

## Original Article

## Role of Ayurveda in Attention Deficit Hyperactive Disorder (ADHD) -A Case Study

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## Abstract

## Background:

In Ayurveda, disorders related to psychiatric and behavioural disturbances are discussed under the heading of *Unmada*. The cardinal features of *Unmada* include features related to emotional, behavioural, psychological and physical disturbances. Among the neurobehavioral disorder of childhood, Attention deficit hyperactivity disorder(ADHD) is the most common and prevalent one which is a chronic health condition affecting school age children. Hyperactivity and inattention are the foremost features along with many other clinical features which can be grouped under the umbrella of '*Unmada*'.

## Objectives:

The present case study was aimed to analyze the role of Ayurveda treatment management in case of ADHD.

## Materials and Methods:

A male child aged 3 years 6 months was brought by the parents with the complaints of hyperactivity and easy irritability along with other associated complaints since 1 year. As per the elicited history and clinical examination, he was diagnosed as a case of *Unmada*. According to reference of diagnostic criteria of DSM5 same features were seen in ADHD also. The child was treated with the treatment protocol cited in classical textbooks of Ayurveda for a period of 3 months in multiple sittings.

## Observations and results:

At the end of 3 months, there was significant reduction in the clinical features. As per the parents the quality of life of the child was also improved after the treatment.

## Conclusion:

This case study demonstrates the role of Ayurveda in the management of ADHD.

**Keywords:** ADHD, Ayurveda Interventions, Murhini Taila, Unmada

## QR Code



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## Introduction

Attention deficit hyperactive disorder (ADHD) is one of the commonest neurobehavioral disorder of childhood which affects the social, learning and behavioural abilities with a prevalence rate in India as 1.3 per 1000. [1] The characteristic features of the disease are inattention, including increased distractibility, poor impulse control and hyperactivity. Affected children may commonly experience underachievement in academics and difficulties with interpersonal relationships. Multiple factors are said to be responsible for ADHD. Strong genetic component is important factor results in the disease. Mother of the child with ADHD may have the history of birth complication such prolonged labor, toxemia, and complicated delivery. Drug abuse and addiction of mother are also being recognised as risk factors. [2] Various food colouring agents and preservatives have been related with hyperactivity in previously hyperactive children. subsequent onset of the symptoms of impulsivity and inattention can be due to abnormal brain structure and traumatic brain injury. [3]

DSM V criteria are considered to be the criteria of diagnosis for ADHD. According to this, the suffering child should have more than 6 symptoms of a particular type. [4] ADHD has three subtypes; the first being predominantly Inattentive type, common in females which often includes cognitive impairment. The other 2 types are commonly diagnosed in males those are hyperactive impulsive type and combined type. The symptoms may vary according to age such as, motor restlessness, aggressive and disrupting behaviour are frequently seen in preschool children while inattentive, distractible and disorganised symptoms are more typical in older adolescents. Presynaptic dopaminergic agonist commonly called psycho stimulants medication are the choice of drug for treating ADHD. Increased risk of adverse cardiovascular events which includes sudden cardiac death, myocardial infarction and stroke in young adults rarely in children may be associated with Stimulant drugs which are used to treat the disease. [5]

Ayurveda explains almost all the psychiatric and behavioural disorders under the headings of *Unmada* and *Apasmara*, where *Unmada* is a disease featured by unstable intellect, mind, knowledge, memory, consciousness, inclination, poor conducts of behaviour and bad manners. [6] It is an obsession occurring in cowardly and weak minded individuals resulting from imbalance of *Tridosha* (three body humours) residing in mind caused. [7]

The etiological factors are intake of unhygienic, improperly processed and incompatible diet and irregular dietetic habits. It is also mentioned that inappropriate physical activities by a very weak person and psychological disturbances caused due to over consciousness about illness, emotional instability like excessive anger, grief, irritability, fear etc. results into decline of balanced psychological functions in a person. *Satva Guna* (quality of mind which is a symbol of positivity) tend to decrease in the person due to the above factors resulting in *Tridosha* (Three bodily humours) getting localised in *Hridaya* (Heart/Mental faculty), causing diminished functioning mental faculty and finally causing *Unmada*. [8] Due to loss of intellect, knowledge and memory, the person does not experience happiness and sorrow. [7] *Unmada* is of five types, [9] its prognosis is said to be *Sadhya* (Curable) by treating it with internal medications along with various therapeutic procedures. Ayurveda suggests the treatment protocol as, *Snehan* (Oleation), *Swedana* (Sudation), *Shodhana* (Purificatory) procedures like *Vamana* (Emesis), *Virechan* (Purgation), *Basti* (Medicated enema), *Nasya*, *Dhumapana* (Medicated smoke), *Anjana* (Collyrium application), *Abhyanga* (Massage), *Lepa* (External application), *Parisheka* (Oil bath) also *Shaman Chikitsa* (Internal medication). [10]

The present case was an attempt to study the role of Ayurveda line of management in a case of ADHD which was diagnosed as *Pittaj Unmada* in Ayurveda.

## Case History

A 3 year 6 months old boy presented in the OPD with the complaints of hyperactivity, poor concentration, easily irritability, shouting, head banging, unable to speak two words at a time and sentences since last one and half year. The associated complaints were poor eye contact, excessive sweating, warm feeling of palms and feet, intolerance to heat, anger, lack of appetite and sleep disturbances. Mother had also given history that child refuses to wear clothes when at home and has like towards cold water.

Social symptoms like mother and father also faced the problems while going outdoor because of the child behaviour. They also faced lot of family issue due to differences in between parents.

As narrated by the mother, child was apparently normal before one and half years and the complaints had a gradual onset. The chronology of the complaints was not known by the mother. There was no significant past history reported.

Birth history revealed significant antenatal problems of mother such as abortion due to rubella in her first pregnancy which was four years back, the suffering child was born in her second pregnancy in which the diagnosis of pregnancy was made at three months of LMP in USG only, there was no detection of pregnancy in UPT. Mother also suffered from emotional disturbances and lack of nourishment during her antenatal period. Child was born with 2.8kg wt by full term vaginal delivery with no any significant postnatal history.

Developmental history revealed all the developmental milestones were well developed according to age, control over bladder and bowel was delayed by 3 years of age. Has poor eye contact with no interactive play, also is unable to speak two words at a time and unable to talk in sentences.

Personal history: The details of personal history are as per table. no. 1

**Table No.1 – Details of Personal History**

Sl. No.	Parameters assessed	Status
1	Appetite	Poor
2	Diet	Mixed
3	Bowel movements	Irregular 1-2 times a day
4	Urine	4-5 times a day
5	Sleep	Disturbed, wakes up crying at night
6	Likes	More of outside packed food, Biscuits & Chocolates
7	Dislikes	Milk, dairy products

### General Examination

Parameters assessed in general examinations are as follows (Table No.2)

**Table No.2: Parameters assessed in General Examination**

Sl. No	Parameters assessed	Findings
1	Pulse	94/min
2	Blood pressure	80/60mm hg
3	Height	93cm
4	Weight	12.5kg*
5	Respiratory rate	24/min
6	Tongue	Coated
7	Eyes	Pallor+
8	BMI	14.5
9	Built	Lean
10	Appearance	Hyperactive

\*Grade 1 protein energy malnutrition

In systemic examination, Central nervous system revealed that child was conscious but was not oriented about time, place and age. All the superficial and deep tendon reflexes were normal. Other systemic examination parameters were within normal limits.

### Diagnostic assessment:

The case was diagnosed as hyperactive type of ADHD as per DSM-V criteria. [1] On the basis of clinical presentation, it was diagnosed as *Pittaj Unmada* in Ayurveda

### Treatment:

Treatment protocol adopted in 1<sup>st</sup> sittings was *Deepana, Pachana, Vatanuloman, Snehapana, Abhyanga, Swedana, Basti* and *Murdhinitaila Chikitsa*.

The internal administration of medicine, procedure and discharge medicines in first sitting are depicted in table no. 3-5

**Table.No.3: Drugs administered in the 1<sup>st</sup> sitting**

Sl. No.	Yoga	Dose	Anupan (after drink)
1	<i>Mustaarishtha</i>	5ml BD (before food)	Luke warm water
2	<i>Agnitundivati</i>	1/2 <sup>th</sup> of 250mg BD (after food)	Luke warm water
3	<i>Abhayaarishta</i>	5ml BD (before food)	Water
4	<i>Kalyanak Ghrita</i>	5ml at bedtime	Milk

**Table.No.4: Procedure advised in the 1<sup>st</sup> sitting**

Sl. No.	Therapy	Medicine used
1	<i>Sarvanga Abhyanga</i>	<i>Ksheerabala Taila</i>
2	<i>Nadiswedana</i>	With <i>Vatashamak Kashaya</i> ( <i>Nirgundi, Chinch, Bala, Eranda</i> )
3	<i>Matrabasti</i>	<i>Bala Taila</i> with pinch of rock salt 1 <sup>st</sup> day: 10ml 2 <sup>nd</sup> day: 15ml 3 <sup>rd</sup> day: 20ml 4 <sup>th</sup> day: 25ml 5 <sup>th</sup> day: 30ml 30ml for next 2 days
4	<i>Shiropichu</i>	<i>Balataila</i>

\**Nirgundi*: *Vitex negundo* \**Chinch*: *Tamarindus indica* Linn

\**Bala*: *Sida cordifolia* Linn \**Eranda* : *Ricinus communis* Linn

**Table.No.5: Discharge Medicine advised after 1<sup>st</sup> sitting**

Sl. No	Formulation	Dose	Anupana
1	<i>Kalyanaka Ghrita</i>	5ml in morning for 15 days	Milk
2	<i>Avipattikarachurna</i>	2.5 gas at night	Warm water

After the first course of treatment the appetite of child got improved also sweating and warm feeling of palms and soles was reduced. The hyperactivity of child was mildly reduced but mother complaint about irregular bowel movements and easy distractibility.

Treatment protocol in 2<sup>nd</sup> sitting was *Deepana, Pachana, Medhyarasayana, Abhyanga, Swedana, Basti* and *Murdhinitaila Chikitsa* (Table 6-7).

**Table.No.6: Drugs administered in 2<sup>nd</sup> sitting**

Sl. No	Formulation	Dose	Anupana
1	<i>Saraswataarishta with Gold</i>	2.5 ml (in morning and at bed time)	water
2	<i>Mustarishta</i>	7.5ml BD (before food)	water
3	<i>Hingwachadi Gutika</i>	½ tab BD(after Food)	water

**Table.No.7: Procedure advised in 2<sup>nd</sup> sitting**

Sl. No.	Therapy	Medicine used
1	<i>Sarvangaabhyanga</i>	<i>Lakshaditaila</i>
2	<i>Shastishalipindasweda</i>	--
3	<i>Shirodhara</i>	<i>Balataila + Tiltaila</i>
4	<i>Matrabasti</i>	<i>Dashamulataila</i> + pinch of rock salt 1 <sup>st</sup> day: 10ml 2 <sup>nd</sup> day: 15ml 3 <sup>rd</sup> day: 20ml 4 <sup>th</sup> day: 25ml 5 <sup>th</sup> day: 30ml 30ml for next 2 days

\**Shastishalipindasweda*: type of sudation made of rice boiled in medicated *Kashaya* and milk. \**Shirodhara*: pouring of medicated oil over head.

The same internal medicines were continued after discharge for next 15 days.

After the completion of 2<sup>nd</sup> Sitting moderate changes in hyperactivity was noted, there was also improvement in the concentration. Mother told that the child is able to sit at one place for some time and also does not refuses to wear clothes at home.

**Table.No.8: Drugs administered in 3<sup>rd</sup> sitting**

Sl. No	Formulations	Dose	Anupana
1	<i>Saraswataarishta with Gold</i>	2.5 ml (in morning and bed time)	Water
2	<i>KalyanakGhrita</i>	5ml (in morning)	Milk

**Table.No.9: Procedure advised in 3<sup>rd</sup> Sitting**

Sl. No.	Therapy	Medicine used
1	<i>Sarvangaabhyanga</i>	<i>Lakshaditaila</i>
2	<i>NadiSweda</i>	--
3	<i>Shirodhara</i>	<i>Ksheerbalataila + Tiltaila</i>
4	<i>Matrabasti</i>	<i>Dashamulataila</i> + pinch of rock salt 1 <sup>st</sup> day: 10ml 2 <sup>nd</sup> day: 15ml 3 <sup>rd</sup> day: 20ml 4 <sup>th</sup> day: 25ml 5 <sup>th</sup> day: 30ml 30ml for next 2 days

After the 3<sup>rd</sup> sitting the there was improvement in hyperactivity, inattention and poor eye contact. Child is able to tell his full name and follows the command given by his parents. He replied for the questions asked to him like his name also he can repeat the words which are said to him like Good morning and Thank you. The child is now able to tell about his hunger, bowel and bladder habits.

### Observations and results:

The Observations based on clinical picture was noted before and after the course of treatment is as given in Table.No. 10

**Table. No. 10: Observations before and after complete course of treatment**

Sl. no	Symptoms	On admission	On discharge
1	Hyperactivity	+++	Absent
2	Easily irritable	+++	Absent
3	Shouting, head banging	+++	Absent
4	Lack of appetite	+++	Good appetite
5	Less eye contact	+++	+
6	Unable to speak two words at a time and sentences	+++	++
7	Excessive sweating	+++	Absent
8	Anger	+++	Absent
9	Sleep disturbances	+++	Absent

**Follow up and outcomes:** follow up was done after every 15 days where clinical outcome of the therapy was assessed along with any adverse drug reactions. During the course of treatment, no any adverse drug reaction was reported to the child

### Discussion

While analysing the causative factors in the child the role of antenatal status of mother had to be scrutinised as *Ayurveda* believes that the factors influencing pregnancy will have an effect on the baby; in terms of physical, psychological or both. As per the history revealed by the mother, she was under severe psychological stress during which she was even separated from the father of the child. She had also reported nutritional deprivation during the first few months of pregnancy.

While explaining the formation of *Garbha* (foetus) it has been mentioned that, the normalcy of *Shukra*(sperm) and *Shonita*(ovum) along with all *Shad bhava* (six factors influencing fetal formation and development) and mode of life of pregnant women are responsible for proper growth and well being of a child. If any of the factors get affected, it will adversely affect the growing fetus. *Ayurveda* has a great focus on *Garbhini Paricharya* (antenatal care) which should be followed properly throughout pregnancy including diet and lifestyle modifications. Suppression of natural urges, emotional disturbances, excessive physical work, and incompatible diet are a few of them which should be avoided by the pregnant lady. [12]

The *Mana*(mind) of the foetus attains the characters of *Satva*, *Raja*, *Tama* etc. depending upon the psychological status of the mother and father. [13] If psychological factors during antenatal period gets disturbed it will ultimately affect the of foetus and thus results the child with psychological and neurobehavioral disorders.

In this case the nutrition and the psychological state of the mother was disturbed because of this the suffering child get affected with ADHD.

The pathology of ADHD is not clear in the contemporary system of medicine other than the neurobehavioral outlook. In *Ayurveda*, any disease is said to have a root at mental, physical or both phases. In the case of most of the diseases the aetiology and the symptomatology are psycho-somatic. As explained in *Ayurveda*, both the mind and body are led by *Tridosha* and the vitiation of these *Dosha* will cause abnormality of both psyche and body. *Vata Dosha* is the main among *Tridosha* which has much control over mental functions such as initiation, direction and stimulation of thoughts and related actions.

In the present case, the normal functions of *Vata* was affected in turn leading to hyperactivity in the child. The child was not able to control his thoughts and stimulus so that he was not in a position to listen to parents or have balanced activities. The involvement of *Pitta Dosha* was dominant over *Vata Dosha* in the child which was evident from the symptoms such as aggressiveness, anger, irritability, dislike to hot things, not liking to wear clothes and desire for cold air and water. Due to the above reasons the case was diagnosed as *Pittaja Unmada*.

The child presented with the complaints of prominently hyperactivity as per DSM V criteria. The symptoms seen in the child according to the criteria such as restlessness, squirms in seat, leaves his place often, climbs and runs in situation which is appropriate, unable to play and engage in activities, talks excessively, interrupts others activities etc. In making the diagnosis, children should have six or more symptoms of the particular type.

The classical line of management of *Unmada* suggests Carminative and Drugs that promote digestion, internal oleation use of medicated ghee, mild body purification by emesis or purgation, decoction enema and oil enema, medicated nasal drops and oral medication to stabilise the mind. Also, the other procedure like *Abhyanga*, *Nadisweda* and *Murdhinitaila* proves to be better effective in *Unmada*.



By using the above details as a guide, planning of treatment and selection of drugs were made in the present case based upon the main *Dosha* involvement. While doing so, maintenance of *Agni* (digestive fire/ metabolism) was taken care of first as without proper metabolism pharmacological actions of the drugs cannot be expected. *Agnitundi Vati*, *Mustarishta* and *Abhayarishta* were the formulations used for the same. To control the vitiated *Vata* and *Pitta Dosha*, both internal and external oleation therapy was given with the administration of ghee processed with cognitive enhancers and oil processed with drugs having soothing and cooling properties respectively. Lipophilic drugs are said to have the properties to cross blood brain barrier [14] due to which medicated ghee might have acted as cognitive modifier. The touch receptors stimulated by external oil massage had helped in calming down the hyperactive child. *Avipattikara Churna* is a formulation which is used as a drug of choice in *Pitta Dosha* dominant disorders. Elimination of metabolic wastes by means of *Virechana* (Purgation) is a method of treatment in Ayurveda which has worked in the present case as a mild purgative and helped in removal of accumulated metabolic toxins like nitrogen compound, etc which might have caused the hyperactivity and aggressiveness in the child. *Basti* is also called to be the main modality of treatment in *Vata* type of disorders or the disorder of nervous system by expelling the toxins and by maintaining the balance in *Doshas*, *Basti* Proves to be effective in this case.

*Acharya* Charaka, defines *Rasayana* as the source of achieving the excellent quality of *Rasadidhatus* (body tissues) which increases life span, improves *Medha* (intelligence), stabilises youthfulness, cures disease, improves complexion, lustre, voice and makes body strong and healthy. [15] So *Sarsawataarishta* with gold is selected as a choice of drug as best rejuvenator as it promotes memory and intelligence, improves speech, promotes health. It provides nourishment to body tissue and also acts on mind. *Suvarana* (Gold) is also indicated in *Unmada*.

## Conclusion

In the view of Ayurveda, ADHD can be named as *Unmada* due to the specific psycho-somatic clinical presentation. The present case demonstrated the role of Ayurveda in managing *Pittaja Unmada* that was diagnosed as Hyperactive type of ADHD. The analysis of causative factors showed some relation with prenatal psychological and physical status of the mother. The child treated showed good relief from the complaints with the help of internal medications which were carminative, digestive and mild purgative in action,

external oleation and medicated oil enema as suggested by *Acharya* in the treatment of *Unmada*. The child was seen to be normal during the follow up period and the therapies were well tolerated by the child. Hence the Ayurveda line of treatment can be adopted in ADHD.

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