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Case Study

EFFECT OF A SELECTED AYURVEDA TREATMENT PROTOCOL ON MULTIPLE SCLEROSIS

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ABSTRACT

Multiple Sclerosis (MS) is a progressive neurodegenerative disease characterized by demyelination and plaque formation and having manifestations in multiple systems of the body. Signs and symptoms depend on the site of lesion. Prevalence of MS is estimated to be 2.8 million cases worldwide, the mean age being 20 to 40 mostly affecting females. Genetic factors also contribute greatly. Considering the etiological factors, pathogenesis and symptoms it can be correlated to different types of *Avarana*. A cluster of symptoms seen in different types of *Avarana* can be observed here. Along with *Avarana* the treatment principles of *Jwara*, *Vatavyadhi, Vatashonita, Manasika vyadhis* can also be adopted in this condition at different stages. The present work is a case report of a 22 year old male diagnosed with MS and treated effectively. This work is done in an effort to understand MS in terms of the basic principles of Ayurveda and to discuss the effectiveness of Ayurvedic treatment protocol in MS.

INTRODUCTION

Multiple sclerosis is an autoimmune disease of the CNS characterized by chronic inflammation, demyelination, gliosis and neuronal loss; the course can be relapsing remitting or progressive[4]. It is approximately more common in women than men, the age of onset being 20 to 40 years. The onset is usually followed by a viral infection the most common being Ebstein Barr virus and Human Herpes virus. Genetic factors also contribute greatly to the development of auto immunity. The presence of HLA DR 3 is highly associated with the occurrence of MS. Followed by an infection, when the antigen presenting cell is exposed to an antigen, they engulf the antigen and expresses a piece of it on its surface and forms an MHC2 complex which presents this antigen to a helper T cell. The helper T cell receptor gets primed to recognize the antigen anywhere in the body. The complex when interact with T cell forms a CD4+ molecule which releases a bunch of cytokines. The primed T cells after crossing Blood Brain Barrier reach oligodendrocytes where they recognise proteins on oligodendrocytes similar to previous antigens. The activated T cells release cytokines and macrophages which phagocytose the oligodendrocytes and plaque starts forming over the axons. Nerve conduction in myelinated axons occur in a saltatory pattern. When this myelination is lost there is a slow conduction of signals resulting in impaired motor or sensory functions depending on the functions of affected neurons[5]. Clinical features depend on the type of neurons that are degenerated. The most common form occurs in eyes and manifest as optic neuritis. Motor and sensory impairment can be seen along with disturbed sleep pattern. Spasticity of limbs and exaggerated reflexes are common findings. Demyelination can affect both brain and spinal cord. Autonomic dysfunctions are also found occasionally. Diagnosis can be obtained clinically along with MRI findings[6]. The golden criteria of diagnosis is fulfilling Mc Donalds Criteria which determines dissemination of the disease with respect to space and time[7].

The features of MS can be found scattered in different contexts in the classical textbooks of Ayurveda. Sensory and motor symptoms points to *Vatavyadhi*. Assessment of *Dosa* indicates *Vata pitha vrudhi* and *Kaphakshaya*[8]. Here *Vata vrudhi* due to *Avarana* can be understood from the symptoms *Dourbalya, Balakshaya, Supthata, Gati sanga* etc[9]. In this case the treatment principles of *Avarana* have

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been adopted along with that of *Vatashonita* considering inflammatory autoimmune nature of the disease. *Avarana* of *Vata* for a long period of time leads to *Dhatuksaya* which manifests as progressive nature of the disease. The occurrence of *Vatavyadhi* at a very young age that is at an age of *Kapha* predominance makes the condition difficult to manage.

Case Report

Age-22, Sex- Male, Address- Kanjiramkulam, Thiruvananthapuram, Religion– Christian, Occupation– Student.

Presenting Complaints

- Weakness of right side of the body since 3 years associated with paraesthesia over both limbs.
- Difficulty in swallowing since 3 months.

History of Presenting Complaints

The patient born to non-consanguineous parents (NCP) and normal developmental milestones, was in his usual state of health since 3 years ago. He started experiencing weakness of his right foot on trying to get up from sitting position. His leg went wobbling on trying to walk. According to the patient he noticed this difficulty followed by septoplasty which he underwent 3 years before. Within a few months, he noticed an aggravation of symptoms by which he felt more effort to walk. Gradually he noticed tingling sensation over his rt leg up to thighs. There was an aggravation of symptoms during summer season, on exposure to heat and followed by any physical activity. He went to North American Country for his higher studies where he was exposed to extreme climates and noticed mild remission of symptoms but slowly progressed within one year. He developed difficulty in initiation of sleep and paraesthesia developed over bilateral lower limbs. Within a year he developed weakness of the entire rt side of the body associated with tingling sensation. He came back to India after 2 years, after which there was a sudden aggravation of symptoms. He felt as if he is having a flat foot and absence of his right limb. There was occasional tendency to fall. He also developed difficulty in swallowing liquids. He consulted a neurologist; an MRI was taken and was advised to do a CSF analysis for confirmation of diagnosis. As the patient was not willing for further intervention, he came to the OPD of Govt. Ayurveda College, Thiruvananthapuram, for management of his condition.

History of past illness

Deviated nasal septum– surgically corrected, h/o bronchial asthma since 15 years of age, h/o clinical depression - 16 years of age.

Family history

Nothing relevant, no h/o any autoimmune diseases or similar illness running in the family.

Birth history

Second child of NCP, FTNVD, Birth wt – 2.8 kg, mother had severe anaemia during the entire period of gestation, hyperemesis gravidarum.

Psychosocial History

Lives with mother father and two brothers, anxious, depressive mood.

Personal History

Bowel – Irregular consistency and evacuation, Appetite – Adequate, Micturition – Regular, Sleep – Difficulty in initiation, Allergy – Allergic to dust, h/o recurrent rhinitis till 2 yrs before.

General Examination

Conscious, alert, oriented to time place and person, Not making eye contact, depressive mood, Built– Lean, Nutrition– Moderate, Facies– Anxious, Gait– Limping, PICCLE– Absent, Ht– 168cm, Wt– 45kg, BMI– 15.9kg/sqm, PR– 78/m, regular, rhythmic, full volume, HR– 78/ min, regular, BP– 90 /62 mmhg, rt hand sitting, RR- 18/ min.

HMF- Mood– depressive, muscle tone –spastic (b/l l/l),

Muscle bulk

	Left	Right
Upper arm	22 cm	22 cm
Lower arm	18 cm	19 cm
Thigh	33 cm	34 cm
Calf	30 cm	30 cm

Muscle Power

	Rt	Lt
Shoulder	4+	5
Elbow	5	5
Wrist	5	5
Hand grip	4+	4+
Hip	4+	5
Knee	4-	5
Foot	5	5

Reflex

	KJ	AJ	SJ	BJ	TJ
Right	3+	2+	3+	2+	3+
Left	3+	2+	2+	2+	2+

Coordination

Tandem walking – Not possible

Rhombergs sign– Not possible due to postural instability.

Sensory system – Intact

Cranial nerves – Intact

Investigations

Hematology

Hb– 14.4, T.WBC– 6090, DC – WNL, FBS– 85, PPBS– 116, T.Cholesterol– 154, HDL– 54, LDL- 87, Triglycerides – 63, LFT– WNL, RFT – WNL.

MRI Brain

1. Multiple punctate and a few ovoid T2 FLAIR hypodense foci in periventricular and deep white matter of bilateral frontoparietal lobes predominantly in the left parietal lobe.
2. Feature in favour of CNS Demyelination likely Multiple Sclerosis.

Ayurvedic Clinical Assessment

Dosha: Vata pithavrudhi, Kapha kshayam, Dhatu: Rasa, Rakta, Mamsa, Medus, Upadhatu: Sira, Srotas: Prana vaha srotus, Rasavaha, Raktavaha, Pureesha, Srotodushti: Sangam, Roga margam: Madyamam, bahyam, Udbhavasthanam: Pakwasaya, Vyakthasthanam: Sarvasareera, Agni: Mandam.

Diagnosis

From the clinical features and MRI findings, the following differential diagnoses have been made.

S.No	Category	DD	Similar Factors	Ruled Out By
1	Vascular Causes	Stroke	UMN signs	No evidence of acute or chronic infarcts in MRI
		CNS Vasculitis	Neurological deficits mimicking MS	Diffuse MRI changes
2	Metabolic Disorders	Leukodystrophy	Progressive neurological deficits	Genetic testing and MRI
		Vit B 12 deficiency	Subacute combined degeneration of the spinal cord, paresthesia, ataxia	Serum B 12 levels
3	Inflammatory	Guillen Barre syndrome	Progressive weakness, demyelination	NCT - normal
		Transverse myelitis	Tingling or burning sensation	MRI – no spinal cord lesions
4	Neoplasms	Primary CNS lymphoma	Neurological deficits mimicking MS	Focal enhancing lesions on MRI
5	Infections	Lymes disease	Neurological symptoms with white matter lesions in MRI	No signs of infection in serology
		HIV	Weight loss, fatigue, weakness, neurocognitive disorders	MRI
6	Others	Muscular dystrophy	Progressive weakness and loss of muscle mass, difficulty in swallowing	Low muscle tone, atrophy of muscles, MRI
		MND	Exaggerated reflexes, weakness, HMF affected	No hypotonia, no fasciculations
		Multiple Sclerosis	Progressive weakness aggravates after physical activity, ataxia, depressive mood, MRI	

From the above details the disease can be diagnosed as multiple sclerosis. The golden criteria for the diagnosis of Multiple Sclerosis are Mc Donalds Criteria which confirms the diagnosis if there is evidence of neurological damage clinically and in MRI along with dissemination in time and space. Dissemination in time means having two or more episodes of worsening separated by at least one month and slow stepwise progression. Dissemination in space refers to the fact that multiple part of the brain is affected.

The presentation of this case is characterized by a cluster of symptoms resembling different types of *Avarana* namely *Pithavruta vata, Kaphavruta udana vayu, Pithavruta prana vayu, Pithavruta vyana vayu* and *Kaphavruta vyana.* Considering the fact that the patient feels *Anupasaya* to *Ushna*, there is an aggravation of symptoms on exposure to *Pithavardhaka nidanas*. Hence it can be diagnosed as *Pithavrutavata*.

Treatment Done

Stage	Internal	External	Condition of Patient
Stage 1 Appetite – Reduced Bowel – Irregular Weakness and sensory symptoms present, mild spasticity	*Gandharvahasthadi kasayam* - 90ml bd b/f *Ashtachoornam* *Ekangaveera rasam* 1-0-1 *Punarnavasavam* + *Balarishtam*	*Udwarthanam*	Appetite improved Bowel – Became regular
Stage 2 Weakness and sensory symptoms persist Sleep initiation difficulty present		*Dhanyamladhara* – 3 days	Mild improvement in sensory symptoms
Stage 3		*Snigdha dhanyamla dhara* – 4 days *Tailam– Narayana tailam*	Sleep improved, motor symptoms improved significantly, sensory symptoms reduced
Stage 4	*Achasnehapanam* with *Indukantha ghritam* – 7 days	*Abhyangam– Narayana tailam* - 3 days Mild *Ushmasweda*	
Stage 5		*Anulomana–Nimbamruta Eranda tailam* – 20ml (6 *Vegas*)	Sensory symptoms completely relieved, motor symptoms improved significantly, no swaying on walking, could feel his legs, muscle power improved
Stage 6 Mild weakness over flanks	*Maharasnadi kashayam* – 90 ml morning	*Yapana vasthi* (7 days) *Ksheerakashayam– Bala, Atibala, Apamargam, Yavam* *Ksheerabala Tailam* *Kalyanaka Ghritam* *Yashtimadhu Kalkam*	Sleep improved, tingling sensation relieved, weakness improved, able to walk without instability, gait became normal

Advice on Discharge

1. *Maharasnadi kashayam* – 90 ml bd b/f
2. *Suvarnamukthadi tab* – 1-0-1 a/f
3. *Dasamoolahareetaki* 1 tsp HS
4. *Kalyanakaghritam* 1 tsp morning in empty stomach
5. *Balatailam* – External application

RESULT

At the time of discharge the sensory discomfort of the patient relieved completely. Weakness and autonomic dysfunctions also improved significantly.

Assessment Scales	Before treatment	After treatment
Modified Ashworth Scale (for spasticity)[10]	2	1
Berg Balance Scale[11]	42/56	56/56
Reflex	Exaggerated	Exaggerated
Power		
Shoulder	4	5

Hand grip	weak	Strong
Hip	4	5
Knee	3+	4+
Foot	3+	4+

DISCUSSION

In the present case the mother being anemic during the entire period of her gestation, there is increased *Rukshata* in her body, *Rasa kshaya* and thus *Garbha poshana* does not occur properly. This might have contributed to defective nourishment and development of *Garbha*. The child since birth might have improper *Rasa dhatu* and thus accumulation of *Ama*. His *Pranavaha srotus* is also affected owing to bronchial asthma since childhood. This may have lead to poor absorption and improper development making him prone to infections. The patient also reports recurrent rhinitis and upper respiratory tract infections. *Pranavaha srotus* vitiated due to increased *Rukshata* in turn vitiates the *Rasavaha srotus* as both of them share the same *Prabhavasthana*. The improper circulation of *Rasa* causes inadequate nourishment of the rest of *Dhatus* manifesting here as *Mamsa medo dhatukshaya*. Due to *Rasa ksaya* in the long run there is *Agnimandya* which leads to *Kapha pitha dushti* the accumulation of which causes *Avarana* of *Vata*. Thus, *Avarana* also contributes to *Vatavrudhi* and thus *Dhatukshaya*.

Considering these facts the treatment principles of *Vatavyadhi, Jwara, Kshaya* and *Manasika vyadhi* can be adopted at different stages. Here the treatment starts with internal administration of *Gandharvahasthadi kashayam* and *Ashtachurna* aimed to manage *Dosas* at *Koshta* level. External *Rukshana* in the form of *Udwarthana* was also done as the *Purvakarma* of *Snehapana*. After *Rukshana* the patient felt a generalized well being his appetite and bowel improved. This was followed by *Snehapana*. Here the disease being an autoimmune inflammatory type, the treatment principle of *Jwara* is adopted and *Indukantha ghrita* was selected. It also acts as *Srotoshodhana*, thus apt in *Avarana*. Only *Mrudu swedana* was given to the patient as *Usna* is *Anupasaya*. Adopting the treatment principle of *Avarana* followed by *Snehapana anulomana* was done with *Nimbamruta eranda taila*. After *Sodhana* there was significant improvement in his condition as shown in the table. Thus after removing *Avarana* and proper *Srotosodhana brumhana* in the form of *Yapana vasthi* was administered. At this stage considering *Vata* as the *Pradhana dosha* and taking *Manasika vikara* of the patient into account *Kalyanaka ghrita* was selected for *Vasthi*.

CONCLUSION

The case diagnosed as Multiple Sclerosis was effectively managed by adopting the treatment principles of Ayurveda in different contexts. Hence it can be concluded that this is an effective treatment protocol in this case. By closely observing the *Avastha* of patient and the status of *Dosas* different treatment principles can be adopted wisely in similar cases.

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