the efficacy of coordinated physical therapy<sup>8</sup>. Several studies have also explored the short- and long-term effects of neuro-rehabilitation in treating cerebellar ataxia, highlighting the need for effective long-term strategies to maintain functionality and sustain positive outcomes<sup>9,10</sup>. There are relatively few case studies on SCA treatment using Ayurveda in indexed journals, and these studies generally involve pre and post assessments following a single course of inpatient Ayurvedic treatment<sup>11,12,13</sup>. While these studies suggest potential improvements, there remains limited understanding of the effectiveness of Ayurvedic interventions. Given this context, further research on the long-term effects of Ayurvedic treatment for SCA is warranted.

According to Ayurvedic principles, spinocerebellar ataxia (SCA) aligns with the Samprapti (pathophysiology) of Dhatukshayaja Vata Vyadhi (neurodegenerative disorders). The predominant Dosha involved is Vata, particularly its subtypes Prana, Udana, and Vyana, which lead to the Shoshana (degeneration) of the Medas (fat) and Majja Dhatu (bone marrow). The subtle function of Prana is to govern the Dharana (preservation) of the Buddhi (intellect), Hridaya (heart), Indriya (sense organs), and Chitta (consciousness)<sup>14</sup>. The senses (Indriya) perceive their corresponding objects (Artha), and this information is transmitted to the Atma (soul) via the Manas (mind). The resulting signals are then conveyed to the Karmendriya (motor organs) through the Manas. Since Buddhi is a guna (attribute) of the Atma, even if there is no direct damage to the Buddhi, Indriya, or Chitta, an imbalance in Prana Vayu can disrupt the coordination between these elements. This dissonance can impair the precise functioning of the senses, leading to symptoms such as dysmetria and tremors observed in ataxia. The primary function of Udana Vata is related to Vak Pravritti (phonation), while Vyana Vata governs the movement of body parts (Gati of Angas). In this system, Prana Vayu is considered to have a regulatory influence over both Udana and Vyana, meaning the proper functioning of these Vayus depends largely on the state of Prana Vata. Since the head is the primary seat of Prana Vata, and considering that SCA involves neurodegenerative changes in the brain, the role of Prana Vata is particularly significant in this condition.

## CASE REPORT

A 23-year-old female from Chennai, Tamil Nadu, presented to the Kayachikitsa Outpatient Department of SSCASR & H on 12/07/2024 with the following complaints:

Difficulty and unsteadiness while walking and climbing stairs for the past year, which had worsened over the last 2 months. Impaired speech for the past year, with a recent aggravation over the past 2 months. Loss of bladder control, Tremors in both upper limbs and Diminished memory for the past 2 months.

## HISTORY

Source of History: Patient's Mother. A 23-year-old, well-educated female patient was previously healthy but began experiencing difficulty with walking and speaking one year ago. She initially noticed an insidious onset of imbalance, characterized by swaying while walking, which gradually worsened over time. Within a year of symptom onset, she required support to walk. Additionally, she has experienced bladder control issues and tremors in both upper limbs for the past two months. She reports a sensation of bladder fullness but is unable to control the urge, especially when walking. The patient has also noticed a decline in her memory and forgetfulness (e.g., confusion about time and dates) over the past two months. The patient first consulted a neurologist in May 2024 (28/05/24), who recommended certain investigations, along with medications. However, she did not experience relief from her symptoms. She then sought a second opinion from another neurologist in June 2024 (03/06/24), who ordered further investigations (MRI Brain, MRA, whole spine) and diagnosed her with Spinocerebellar Ataxia (SCA). The prescribed medications for SCA, however, led to increased salivation and worsened speech difficulties.

Due to persistent symptoms, she now seeks further management at our hospital.

**HISTORY OF PAST ILLNESS:** H/O – shaking of head at the age of 4 years for 1 year. Resolved after medication (unknown)

**CLINICAL FINDINGS:** In the general examination, the patient was moderately built and nourished with a BMI of 20.5 kg/m<sup>2</sup>. Vitals were within normal limits. Appetite was reduced with regular bowel and bladder-Urgency (unable to hold during movement). Gait was wide-based with left-sided swaying. On HMF examination, Flaccid dysarthria was present, Recent memory impaired and often slurred in prolonged speech. On MMSE, total score obtained 26/30. On cranial nerve examination, II, VII are affected with Visual acuity - Myopia and Blowing of cheeks – Possible with a decrease over the left side. On motor examination, bulk and superficial reflexes were normal. On Muscle power over left Upper limb was 4/5, Muscle tone and involuntary movements over B/L Upper limbs observed Clasp Knife rigidity and Pill rolling tremors. On cerebellar examination, rombergs sign - positive, Finger nose test - co-ordination is hampered, Knee heel test - not possible, Disdiadokinesia - delayed, Tandem walking - not possible. Sensory examination was normal, Cardiovascular, Respiratory and Musculo skeletal examinations were normal.

**Dashavidha pariksha (~Ten fold examination):** Prakriti of the patient was Vata Kapha. Further examination revealed symptoms of Vikrita vata (~disturbed Vata), Madhyama satva (~subnormal psychological strength), and Sarva rasa satmya (~habitual of taking all six tastes in diet). Samhanana (~compactness) and Pramana (~body built) were found to be Madhyama (~normal). Her Vyayama shakti (~muscle strength) was Avara and Aharashakti (~intake and digestion capacity) was Madhyama (~normal).

**Ashtavidha pariksha (Eight fold examination):** Nadi (~pulse) was Vata Pitta pradhana manda. Urine was vikruta with unable to hold during movement frequency of 5-6 times/day; 1-2 times at night. Bowel history revealed the frequency of 1-2 times a day and was Sama. Jihwa (~tongue) was uncoated. She had Anushna sparsha (~touch was not too hot) and Shabda (~voice) was Sphutita (slurred speech). Her Drishti (~vision) was affected with myopia.

**SAMPRAPTI:** Due to Snigdha Amla Lavana Katu Ahara, and Manda Agni, Pitta Kapha Predominant Dosa Dusti occurs in Amasaya, which causes Jataragni Mandhya and further leads to the formation of Ama. Ama, along with vitiated Dosha (Sama Dosha), enters the Rasavaha Srota, driven upward by the Pratiloma Vata created due to Vegadharana (suppression of natural urges) and Ekasthanasana (sitting in one place for prolonged periods). It reaches the Siras (head), and due to Khavaigunya (defective channel) in the Siras, as indicated by the past history, it leads to Kharata (roughness), Parushada (stiffness), and Rookshata (dryness) in the Srotas. This results in the Vayupurana (accumulation of Vayu) at the Riktasthana (empty or deficient area), which causes Sarvanga Vatavyadhi.

## Samprapti Gataka

**Dosha:** Vata kapha pradhana tridosha dusti

**Dushya:** Rasa, rakta, mamsa, meda, Asthi, majja

**Agni:** Mandagni janya ama

**Srotas:** Rasavaha, raktavaha, mamsavaha, medovaha, Asthivaha, majjavaha.

**Srotodushti prakara:** Sanga, Vimarga gamana

**Udbhava sthana:** Pakvashaya

**Vyaktastana:** Sarva shareera

**Adhistana:** Masthishka

**Swabhava:** Chirakari

**Rogamarga:** madyama

**Sadyasadyata:** asadhya.

**TIMELINE:** Table 2 illustrates the timeline of events in this case study, detailing the progression of symptoms, the treatments the patient has received, and the outcomes observed.

## INVESTIGATIONS

**MRI BRAIN WITH MRA (30/05/2024)** Showed Generalized cerebral atrophy seen, Bilateral periventricular FLAIR hyperintensity seen, Moderate ventricular prominence, Chronic infarct in the right basal ganglia region, Significant cerebellar atrophy seen as well, Midbrain shows volume loss, Left maxillary sinusitis, Partial emptysella seen. Corpus callosum is thinned. MRA Showed Both ICA at origin shows eccentric hypointensity; flow related changes, Both ICA flow is otherwise normal, Left vertebral artery shows hypoplasia, Both ACA flow appears maintained, Left dominance seen, Both MCA flow appears maintained. Left cortical pruning seen.

**MRI WHOLE SPINE SCREENING (30/05/2024)** showed In cervical spine: Anterior and posterior thecal sac is prominent, In lumbar spine: Sacralization of L5, In dorsal spine: Cord appears thinned at d2 to d5 level. Subtle cord high signal change seen at this level subtle end plate changes seen at d2 multiple level mild posterior bulge with sac compression.

CBC, ESR, Thyroid Function Test, ANA Profile, Urine routine and microscopy dated on 16/07/2024 within normal limits excluding TSH 5.4  $\mu$ IU/ml

**Diagnosis:** The patient was clinically and radiologically diagnosed with Spino Cerebellar Ataxia. Ayurveda diagnosis was made as Masthulunga Kshayajanya Sarvangavata, (a neurodegenerative disorder) substantiated by MRI.

**Assessment:** Scale for the Assessment and Rating of Ataxia (SARA) is used for assessing the condition on the day of admission, discharge and during follow-up. The scale is made up of 8 items related to gait, stance, sitting, speech, finger chase test, nose-finger test, fast alternating movements and heel-shin test.

**Therapeutic interventions:** Considering the Asadhya (~incurable) nature of the disease, a two-dimensional approach was planned to arrest the progress of disease and to improve the motor skills. The first course of inpatient treatment was administered from July 13, 2024, to July 27, 2024 [Tables 3, 4]. Internally, the patient was given a combination of Brihat Vata Chintamani Rasa (Gold), Cardorium Plus syrup, Kayanervetone, Info-DF powder, T.M. Colin, T. Ashwagandha, and Saraswata Churna with ghee for Jihwa Nirlekhana. Externally, she underwent a series of therapies, including Sarvanga Shastika Shali Pinda Swedam, Shirodhara,

Kala Basti, Matra Basti, and physiotherapy. The second course of inpatient treatment was administered from September 30, 2024, to October 8, 2024 [Tables 5, 6]. Internally, the patient was prescribed C. Ksheerabala 101, Cardorium Plus syrup, T. Nurod, Info-DF powder, T. Bravobol Forte, and T. Vitabin-M. Externally, she underwent Sarvanga Shastika Shali Pinda Swedam, Shirodhara, Matra Basti, and physiotherapy.

## FOLLOW UP AND OUTCOME

The patient was assessed on the Scale for Assessment and Rating of Ataxia (SARA) on the day of admission and discharge which showed progressive improvement with each admission [Table 7]. SCALE FOR ASSESSMENT AND RATING OF ATAXIA

## DISCUSSION

Given the chronic nature and incurability of the disease, long-term management is essential. As there is no known cure for this condition in modern medicine, only a few therapeutic options are available. While several drugs are under investigation, those that have been proven effective are often not easily accessible and can be prohibitively expensive<sup>8</sup>. Although neuro-rehabilitation has shown efficacy in treating Spinocerebellar Ataxia (SCA)<sup>15</sup>, the patient did not pursue this option due to financial constraints. In India, Ayurveda is a prominent alternative therapy for neurodegenerative diseases like SCA. The patient was diagnosed with Masthulunga Kshayajanya Sarvangavata, where dhātuksaya (depletion of nutrition and tissues) is considered the primary causative factor and underlying pathology. The treatment approach was based on the general principles for managing Nanatmaja Vata vyadhis. The patient underwent Panchakarma procedures in combination with the previously mentioned medications, resulting in a satisfactory clinical outcome and It was recommended that the patient follow a standard diet and regimen that is Vatahara in nature.

**Snehana:** Sarvanga Abhyanga with Ashwagandha Bala Lakshadi Taila helps in pacifying the Doshas and provides multiple therapeutic benefits, including Brimhana (nourishing), Shulahara (pain relief), Nidrakara (promoting sleep), Dusthi Prasada (purification of toxins), Pustayu (improving strength and vitality), Drudhakara (enhancing stability), and Balyakara (increasing strength and immunity).

**Shashtika Shali Pinda Sweda:** Shashtika Shali has a nourishing effect on the muscles and peripheral nerves. Combined with Bala and Godugdha, which are Snigdha (unctuous), Balya (strengthening), Rasayana (rejuvenating), and Vatahara (Vata pacifying), this treatment provides significant therapeutic benefits. The warmth from the Pottali (bolus) of Shashtika Shali, dipped in Balamoola Kwath (decoction of Bala root) with Godugdha (cow's milk), helps improve blood circulation, reduce muscle stiffness, increase tendon extensibility, alleviate emaciation and relieve pain.

**Kala Basti:** According to Charakacharya, Basti possesses qualities like Pushtikara (nourishing), Brimhana (strengthening), and Balya (fortifying). While some scholars consider Basti Chikitsa (therapeutic enema) as Sampurna Chikitsa (complete treatment), Acharya Charaka views it as Ardchikitsa (half-treatment).

Table 1. Past treatment history(03/06/24)

| Drug name            | Dose        | Contents   | Duration |
|----------------------|-------------|--|----------|
| SYP. IGNICAR DS PLUS | 10ml -0-0   | L-Carnosine 100 mg   | 28 days  |
| T. ONLY Q PLUS       | 0-0-1       | Coenzyme Q10 300mg + Flaxseed oil powder 250 mg + L Arginine 250 mg + Selenium 40 mcg + zinc 12 mg   | 28 days  |
| T. MYOGLAD           | 1-0-0       | Acetyl-L-Carnitine 300 mg + Palmitoyl ethanolamide 15mg + Tocopherol 100 IU  | 28 days  |
| T. DONAMEN FORTE     | 0-0-1       | Donepezil Hydrochloride IP 10 mg + Memantine Hydrochloride IP 10 mg  | 28 days  |
| LOYD3 NANO 60K Units | Once a week | Cholecalciferol 60k units  | 28 days  |
| T. VITACLEVE BT      | 1-0-0       | Alpha lipoic acid 200 mg + Bentofiamine 150 mg + Elemental chromium 200 mcg + elemental zinc 25 mg + Folic acid 1.5 mg + Inositol 100mg + Methylcobalamin 1500 mcg + Selenium 55 mcg | 28 days  |

Table 2.Scale for Assessment and Rating of Ataxia (SARA)

|                                 | July 12,2024 (First IP Visit) | July 27,2024 (After First course of IP treatments) | August 24,2024 (First Follow-up) | September 30,2024 (Second IP Visit) | October 08,2024 (After Second course of IP treatments) | October 30,2024 (Second Follow-up) | December 20,2024 (Third Follow-up) |
|---------------------------------|-------------------------------|--|----------------------------------|-------------------------------------|--|------------------------------------|------------------------------------|
| Gait                            | 5                             | 3  | 3                                | 3                                   | 2  | 2                                  | 2                                  |
| Stance                          | 4                             | 3  | 2                                | 2                                   | 1  | 1                                  | 1                                  |
| Sitting                         | 3                             | 2  | 2                                | 1                                   | 1  | 0                                  | 0                                  |
| Speech                          | 4                             | 3  | 2                                | 2                                   | 2  | 2                                  | 2                                  |
| Finger Chase                    | 2                             | 1  | 1                                | 1                                   | 1  | 1                                  | 1                                  |
| Nose Finger Test                | 2                             | 2  | 2                                | 2                                   | 2  | 1                                  | 1                                  |
| Fast alternating hand movements | 2                             | 1  | 1                                | 1                                   | 1  | 1                                  | 1                                  |
| Heel shin test                  | 3                             | 2  | 2                                | 2                                   | 2  | 2                                  | 1                                  |
| Total                           | 25                            | 17   | 15                               | 14                                  | 12   | 10                                 | 7                                  |

Table 3. Panchakarma procedures adopted for the management of the case in 1<sup>st</sup> IP visit is presented

| Date of Treatment/Intervention   | Treatment/Intervention                                    | Medicines   |
|--|---|---|
| 13/07/24-25/07/24  | Sarvanga Abhyanga Followed by Shastika Shali Pinda Swedam | Ashwaganda Bala Lakshadi taila<br>AbolusofriceboiledinmilkandBalākāvātha  |
| 13/07/24-25/07/24  | Shirodhara  | Brahmi Oil  |
| 13/07/24,15/07/24<br>17/07/24,18/07/24<br>20/07/24,21/07/24<br>12/07/24,13/07/24<br>14/07/24,16/07/24<br>18/07/24,19/07/24,<br>21/07/24,22/07/24<br>23/07/24 | Kala Basti<br>BaladiYapana basti<br>Anuvasana Basti       | Makshika-50ml,Saindava Lavana 8g,Ashwagandha ghritam-60ml,Satapushpa kalka-15g, Kashaya (boiled in milk)Bala, atibala, vidhari, shaliparni, prishniparni, brihati, kantakari, darbhamaoola, parushka, kashmarya, bilwaphala, yava-240ml<br>Ashwagandha ghrita -75ml |
| 24/07/24,25/07/24  | Matra Basti   | Ashwagandha ghrita -75ml  |
| 17/07/24 -25/07/24   | Physiotherapy   | Muscle stimulation, passive movements, Active assisted movements, Suspension therapy, Gait training and mobility training,  |

Table 4. The interventions with dose, frequency, time, and duration prescribed for the management of the case in 1<sup>st</sup> IP visit and follow-up is presented

| Intervention                           | Dose, Frequency and Time                                    | Adjuvant       | Duration |
|--|---|----------------|----------|
| Brihat Vata Chintamani Rasa(Gold)      | 1 tablet at 7 AM in empty stomach                           | warm water     | 30 days  |
| Cardorium plus syrup                   | 10ml twice daily after food                                 | normal water   | 77 days  |
| Kayanervetone                          | 1 tablet thrice daily after food                            | Warm water     | 77 days  |
| Info-DF powder                         | 1 tsp twice daily after food                                | Warm milk      | 77 days  |
| T.Ashwagandha                          | 1 tablet thrice daily after food                            | Warm water     | 77 days  |
| T.M-Colin                              | 1 tablet at bed time  | Warm water     | 77 days  |
| Saraswata churna for Jihwa Nirlekhana. | Quantity sufficient churnam for jihwa nirlekhana at 6.45 AM | Ghee and honey | 77 days  |
| Vata Chintamani Rasa(Plain)            | 1 tablet at 7 AM in empty stomach                           | warm water     | 47 days  |
| T.Bravobol Forte                       | 1 tablet twice daily after food                             | Warm water     | 47 days  |
| Ashwaganda Bala Lakshadi taila         | For daily abhyangam before snanam(bath)                     | -              | 47 days  |

Table 5. Panchakarma procedures adopted for the management of the case in 2<sup>nd</sup> IP visit is presented

| Date of Treatment/Intervention | Treatment/Intervention                                    | Medicines  |
|--------------------------------|---|--|
| 01/10/24-08/10/24              | Sarvanga Abhyanga Followed by Shastika Shali Pinda Swedam | Ashwaganda Bala Lakshadi taila<br>AbolusofriceboiledinmilkandBalākāvātha   |
| 01/10/24-08/10/24              | Shirodhara  | Brahmi Oil   |
| 30/09/24-07/10/24              | Matra Basti   | Ashwagandha ghrita -75ml   |
| 01/10/24-08/10/24              | Physiotherapy   | Muscle stimulation, passive movements, Active assisted movements, Suspension therapy, Gait training and mobility training, |

**Table 6. The interventions with dose, frequency, time, and duration prescribed for the management of the case in 2<sup>nd</sup> IP visit and follow-up is presented**

| Intervention                   | Dose, Frequency and Time                | Adjuvant     | Duration |
|--------------------------------|---|--------------|----------|
| C.Ksheera Bala 101             | 1 tablet thrice daily before food       | warm water   | 80 days  |
| Cardorium plus syrup           | 10ml twice daily after food             | normal water | 80 days  |
| T.Nurod                        | 1 tablet thrice daily after food        | Warm water   | 80 days  |
| Info-DF powder                 | 1tsp twice daily after food             | Warm milk    | 80 days  |
| T.Ashvagandha                  | 1 tablet thrice daily after food        | Warm water   | 80 days  |
| T.Vitabin M                    | 1 tablet at bed time                    | Warm water   | 80 days  |
| T.Bravobol Forte               | 1 tablet twice daily after food         | Warm water   | 80 days  |
| Ashwaganda Bala Lakshadi taila | For daily abhyangam before snanam(bath) | -            | 80 days  |

| Year                              | Incidence/Intervention  |
|-----------------------------------|---|
| July 2023                         | Difficulty and unsteadiness while walking, needing assistance to climb stairs, and trouble speaking.  |
| June 2024                         | The patient consulted a neurologist on June 3, 2024, and underwent investigations, including an MRI of the brain, MRA, and whole spine. Based on the results, she was diagnosed with Spinocerebellar Ataxia (SCA) and prescribed medication for the condition.  |
| July 2024                         | After starting the prescribed medications, the patient experienced increased salivation and greater difficulty speaking.  |
| July 12 2024                      | For further management, the patient sought care at the Kayachikitsa OPD of Sri Sri Ayurveda Hospital. Clinical assessment for disease based on the SARA was done which was 25   |
| July 12 2024-July 25 2024         | Shastika Shali pinda svedana (sudation with bolus of medicated cooked rice) for 13 days, Shirodhara with Brahmi oil for 13 days and BaladiYapana basti (enema with medicated decoction) with Ashvagandha ghritam anuvasana (enema with oil) in Kala basti krama ,Matra basti with Ashvagandhā ghritam for 3 days and Physiotherapy for 13 days Along with these procedures oral Ayurvedic drugs such as Brihat Vata Chintamani Rasa(Gold),Cardorium plus syrup,Kayanervetone,Info-DF powder,T.M-Colin,T.Ashvagandha,Saraswata churna with ghee for Jihwa Nirlekhana Patient was discharged and assessment for clinical improvement was done (SARA) which was 17 |
| July 26 2024-August 24 2024       | Same oral Medication continued along with Bravobol Forte and Vata Chintamani Rasa(Plain)excluding Brihat Vata Chintamani Rasa(Gold). Assessment for clinical improvement was done (SARA) which was 15   |
| August 25 2024-September 29 2024  | Same oral Medication continued.   |
| September 30 2024                 | Patient was readmitted in I.P.D. for further Pancakarma procedures and oral medications.Assessment for clinical improvement was done (SARA) which was 14  |
| September 30 2024-October 08 2024 | Shastika Shali pinda svedana (sudation with bolus of medicated cooked rice) for 8 days, Shirodhara with Brahmi oil for 8 days and Matra basti with Ashvagandhā ghritam for 8 days and Physiotherapy for 8 days Along with these procedures oral Ayurvedic drugs such as C.Kshirabala 101,Cardorium plus syrup,T.Nurod,Info-DF powder,T.Bravobol Forte,T.Vitabin-M. Patient was discharged and assessment for clinical improvement was done (SARA) which was 12  |
| October 09 2024-October 31 2024   | Same oral Medication continued. Assessment for clinical improvement was done (SARA) which was 10  |
| November 01 2024-December 20,2024 | Same oral Medication continued. Assessment for clinical improvement was done (SARA) which was 7   |

| Date of Treatment/Intervention | Treatment/Intervention                                    | Medicines   |
|--------------------------------|---|---|
| 01/10/24-08/10/24              | Sarvanga Abhyanga Followed by Shastika Shali Pinda Swedam | Ashwaganda Bala Lakshadi taila<br>AbolusofriceboiledinmilkandBalākvātha |
| 01/10/24-08/10/24              | Shirodhara  | Brahmi Oil  |
| 30/09/24-07/10/24              | Matra Basti   | Ashwagandha ghrīta -75ml  |
| 01/10/24-08/10/24              | Physiotherapy   | Muscle stimulation, passive movements, Active assisted movements,       |

In the context of Sarvanga Vata Vyadhi (generalized Vata disorder), Vata is the predominant dosha causing the illness, and the primary treatment for Vata dosha is Basti Chikitsa.

**Niruha Basti:** In Niruha Basti, Madhu (honey) acts as a Yogavahi (catalyst) and follows the Sukshma Marga (subtle pathway), helping the therapy penetrate the Sukshma Srotas (micro channels). The inclusion of Saindhava Lavana (rock salt) brings Laghu (light) and Tridosha Shamaka (balancing all three doshas) properties. The Snigdha Guna (unctuous property) of the Sneha Dravya (oleaginous substances) counteracts the Ruksha (dry) and Laghu (light) qualities of Vata, thereby helping to Shamana (pacify) Vata. The Kwatha (decoction) used in Niruha Basti performs Dosha Anulomana (normalizes doshas) and Nirharana (eliminates doshas). In this case, Baladi Yapana Basti was chosen for its Vatahara (Vata pacifying), Sadhyobalajanana (promoting strength), and Rasayana (rejuvenating) properties<sup>16</sup>.

**Anuvasana/Sneha Basti (Oil-Based Enema:** Anuvasana Basti, administered with Ashvagandha Ghrīta (Ashvagandha ghee), has Guru (heavy) and Snigdha (unctuous) qualities that counteract the Ruksha (dry) and Laghu (light) properties of Vata, resulting in Vata Shamana (pacification). Ashvagandha Ghrīta has properties such as Balya (strengthening), Brimhana (nourishing), and Rasayana (rejuvenating), which further help in restoring balance to the body and promoting overall vitality.

**Shirodhara:** In the Shirodhara procedure, a specific pressure and vibration are applied to the forehead, which is further amplified by the hollow sinus cavities in the frontal bone<sup>17</sup>. This vibration is transmitted inward through the cerebrospinal fluid (CSF), and the combination of vibration and slight warmth helps activate the functions of the thalamus and basal forebrain. This stimulation helps normalize the levels of serotonin and catecholamines, promoting sleep induction<sup>17</sup>.

Brahmi Taila taila (oil) itself has properties such as Vatahara (Vata pacifying), Sukshma (subtle), and Snigdha (unctuous), which support the proper functioning of Tarpaka Kapha, aiding in the restoration of sensory perception and mental clarity. These functions, which were disrupted due to aggravated Vata dosha<sup>18</sup>, are restored through this therapy. Due to its sukshma guna (subtle quality), the oil easily penetrates deep into the body's channels. The active components of the taila are absorbed through the forehead, exerting a Vata-pacifying effect while providing lubrication and nourishment to the body.

**Jihwa nirlekhana:** Saraswatha Choorna, when combined with Madhu (honey) and Ghee, is used in Jihwa Nirlekhana (tongue scraping). This combination is highly effective in addressing speech impairments. As a Medhya (intellect-enhancing) formulation, it improves cognition and memory. The qualities of Saraswatha Choorna help balance Vata and Kapha, and its action helps break down excess Kleda (bodily fluids), Meda (fat), Lasika (lymph), Sweda (sweat), and Vasa (fatty tissue). It also clears Mala (waste products), Kapha, and Pitta from the Srotas (body channels) through its Pramathi (clearing) and Lekhana (scraping) qualities. The Katu Rasa (pungent taste) of the formulation promotes the "Srotamsi Vivrunoti" effect, which dilates the relevant channels, facilitating better circulation and flow within the body<sup>19</sup>.

**Physiotherapy:** Physiotherapy is incorporated throughout the treatment to improve joint range of motion and muscle flexibility. The primary aim of physiotherapy in this context is to enhance joint integrity and increase muscular flexibility. This was achieved through various techniques, including muscle stimulation, passive movements, active-assisted movements, suspension therapy, and gait training, all of which contributed to improving joint mobility, flexibility, and overall strength.

**Shamanoushadhis:** Brihad vata cintamani rasa is indicated in all type of Vataja (disease due to vata dosas) and respiratory diseases<sup>20</sup>.

### Cardorium plus<sup>21</sup>

The formulation contains Arjuna, Pushkaramoola, Gokshura, Kurubaka, Vrikshamla, and Jatamansi.

- Arjuna is a Hridya (cardiotonic) herb that is cardio-protective, helping to support heart health and correct Dhamaniprathichaya (arterial blockages).
- Pushkaramoola helps to alleviate Kapha vitiation and prevents the process of Srothorodha (blockage in the channels).
- Kurubaka is effective in combating Kapha dosha, Vyana Vatha dosha, and Medodushti (disruption of metabolic function), while also improving the Rakta Vaha Srotas (blood circulation channels).
- Gokshura is a powerful herb for pacifying Vata dosha and has Rasayana (rejuvenating) qualities that enhance overall vitality and strength.
- Rasayana herbs like Amlavetas support the immune system, neutralize free radicals, and promote general health and well-being.
- Jatamansi acts on Vyana Vatha dosha, helping to maintain the balance and function of the Rakta Vaha Srotas (blood circulation channels), ensuring proper circulation and nourishment of tissues.

**Kayanervitone<sup>22</sup>:** It Contains Mahavatvidhvans Ras 65 mg, Samirpannag Ras 65 mg, Ekangveer Ras 65 mg, Sutsekhar Ras 65 mg, Khurasani Ajmo Ext. (Hyoscyamus niger) 65 mg, Lajjalu Ext. (Mimosa Pudica) 65 mg, Brahmi Ext. (Centella Asiatica) 30 mg, Jyotishmati Ext. (Celastrus Panniculatus) 30 mg., Indicated in Neuro muscular disorders

**Info-DF Powder<sup>23</sup>:** The formulation contains Maltodextrin, Sucrose, Dry Fruits Powder, Soya Protein Isolate, Milk Solids, Whey Protein Concentrate, Malt Extract, Vegetable Oil, Natural Cardamom Powder, and a Vitamins and Minerals Mix. This nutritional powder is rich in protein, providing all essential amino acids, which support the maintenance and promotion of lean body mass.

The formulation enhances osteoblastic activity and promotes the development of bone mass. It is also fortified with nutrients that help boost immune function and includes 7 antioxidants that protect the cells from damage caused by free radicals.

**C. Ksheerabala 101<sup>24</sup>:** It contains Tila taila, Bala, Goksheera, most of these components exhibit properties it nourishes the Sleshaka Kapha stimulate the sensory nerve endings and provide strength to the muscles.

**Bravabol Forte<sup>25</sup>:** It contains Malkanganibeeja, Shankhapushpi, Brahmi, Abhrakabhasma, Ashwagandha, Effectiveness in enhancing the memory and promoting the alertness, Ingredients hold strong sedative traits that positively influence an agitated brain, mind and central nervous system.

### T. Ashwaganda

Ingredients have Vatahara and Balya properties with neuroprotective functions.

### T. Nurod<sup>26</sup>

It contains Brihat Vatacintamani Rasa extract 50mg, Trayondasanga guggulu extract 100mg, Lashuna (Allium sativum) extract 50mg, Eranda (Ricinus communis) extract 50mg, Bala (Sida cordifolia) extract 50mg, Kapikacchu (Mucuna pruriens) extract 50mg, Ashwagandha (Withania somnifera) extract 100mg, Along with Vatahara action, their Balya property proved helpful in the management of Mamsavruta Vata.

### M Colin<sup>27</sup>

It contains vitamin B-complex including thiamine (B1), riboflavin (B2), niacin (B3), calcium pantothenate (B5), pyridoxine (B6), biotin (B7), folic acid (B9) and cobalamin (B12). For normal functioning of muscles, nerves, blood cells and eyes. These vitamins decrease the chances of anaemia and promote good cardiovascular health. The patient is currently under continuous follow-up for observation and treatment, and her condition remains stable. There has been no worsening of symptoms or signs to date, which is a significant finding given the prognosis and the limited availability of effective treatments in biomedicine. This case study demonstrates that patients suffering from Spino Cerebellar Ataxia (SCA) can benefit from Ayurvedic management, achieving satisfactory outcomes.

The combination of Ayurvedic treatments, including oral medications along with Shastika Shali Pinda Swedana, Shirodhara, and Basti, may offer promising results and warrants further research as a potential therapeutic approach for SCA.

## CONCLUSION

Spino Cerebellar Ataxia (SCA) is a relatively rare neurodegenerative disorder for which modern medicine currently lacks a definitive cure. However, SCA can be managed with satisfactory outcomes through Ayurvedic medicine and Panchakarma procedures. To maintain the improvements achieved, repeated cycles of combined internal and external treatments, typically at intervals of 4–5 months, are recommended. This case study may serve as a valuable reference for initiating discussions and developing new strategies and protocols for the treatment of Spinocerebellar Ataxia and similar conditions.

## Acknowledgment

I would like to express my sincere gratitude and heartfelt thanks to the faculty members and colleagues of the Department of PG Studies in kayachikitsa, Sri Sri College of Ayurvedic Science and Research, Bangalore, for their unwavering support, keen interest, and inspiring guidance in bringing this article to fruition. Their encouragement and expertise have been invaluable throughout the process.

**Declaration of patient consent:** Authors certify that they have obtained patient consent form, where the patient&caregiver has given his/her consent for reporting the case along with the images and other clinical information in the journal. The patient & caregiver understands that his/her name and initials will not be published and due efforts will be made to conceal his/her identity, but anonymity cannot be guaranteed.

**Patient Perspective:** I feel good improvement in my coordination while walking and am able to do my daily activities with ease. Panchakarma treatments along with physiotherapy has helped me overcome my weakness and improved my memory and speech.

**Authors Contribution:** Gopalakrishna G- Conceptualization, Methodology, Visualization, Supervision Vishnu S - Conceptualization, Methodology, Data collection, Writing original draft preparation. Writing-reviewing Sowmyashree U P - Visualization, Supervision.

**Financial support and sponsorship:** Nil.

**Conflicts of interest:** There are no conflicts of interest

## REFERENCES

- H.T.Orr, M. Chung, S. Banfi, T.J. Kwiatkowski, A. Servadio, A.L. Beaudet, et al., Expansion of an unstable trinucleotide CAG repeat in spinocerebellar ataxia type 1, *Nat. Genet.* 4 (3) (1993) 221–226.
- Sullivan, R., W.Y. Yau, E. O'Connor, H. Houlden, Spinocerebellar ataxia: an update, *J. Neurol.* 266 (2) (2019) 533–544.
- Krygier, M. M. Mazurkiewicz-Beldzinska, ' Milestones in genetics of cerebellar ataxias, *Neurogenetics.* 22 (4) (2021) 225–234.
- Corral-Juan, M. P. Casquero, N. Giraldo-Restrepo, S. Laurie, A. Martinez-Pineiro, R. C. Mateo-Montero, et al., New spinocerebellar ataxia subtype caused by SAMD9L mutation triggering mitochondrial dysregulation (SCA49), *Brain Commun.* 4 (2) (2022) fcac030.
- Sullivan R, Yau WY, O'Connor E, Houlden H. Spinocerebellar ataxia: An update. *J Neurol* 2019;266:533-44.
- Corrine Sullivan Smith O, Sara Michelson J, Robin Bennett L, Thomas Bird D. Spinocerebellar ataxia: making an informed choice about genetic testing. *Med Genet Neurol.* 2004;1-18.
- Bhanushali AA, Venkatesan R, Das BR. Spinocerebellar ataxias in India: Three-year molecular data from a central reference laboratory. *Neurol India* 2020;68:86-91.
- Ashizawa T, Öz G, Paulson HL. Spinocerebellar ataxias: Prospects and challenges for therapy development. *Nat Rev Neurol* 2018;14:590-605.
- Sarva H, Shanker VL. Treatment options in degenerative cerebellar ataxia: A systematic review. *Mov Disord Clin Pract* 2014;1:291-8.
- Ilg W, Bastian AJ, Boesch S, Burciu RG, Celnik P, Claaßen J, et al. Consensus paper: Management of degenerative cerebellar disorders. *Cerebellum* 2014;13:248-68.
- Singh SK, Rajoria K. Ayurvedic approach in the management of spinocerebellar ataxia-2. *Anc Sci Life* 2016;35:167-72.
- Sriranjini SJ, Pal PK, Devidas KV, Ganpathy S. Improvement of balance in progressive degenerative cerebellar ataxias after Ayurvedic therapy: A preliminary report. *Neurol India* 2009;57:166-71.
- Pravith, Natesan K.; Krishna, Bini. Ayurvedic management in a chronic spinocerebellar ataxia and progressive improvement in scale for assessment and rating of ataxia score – An interrupted time series case report. *Journal of Ayurveda Case Reports* 4(1):p 16-21, Jan–Mar 2021. | DOI: 10.4103/jacr.jacr\_20\_21
- Paradkar H, editor. Commentaries Sarvangasundara of Arunadatta and Ayurvedarasayana of Hemadri on Astangahrdaya of Vagbhata, Sutra Sthana. Ch. 12., Ver. 4. Varanasi: Chowkhamba Krishnadas Academy; 2018. p. 193.
- Krishnan L, editor. Arogya Raksa Kalpadrumah. Vatavyadhi Chikitsa. Varanasi: Chowkhamba Sanskrit Series Office; 2006. p. 201.
- Shashirekha H K, Bargale Sushant Sukumar. Caraka Samhita of Agnivesha, Sidhistana. 1st edition. New Delhi; Chaukhamba Publications; 2020. p.125
- Sanwariya Rahul Kumar Et; Al: Shirodhara in Management of Hypertension - A Review Article [www.iamj.in/current\\_issue/images/upload/79\\_82.pdf](http://www.iamj.in/current_issue/images/upload/79_82.pdf).
- Shital Bhagiya et al; Anti-Hypertensive Effect of Virechana, Basti karma And Shirodhara – A Review [ayurpub.com/wp-content/uploads/2016/08/442-450.pdf](http://ayurpub.com/wp-content/uploads/2016/08/442-450.pdf).
- Murthy. K.R. Shri Bhava Mishra Bhava Prakasha Nighantu Vol-1. 1st edition. Varanasi; Chaukhamba Krishnadas Academy; 2004, p.175
- Siddhinandan M. Bhaisajyaratnavali. Sidhiprada Hindi commentary, 5/1095-1097. Varanasi: Chaukhamba Surbharati Prakashan; 2007. p. 185.
- Cardorium Plus NIMS Study Interim Report 14032016 [Internet]. Slide Share; 2016Mar14[cited2024 October 25]. Available from: <https://www.slideshare.net/slideshow/>

- cardorium-plus-nims-study-interim-report-14032016/60330491
- Kaya Shakthi Herbals. Kaya Nerve-tone Capsules [Internet]. Kaya Shakthi Herbals; [cited 2024 October 27]. Available from: <https://kayashakthiherbals.com/product/kaya-nerve-tone-10x10-capsules>.
- 1mg. Protolife DF Powder Cardamom [Internet]. 1mg; [cited 2024 October 26]. Available from: <https://www.1mg.com/otc/protolife-df-powder-cardamom-otc483228?srsltid=AfmBOoq4s5uss8aMYT4MTxcwb5Arqc8dUzDgjiPhv9HcCuk17cxMBuoT&wpsrc=Google+Organic+Search>
- Rejitha S, Prathibha P, Madambath I. The Ayurvedic drug Ksheerabala (101) ameliorates alcohol-induced neurotoxicity by down-regulating the expression of transcription factor (NFkB) in rat brain. *Ayu* [Internet]. 2015 [cited 2023 Sep 25]; 36(3):323-8. doi:10.4103/0974-8520.182749. PMID:27313421. PMCID:PMC4895761.
- Islam M, Ramanjaneyulu J, Veeresh Babu D, Hoque M, Narayana Swamy VB. Studies on Memory Enhancing Property of Bravobol - A Polyherbal Formulation in Experimentally Induced Alzheimer's Disease in Experimental Animals. *Asian J Res Pharm Sci* [Internet]. 2015 [cited 2024 Aug 12]; 5(2):103-10. doi:10.5958/2231-5659.2015.00017.X.26. Kachole S, et al. A case report on the management of Duchenne's muscular dystrophy (DMD) with Matra Basti. *Indian J Ayurveda Med* 2021; 15(3):502-507. doi: 10.46607/iamj.15.3.502
- Med PlusMart. Mcolin Tab. MedPlusMart. [cited 2024 Oct 28]. Available from: [https://www.medplusmart.com/product/mcolintab\\_mcol0001?srsltid=AfmBOo5xmfFPcHA\\_r3oQ6mhI29qSmdJ8mVAHuE4snWkNYmqGb0\\_IT2a](https://www.medplusmart.com/product/mcolintab_mcol0001?srsltid=AfmBOo5xmfFPcHA_r3oQ6mhI29qSmdJ8mVAHuE4snWkNYmqGb0_IT2a)

\*\*\*\*\*