Case Study

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A ROLE OF *AYURVEDA* IN THE MANAGEMENT OF *APASMARA* (EPILEPSY): A CASE STUDY

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ABSTRACT

Apasmara (epilepsy) is defined as the *apagama* (deterioration) of *smriti* (memory) associated with *bibhasta cheshta* (seizures) due to derangement of *dhi* and *satwa*, mainly related to *vata* and *rajo dosha* vitiation, which effects both *Sharira* (body) and *Mana* (mind). The present antiepileptic drugs control the seizure attack, but long-term use generates adverse effect at cognitive level and leads to behavioral disorders, hence there is need of safe and effective treatment which not only controls seizure attack but helps to cure the disease. A 44-year-old man approached Kayachikitsa OPD with the complaints of frequent seizure attacks, since from at the age of one and half year with regular oral antiepileptic drugs medications (allopathic), the dose of medications increasing yearly and he was not satisfied with treatment, so he was advised with *Panchakarma* treatment starting from *Deepana, Pachana, Vamana* (medicated emesis*), Virechana* (medicated purgation*), Basti* (medicated enema), *Shirodhara* along with palliative treatment. After each treatment it was observed that the patient was satisfied with treatment and the complaints of seizure attack reduced in frequency and duration with improved quality of life. Palliative treatment was advised to continue along with modern medications.

Keywords: *Apasmara*, Epilepsy, Antiepileptic drugs, *Panchakarma.*

INTRODUCTION

Acharya Charaka described *Apasmara* as *Apagama* (loss) of *smriti* (memory) associated with *bibhasta cheshta* (irrelevant behavior) due to derangement of *dhi* (thinking capacity) and *satwa* (mental strength)[1]. *Apasmara* described as loss of *smriti* characterized by *tamah pravesh* (feeling of aura) which occurs spontaneously as explained by *Madhava nidana*[2]. Loss of consciousness is one of the important signs, the clinical feature of *Apasmara* can be correlated with epilepsy in modern medicine, the epilepsy word is derived from Greek word "Epilepsia" which means to "seiz". It is a condition with recurrent seizures having paroxysmal event due to chronic, excessive, hypersynchronous discharge from central nervous system (CNS) neurons in the brain[3]. Epilepsy is the most common presentation in a neurological setting and stands next to stroke and dementia in its prevalence[4]. *Apasmara* is a psychosomatic disorder, and it is an explained as *mahagadha*[5], a measurement of electric activity in the brain with EEG as well as MRI or CT scan is the common diagnostic test for epilepsy, Prevalence of epilepsy ranges from 5 to 10 per 1000 in most countries, it's likely higher in developing countries, ranges from 24 to 53 per 100000 population in developing countries like India. About 30-35% of patients may continue to get seizures despite treatment with two or more antiepileptic drugs (AED)[6]. Antiepileptic drugs suppress the seizure but do not cure the disorder and having adverse effects, contraindications and sometimes requires lifelong treatment[7]. Though strong tranquilizers and sedatives of modern therapy are effective they have adverse effect on mind, it is in need to search for safe treatment which not only relieves the symptoms but to cure, *Acharya Charaka* has mentioned purification therapy as *Vamana* (therapeutic controlled emesis) in *Kaphaja Apasmara*, *Virechana* (therapeutic controlled purgation) in *Pittaja Apasmara*, *Basti* (Medicated enema) in *Vataja Apasmara*, all the procedures in *Sannipataja Apasmara*, *Nasya* (medicated instillation), Dhumapana, anjana along with palliative therapy as line of treatment of *Apasmara*[8], as present case is *Sannipataja avastha* all the treatment modalities were adopted for which showed better result in the patients symptoms and the quality of life also improved.

Patient history

A 44-year-old male patient came to Kayachikitsa OPD of Sri Kalabyraveshwara Ayurvedic Medical College, Bangalore with a complaint of epileptic seizures around 1 to 2 times a day, on an average 12 to 13 times a week for about 5 to 10 sec each episode. Past history revealed that the patient suffered from high grade fever (unknown), when he was one and half year old, and he got admitted in hospital during that time he experienced his first attack of seizures and he was started with antiepileptic drugs and for 3 years he didn't get any episodes of seizure so he discontinued antiepileptic drugs, once again he experienced attack of seizure when he was 7 years old and was once again started with antiepileptic drugs and till now he is on antiepileptic drugs instead of that he will have average 12 to 13 of seizure episodes per week. There is no familial history of epilepsy. And not a consanguineous marriage of his parents.

Symptoms during attack

- No feeling of aura
- Turning of face to either side

- Loss of consciousness
- Muscle stiffness
- Jerking movements
- Tachypnea
- Feeling of tiredness after seizure attack
- Seizure attack duration of average 20 to 30 sec

Investigations show normal hematological and biochemical reports, The EEG showed evidence of generalized tonic clonic epilepsy.

Drug name	Dose	Timings
Tab -Sodium valproate + valproic acid	1500 mg	Morning and night
Tab – Phenytoin 400 mg	800 mg	Morning and night
Tab – clobazam 20 mg	20 mg	At bedtime
Tab –calcium + vitamin D3 500 mg	500 mg	Night

General Examination

Vital signs
1. HR- 72/min
2. RR – 18/min
3. BP – 110/70 mmHg

Central Nervous System Examination
1. Appearance: Alert, active
2. Behaviour: Cooperative well mannered
3. Hallucination: No hallucination during seizure episodes
4. Intelligence: Normal
5. Consciousness: conscious
6. Memory: Intact
7. Orientation: oriented to place, person
8. Speech: Slow speech
9. All cranial nerves: Intact
10. Motor system: No deformity
11. Sensory system: No deformity
12. Cerebellar signs: Nil
13. Signs of meningeal irritation: Nil

Ashta Sthana Pariksha
1. *Nadi*- 72/min
2. *Mala*- Sama, Irregular once in two days
3. *Mutra*- Samyak
4. *Jihwa*- Saam (liptata)
5. *Shabda*- Prakrut
6. *Sparsha*- Anushnashita
7. *Druk*- Prakrut
8. *Akruti*- Madhyama

Diagnostic criteria

According to International league against epilepsy[9]
1. At least two unprovoked seizures occurring > 24 hours apart.
2. One unprovoked seizure and probability of further seizure like the general recurrence risk after two unprovoked seizures, occurring over the next 10 years.
3. Diagnosis of an epilepsy syndrome

Assessment criteria

For subjective assessment[10], the following symptoms were kept as parameters

Severity of attack
Grade 0: Myoclonic tremors
Grade 1: Multi focal clonic tremors
Grade 2: Generalized tonic tremors
Grade 3: Frothing + tongue biting

Frequency of Convulsions
Grade 0: No convulsions
Grade 1: 1 Episode /15 days
Grade 2: 1 Episode /7 days
Grade 3: 1 or more Episodes / day

Duration of Convulsions attack
Grade 0: No convulsions
Grade 1: 5 – 15 sec
Grade 2: 15 – 30 sec
Grade 3: > 30 sec

Ictal features
Grade 0: No features
Grade 1: Headache
Grade 2: Headache and drowsiness / delirium
Grade 3: Paresis and other complaints

Treatment Plan

***Shodhana Chikitsa* (Purificatory method)**

Shodhana procedures allows the biological system to return into normalcy by eliminating toxins from the body and facilitating the pharmacokinetic effect of therapeutic remedies administered. These modalities have demonstrated significant effects on psychoneuroimmunologic parameters in studies of neuropsychiatric illness. Use of *Teekshna* (drastic) *Shodhana* clears the obstruction by eliminating the *Doshas* (humours), and controls *Apasmara*. In *Vataja Apasmara* - *Basti* (medicated enemas), *Pittaja Apasmara*-*Virechana* (Purgation) and in *Kaphaja Apasmara*-*Vamana* (Emesis)- is administered[8].

As in present case, it is chronic disease and *Sannipataja Vyadhi*, all the *Panchakarma* procedures are adopted, initiated with *Deepana-pachana*, followed by *Vamana* (medicated emesis), *Virechana* on 15th day of *Vamana* and *Basti* (medicated enema) after 7 days of *Virechana,* followed by *Nasya* after *Parihara Kala* of *basti*, which gave promising result in the patient[11].

Table 1: Phase I treatment- *Vamana*

Name of the treatment	Medicines used	Duration	Improvement
Pachana and *Deepana*	*Panchakola churna* (3 gm twice a day with *Yavagu*)	5 days	- During *Vamana* karma one episode of seizures was seen for 3 sec. - After *Vamana karma* till completion of *Samsarjana krama* only 4 episodes of seizures are seen for 10 sec, 15 sec, 15 sec, 30 sec
Arohana Snehapana	*Kalyanaka ghrita*	3 days	
Sarvanga Abhyanga	*Murchita tila taila*	1 day	
Sarvanga Baspa Sweda	*Ushna jala*	1 day	
Vamana karma	*Madanaphala*		
Samsarjana krama	*Peyadi ahara krama*	5 days	

Table 2: Probable *Rasa Panchaka* and *Karmukata* of *Kalyanaka ghrita*

Ghrita	*Rasa Panchaka*	*Karma*	*Doshaghnata*	*Rogaghnata*
Kalyanaka ghrita	*Rasa- Tikta* *Guna - Laghu, Ruksha* *Virya - Ushna*	*Brimhana* *Balya* *Vrishya* *Medhya* *Anulomana*	*Tridoshahara*	*Apasmara* *Jwara* *Kasa* *Shosha* *Mandagni* *Vatarakta* *Pratishyaya* *Chardi* *Arsha* *Mutrakruchra* *Visarpa* *Pandu* *Unmada* etc.

Table 3: Phase II treatment: *Virechana*

Name of the treatment	Medicine used	Duration	Improvement
Pachana and *deepana*	*Panchakola churna* (3 gm twice a day with *Yavagu*)	3 days	After *virechana karma* till completion of *Samsarjana krama* patient had 2 episodes of seizures for 10 sec and 8 sec
Snehapana (*Arohana krama*)	*Kalyanaka ghrita*	3 days	
Sarvanga Abhyanga	*Murchita tila taila*	3 days	
Sarvanga Bashpa Sweda	*Ushna jala*	3 days	
Virechana	*Hridya Virechana Avaleha* (35 gm)	1 day	
Samsarjana krama	*Peyadi ahara krama*	5 days	

Table 4: Phase III treatment: *Basti* and *Shiro taila dhara*

Name of treatment done	Medicine used	Duration	Improvement
Shiro taila dhara	*Brahmi taila* + *Murchita taila*	8 days	-After *virechana*, in *Parihara kala* patient had 4 episodes of seizures, -During course of *basti* in hospital stay patient didn't had any episodes of seizures.
Shiro talam	*Amalaki churna*	8 days	
Yoga Basti (*Mustadi Yapana Basti*)	*Anuvasana basti* with *Mahakalyanaka ghrita*- 100 ml *Niruha Basti* with *Mustadi Yapana Basti* *Madhu*- 30 ml *Saindhava Lavana*- 5 gm *Taila* (*Maha Masha taila*)- 80 ml *Kalka* (*Shatapushpadi*)- 25 gm *Kwatha* (*Mustadi Ksheera Paka*)- 400 ml	8 days	

Table 5: Probable *Rasa Panchaka and Karmukata* of *Brahmi taila*

Taila	*Rasa Panchaka*	*Karma*	*Doshaghnata*	*Rogaghnata*
Brahmi taila	*Rasa – tikta, kashaya* *Guna – laghu* *Veerya –sheeta*	*Medhya* *Rasayana* *Brimhaniya* *Medohara* *Nidrajanaka* *Shothahara* *Chittodwegahara* *Hrudya*	*Vata, Pitta Shamaka*	*-Apasmara* *-Chittodwega* *-Khalitya* *-Palitya*

Table 6: Phase IV treatment: *Nasya*

Name of the treatment	Medicine used	Duration	Improvement
Nasya	*Mahapanchagavya ghrita* (6 drops/nostril)	8 days	After *basti* patient had 5 episodes of seizures average of 5 sec each episode.
Talam	*Amalaki churna*	8 days	

Table 7: Probable *Rasa Panchaka* and *Karmukata* of *Panchagavya ghrita*

Ghrita	*Rasa Panchaka*	*Karma*	*Doshaghnata*	*Rogaghnata*
Panchagavya ghrita	*Rasa- Tikta* *Guna- Tikshna* *Veerya- Ushna*	*Dipana* *Anulomana* *Sukshma* *Medhya*	*Kapha vata shamaka*	*Apasmara* *Kamala* *Jwara*

Table 8: Internal medications

Medicines	Dose	Duration
Tab – *Tantu pashana*	500 mg, twice a day, after food with *Ushnodaka*	3 months
Syrup- *Manasa*	3 tsp, twice a day, after food with *Ushnodaka*	3 months

Table 9: Effect of treatment on symptoms of epilepsy

Symptoms	Before treatment	After *Vamana*	After *Virechana*	After *Basti*	After *Nasya*	Follow up
Severity of attack	Grade 2	Grade 2	Grade 2	Grade 2	Grade 2	Grade 2
Frequency of seizures	Grade 3	Grade 2	Grade 2	Grade 1	Grade 1	Grade 1
Duration of attack	Grade 3	Grade 2	Grade 1	Grade 1	Grade 1	Grade 1
Ictal features	Grade 2	Grade 2	Grade 1	Grade 1	Grade 0	Grade 0

RESULT AND DISCUSSION

Phase I Treatment

Vamana (emesis)

It is the process where vitiated *Doshas* are forcibly expelled through the oral route[12], the diseases involving vital organs, and which may further impair the condition. (Table 1)

Mode of action of *Kalyanaka Ghrita*

Role of Ghrita

Among all *Snigdha dravyas ghrita* is considered as best in *Ayurveda.* It is one of the *Nitya sevan*[13] (can be consumed daily) mentioned in *Ayurveda*. It is sweet in taste, provide unctuousness, it alleviates *vata pitta* without increasing kapha*. Ghrita* is best in treating poison, insanity, seizures, pain, fever. An aqueous soluble drug is usually absorbed in extra cellular spaces, which do not diffuse into CSF and other body cavities, whereas lipid soluble drugs are readily absorb into extra and intra cellular spaces. Blood brain barrier (BBB) has a lipophilic molecular structure, as *ghrita* is lipid helps the medicine to pass easily through Blood brain barrier. So, the drugs which are given in the form of ghee which are lipids rapidly absorbed in the target areas of central nervous system, and *ghrita* contains DHA, an omega 3 long chain polyunsaturated fatty acid, Which, are high concentration in brain cells too. *Ghee* is known to have antioxidant property which acts upon the degenerative brain cells and repair them.

In this condition *Kalyanaka ghrita* has been used which is explained by *Acharya Charaka*[15] and *Acharya vaghbhat*[16] in *Apasmara Chikitsa*, which contains 28 ingredients in which 15 drugs are having *Tikta rasa*, 22 with *Laghu guna*, 19 are having *ushna veerya*, 18 with *katu vipaka*, and 12 are *kaphapitta hara,* 10 *Tridoshahara, Haritaki, Sarivadya, Ela* have *Deepana* and *Amadoshanashak* properties so that it regulates *Jatharagni, Dhatwagni* and *Bhutagni* which corrects metabolism at cellular level, results in proper formation of *Dhatus* and *Upadhatus* and *Srotoshodhana* by removing *Ama. Haritaki, Amalaki*, *Vibhitaki, Visala, Danti* has *Sara Guna* and *Virechaka* action so that they regulate *Doshas* by *Samshodhana karma.* Thus, *Samshodhana karma* clears the *Srotas* and regulates function of *Tridosha*[14]. (Table 2)

Phase II Treatment

Virechana (Purgation)

It is the process where elimination of morbid humors achieved through the downward track from the body[17]. *Virechana* is the process that helps in evacuation of toxins. Some of the research data correlated acetylcholine with *Vata,* catecholamine with *Pitta*, and histamine with *Kapha*. Studies observed that after *Virechana,* there was reduction in the plasma catecholamine contents in the patients to a significant level. When the Aggravated *Manasika Dosha* influences the *Vata Dosha*, results in repeated seizure attack. *Virechana* eliminates all morbid *Doshas* from all micros to macro nourishing channels and regulates *Vata Dosha*, thus decreases the symptoms of *Vata, Pitta* and *Kapha* at *Srotas* level[18]. (Table 3)

Phase III Treatment

Basti* and *Shirodhara

Mustadi Yapana Basti

Yapana Basti are having *Rasayana* effect and can be administered for longer duration without any adverse effects[19]. With the advancement of modern science, a new nervous system of abdomen has been discovered, which is named as enteric nervous system (ENS) and is called as the mini brain. Though nothing about the relation between ENS and *Basti* therapy is known until date, the same is supposed to work in diseases of central nervous system like cerebral palsy. The ingredient drugs of *Mustadi yapana basti* have predominant *Vatahara* and *Rasayana* properties. Hence *Mustadi* yapana basti being a type of *Niruha Basti*, does the *Shodhana* as well as it gives strength to the patient, which is directly indicated in *Unmada*, which can be given in *apasmara*[20]. Govindadasa affirms the role of *Rasayana* in the *Mastishka Kshaya.* According to his opinion, *Rasayana* is the last resort for the patients of *Mastishka Vriddhi* and *Rasapradoshaja*. *Yapana Basti* performs all these functions by alleviating *Vata*. *Acharya Charaka* observes "*Sadhyo-Balajanana*" (improves the strength quickly) as the unique quality of *Rajayapana*. *Bala* is a multifaceted phenomenon that depends upon *Udana Vayu*, *Agni* and *Kapha*. As the *Vata* is *Shighrakari* (quick in action) and formation of fresh *Rasa dhatu* takes place daily, the "*Sadyo-Balajanana*"[21].

Mode of action of *Shirodhara*

Shirodhara is type of *Murdhini taila*[22] where pressure and vibration are created over the forehead and this vibration is amplified by hollow sinus present in the frontal bone. The vibration is then transmitted inwards through the fluid medium of the cerebrospinal fluid (CSF) and thus this vibration along with little temperature may activate the functions of thalamus and basal forebrain which then brings the amount of serotonin and catecholamine to the normal stage inducing the sleep. Due to continuous and rhythmically pouring of *taila dhara* also lead to state of concentration and enhance the release of serotonin and produces chemical substance like acetylcholine.[23]

Shirodhara* with *Brahmi taila

Taila itself is having the *Vatahara, Sukshma* and *Snigdhatwa* properties which helps *Tarpaka Kapha* in proper facilitation and sound connection of *Indriyas* and *Vishaya* which was deranged earlier by aggravated *Vata dosha*. Due to its *Sukshma guna* it easily penetrates in the deep channels inside the body[24].

Shirodhara by using *Brahmi taila* will be useful in breaking the pathogenesis of the disease because *Brahmi* (*Bacopa monnieri*) itself is a *Medhya, Rasayana* and *Kapha vata shamaka* which is specifically used in *Nidra vikara* (sleep disorders) and *Mano roga* (psychiatric disorders). *Brahmi taila* has *Brimhaniya* (nourishing), *Medhya* (nootropic), *Rasayana* (rejuvenate), *Medohara* (anti-dyslipedimic), *Nidra Janana* (sleep promoting),

Shothahara (anti-inflammatory), *Chittodwegahara* (anxiolytic) and *Hrudya* (cardiotropic) properties[28]. *Shirodhara* is also a purifying and rejuvenating therapy designed to eliminate toxins and mental exhaustion and pacifies the aggravated *Vata Dosha* in *Shira* and balancing the *Prana Vayu* and *Vyana Vayu* around the head[23]. (Table 4,5)

Phase IV Treatment

Mode of action of *Nasya*

Ayurveda advocates use of *nasya* in *Urdhwajatrugataroga*[25] (disease of supraclavicular region) and psychological disorders like *Unmada* (insanity), *Apasmara* (epilepsy) etc., *Acharya Bhela* has stated that the brain is the seat of mind, in *Ashtanga Sangraha Acharya Vagbhata* explained about mode of action of *Nasya*, where explains about *Sringataka marma*, the medicine instilled through *Nasa* reaches *sringataka marma* and distributes all over the *Murdha* (brain), *Shiramukha* (opening of vessel) of *Netra* (eyes), *Karna* (ear), *Kantha* (throat) etc[26]., According to the commentator *Indu* the exact *Sthana* of the *Sringataka marma* is "*Shiraso Antarmadhya Murdha* which can be considered for the middle cranial fossa. On basis of above facts, the verse i.e., "*Nasa hi Shirsodwara*[27] can be justified which reflexes the action of *Nasya* in head and systemic disorders. Nasal route is easily accessible, convenient, and reliable with a porous endothelial membrane and a highly vascularized epithelium that provides a rapid absorption of compounds into the systemic circulation, avoiding the hepatic first pass elimination. In addition, intranasal drug delivery enables dose reduction, rapid attainment of therapeutic blood levels, quicker onset of pharmacological activity, and fewer side effects. The nasal delivery seems to be a favorable way to bypass the obstacles for blood-brain barrier (BBB) allowing the direct drug delivery in the bio-phase of central nervous system (CNS) active compounds. Hence *Nasya* is the treatment of choice for this type of diseases, by reaching the actual site of pathogenesis[28].

Panchagavya ghrita

Panchagavya ghrita which is explained by *Acharya Charaka* in the context of *Apasmara, Panchagavya ghrita* is an *Ayurvedic* medicine consisting of five components namely, cow milk, clarified butter milk from cow milk, cow curd from cow milk, and cow dung juice. It has been recommended for treatment of *Apasmara* (epilepsy), *Jwara* (fever), and *Kamala* (jaundice) in *Charaka samhita*[29]. Cow milk and cow ghee in possess the property of *Rasayana*. Cow dung has a special quality; *Rakshoghna* as a *Prabhava*. *Gau-Dadhi* (cow curd) and *Gau-mutra* (cow urine) are excellent *Vataghna*. *Panchagavya Ghrita* exhibits *Rasayana, Rakshoghna, Vataghna, Medhya, Smrutikara* properties. All the components of *Panchagavya Ghrita,* especially cow urine is very rich in volatile free acids which are very potent antioxidant agents. There are many evidence to suggest the role of oxidants in the causation of epilepsy. So, when these factors are considered together it can be said that by the virtue of its antioxidant action *Panchagavya ghrita* offers protection against convulsions. *Panchagavya ghrita* alone as well as a constituent of many formulations has been shown to possess neuroprotective and anticonvulsant activities in rats. α-Lactalbumin (milk protein) is found to be effective in experimental models of seizure and epileptogenesis. *Panchagavya ghrita* alone as well as a constituent of many formulations has been shown to possess neuroprotective and anticonvulsant activities in rats[30]. (Table 6,7)

Internal medications

Tantu pashana, is the formulation prepared by *Pippali* (*Piper longum*), *Chavya* (*Piper chaba*) and *Tantu pashana bhasma* (asbestos). The efficacy of *Tantu pashana* against MES seizures is more pronounced on chronic administration suggesting that drug has cumulative effect. Animal study showed that *Tantu pashana* is effective against MES seizures it may be useful in generalized tonic clonic seizures[31]. (Table 8,9)

CONCLUSION

Epilepsy is a clinical syndrome affecting central nervous system. It influences the physical, psychological, familial, and occupational life of a person. Present case treated with panchakarma procedures like *Vamana, Virechana, Basti, Nasya, Shirodhara* along with palliative treatment along with modern medications which didn't show any adverse effects. Now patient feels better, comfortable at his workplace, the frequency of seizure attack reduced, and patient is under follow up. This type of treatment protocol can be recommended for large sample group for further clinical trial.

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