ISSN: 2322 - 0902 (P)
ISSN: 2322 - 0910 (O)

International Journal of Ayurveda and Pharma Research

Case Study

EFFECT OF AYURVEDIC INTERVENTION IN AUTISM SPECTRUM DISORDER: A SINGLE CASE OBSERVATIONAL STUDY

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Article info

Article History:
Received: 17-04-2026
Accepted: 20-05-2026
Published: 07-06-2026

KEYWORDS:
Autism Spectrum Disorder, Ayurveda, *Basti*, DSM-5, *Shodhana*, *Shamana*, Neurodevelopmental Disorder.

ABSTRACT

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by deficits in social communication and the presence of restricted, repetitive behaviors, leading to significant functional impairment. Existing conventional management approaches often provide limited outcomes, necessitating exploration of complementary treatment modalities. From an Ayurvedic perspective, clinical features of ASD may be correlated with conditions such as *Unmada* (psychiatric disorder) and *Manovikara* (mental disorders), predominantly involving imbalance of *Vata Dosha*. This case study describes a 4-year-old male child diagnosed with ASD based on DSM-5 criteria. The patient was treated with a comprehensive Ayurvedic protocol comprising *Shodhana Chikitsa*, specifically *Basti* (medicated enema therapy), along with *Shamana Chikitsa* (oral herbal formulations), over a period of nine months. Assessment was carried out using a structured symptom severity scale based on DSM-5 domains. Post-intervention findings demonstrated notable improvements in social interaction, communication skills, and behavioral patterns, with a marked reduction in symptom severity scores. The observations from this case suggest that Ayurvedic interventions may have a beneficial role in the management of ASD. However, further research involving larger sample sizes and well-designed controlled studies is necessary to substantiate these findings and to establish evidence-based clinical applicability.

INTRODUCTION

This study was a single-case clinical observation conducted in a 4-year-old male child diagnosed with Autism Spectrum Disorder (ASD) based on DSM-5 criteria, after obtaining informed parental consent. Baseline assessment included detailed history taking and evaluation of behavioral and developmental parameters. Symptom severity was recorded using a structured scale based on core ASD domains. The intervention comprised Ayurvedic management, including *Shodhana Chikitsa* (detoxification therapy) in the form of *Basti* (medicated enema) and *Shamana Chikitsa* with oral herbal formulations. Appropriate dietary and lifestyle modifications (*Pathya-Apathya*) were also advised.

Access this article online	
Quick Response Code	
	https://doi.org/10.47070/ijapr.v14i6.4167
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The total duration of treatment was nine months, with periodic follow-ups to assess progress. Outcome was evaluated by comparing pre- and post-treatment symptom scores using DSM-5 along with clinical observation of changes in social interaction, communication, and behavior.

INTRODUCTION

ASD[1] presents early in childhood and significantly affects cognitive, behavioral, and social functioning, sometimes associated with Attention deficit hyperactivity disorder (ADHD).[2] The increasing incidence necessitates exploration of complementary and integrative approaches. Ayurveda provides a multidimensional framework involving: *Basti chikitsa* as the prime therapy for *Vata dosha*, use of *Medhya dravyas* (brain relaxant/neuroprotective drug) like *Ashwagandha, Brahmi*, and *Yashtimadhu*. Gut-brain axis modulation through digestive and metabolic correction. This study explores the clinical efficacy of a structured Ayurvedic treatment protocol in a diagnosed ASD[1] case.

Case Presentation

A 4-year-old male child presented to the Pediatric OPD of Ayurvedic and Unani Tibbia College & Hospital, Karol Bagh, New Delhi, in July 2025 with Chief Complaints of Poor eye contact, Delayed speech development, Lack of social interaction, Repetitive behaviours, Irritability, and hyperactivity[2].

Chief complaints

Parents complaints of recitative behaviour of their child and unable to focus.

History of Present illness

According to patient mother he was normal upto age of 8 months. However, gradually after 1-year, he began to show symptoms like poor eye contact, delayed speech, lack of social interaction and repetitive behaviour.

The patient was physically healthy; however, he had poor social and language development. By the age of 3 years, his behaviour had also changed with family members. He was observed to have shorter attention span compared to other students at his school, as reported by his teacher to his parents. They were asked to do speech therapy and consult child psychiatrist for the same. Hence, they decided to visit Aurvedic and Unani Tibbia College and Hospital, Karol Bagh, New Delhi for further treatment in IPD Department of Kaumarbhritya.

History of Past illness: No history of diabetes mellitus, hypertension, thyroid or and other disease.

History of mental state

The child presented with delayed social and communication development since early childhood, with symptoms becoming evident around 2 years of age. There was poor eye contact, lack of response on calling his name, and minimal social interaction. Speech was delayed with absence of meaningful verbal communication. Repetitive behaviors, restricted interests, irritability, and hyperactivity were noted. The overall history was suggestive of persistent deficits in social communication and behavior consistent with Autism Spectrum Disorder.

Family history

No such family history was present.

Examination of the patient

No significant abnormalities were detected on systemic examination and in Electroencephalogram (EEG).

Immunization history: vaccination done as per schedule.

General examination

BP– 110/72mmhg Pulse- 88/min Temp- 98.6°F, Afebrile, Clubbing– Absent, Pallor- Absent, Icterus- Absent, Lymphadenopathy – Absent, Nails- Normal

Systemic examination

R/S- aebe (air entry both side clear) clear. cvs- s1 & s2 heard normal P/A- soft, nontender, no distention, nad. CNS- conscious, oriented with time, place, and person, speech normal, memory intact. muscle power- both lower and upper limb- 5/5. hearing- normal, language- normal and co- ordination- normal.

Investigation

Blood reports- CBC, CRP, RBS, Serum Electrolyte within normal parameters. KFT, LFT– within normal limits. Urine reports and microscopic findings are within normal parameters. USG whole abdomen - No any abnormality detected.

Rogi Pariksha

Nadi (pulse)- *Vataj-pittaj*, *Mala* (bowel)-regular, once/ day, *Mutra* (micturition)– 6-8 times/ day, 2-3 times/ night, *Jivha* (tongue)- coated, *Shabd* (voice)- clear, *Sparsh* (skin)- *Samyak*, *Aakriti* (body type)- average, *Aahara* (diet)- mixed diet

Personal history

Kshudha (appetite)– normal, urine: normal, bowel: normal, *Nidra* (sleep)– sound

Developmental milestones[3]

Gross motor neck holding- 3m sitting without support- 9m stand with support- 12m crawling- 16m stand without support- 18m walk with support-16m walk without support- 20m running -22m

Social development

Smile when sees parents- 06 months, respond to parents- 8 months, smile when sees relative- 14 months, respond to relative- 18 months.

Fine motor

Unidextrous- 6 months, Bidextrous- 8 months, Pincer grab- 10 months

language development[3]

Monosyllabic- 2 months, Bisyllabic- 18-20 months, Sentence- not up to 3 yr.

RESULTS

Significant reduction in DSM-5 symptom scores, improved eye contact, social interaction, speech attempts, behavioral stability as shown with the help of graphical interpretation in figure 1 and 2. Section A with 60–70% improvement and Section B with 50–80% improvement with maximum improvement in rigidity (B1) and social responsiveness (A1).

Table 1: Results

Mandatory Criteria	BT (before treatment)	AT (After treatment)
A.1. Social-emotional reciprocity	10	03
A.2 Developing, understanding and maintaining relationships	10	04
A.3 Non-verbal communication	10	3.5
Optional Criteria		
B.1 Inflexible to changes in routine	10	01
B.2 Restrictive or fixated interests that may be abnormal in focus or intensity?	10	04
B.3 Hypo- or hyperactivity in response to sensory input or abnormal fixation with sensory aspects of the environment.	10	05
B.4 Repetitive movements, speech, or use of items.	10	03

Figure 1: Improvement in symptoms of A

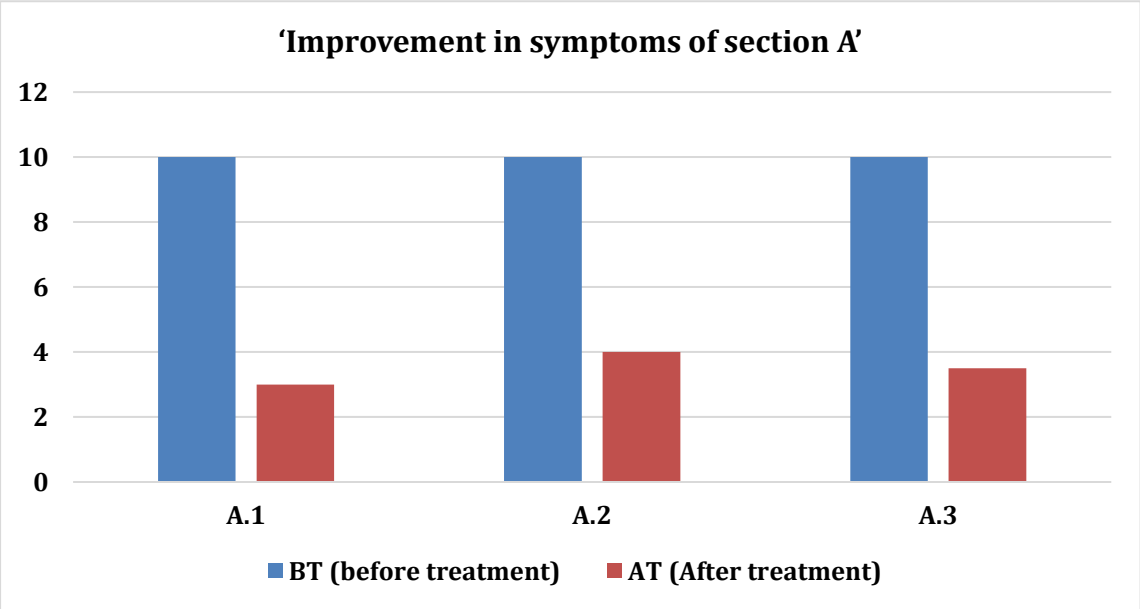
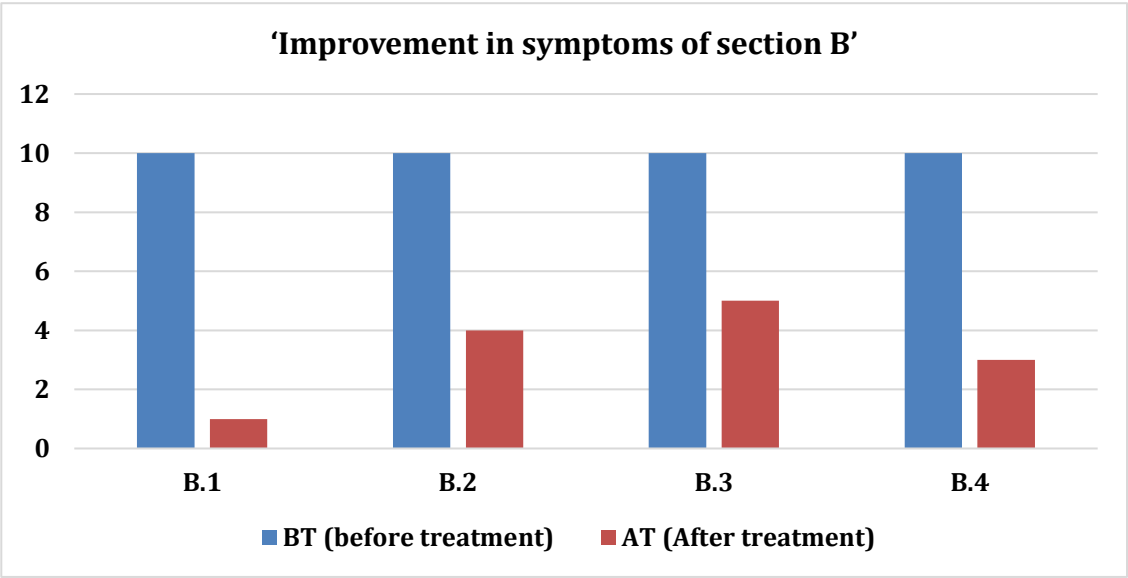


Figure 2: Improvement in symptoms of B



DISCUSSION

ASD[1] can be correlated with *Vata*-dominant *Manovikara* involving dysfunction of: *Manovaha srotas*, *Majja dhatu*, neurocognitive pathways.

Probable Mode of Action

Basti Therapy → Acts on *Pakvashaya* → Primary seat of *Vata*→ Influences gut-brain axis → Enhances neuronal signaling. *Medhya Rasayana* like *Ashwagandha*→ Neuroregenerative, adaptogenic, increases neural plasticity. *Yashtimadhu*→ Cognitive enhancer. *Brahmi*→ Improves synaptic plasticity.

Gut-Brain Axis[16,17]→ Correction of *Agni* → improved metabolism.

Reduced neuroinflammation → Modern correlation→ Neuroplasticity enhancement→ Reduction in oxidative stress→ Modulation of neurotransmitters.

Diagnostic Assessment

The study is designed to assess changes in social communication deficits and behavioral abnormalities based on DSM-5[1,4] diagnostic criteria[1,4] before and after treatment. It further aims to observe the role of *Basti chikitsa* in modulating symptoms associated with *Vata*-dominant neurodevelopmental conditions and to document clinical improvement using a structured symptom severity grading scale over the treatment period. Additionally, it seeks to explore the potential of Ayurvedic management[15] as a complementary therapeutic approach in Autism Spectrum Disorder. Diagnosis of ASD Using DSM-5 as per Mentioned by American Pediatric Association.

On a Scale of-1-10 Above criteria were assessed and data was obtained from child's mother

A.) A child must have persistent deficits in the following three areas of social communication and interaction: A.1 Social-emotional reciprocity, A.2 Developing, understanding and maintaining relationships, A.3 Nonverbal communication.

B.) In addition[1], at least two of the following four behaviors should be present: B.1 Inflexible to changes in routine, B.2 Restrictive or fixated interests that may be abnormal in focus or intensity, B.3 Hypo- or hyperactivity in response to sensory input or abnormal fixation with sensory aspects of the environment, B.4 Repetitive movements, speech, or use of items.

Intervention

Shodhana (detoxification)Therapy: *Anuvasana Basti*: *Tila Taila* (25-30ml/day)

Niruha Basti: Polyherbal decoction (120ml/day) with

Key Ingredients

Vacha (*Acorus calamus*), *Yashtimadhu* (*Glycyrrhiza glabra*), *Ashwagandha* (*Withania somnifera*), *Shunthi* (*Zingiber officinale*), *Rasna*, *Bala*, *Dashmoola*, *Jatamansi.*

These drugs possess neuroprotective, anti-inflammatory and cognitive-enhancing properties *Shamana* Therapy (oral medications): *Ashwagandha Churna*, *Brahmi Rasayana*, *Manasmitra Vatakam*, *Mansyadi Kashayam*, *Triphala Churna*, herbal syrups like (*Saraswatarishta* and *Mansyadi kashayam* were used with dose adjusted according to age with *Anupana* (ghee/lukewarm water)

Treatment strategy

The treatment approach was planned on the basis of Ayurvedic principles, considering the condition as a *Vata*-predominant *Manovikara*[5] with involvement of *Manovaha srotas*[5] and impairment of neurocognitive functions. A combined therapeutic protocol comprising *Shodhana*[5] (biopurificatory therapy) and *Shamana* (palliative therapy) was adopted to achieve *Doshas* balance, enhance cognitive functions, and improve behavioral outcomes.

The initial phase of management focused on *Shodhana chikitsa*, with particular emphasis on *Basti* therapy, which is regarded as the prime treatment for *Vata dosha*. A course of *Anuvasana Basti* using *Ksheera bala Taila* was administered in an age-appropriate dose to provide unctuousness and nourishment to the nervous system. This was followed by *Niruha Basti* prepared with a polyherbal decoction containing drugs such as *Vacha* (*Acorus calamus*), *Yashtimadhu*[6] (*Glycyrrhiza glabra*), *Ashwagandha*[5] (*Withania somnifera*), Shunthi (*Zingiber officinale*), *Bala*[6], *Rasna*, *Jatamansi*, and *Dashamoola*[6]. These formulations were selected for their *Medhya* (neuroprotective), *Balya* (strengthening), and *Vata-Shamaka* properties, aiming to modulate the gut–brain axis[7] and improve neuronal functioning.

Following the *Shodhana chikitsa* (detoxification) i.e., *Basti* with *Ksheer bala taila*[8] followed by *Shamana chikitsa*[6] was continued for maintenance and sustained therapeutic effect. Oral medications including *Ashwagandha Churna*[6] *Brahmi Rasayana*[5], *Manasmitra Vatakam* and *Mansyadi Kashayam* were prescribed in appropriate pediatric doses. These formulations are well known for their *Medhya Rasayana* (nootropic drug) action, contributing to cognitive enhancement, behavioral regulation, and emotional stability. Supportive medications such as *Triphala Churna*[6] and hepatoprotective herbal preparations were also administered to maintain digestive health.

The treatment strategy was thus designed to act at multiple levels, including correction of *Vata* imbalance[4], enhancement of *Dhi*[9], *Dhriti*[9] (temperament), and *Smriti*[9] (cognitive faculties), and restoration of systemic homeostasis. Regular follow-up and parental feedback were incorporated to monitor

progress and adjust the treatment protocol accordingly over the 9-month period.

Since study involves human subjects, the study is carried out as per international conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP) or as per ICMR[10] National Ethical Guidelines for Biomedical and Health Research Involving Human Participants.

Patient instruction advisories

The parents, attendants and parents of the patient were given detailed information and instructions regarding the chronic and developmental nature of Autism Spectrum Disorder[1] and the necessity of long-term adherence to the prescribed Ayurvedic treatment protocol. They were specifically instructed to ensure regular and timely administration of oral medications, including *Ashwagandha Churna*, and *Medhya rasayana*[11] (nootropic drugs) like *Brahmi Rasayana*, *Manasmitra Vatakam*[12], and *Mansyadi Kashayam*[13] in the advised pediatric doses, along with appropriate *Anupana*. Strict compliance with the scheduled *Basti chikitsa* was emphasized, as it formed the principal component of the therapeutic intervention.

Dietary guidelines were provided in accordance with *Vata-shamaka* principles. The parents were advised to include freshly prepared, warm, and easily digestible food items in the child's diet, with the addition of *Ghrita* and milk to support cognitive and neurological functions. The use of cold, dry, processed, and junk foods was discouraged, as these may aggravate *Vata* and interfere with digestion (*Agni*), thereby potentially affecting therapeutic outcomes. Regular meal timings were recommended to maintain metabolic balance.

A structured daily routine (*Dinacharya*) was advised, with emphasis on maintaining regular sleep–wake cycles and reducing excessive screen exposure. The physiotherapists were encouraged to actively engage the child in speech stimulation activities, interactive play, and social communication practices to complement the ongoing medical treatment to enhance behavioral improvement.

Regular *Abhyanga* (massage) with *Ksheera bala Taila* was advised to promote neuromuscular relaxation, improve circulation, and help in reducing hyperactivity and irritability. The importance of maintaining a calm, supportive, and stress-free home environment was highlighted to facilitate better behavioral adaptation and emotional support[14].

Table 2: *Shaman (*Palliative*)* Treatment

Date	Oral Medicine	Dose
July-September (2025)	*Ashwagandha churna* *Bramha rasayana* *Triphala churna*	½ tsp BD with cow ghee ½ tsp BD with lukewarm water. ½ tsp HS with lukewarm water.
September-November (2025)	*Bramha rasayana* *Manasmitra vatakam* *Mansyadi kashayam*	½ tsp BD with cow ghee 1 BD with lukewarm water. 1tsp BD with equal lukewarm water.
November - February (2025-26)	*Bramha rasayana* *Manasmitra vatakam* *Mansyadi kashayam* *Sarswatarishta*	½ tsp BD with cow ghee 1 BD with lukewarm water. 1tsp BD with equal lukewarm water. 1tsp BD with lukewarm water.
February - April (2026)	*Bramha rasayana* *Manasmitra vatakam* *Mansyadi kashayam* *Sarswatarishta* *Chitrakadi gutika*	½ tsp BD with cow ghee 1 BD with lukewarm water. 1tsp BD with equal lukewarm water. 1tsp BD with lukewarm water. 1tsp BD with lukewarm water.

Table 3: *Shodhana* (Detoxification) Treatment

Date	Type of *Basti* (enema)	Amount of *Basti*
12/09/25-19/09/25	*Matra basti*	25ml/ day
22/11/25-8/12/25	*Kaal basti*	*Niruha* -120ml/ day and *Anuvasan*-30ml/day
18/02/25-5/03/26	*Kaal basti*	*Niruha* -120ml/ day and *Anuvasan*-30ml/day
28/03/25-06/04/26	*Kaal basti*	*Niruha* -120ml/ day and *Anuvasan*-30ml/day

Table 4: *Basti* (Enema) Ingredients

Type of *Basti* (Enema)	Ingredients	Scientific Name
Anuvasan	*Ksheera Bala taila*	*Sida cordifolia* oil
Niruh	***Kwath dravya***	
	Erand moola	*Ricinus communis*
	Dashmoola	*Laghu + Brihat panch ola*
	Bala moola	*Sida cordifolia*
	Shigru mool	*Moringa oleifera*
	Ashwagandha	*Withania somnifera*
	Nagar motha	*Cyperus rotundus*
	Jatamansi	*Nardostachys jatamansi*
	Rasna moola	*Pluchea lanceolata*
	Kalk dravya	
	Vacha	*Acorus calamus*
	Shatpushpa	*Anethum sowa roxb.*
	Yastimadhu	*Glycyrrhiza galbra*
	Ajmoda	*Apium graveolens*
	Shunthi	*Zingiber officinale*
	Rasona	*Allium sativum*
	Sneha dravya	
	Madhu	Honey
	Saindhav	Rock salt
	Bala ksheer taila	*Sida cordifolia* oil

CONCLUSION

This case demonstrates that a structured Ayurvedic treatment protocol integrating *Shodhana* (detoxification) and *Shamana* (palliative) therapies may significantly reduce symptoms of Autism Spectrum Disorder. Ayurveda offers a promising complementary approach through holistic neurodevelopmental support, gut-brain modulation, Individualized treatment. *Vata Shamana* is followed in the present case report and the results obtained are encouraging and supportive of the potential that Ayurveda possess in managing conditions like ASD.

Further large-scale, controlled clinical studies are essential to establish efficacy and standardize protocols.

Limitations

Single case study, subjective assessment scale, no control group and short follow-up duration.

Acknowledgement

The author and co-author thanks Prof. Dr. B.S Sharma sir for helping in this article.

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Cite this article as:
Garima Bhardwaj, Gautam Kumar Sinha, B.S Sharma. Effect of Ayurvedic Intervention in Autism Spectrum Disorder: A Single Case Observational Study. International Journal of Ayurveda and Pharma Research. 2026;14(6):196-202.
https://doi.org/10.47070/ijapr.v14i6.4167
Source of support: Nil, Conflict of interest: None Declared

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