



Multiple Sclerosis – An Ayurvedic Perspective

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Abstract: Multiple sclerosis, a chronic inflammatory disorder, is the most prevalent neurological impairment resulting in severe physical and cognitive disability. It is a demyelinating disorder characterized by a triad of inflammation, demyelination, and gliosis. The primary cause of myelin sheath destruction is multifocal zones of inflammation due to focal T- lymphocyte, macrophage infiltration and oligodendrocyte death. As the disease is considered multifactorial in occurrence, environmental factors such as vitamin deficiencies, infectious agents, smoking, etc is as imperative as genetic predisposition. The unpredictability of symptoms shown by a Multiple sclerosis patient is mainly attributed to the fact that, it can affect any part of the CNS. Hence, direct parallels of Multiple Sclerosis cannot be drawn with any disease in our classics.

Acharya Charaka has mentioned that all diseases cannot be labelled, unsaid diseases can be studied on the basis of kupita dosha, hetu and sthana. He has thus introduced the concept of Anukta vyadhi for understanding the pathogenesis of modern diseases. Clinical presentation of Multiple sclerosis patient varies on the basis of subtypes and stages of the disease. Eventhough the general presentation of a Multiple sclerosis patient shows role of avarana in earlier stages, diverse Vyadhyavasthas which is manifested in different stages of progression and pathological states shows the involvement of Vata-paittika, Vata-kaphaja and Sannipatika doshas. As the condition progresses and relapses occur more frequently, body undergoes dhatupaka and the patient sets foot into the stage of dhatukshaya. To counteract the progression of the disease and to ensure quality of life further researches must be carried out on role of ayurveda in treating Multiple sclerosis.

IndexTerms - Multiple Sclerosis, Anukta Vyadhi

I. INTRODUCTION

Multiple sclerosis is a chronic inflammatory disorder affecting the central nervous system characterised by severe physical or cognitive incapacitation as well as neurological problems in young adults¹. Even though MS is considered as a multifactorial disease, its etiology and pathogenesis remain unclear. It is found to be approximately threefold common in women than in men. The age of onset is typically between 20 and 40 years but it can present across the lifespan. The prevalence varies with rates increasing at higher latitudes. The current WHO Multiple Sclerosis International Federation (MISF) "Atlas of MS" 2013 quotes prevalence of 1.8 million cases worldwide².

II. DESCRIPTION ABOUT MULTIPLE SCLEROSIS

MS presents with a broad range of symptoms reflective of multifocal lesions of CNS. Severity and range of symptoms are reflective of lesions burden, location and degree of tissue injury. Pathogenesis of MS can be grouped under 3 categories: Immune factors, Environmental factors and genetic associations. Autoimmune attack on the CNS is the leading hypothesized etiology of MS. Cytokines and chemokines appear to regulate many of the cellular interactions that operate in MS. Researchers hypothesize that an unknown antigen triggers and activates both Th1 & Th17 leading to CNS endothelium attachment, crossing of blood-brain barrier and subsequent immune attack through cross-reactivity³. The lesions vary in size of 1 or 2mm to several centimeters. At sites of inflammation, blood brain barrier is disrupted and in many lesions myelin-specific autoantibodies are present which promotes demyelination directly as well as by stimulating microglial cells and macrophages. Environmental factors include latitude gradients. Vitamin D deficiency has been considered as possible etiology for predisposition of population. Different infections including Epstein Barr virus may also play a role. It has been noted that there is a high risk of MS in individuals with biological relatives with MS. Major Histocompatibility Complex on Chromosome 6 is the strongest MS susceptibility region in the genome. The complex interactions between various environmental factors with patient genetics may finally result in the development of Multiple sclerosis. Typical symptoms include visual disturbances like vision loss, double vision, symptoms relating to optic neuritis, Vestibular symptoms and bulbar dysfunction like dysarthria and dysphagia. Motor system involvement is also seen in majority of the cases, which include weakness, tremors and spasticity. The involvement of cognitive and psychiatric symptom is yet another reflection of multifocal involvement in MS. Apart from this, ancillary symptoms like heat sensitivity, Lhermitte's symptom, Paroxysmal symptoms etc are seen in MS patients.

Interpreting the pathogenesis of Multiple sclerosis so as to better understand and treat the disease on ayurvedic terms can be made possible by comprehending MS under the concept of anukta vyadhi mentioned by Charakacharya in Sutrasthana. Multiple sclerosis is a disease which is less explored in Ayurveda. More studies have to be conducted on this topic. This article explores a holistic approach to support and manage multiple sclerosis (MS) patients through the principles of Ayurveda.

III Materials and Methods

3.1 Multiple Sclerosis – An Ayurvedic View

The term anukta literally means that which is unstated. The concept of trividha bodhya sangraha i.e, Vikara prakriti, adhishtana and samuthana which is the basic concept of anukta vyadhi can be applied on Multiple sclerosis³. Thus, Multiple sclerosis should be detailed under three headings-

- 1) Nature of disease (Vikara prakriti)
- 2) Site of disease manifestation (Adhishtana)
- 3) Etiological factors (Hetu vishesha)

Hence to treat a disease such as MS, one should dissect its etiopathogenesis into its involved hetu, doshapradhanya, dushya, vyadhyavastha, srotas, agni etc. These concepts provides an insightful grasp on the development of illness and its diagnostics.

3.2 Etiology

Researches have stated genetic influence or beejadushti as a major predisposing factor for the disease. Acharya Charaka has explained that anomalies in beeja, bheejabhaga and bheejabhaga avayava can result in derangements in the healthy functioning of our body. There is evidence in our classics which states that these anomalies can present as neurological deficits. In MS, this possibility of *bheejadhusti* and *aganthuja nidanas*, which have the potential to initiate and trigger the pathology, is seen in various patients. Patients who are genetically predisposed are thought to have an inherent "kha vaigunya," and the triggering factors act as a sannikrishta nidana in causing the sthanasamsraya of roga at shiras by the dosha dooshya sammurchana of involved doshas and dooshyas in that particular roga samprapthi.

Another leading hypothesized etiology of MS is autoimmune attacks on the central nervous system. Both the cell mediated and humoral immunity play a significant role in its pathogenesis. These act on the blood brain barrier as well as the neurons and cause inflammation and demyelination. An efficient functioning dhatwagni is an indispensable part of a healthy immune system. In MS patients features of dhatwagni vaigunya can be noted. This along with vata prakopa can result in dhatusaraheenata which eventually affects the ojas resulting in the breakdown of self-tolerance, the bala of rogi, more specifically the vyadhikshmathva and vyadhibala virodhithva, is affected.

Another observation noted in relation with MS is, Vitamin D deficiency can act as a risk factor for Multiple Sclerosis⁶. Diet is considered to play a pivotal role in the development of autoimmune diseases. Recent researches have brought to light the influence of gut microbiomes on immunity. There is a dynamic interplay between gut microbiota and autoimmunity⁷. Acharya Vagbhata has mentioned that the intake of food items in heenamatra can result in decline of bala, ojas and will eventually lead to the development of vata rogas⁸. The concept of heenamatra can be interpreted in terms of both quality and quantity. Unhealthy eating habits have become more common in the current scenario. The younger generation is more exposed to junk food, grilled meat, spicy and partially cooked food items. Intake of ahara which is vidahi, guru, atisnigdha, virudha, atisheeta and abhishyandhi along with viharas like akalabhojana, pramitashana, adhyashana, ratrijagarana, ativyayama can lead to agni vaishamyas. This will lead to formation of ama and finally dosha-dushya sammurchana.

Apart from this, agantuja factors like various infections, extreme variations in diet and lifestyle can also be considered as nidana for the evolution of disease.

3.3 Prodromal symptoms

Poorvarupa are symptoms which appear in the sthanasamsraya stage of Shatkriyakala⁹. Ayurveda has explained that not all diseases may have poorvarupa, as in Vatavyadhi. In vatavyadhi, acharya has mentioned that lakshanas are avyakta in the sthanasamsraya stage. Similarly in Multiple sclerosis indistinct features are seen in the early stages of the disease.

3.4 Symptomatology

Multiple Sclerosis is a disease which is characterized by neurodegeneration. It begins with demyelination, followed by axonal damage. Axons will initially adapt by remyelination but with time oligodendrocytes fail to remyelinate resulting in progressive and irreversible neurological disability. This results in the presentation of symptoms such as

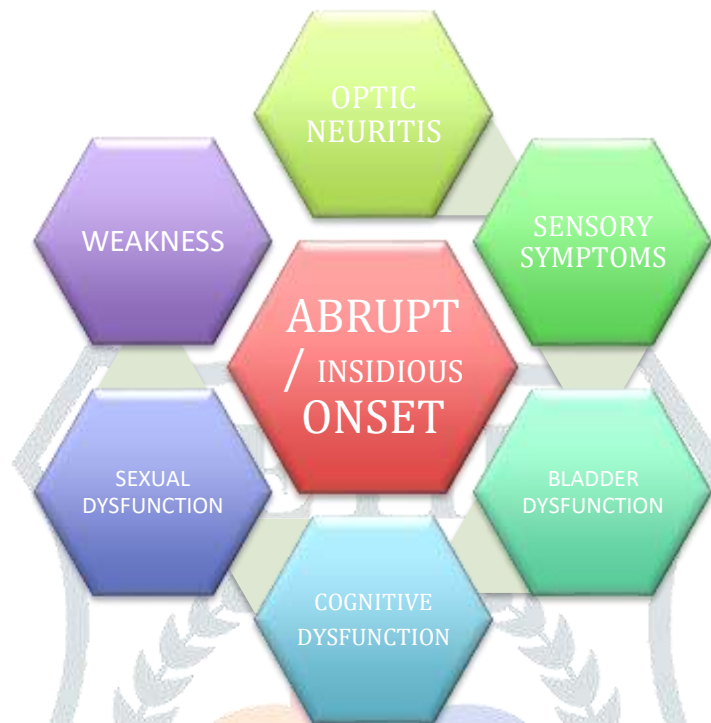


Figure1¹⁰

Weakness is associated with other Upper Motor Neuron symptoms such as hyperreflexia, spasticity etc. These symptoms present as disturbance in gait, exercise induced weakness, loss of strength or speed. Another important feature is optic neuritis which presents as diminished vision or loss of colour perception in central field. Thus, there is involvement of multiple dhatus and srotas in MS and the symptomatology related to it is varied in various patients according to the varying *vyadhyavasthas* involved in *samprapthi* and the constitution of the patient. By considering the extensive spectrum of symptomatology, the chance of *vata dushti*, or more precisely, the *prathilomatha* of *vata* is undeniable. Especially the *pranavata* and along with *vyana*, *apana*, *udana*, and *samana vata* are to be assumed to undergo *kopa* as the symptoms indicating the derangements in *bhudhi*, *indriya*, *chitha*, *anna pravesha*, *vakpravritthi*, *bala*, *smriti*, *gathi*, *apakshepana*, *utshepana*, and *nimeshonmeshanadi* are evident at different points in the disease. On analysing the clinical presentations seen in MS, involvement of different types of *vatas* can be ascertained.

Table 1

CLINICAL PRESENTATION	VATA INVOLVED	FUNCTION AFFECTED
<i>Optic neuritis</i>	PRANA	Indriya upaghata ¹¹
<i>Dysarthria, dementia</i>	UDANA	Vak pravritti prayatna urja, smriti ¹²
<i>Motor weakness & Sensory symptoms</i>	VYANA	Balabramsham, skhalita gati, sarvangaroga, anga suptata ¹³
<i>Bladder dysfunction</i>	APANA	Involvement of basti

Apart from these features, cognitive dysfunction is also noted which suggests the role of *manas*, *manovaha srotas* as well as *ojas*.

3.5 Pathogenesis

While developing the pathogenesis of Multiple Sclerosis one should look into the *tridosha* status within the disease. In a healthy functioning CNS the integrity of each and every neuron is maintained by balance of *vata*, *pitta* and *kapha*. The *chala guna* of *vata*, *sthira-snigdha guna* of *kapha* and *ushna guna* of *pitta* counterbalance each other so that our nervous system function as a superorganism. However in multiple sclerosis, *kapha kshaya* occurs disrupting the axons, so that *gati* of *vata* is hindered thereby damaging the balance.

MS manifests through 4 different disease courses, i.e relapsing remitting, secondary progressive, primary progressive and progressive relapsing. This relapsing remitting feature of multiple sclerosis is mainly due to continuous demyelination & remyelination that occurs in earlier stages of the disease. The relapsing nature of the disease can be seen in *vyadhi's* mentioned in our classics such as *vatarakta*, *vishama jwara* and *dhatugata jwara*. The different patterns of progression in different patients also assert that one has to adopt an individualistic view in comprehending the disease and thus in the treatment as well. The role of *vata* is pivotal in the progression of this disease and therefore concepts mentioned in *vatavyadhi* has to be included while assessing an MS patient. As *vata dushti* can occur either by *avarana* or *dhathukshaya*, it is to be inferred that the role of both in various degrees and in various stages of disease is unquestionable and can be seen intermittently throughout the development of the disease.

In most cases, an initial insult, either physically (a viral infection) or mentally (repeated mental traumas), is required for the disease to begin, as is the case with most auto-immune diseases. The patient might be already genetically susceptible (*beeja dushti*), thus causing an inherent *kha vaigunya* or may not be. The symptoms appear gradually and progressively as the pathological process begins. As in the *poorva roopa lakshanas* of *vatavyadhi*, this might be *avyakta*, or in major cases, prodromal *vata prakopa lakshanas* like *toda*, *ruk*, *balahani*, *harshana*, *kampa*, *anga gourava*, and *sankoja*, which may mimic a peripheral neuropathy, may occur. As the condition progresses, along with the evident involvement of *pitha* and *kapha* in *samsargaja* or *avarana* aspects,

corresponding symptoms arise. This may include *daha*, sensory impairments, or further progression of the disease to advanced stages. In certain pathological states of MS or its variants, one must understand the degree of *avarana* and *dhatukshaya*. Although the basic pathogenesis of MS involves loss of oligodendrocytes, thinning or complete loss of myelin, and neuronal loss which point towards a *dhatukshaya* avastha, the on and off difficulties with symptoms usually indicate more of an *avarana* avastha at the point. It is reasonable to expect a transition from *doshavarana* to *anyonya avarana* as the disease progresses to advanced stages. *Daha*, *sheeta kamatha*, *brama*, *vaksanga*, *bala varna pranasha*, *gathikshya*, general debility, and other *avarana* lakshanas are present in different patients at different stages of disease and to varying degrees which ultimately leads to *dhatukshaya*.

Thus, we can conclude that the disease progresses through stages of *dhatupaka*, *avarana* and *dhatukshaya* interchangeably.

Thus, it can present through 3 pathways –

- 1) Stage of *Avarana* followed by *dhatukshaya*
- 2) Features of *avarana* and *dhatukshaya* interchangeably
- 3) Prominent features of *dhatukshaya*

3.5 Treatment

The *nidana*, *dosha*, *dushya* and *samprapti* of a disease determines the treatment principle. According to Ayurveda concepts *chikitsa* should aim at *samprapti vighatana*. Hence any protocol aimed at successfully treating Multiple sclerosis should include pacifying *vata* in *Madhyama rogamarga*, correcting *agni vaishmya* and stabilizing *ojas* and *mind*. The treatment chosen should be depending on the *vyadhyavastha* of the person. *Srotoshodhana* should be done in the initial stages and *rasayana chikitsa* should be provided keeping in mind the extreme *dhatukshaya* the body may undergo. Intervention at proper time is the key to manage chronic degenerative diseases like Multiple sclerosis.

IV. RESULTS AND DISCUSSION

Multiple sclerosis is a progressive disease and in most cases it takes years for the disease to advance. Upon analysing the features of MS it can be concluded that it is a *vata pradhana tridoshaja vyadhi* which affects the *indriyas*, *manas*, *sapta dhatus* and finally *ojas*. It is a condition in which *dhatwagni* is deeply affected and *avarana* as well as *dhatu kshaya* plays an equally important role in its progression. While treating multiple sclerosis, one should try to prevent neurodegeneration and promote remyelination. Medicines which are *vatapittahara* and *deepana – pachana* should be generally used. Treatment protocols mentioned in *vatarakta*, *vishama jwara*, *dhatugata jwara* and *vatvyadhi* can be applied in Multiple sclerosis. However, the treatment is highly patient specific, depending on the *vyadhyavastha* and the symptomatology of the patient. Multiple sclerosis is a *chirakari* as well as *yapya vyadhi* which can be better managed through ayurveda by preventing the progression of disease. Further researches are required on Multiple sclerosis to understand it better in ayurvedic terms and to manage it more successfully.

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