



## AUTISM SPECTRUM DISORDERS IN CHILDREN AND IT'S AYURVEDIC PERSPECTIVE

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## ABSTRACT

Autism is a disorder that is usually observed at an early age as a child, affecting various developmental aspects. Its prevalence showed a dramatic rise over the last few decades. Still, it's unclear globally even explored in all aspects from etiology to diagnosis and intervention. As autism features are similar to *Unmad* in Ayurveda, the formulations and procedures mentioned best suited in autism. This paper discusses the Autism Spectrum Disorder (ASD); Symptoms, Causes, pathogenesis and management with *shaman* and *panchkarma chikitsa* in terms of Ayurveda.

**Keywords:** Autism, ASD, Unmad, shaman, panchkarma

## INTRODUCTION

Autism Spectrum Disorders are a group of developmental disabilities manifest as persistent impairment in reciprocal social communication, interaction & restricted, repetitive patterns of behavior or interests.<sup>1</sup> ASD symptoms are typically recognized during the 2nd year of life but can be seen earlier than 12

months if developmental delays are severe. Autism & developmental disability cohort study shows that 1 in 68 children identified as ASD. In India estimated prevalence rate is 0.15% representing rural, urban & tribal areas. Male: Female ratio varies from 4:1 to 5:1 in all epidemiological conditions.<sup>2</sup>

The cause of the disorder is unknown but in 25% cases genetic cause can be identified. Chromosomal rearrangement & de novo copy number variants are present in 10-20% of individuals with ASD as compared to 1-2% in general population or unaffected siblings<sup>3</sup>.

The etiology of ASD is unknown but some responsible risk factors are<sup>2</sup>

- Maternal drug intake like sodium valproate
- Gestational diabetes mellitus, prenatal stress.
- Increased maternal & paternal age.
- Perinatal complications like Preeclampsia, Perinatal asphyxia, Intracranial hemorrhage.
- Environmental chemicals like mercury, cadmium, nickel & other air pollutants.

#### Classification of ASD<sup>4</sup>

The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) published by the American Psychiatric Association explained criteria that helps to diagnose a variety of psychiatric disorders including autism. In this book 5 different autism subtypes are described-

1. **Early infantile autism-** Children who lacked interest in other people. Impairments in communication and reciprocal social interaction with the presence of restricted, repetitive and same patterns of behaviors or interests, prior to the age of 3 years are included in this type.
2. **Pervasive developmental disorder not otherwise specified/Atypical Autism-** These diagnoses are used when symptoms do not meet specific criteria for a PDD, in this type of major social difficulties and problems in either restricted behaviors or communication of the type seen in autism.
3. **Childhood disintegrative disorder-** In this type there is normal development present up to 3-4 year & then deterioration occur in multiple develop-

mental which shows the autistic presentation. It is included in this classification due to its unusual presentation and poor outcome.

4. **Asperger syndrome-** There is impairment in social interaction, repetitive, restricted behavior, interest & activities. But it differs from autistic disorder as there is monosyllable at the age of 2 year & phrase at 3 year & normal cognitive developments.
5. **Rett Syndrome** - disorder of early development of brain. It occurs due to mutation in gene MECP2. Infants have normal head size up to 6 months then reduced brain growth noted. Hand wringing & loss of purposeful use of hands are major clinical features. They may develop seizure & death occur due to cardiac arrhythmia.

**Ayurveda and ASD-**In Ayurveda ASD can be correlated with *Unmad*. It is defined as wandering about mind, intellect, consciousness, knowledge, memory, inclination, manners, activities & conduct<sup>5</sup>.

#### Causes of *Unmada*<sup>6</sup>-

1. Intake of *Viruddha* (mutually contraindicated), *dushta* (polluted) & *ashuchi* (impure) food & drink
2. *Pradharshan* (insult) to the Gods, *Dvija* (elders)
3. Weakness of the mind because of fear & excitement

**Possible food habits in modern era responsible for ASD-**As explained in *samprapti manasik doshas* play important role & these factors are increased by *tamasik* & *rajsik* modern food consumption like canned food, fast food, fried food, preservative containing sauces, stale food. These *manasik doshas* effects mind adversely. They lower our resistance to disease & block the channels to stop the flow of *vata* (*shroto-varodh*) resulting in depression, lethargy, dullness or aggressiveness.

#### Modern era food habits aggravating *Manasik* & *Sharirik doshas*- (table 1)

Food	Aggravated <i>Sharirik doshas</i> & <i>gunas</i>	Aggravated <i>Manasik doshas</i> <sup>7</sup>
Canned foods like peaches, mushroom, soups, noodles, pasta	<i>Vata, Pitta</i>	<i>Tama, Raja</i>
Fermented food like idli, dosa	<i>Vata, Kapha, Pitta, Abhishyandi, Guru</i>	<i>Raja</i>

Fast food like pizza, burger & fries	<i>Pitta, Vidahi, Tikshna</i>	<i>Raja</i>
Spicy food like Manchurian, noodles, fried chicken	<i>Pitta, Ushna, Vidahi</i>	<i>Raja</i>
Preservative containing food like Tomato sauce, chili sauce, mayonnaise, fruit jam, pickles	<i>Vata, Pitta, Vidahi</i>	<i>Raja, Tama</i>
Pasteurized milk, curds, ice-cream, pastries and cheese.	<i>Vata, Kapha, Sheeta, Guru</i>	<i>Tama</i>
Meat, fish & nonveg	<i>Kapha, Pitta, Guru</i>	<i>Tama, Raja</i>

### Importance of Agni in Ayurveda<sup>8,9</sup> –

The term *Agni* comprehends various factors which participate in and direct the course of digestion and metabolism. *Acharya Charaka* has explained if functioning of *Agni* stops, death of the individual occurs & when it is in *sama* condition individual will be healthy. Hence *Agni* is the base of life. *Agni* has been divided into 13 types according to its site & function i.e., 1 *Jatharagani*, 5 *bhutagni* & 7 *dhatvagni*. *Jatharagani* is located in *amashaya* & *pakvashaya*, it digests the food as well as give strength to other *agnis*.

*Bhutagni* has 5 types. Every *bhutagni* digests its own corresponding *mahabhuta* component.

*Dhatvagni* is of 7 types which occur at tissue level. Metabolism & synthesis occurs after consumption of food. The nutritive part further nourishes *dhatu*.

**Relevance in ASD-** Many patients manifest as ASD having history of recurrent vomiting and loose motion episodes or food intolerance termed as leaky gut, and after curing the Gastrointestinal system with *deepen-pachan* formulations (e.g., *Rajanyadi churna*, *Hinguvachadi Churna*) the psychological and behavioral symptoms automatically improved. It shows the relevance of *agni* and *mana* involvement and improvement of symptoms in ASD.

**Gut Brain axis<sup>10,11</sup>**- as per modern concept, bidirectional communication between central nervous system & Intestine is known as gut brain axis. Microbiota present in gut play major role in maintaining gut brain axis. The effects of microbiota, both directly and indirectly, on emotional and cognitive centers of the brain have been proved. Fluctuations of the microbiota affect changes within these systems of communication. For example, several mood disor-

ders, such as anxiety, depression, and autism spectrum disorders now have well-established links to functional GI disruptions & in GI diseases psychological comorbidities are also seen. In addition, research has shown that the composition of gut bacteria appears to be having an impact in fetal and neonatal neurologic development.

### Changed lifestyle (*vihara*) in modern era that worsen ASD cases-

Now a days increased use of gadgets in parental age group increases the screen time in children also results in decreased social interaction, inattentiveness, depression. Due to the busy schedule of parents, they are unable to give enough time for social & cognitive development of their child. For development of brain, it needs external stimulus from outside world which should be given by their parents. To keep their baby busy & calm parents are playing lullabies on mobiles which affects their power to process things & to concentrate on one thing. Now a day's games designed for children are increasing aggressiveness & destructiveness.

**Samprapti<sup>12</sup> (Pathophysiology)** - intellect became unstable due to these causes. In this state aggravated *doshas* extent towards heart & mind to obstruct the channels gives rise to *Unmada*

**Dosha-** *Tridosh* & *Manasdosha* (*Tamas* & *Rajas*)

**Dushya-** *Mana*

**Adhithan-** *Manovaha strotas* & *Mastishka*

**Types of Unmadas explained by Charaka<sup>13,14</sup>**

- *Vataj*
- *Pittaj*
- *Kaphaj*
- *Tridoshaj*
- *Agantuj*

(table-2)

Doshas	Clinical features
<b>Vataj</b>	<ul style="list-style-type: none"> <li>• <i>Asthan, hasya, smit, nritya, vak, vikshep rodanani</i> (frequent &amp; inappropriate smiling, dancing &amp; imitating)</li> <li>• <i>Parushya karshya arun varnatasch</i> (Dryness, roughness, reddish discoloration of skin)</li> </ul>
<b>Pittaj</b>	<ul style="list-style-type: none"> <li>• <i>Amarsh rosh</i> (Intolerant &amp; Angry)</li> <li>• <i>Prachhaya shit anna jala abhilasha</i> (Desire for cold water &amp; food)</li> <li>• <i>Pita ch Abha</i> (Yellowish discoloration of skin)</li> </ul>
<b>Kaphaj</b>	<ul style="list-style-type: none"> <li>• <i>Manda vak-cheshta</i> (Sluggishness in speech &amp; activities)</li> <li>• <i>Ati nidra –Lala-chhardi</i> (Excessive sleep, salivation &amp; aversion of food)</li> <li>• <i>Nakhadi shauklyam</i> (white nails)</li> </ul>
<b>Tridoshaj</b>	<ul style="list-style-type: none"> <li>• <i>Sarvani rupani</i> (Combination of all symptoms)</li> </ul>
<b>Aagantuj</b>	<ul style="list-style-type: none"> <li>• <i>Amartya vak- virya-cheshta</i> (Supernatural strength &amp; knowledge at uncertain time of paroxysm.)</li> </ul>

**Chikitsa**<sup>15</sup> -as in many patient's aggression and repetitive signs like (tics) is the main feature, it shows involvement predominance of *pitta* and *vata dosha* (Table 3)

(due to *kaphavarodha*) respectively. So, the treatment consideration as per *dosha* predominance will be differ as per patient.

<b>Vataj</b>	<i>Snehpana, Snehyukta mridu shodhan, mridu virechan</i>
<b>Kaphaj</b>	<i>Snehan, Swedan, Vaman, Virechana, Basti &amp; Shirovirechana</i>
<b>Pittaj</b>	<i>Snehan, Swedan, Vaman, Virechan, Basti, Shirovirechana</i>
<b>Sannipataj</b>	<i>Tridoshaj chikista</i>
<b>Aagantuj</b>	<i>Vatshamak ghritpana, niruha basti, anuvasana basti Daivvyapashray chikitsa, Ashwasan chikista, tadan chikista</i>

### Shaman Chikitsa- Deepan-Pachana<sup>16</sup>-

1. Rajanyadi Churna
2. Hinguvachadi Churna
3. Ajmodadi churna

### Ghrita<sup>17,18</sup>-

1. Kalyanak ghrita
2. Mahakalyank ghrita
3. Mahapaishachik ghrita
4. Samvardhan ghrita
5. Dvitiya lashunadya ghrita
6. Puranghrita
7. Prapuranghrita
8. Sidharthak ghrita
9. Tiktakghrita
10. Mishrak sneha
11. Nalanadi ghrita
12. Bramhi ghrita

### Vati<sup>16</sup>

1. Manasmitra vati

### 2. Bramhi vati

### Arishta-Asava-Kashayam<sup>16</sup>-

1. Ashvarga kashayam
2. Indukant kashayam
3. Kalyanak kashayam
4. Sarasvatarishta
5. Dashmoolarishta

**Panchkarma therapy**-prescribed in routine patients having ASD are-

- *Sarvang abhyanga – dhanvantar taila, ksheerbala taila, mahanarayan taila.*
- *virechana –nitya virechana with trivrut churna /avipattikar churna*
- *Shiroabhyanga with himsagara taila/jatamansi taila*
- *Shirodhara with ksheerbala taila/jatamansi taila*
- *Shirolepa-with vacha, jatamansi, tagara, ashwa-gandha, musta etc.*
- *Nasya- Dhanvantara taila, ksheerbala taila*

- *Matra Basti-Bramhi taila, Dashmool taila, Jata-mansi taila, Dhanvantar taila.*

## DISCUSSION

Autism spectrum disorder (ASD) is a group of neurological and developmental disorders having variability in clinical presentation and response to therapies available in modern as well as in alternative medicines. As per ayurveda the plan of action is completely based on *dosha* assessment of disease manifestation. In the management of this disease *manas chikitsa* is the main part managed by *Adravya chikitsa, Achararasyana, Daivya ashraya chikitsa, interdisciplinary* interventions like speech and behavioural therapy along with *shaman chikitsa & panchkarma* give significant result.

Every patient having autistic symptoms categorizes into *pitta anubandh* and *kaphavata* involvement with *amavastha* and *Niramavastha*. *Deepan pachana* formulations mentioned here prescribed first and after *dhatu and kosthgata amapachana, ghritha kalpanas* prescribed. As per symptoms the oral medication part changed as if speech problem is there, *Samvardhan ghritha* or *kalyanak ghritha* is good for that, as having *deepen pachan* properties also. If there are seizures associated with autism, *Mahapaishachik ghritha* is better.

As per the improvement, *panchkarma* therapy can be added after 15 days to one month, as easy therapies like *Shiroabhyang* and *pratimarsha Nasya* prescribed first followed by *matra Basti* as per *vata* predominance. The medication can change as per season also. As long-term follow-up and treatment requirement in this disease.

## CONCLUSION

It can be concluded that this kind of developmental disabilities required long term safe medication available in Ayurveda and early medication along with other therapies can give better outcome if started within developmental age up to 6 years.

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