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Case Study

A CASE STUDY ON AUTISM SPECTRUM DISORDER THROUGH AYURVEDIC MANAGEMENT

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ABSTRACT

Autism spectrum disorder (ASD) is characterized by challenges in social communication, repetitive behaviours, and narrow interests. *Ayurvedic* texts refer to a condition resembling ASD called *Unmada*. Standard treatment protocols for ASD are lacking, leading to difficulties in effective care. This case study describes a 5-year-old boy exhibiting symptoms of ASD, such as poor eye contact, communication deficits, social impairment, repetitive behaviors, hyperactivity, constipation, and sleep disturbances. Diagnosis was confirmed using the Indian Scale for Assessment of Autism (ISAA) from AIIMS Patna.

The treatment approach included Abhyanga with *Mahanarayan Taila*, *Shirodhara* with *Ksheerbala Taila* and *Brahmi Taila*, *Matra Basti* with *Ksheerbala Taila*, and *Madhutailik Basti*, supplemented with internal medications like *Brahmi Vati*, *Smrtisagar Rasa*, *Vacha Churna*, and *Madhuyastiyadi Churna*. Local application of drugs like *vacha churn* and *bilwa patra* in oral cavity mixed with *madhu*

in morning time. Significant improvements were observed in ISAA scores, as well as clinical manifestations such as enhanced eye contact, reduced hyperactivity, and improved peer interactions.

KEYWORDS

Ayurveda, Autism spectrum disorder, *Panchakarma*, Case report, *Unmada*.

INTRODUCTION

Autism spectrum disorder (ASD) is a complex neurodevelopmental condition characterized by difficulties in social interaction and communication, as well as repetitive and restrictive behaviors¹. Its onset and manifestation are influenced by a combination of genetic and environmental factors that affect brain development. While a singular cause for ASD has not been identified, ongoing research is shedding light on diverse etiological pathways potentially contributing to the disorder. Moreover, ASD often coexists with other conditions such as Attention Deficit Hyperactivity Disorder (ADHD), anxiety disorders, mood disorders, obsessive-compulsive disorder, and various disruptive behavior disorders. Upon analyzing its clinical manifestations, ASD can be correlated with a condition known as Unmada in *Ayurveda*, particularly resembling *Kaphaja-Vataj Unmada* due to similarities in symptoms such as solitary behavior, aversion to social interactions, limited communication, repetitive motor actions, self-stimulatory behaviors, and echolalia. In India, the prevalence of ASD varies from 0.15% to 1.01%^{2,3}, with a notable rise in reported cases. In clinical settings, there is a lack of standardized treatment protocols or widely effective preventive measures for ASD. This case study focuses on a 5-year-old boy diagnosed with ASD and explores the management of his condition through *Ayurvedic* interventions.

CASE REPORT:

Basic information of the patient

- Age: 4 years
- Sex: Male
- Religion: Hindu
- Socioeconomic status: Middle class.

Father has studied 12TH standard and currently working as a Lab technician, mother did her graduation, and she is nursing officers.

PRADHAN VEDANTA VISEA (CHIEF COMPLAINTS):

Poor eye contact, No communication & social skills, poor speech, Repetitive hand movements, Solitary play activities, Repetitive behaviours like head banging and biting himself and others, Hyperactive & constipated bowel.

ASSOCIATED COMPLAINTS:

Loss of appetite, altered bowel habit, Generalised weakness.

VARTAMANA VYADHI VRITATA (history of present illnesses):

Patient was full term baby with normal delivery and cried immediately after birth. No NICU Admission, the child attained normal growth and development. There was no history of seizures, pathological jaundice, Hypoglycaemia, Meningitis, etc. No family history of such a condition was found. Birth weight was 2.75kg. while seeing above sign and symptom they approached to AIIMS Patna & diagnosed as Autism spectrum disorder along with ADHD (attention deficit hyper active disorder). Parents opted for several treatment program but all was in vain. They approached us for further management.

PURVA VAYDHI VRITATA (history of past illness):

Nothing significant from mother side.

CHIKITSA VRTTANTA (treatment history):

The child was being given tablet Risperidone (as a antipsychotic drugs). He was undergoing speech & occupational therapy and also had undergone treatment by clomipramine (to reduce hyperactive).

Family history:

No family history and consanguinity found.

Birth history:

Antenatal: Mother (25 years) suffered from mental stress during pregnancy.

Natal: term (35 weeks) NVD

Postnatal history:

Nothing significant

History of immunization

Proper for age.

Personal history

AHARAJA:

Patient was totally dependent for food intake, and was eating all type of food. Appetite was good. Diet was dominant in *madhura rasa* (sweet diet).

VIHARAJA:

Nature of activity was always assisted (due to severe spastic quadriplegia). Sleep was disturbed (2–3 h/day, 6–7 h/night). Bed wetting (had not achieved bladder control) and drooling from the mouth was there since birth

Examination:

Vitals were normal. Cardiovascular system, respiratory system and per abdomen examinations had shown no deformity. *Prakṛti* (constitution) was *vatapitaja*.

Clinical findings and diagnostic assessment:

The patient appeared agitated with repetitive actions, hyperactivity, limited social interaction, poor eye contact, and difficulty in maintaining focus. They were conscious but disoriented regarding time, place,

and individuals. Attention was lacking, although memory functioned well. While gross motor skills were on track, fine motor skills, social interaction, and language development were delayed. Speech was unclear upon further assessment. Neuromuscular examination yielded normal results, as did cardiovascular, respiratory, and abdominal examinations. Physical growth and appetite were within expected parameters for their age.

ASHTAVIDHA PARIKSHA:

On performing *Ashtavidha Sthan Pariksha* (~eight folds examinations of the patients), it was observed that the patient's *Nadi* (~pulse) was *Vata-Kaphaj*, pulse rate was 84/min, *Mala* (~bowel) was *Vibandh* (~constipated), *Mutra* (~urine) was *Samanya* (~normal) and pale in color, *Jihwa* (~tongue) was *Saama* (~coated), *Shabda* (~voice) was *Aspashta* (~unclear and no speech), *Sparsha* (~touch/Skin) was *Ruksha* (~Dry). *Drika* (~eye) was *Samanya* (~normal), and *Akruti* (~body built) was *Samanya* (~Normal). Indian Scale for Assessment of Autism (ISAA) test manual [4] was used to diagnose the condition.

Differential diagnosis:

Asperger's syndrome, pervasive developmental disorder

Diagnosis was confirmed by modern paediatricians.

“Autism spectrum disorders & ADHD (Attention deficit hyperactive disorder).

Table No.1: Probably pathophysiology and its management.

ROGA PRAKRTI	SAMPRAPTI GHATAKA
<i>Dosa</i>	<i>Vatadhika tridosa</i>
<i>Dushya</i>	<i>Manas & astha manobhavo</i>
<i>Agni</i>	<i>Mandya, vikriti of agni</i>
<i>Srotas</i>	<i>Majjavaha (brain)</i>
<i>Sroto dusti</i>	<i>Sanga (obstruction)</i>
<i>Udhavasthana</i>	<i>Pakvasaya (being vata vyadhi)</i>
<i>Roga</i>	Autism spectrum disorder
<i>Upadrava</i>	<i>Pranavaha</i> -Recurrent RTI <i>Rasavaha</i> -indigestion, anorexia <i>Asthivaha</i> -Contractures at joints <i>Manovaha</i> -Mental retardation <i>Purinavaha</i> -Constipation
<i>Sadhysadhyata</i> (prognosis)	<i>Kricha Sadhya</i>

SAMAN CHIKITSA	DAYS
<i>KALMEGHA, TRIPHALA, HINGU, MUSTHA, ETC.</i> (DEEPAN PACHAN DRUGS).	FOR 45 DAYS
<i>CHITRAKADI VATI HALF TABLET</i>	FOR 45 DAYS
<i>SMRITI SAGAR RASA HALF TABLET</i>	FOR 45 DAYS
<i>BRAMI VATI HALF TABBLET</i>	FOR 45 DAYS
<i>BHUMIAMAKAKI, GUDUCHI, NIMBA, VIDAGA ETC.(KRIMIHARA)</i>	FOR 45 DAYS
<i>MANDUKAPARNI, YASTI MADHU, GUDUCHI, SHANKHAPUSHPI, (MEDHYA DRUGS.)</i>	FOR 45 DAYS
<i>BALYA DRUGS</i>	FOR 45 DAYS
<i>SWARNPRASHANA</i>	FOR 45 DAYS
<i>SYRUP TRIPHALA</i>	FOR 45 DAYS
<i>VACHA CHURN (LOCAL APPLICATION WITH MADHU). + VILWA PATRA SWARASA (MIXED WITH GHEE AND MADHU UNEQUAL QUANTITY)</i>	FOR 45 DAYS

TREATMENT PLAN:

Total duration

Ninety days as given below: two shift treatment plans of 15days interval.

UPAKARMA:**Table No. 2:** Upakarma

PANCH KARMA PROCEDURE	DAYS
<i>UDWARTAN WITH (KOLKULATHADI CHURN)</i>	FOR 7
<i>SNEHAN & NADI SWEDAN</i>	DAYS

(MAHANARAYANATAILA+DASMOOLA QWATH NADI SWEDAN).	
SHIRO ABHAYANGA (WITH BRAMHI TAILA) +SNEHANA (MAHANARAYANA TAILA) +SWEDANA (DASMOOLA QWATH NADI SWEDA) + SHIRO DHARA WITH (KSHEER BALA TAILA) +MATRA BASTI WITH (KSHEER BALA TAILA)	FOR 14 DAYS
SNEHANA +SWEDAN +MADHUTAILIK BASTI	FOR 11 DAYS
SHIRO ABHAYANGA WITH (BRAMHI TAILA) +SWEDANA WITH DASMOOLA QWATH) +MATRA BASTI WITH KSHEER BALA TAILA.	FOR 11 DAYS

Note:- For every *Upakramas* given 3 days gap. In 2nd shift treatment we have added instead of *Matra Basti* we have given *Madhutailik Basti* for 11 days.

OBSERVATION AND RESULT:

Eye contact increased noticeably, mentioned below. Improvement in fine motor along with language and social mile stone development. Improvement in symptoms was also appreciated by the patient. After 1st sitting, patient reported mild relief in all general symptoms like communicate with gestures instead of words, he often prefers to play by themselves and do not from close personal relationship, particularly outside the family now he used to play with others along with try to Communicate with others. Though the patient was unable to sit in quite at one place but now he can sit for a while. Patient appreciated relief in three areas like repetitive behaviour and language along with social relationship.

Table No. 3: Indian Scale for Assessment of Autism test manual

DOMIN	NO. OF QUESTION'S	BEFORE TREATMENTS	AFTER TREATMENT S
SOCIAL REALTIONSHIP AND RECIPROCITY	9	30	25

EMOTIONAL RESPONSIVENESS	5	14	06
SPEECH LANGUAGE & COMMUNICATION	9	24	16
BEHAVIOUR PATTERNS	7	24	16
SENSORY ASPECTS	6	18	08
COGNITIVE COMPONENT	4	10	06
TOTAL SCORE	40	120	77

Sr.NO.	BEFORE TREATMENT	AFTER TREATMENT
1.	Avoids eye contact	Eye contact improved
2.	Head banging++	No head bobbing
3.	Hand flapping +++	Hand flapping+
4.	Spinning objects+++	Spinning objects+
5.	He often prefers to play by themselves and do not form close personal relationship particularly outside family.	Now he started to play with friends along with attracting towards outside family

6.	He is not able to interpret the moods and expression of others.	Now he is able to interpret the moods and expression of others.
7.	Communicates with gestures	Communicates with little words
8.	He repeats words spoken to them (echolalia).	Now he often repeats words spoken to them.
9.	Always suffering from cough, cold, fever required nebulization and various other system of medicine.	Less incidence now a days of cough, cold, fever and no required for nebulization.
10.	He is not familiar with new objects like toy cloth etc.	Now he is familiar with new objects like toy cloth.

DISCUSSION:

In studies, oral medications have been observed to primarily exhibit *Rasayana* (rejuvenating and anti-aging), *Balya Daurbalyahara* (strength-promoting), *Vatahara* (pacifying aggravated *Vata Dosha*), *Deepana*, *Pachana* (digestion improvement), and *Medhya* (nootropic) properties. These investigations predominantly focus on ASD as *Unmada* disease, with internal medication and *Panchakarma* being commonly employed in its management. *Panchakarma*, derived from "*Pancha*" meaning five and "*Karma*" meaning process, encompasses *Vamana*, *Virechana*, *Nasya*, *Basti*, and *Raktamokshana*. The procedure comprises three phases: *Poorva Karma*, *Pradhana Karma*, and *Paschat Karma*. Aligning with the treatment principle of *Unmada* in ASD, studies suggest administering *Pradeha* (thick ointment), *Utsadana* (anointing), *Abhyanga*⁴ (massage), *Dhuma* (fumigation), and intake of *Ghrita* to stimulate mind, intellect, memory, and consciousness. Several studies have highlighted *Abhyanga* as a therapeutic intervention for ASD. *Abhyanga*, falling under

Poorva Karma, enhances blood circulation to muscles, activates sensory nerve endings in the skin, and alleviates muscle fatigue and pain⁵. Additionally, *Abhyanga* is beneficial in reducing subjective stress and may contribute to improved walking abilities⁶. *Swedana*⁷, which includes various forms like *nadi swedana* (fomentation by pouring warm medicated oil in a stream), exhibits properties such as *Sthambhagna* (reducing spasticity), *Gauravnigrah* (alleviating bodily heaviness), and *Kapha-Vata nirodhaka*. It holds promise in diminishing lower extremity joint stiffness in children with ASD, further underscoring its potential therapeutic value in ASD management. *Kashayadhara*⁸, involving the pouring of medicated decoctions, and *Dhara*⁹, a form of *Swedana* where liquid medicines are poured, notably *Shirodhara*⁹, are utilized in addressing the complexities of ASD management. Sleep disturbances are prevalent among children with ASD, significantly impacting their social interactions, academic performance, and the well-being of caregivers¹⁰. *Shirodhara*, renowned for its profound relaxation effects, induces a state of tranquility by modulating brain wave coherence, particularly alpha waves, and reducing sympathetic outflow¹¹. Incorporating *Shirodhara* into treatment protocols has shown promise in alleviating sleep disturbances associated with ASD. Gastrointestinal (GI) disorders frequently accompany ASD, with symptoms ranging from constipation to abdominal pain. In *Ayurveda*, these symptoms are attributed to the imbalance of *Samana Vata and Apana Vata*, subtypes of *Vata Dosha*¹². *Basti*¹³, a therapeutic enema, emerges as a preferred intervention for *Vata Dosha* imbalances, potentially influencing the enteric nervous system (ENS) to stimulate the central nervous system (CNS) and regulate hormonal secretion¹⁴. Moreover, *Basti* is also utilized to enhance muscle strength in children with ASD, highlighting its multifaceted therapeutic benefits¹³. Hypomelanotic skin disorders, affecting approximately 10% of individuals with autism, often coincide with conditions like oculocutaneous albinism and tuberous sclerosis. In *Ayurveda*, these disorders, termed *Shvitra* or *Kilasa*, are attributed to the vitiation of *Kapha Dosha* affecting the *Meda dhatu*¹⁵. *Udwartan*, a form of dry massage therapy, serves as a *Rookshana Poorvakarma* procedure, reducing vitiated *Kapha* and *Meda dhatu* by promoting dryness and eliminating blockages. Integrating *Udwartan* into ASD management approaches may offer potential benefits for addressing hypomelanotic skin disorders associated with the condition.

CONCLUSION:

Autism Spectrum Disorder (ASD), as defined in conventional medicine, lacks a direct counterpart in *Ayurveda*. However, its signs and symptoms bear resemblance to *Unmada*, a condition described in *Ayurvedic* texts. Notably, ASD currently lacks a permanent cure within conventional medicine. Yet, research indicates the efficacy of *Ayurvedic* interventions in ameliorating ASD symptoms, particularly in children. Noteworthy is the absence of adverse effects associated with internal medications and *Panchakarma* procedures in these studies, highlighting the safety of *Ayurvedic* management. Early initiation of *Ayurvedic* interventions for ASD holds promise for achieving

improved outcomes. However, the limited number of studies on ASD underscores the necessity for further clinical trials. While certain *Panchakarma* procedures like *Shirodhara*, *Nasya*, *Abhyanga*, and *Basti* have been extensively explored in ASD management, others such as *Vaman* and *Virechana* remain less investigated. Explorations into the use of *Ghrita* combined with *Medhya dravya* (nootropic substances) have also shown potential in managing ASD symptoms. Overall, a combination of *Ayurvedic* medicine and *Panchakarma* procedures appears to offer promising results in ASD management, addressing a gap where conventional medicine falls short in providing a permanent cure. Nevertheless, continued research efforts are crucial to establish optimal protocols for ASD treatment within the *Ayurvedic* framework.

COMPETING INTEREST:

No competing interest exists.

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