

Management of Autism Spectrum Disorder in a Child Using Ayurvedic Interventions: A Case Report

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ABSTRACT:

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by impaired social interaction, communication difficulties, and repetitive, restrictive behaviors. Its prevalence has increased significantly in recent decades, though the exact cause remains unknown. This case report examines the potential benefits of Ayurvedic interventions for children with ASD as part of a comprehensive management approach. This report describes a six-year-old boy with ASD presenting with delayed speech, poor eye contact, social withdrawal, hyperactivity, and repetitive behaviors. Diagnosis was based on clinical evaluation, developmental history, and established criteria. Routine investigations revealed no significant structural or metabolic abnormalities. An individualized Ayurvedic treatment plan was developed, considering the child's *Prakriti* and a predominant *Vata* and *Pitta Dosha* imbalance. Interventions included *shodhana chikitsa* (elimination therapy, such as medicated enema and *Shirodhara*), *shamana chikitsa* (herb-mineral medications) for six months, *pathya* and *apathya* regimens, dietary modifications with easily digestible foods, lifestyle adjustments to establish a regular routine, and sensory calming activities like guided breathing and soft music. All interventions were customized to the patient's needs. After 12 months of treatment, the child improved in speech, social interaction, attention, and emotional regulation. Observers also noted a reduction in repetitive behaviors. This case indicates that individualized Ayurvedic management can provide meaningful benefits for children with ASD. Large-scale studies must now be conducted to firmly establish the efficacy and safety of these interventions.

KEYWORDS: Autism Spectrum Disorder, *Ayurveda*, *Panchakarma*, *Vata-Pitta imbalance*.

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INTRODUCTION:

Autism is a neurodevelopmental disorder of unknown origin. Its main features are impairments in social interaction, communication, and imagination, along with restricted interests and repetitive behaviors. Childhood autism typically develops between 18 and 24 months and is well established by age three. Evidence suggests that oxidative stress and neuroinflammation contribute to its development.^[1]

ASD in Children: Ayurveda Point of View :-

The features of Autism are very similar to those of *Unmadam*, a mental disease described in Ayurveda. *Unmadam* is characterized by confusion and disturbed functioning. The disturbance of the three *doshas* (*Vata*, *Pitta*, and *Kapha*) leads to *Unmada*. In Ayurveda, impairment of mental channels (*Manovaha sroto-dushti*) along with disturbance of all three *doshas* (*Tridosha dusti*) is considered the basic cause of Childhood Autism.^[2]

CASE REPORT :

A 5-year-old male child, resident of Sultanpur, SSH(Ay), was brought with his attendant with complaints of poor eye contact, delayed speech, preference for solitary play, impaired social interaction, absence of interest in sharing objects, and repetitive hand movements. These symptoms had been present for the past three years.

According to the parents, the child had normal growth and developmental milestones until age 2.5 years. Gradually, they noticed poor eye

contact, delayed and inadequate verbal responses, and slow responses to instructions. Over time, repetitive hand movements developed, verbal communication remained limited, and the child increasingly preferred solitary play with minimal interaction with parents initially, the parents did not seek medical consultation. As symptoms persisted and the child's behavior became increasingly inappropriate for his age, they consulted a private hospital in Lucknow in May 2023. The child was diagnosed with Autism Spectrum Disorder and prescribed allopathic medication for eight months and speech therapy for two months. However, there was no significant improvement was seen.

Subsequently, the parents brought the child to the *Kaumarbhritya* outpatient department at SSH(Ay), BHU Hospital in May 2024 for further evaluation and management.

Past History :-

There was no family history of similar illnesses, no consanguinity, and no history of chronic illness, serious infection, seizures, injury, or other general diseases.

Immunization history:- Immunization status covered according to the National Immunization Schedule.

Socio-Economic Status :- By the Modified Kuppaswamy Scale (2021), the child was Class I socio-economically.

Developmental History :-

Developmental milestones were achieved up to age 2.5 years, after which social and communication skills declined.

Screen Time History :-

Mobile screen time was two hours per day before age one, increasing to four to six hours per day during the COVID-19 lockdown [3]

Diet History :-

The child regularly consumed junk food, packaged and preserved foods, and sweets.

Antenatal, Natal and Postnatal History:-

Antenatal: Mother was 26 years old, and father was 30 years old at conception.

Both doses of the TT vaccine and Iron and folic acid medications had been taken.

Natal: Full-term, normal vertex delivery; the baby cried immediately after birth and weighed 2.8 kg.

Postnatal: No history of neonatal jaundice or seizures.

Anthropometric Measurements :-

The height of child measured is 112 cm, which is at +2 standard deviations. The weight is 19.3 kg, corresponding to +1 standard deviation, suggesting that the child's weight is above average but still within the normal range. The mid-upper arm circumference measures 17 cm. The head circumference is 51 cm and chest circumference is 55 cm and falls within the normal range.

Examination on Admission :-

General Examination

The child appears in fair general condition with an alert sensorium. Nutritional status is normal. There is no evidence of pallor, cyanosis, or icterus, and lymph nodes are not palpable. The patient is afebrile, with a pulse rate of 86 per minute and a respiratory rate of 22 per minute.

Systemic Examination

On cardiovascular examination, S1 and S2 are normal. Respiratory system examination reveals bilateral equal air entry. The abdomen is soft and non-tender, with no palpable liver or spleen. On central nervous system examination, the patient is conscious and oriented, with pupils equal and reactive.

Ayurvedic Examination :-

Ashtavidha Pariksha

On examination, the *Nadi* is *Vataj-Pittaj*. *Mala* shows *Vibaddhata*. *Mutra*, *Jihva*, *Drika*, and *Akriti* are *Samanya*. *Shabda* is *Vikrita*, while *Sparsha* is *Ruksha* and *Parusha*.

Dashavidha Pariksha

The child's *Prakriti* is *Vataj-Pittaja*, while the *Vikriti* is *Tridoshaja*. The *Dushyas* involved are *Rasa* and *Rakta*. The *Srotas* affected include *Manovaha* and *Annavaha*. *Agni*, including *Jatharagni* and *Dhatwagni*, is present, and *Ama* is in *Samavastha*. The patient has *Madhyama* levels of *Satva* and *Sara*, as well as *Madhyama Samhanana*, *Ahara Shakti* and *Vyayama Shakti*.

Investigations :-

All the relevant laboratory parameters were conducted in SSH BHU is mentioned here-

MRI of the brain and BERA are normal. Genetic testing reveals a variant of uncertain significance. Routine blood and urine tests are within normal limits.

Previous Treatment History

The child was prescribed Risperidone (1mg/day) and Aripiprazole (10mg/day) for 6 months, and occupational and speech therapy 1-2 months, with some slight improvement.

METHODOLOGY / TREATMENT PROVIDED:

Aim of Treatment-The main aim was to improve the child's general functioning

and well-being by employing Shodhana and Shamana Chikitsa in conjunction with supportive dietary and lifestyle changes to help lessen the primary symptoms of autism spectrum disorder.

Treatment plan :-

The treatment given to the patient during a total duration of approximately one year is detailed below

Ayurveda Treatment :-

First 6 months Shodhana and Shaman Chikitsa, followed by the next 6 months *Pathya* and *Apathya* regimen.

Panchkarma : Two cycles of panchakarma :- 2 Sittings in 6 months Each sitting for 21 days

Table 1: Diagnostic Assessment

M-CHAT-R	13 / 20	High risk for Autism Spectrum Disorder			
Assessment Tools	Baseline May 2024	1st Follow up August 2024 (3 Months)	2nd Follow up Nov 2024 (6 Months)	3rd Follow up May 2025 (12 months)	Interpretation
ISAA (Indian Scale for Assessment of Autism)	165	159	148	76	Severe autism at baseline with significant improvement to mild autism based on ISAA score after treatment
DSM-V Criteria	Positive for ASD	-	Positive (reduced severity)	Positive (marked clinical improvement)	Consistent with Autism Spectrum Disorder
MRI Brain	Normal	—	—	-	No structural

					abnormality
BERA	Normal	—	—	-	Normal auditory pathway
Genetic Testing	Variant of uncertain significance	—	—	-	No definitive pathogenic mutation

Table 2: Timeline of treatment:

Age/Date/Period	Event details	Clinical features	Treatment	Result
At 4 yrs of age May 2023	Consulted Private hospital in Lucknow, diagnosed as Autism and took their medication for 8 months	Repetitive hand movement poor verbal communication interrupted sleep pattern noted	Took their medication for 8 months, (Risperidone (1mg/day) Aripiprazole (10mg/day) 6 months occupational and speech therapy 1-2 months	Slight improvement seen in decreased repetitive hand movement
5 Years Age In May 24,	They first visited to S.S.H BHU <i>Kaumarbhritya</i> opd, detailed history and ISAA Score it was diagnosed as severe Autism, So treatment planned for 12 months that includes <i>shaman Chikitsa</i> and <i>shodhana Chikitsa</i> (2 cycles of <i>pckm</i> treatment for 21 days in first 3 month and 2nd cycle in last 3 months along with <i>shaman Chikitsa</i> continued till 6 month) next 6 month patient was given non pharmacological treatment, such	Poor eye contact Delayed speech, preferred playing alone, impaired social interaction, no desire to share objects, and repetitive hand movements	Ayurvedic Treatment <i>1.Panckarama therapy</i> -1 st Cycle of <i>pckm</i> in First 3month for 21 days (<i>Takradhara +Basti</i>) 2nd cycle of <i>pckm</i> - in last 6 th month (<i>Takradhara +Basti</i> for 21 days) <i>Shaman Chikitsa</i> continued for total first 6 months Next 6 months patient was given non pharmacological treatment such	

	diet,sleep, <i>brahmacharya palan,pathya</i> and <i>apathya</i>)		<i>aahar,nidra and bramhacharya and pathya and apathya</i> regimen.	
August 2024	1 st follow up	Same as above	(1st cycle at first 3 months – <i>(Takradhara +Basti for 21 days +shaman Chikitsa continued)</i>)	Slight improvement in Increased eye contact,
Nov 2024	2 nd follow up	Same as above	2 nd cycle in next 3 months <i>(Takradhara +Basti for 21 days)+shaman Chikitsa continued</i>	Decreased repetitive movement
May 2025	3 rd follow up	Delayed speech	For the next 6 months, the patient was given the <i>pathya</i> and <i>apathya</i> regimen.	Significant Improvement in Level of communication skills,social interactions, attention capacity, Now desire to share objects, and repetitive hand movements decreased, eye contact improved

Time period	Procedure	Ingredients	Time given
1st sitting (June 24)	<i>Basti</i>	Niruha Basti – Makshika,saindhav,Sneham (<i>gyotismati oil,ashwangandha</i>), Kalka (<i>jatamansi,yashtimadhu,giloy</i>), Kwatha (<i>Dashmool kwatha</i>)	Niruha basti –before meal
2nd sitting (Sep24)		Alternate Basti- Anuvasana Basti with <i>Bala oil and gyotismati oil</i>	Anuvasana Basti – After Meal
	<i>Takradhara</i>	(<i>Prepared with Giloy, Bala, Shalparni, Prisnaparni</i>)	20 min

Shamana Chikitsa -

Period	Medication	Dosage	Frequency	Anupana	Advise
May 2024 To Nov 2024 Initial 6 months (shamana Chikitsa)	Rajat bhasma	62.5 mg	OD	Brahmi ghrita	After Meal
	Kamdudha rasa	62.5 mg	OD	Madhu	After Meal
	Tab Tagar	150 mg	OD	Lukewarm water	After Meal
	Brahmi ghrita	5ml	OD	Lukewarm water	After Meal

Pathya and Apathya (Dietary and Behavioural guidelines)

Pathya	Apathya
Purana Shali ,Shashtika Shali Goghrita Draksha, Amla,Patola, Neem leaves	Avoid katu ,spicy oily foods Reduced Screen Time Avoid Viruddha ahara Eliminate White Sugar, Refined Flour.

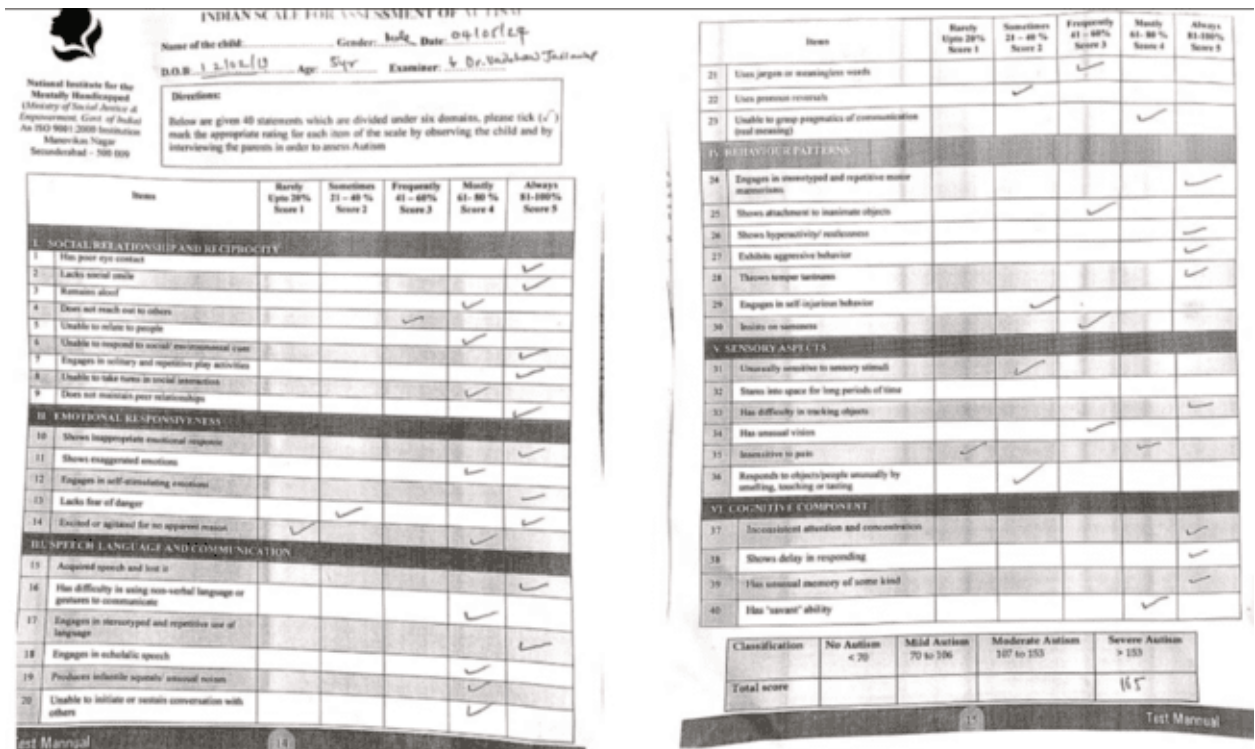


Figure-1: ISAA SCALE SCORE AT REGISTRATION

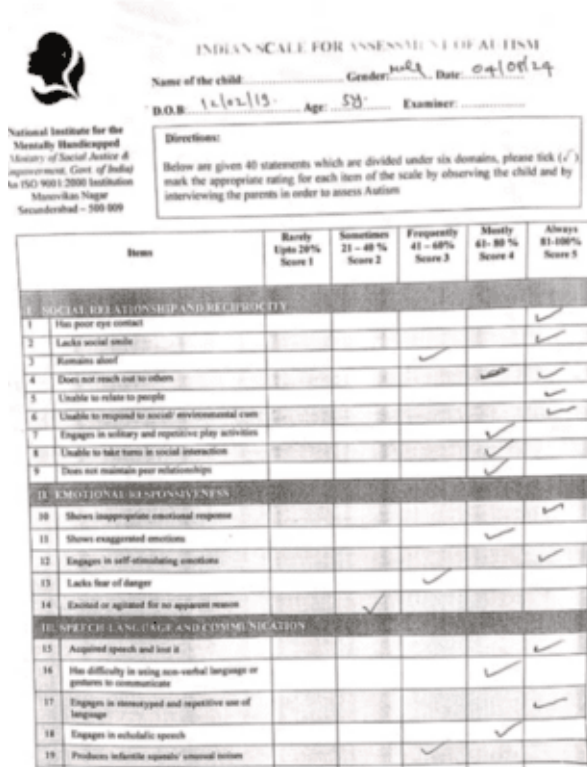


Figure- 2 ISAA SCALE SCORE AT 1st follow up

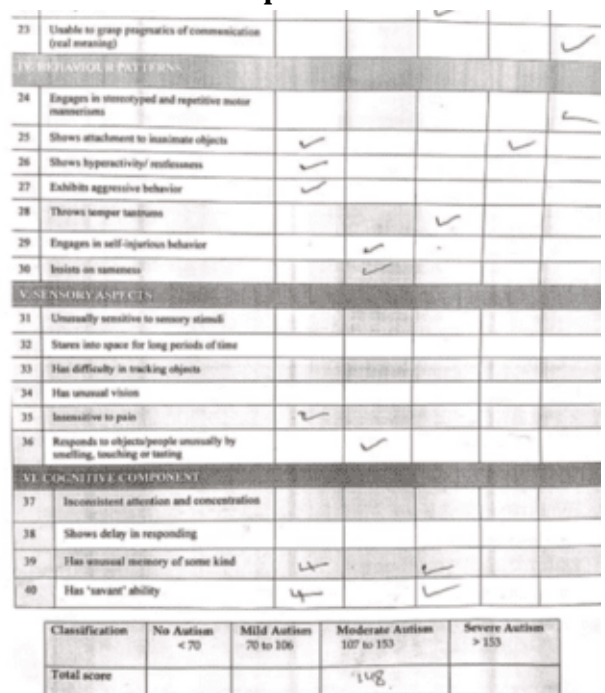
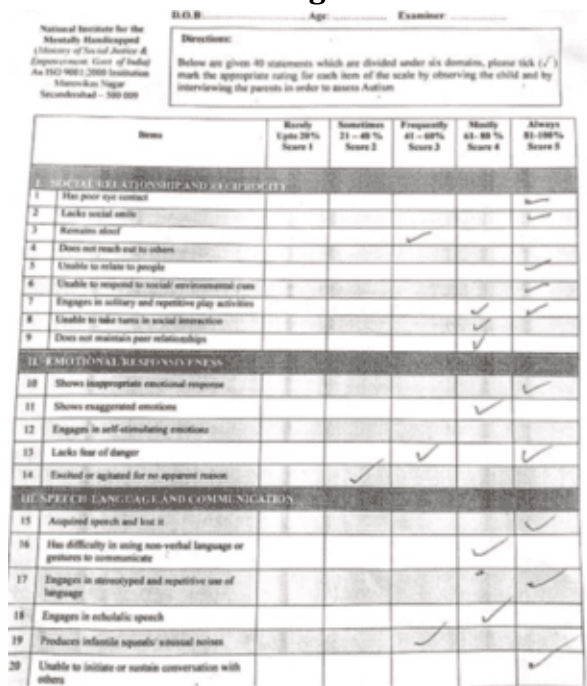
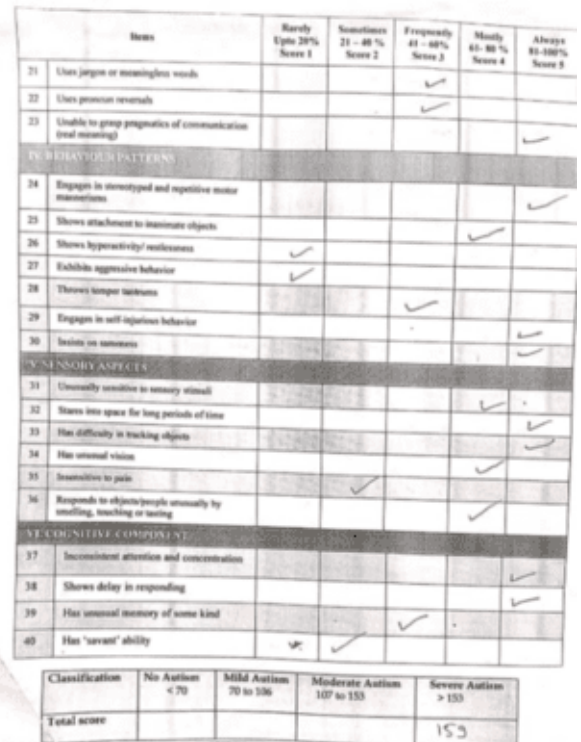


Figure-3: ISAA SCALE SCORE AT 2nd follow up

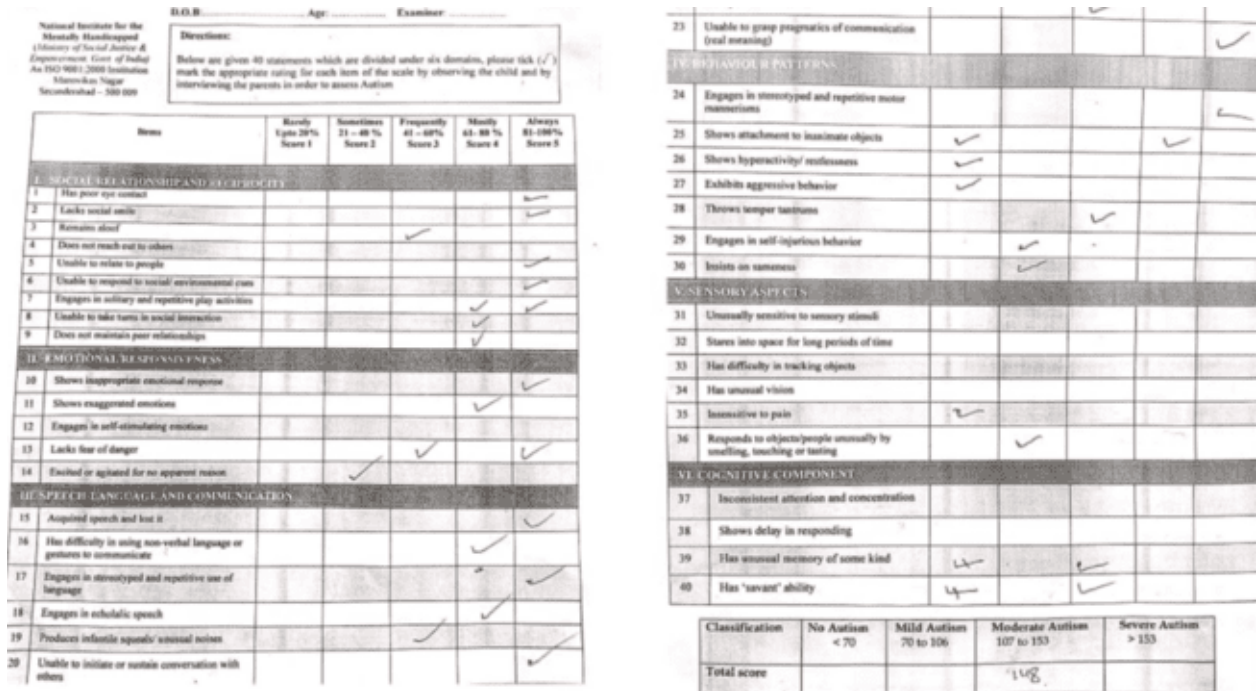


Figure- 4: ISAA SCALE SCORE AT 3rd follow up

M-CHAT-R™

Please answer these questions about your child. Keep in mind how your child usually behaves. If you have seen your child do the behavior a few times, but he or she does not usually do it, then please answer **no**. Please circle **yes** or **no** for every question. Thank you very much.

1. If you point at something across the room, does your child look at it? (FOR EXAMPLE, if you point at a toy or an animal, does your child look at the toy or animal?)	<input checked="" type="radio"/> Yes	<input type="radio"/> No
2. Have you ever wondered if your child might be deaf?	<input type="radio"/> Yes	<input type="radio"/> No ?
3. Does your child play pretend or make-believe? (FOR EXAMPLE, pretend to drink from an empty cup, pretend to talk on a phone, or pretend to feed a doll or stuffed animal?)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
4. Does your child like climbing on things? (FOR EXAMPLE, furniture, playground equipment, or stairs)	<input checked="" type="radio"/> Yes	<input type="radio"/> No
5. Does your child make <u>unusual</u> finger movements near his or her eyes? (FOR EXAMPLE, does your child wiggle his or her fingers close to his or her eyes?)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
6. Does your child point with one finger to ask for something or to get help? (FOR EXAMPLE, pointing to a snack or toy that is out of reach)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
7. Does your child point with one finger to show you something interesting? (FOR EXAMPLE, pointing to an airplane in the sky or a big truck in the road)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
8. Is your child interested in other children? (FOR EXAMPLE, does your child watch other children, smile at them, or go to them?)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
9. Does your child show you things by bringing them to you or holding them up for you to see – not to get help, but just to share? (FOR EXAMPLE, showing you a flower, a stuffed animal, or a toy truck)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
10. Does your child respond when you call his or her name? (FOR EXAMPLE, does he or she look up, talk or babble, or stop what he or she is doing when you call his or her name?)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
11. When you smile at your child, does he or she smile back at you?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
12. Does your child get upset by everyday noises? (FOR EXAMPLE, does your child scream or cry to noise such as a vacuum cleaner or loud music?)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
13. Does your child walk?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
14. Does your child look you in the eye when you are talking to him or her, playing with him or her, or dressing him or her?	<input type="radio"/> Yes	<input checked="" type="radio"/> No
15. Does your child try to copy what you do? (FOR EXAMPLE, wave bye-bye, clap, or make a funny noise when you do)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
16. If you turn your head to look at something, does your child look around to see what you are looking at?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
17. Does your child try to get you to watch him or her? (FOR EXAMPLE, does your child look at you for praise, or say "look" or "watch me"?)	<input checked="" type="radio"/> Yes	<input type="radio"/> No
18. Does your child understand when you tell him or her to do something? (FOR EXAMPLE, if you don't point, can your child understand "put the book on the chair" or "bring me the blanket"?)	<input type="radio"/> Yes	<input checked="" type="radio"/> No
19. If something new happens, does your child look at your face to see how you feel about it? (FOR EXAMPLE, if he or she hears a strange or funny noise, or sees a new toy, will he or she look at your face?)	<input type="radio"/> Yes	<input type="radio"/> No ?
20. Does your child like movement activities? (FOR EXAMPLE, being swung or bounced on your knee)	<input checked="" type="radio"/> Yes	<input type="radio"/> No

Figure- 5: M chart scoring at Registration

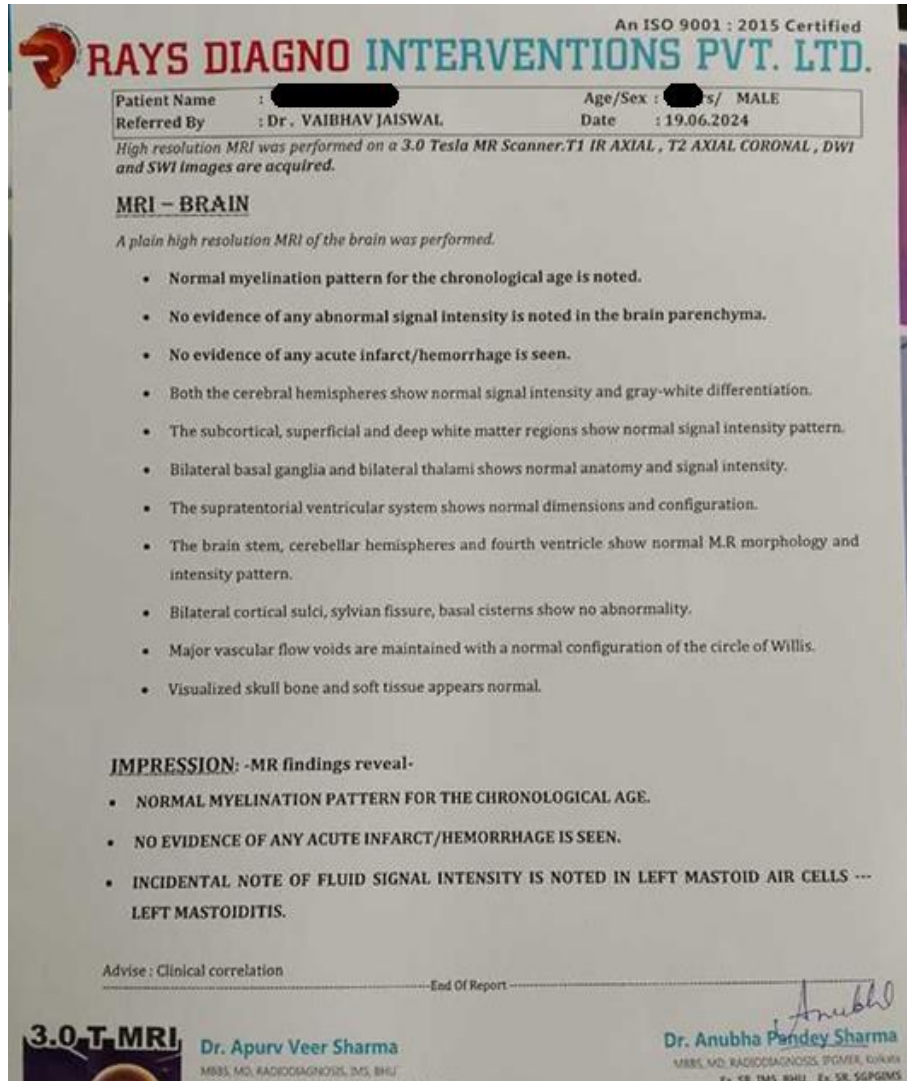


Figure- 7 : MRI BRAIN - No Structural abnormality

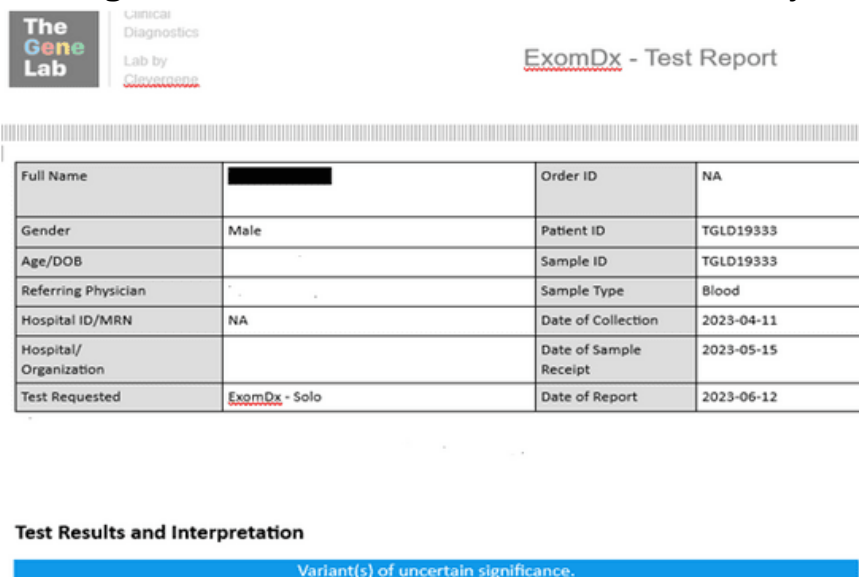


Figure- 8 :- GENETIC TESTING - Variant of uncertain significance

RESULTS AND DISCUSSION:

Follow-Up and Outcome:

At admission, the patient had an ISAA score of 165, indicating severe autism. After three months of treatment, the score decreased to 159, showing early improvement. At six and twelve months, the score further declined to 76, indicating mild autism.

This gradual reduction in ISAA scores reflects improvements in communication, social interaction, and attention, as well as a decrease in repetitive behaviors. These changes suggest a positive response to Ayurvedic treatment.

DISCUSSION:

Several Acharyas, have described Rajata Bhasma as having memory-boosting, intellect-strengthening, anti-epileptic, and anti-psychotic effects.^[4] These traits may explain the observed improvements in memory subtests, due to their memory and intellect-promoting actions. Studies show that silver nanoparticles inhibit acetylcholinesterase (AChE), an enzyme that breaks down acetylcholine, thereby raising acetylcholine levels and potentially enhancing cognition.^[5] Ancient Ayurvedic texts describe *Shankhpushpi* as herb that rejuvenates the mind. Its intellect-promoting and *tridosha*-balancing effects may also help improve memory outcomes.^[6] Research has shown *Shankhpushpi* to have antioxidant, free-radical scavenging, memory-boosting, and anti-stress benefits.^[7]

Bacopa monnieri (*Brahmi*, a well-known Ayurvedic herb) is recognized for its calming and cognitive-enhancing properties, making it a promising intervention for hyperactivity and attentional disturbances. Experimental studies in mice have shown that *Bacopa monnieri* extracts exhibit anti-stress, adaptogenic (helping the body resist stress), and central nervous system-stimulating effects. Further studies have reported improved learning performance in rats administered alcoholic extracts of *Bacopa monnieri*, with bacosides A and B (the main active constituents) and saponins identified as the active compounds.^[8] Similarly, *Tagara* (*Valeriana wallichii*, an Ayurvedic medicinal herb) has been reported to possess neuroprotective and antioxidant properties.^[9]

Takra (medicated buttermilk) is said to balance *Vata* and *Pitta doshas*. It is known to reduce stress, boost blood flow to the brain, improve memory, and help the body and mind relax, supporting higher mental functions.^[10]

Dashamoola Kwatha, used in *Basti* therapy, possesses well-documented anti-inflammatory, antioxidant, and analgesic properties.^[11] *Ashwagandha* has been extensively studied for its beneficial effects on stress and anxiety, cognitive performance, fatigue, pain, metabolic disorders, thyroid function, and overall well-being, with evidence from multiple clinical studies.^[12] *Kamdudha Ras* action can be seen on *Mahastrotasa* starting right from *Amashaya* like it reduces heat of the stomach, reduces inflammation of the

organs of the digestive system and lowers the tendency of bleeding.^[13] *Tagar* group provided a significant improvement in duration of sleep by 55.17%, in the initiation of sleep by 76.00%, in disturbed sleep by 69.58%, in disturbances in routine work by 73.95%.^[14] Excessive screen exposure has been shown to adversely affect psychological well-being in children. Preschool children who use screens for more than 2 hours per day demonstrate increased emotional dysregulation, reduced prosocial behavior, increased inattention and hyperactivity, and delayed language development.^[15] Diet also plays a crucial role in mental health; excessive consumption of high-fat and high-sugar “junk” foods has been associated with impaired brain function and cognitive deficits.^[16] There is growing evidence linking early and excessive screen exposure to poorer cognitive function, reduced academic achievement, obesity, sleep disturbances, depression, anxiety, and impaired social-emotional development.^[17] Longitudinal studies indicate that increased screen time may result in delayed developmental milestones, reduced language proficiency, and increased inattention.^[18] Children with ASD and ADHD have been shown to engage in higher levels of screen media use compared to typically developing children. As screen time may replace developmentally beneficial social interactions, children with developmental delays or behavioral disorders may be particularly vulnerable to its adverse effects.^[19]

Additionally, studies suggest that silver nanoparticles may reduce neuroinflammation and associated neurotoxicity by inducing hydrogen sulfide-producing enzymes in the brain.^[20]

A review of the effects of ashwagandha on physiological biomarkers measured in human trials suggests it may have cortisol-lowering, anabolic, androgenic, anti-inflammatory, and antioxidant effects.^[21]

CONCLUSION:

This case report demonstrates that individualized Ayurvedic management, including herbo-mineral formulations, Panchakarma therapy, dietary modifications, and lifestyle interventions, may result in significant clinical improvement in a child with Autism Spectrum Disorder. Over 12 months, the patient showed gradual improvement in communication, social interaction, attention span, and behavioral regulation, as indicated by a substantial reduction in ISAA scores from severe to mild autism.

This comprehensive therapeutic approach, targeting *Dosha* imbalance, *Agni* improvement, *Dhatu* nourishment, and cognitive support, suggests that Ayurveda may serve as a valuable supportive and complementary modality in ASD management. However, larger, well-designed controlled clinical trials are needed to establish the safety, efficacy, and reproducibility of these interventions before broader clinical application.

Acknowledgement:

The authors certify that informed written consent was obtained from the patient's parent/guardian for publication of this case report, including clinical details and images. The parent/guardian understands that the patient's name and initials will not be published and that due efforts will be made to conceal the patient's identity; however, complete anonymity cannot be guaranteed.

The authors are thankful to Dr. Divya, Department of Pediatrics, for her valuable guidance and support in understanding the pediatric aspects of the case.

Consent of the patient:

The consent of the patient has been taken for publication of the case details and accompanying images without disclosing the identity of the patient.

Conflict of interest: The author declares that there is no conflict of interest.

Guarantor: The corresponding author is the guarantor of this article and its contents.

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