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MULTIPLE SCLEROSIS: AYURVEDIC APPROACH

¹Dr. Anjali, ²Dr. Darshna Pandya

¹M.D. scholar, ² Associate professor

¹Department of Roga Nidana evam Vikriti Vigyana,

¹Institute of Teaching and Research in Ayurveda, Ministry of Ayush, Jamnagar, Gujarat, India

Abstract:

Introduction: Multiple sclerosis (MS) is an autoimmune demyelinating disease of central nervous system which can lead to various physical or cognitive disability as well as neurological defects. The global prevalence of MS was 35.9 per 100,000 people in 2020. In India it was regarded as a rare disease in past but marked surge in cases of the disease are observed in recent years. Like other autoimmune diseases exact aetiology and pathogenesis is not clear yet. However available data shows that causes of MS are multifactorial and include genetic predisposition together with environmental factors. Clinical features vary with the site of lesions. Most common symptoms are visual impairments, fatigue (*Angamarda*), tingling and numbness (*Supti*), muscle spasm (*Udveshtana*), stiffness (*Angagraha*) and weakness (*Daurbalya*), pain (various kinds of *Vedana*), depression and anxiety (*Chittodvega / Chittavasada*), cognitive impairment (*Prana* involvement), bladder control & bowel problems (*Apana* dysfunction), speech and swallowing problems (*Prana – Udana* dysfunction). **Aim** – To understand the different dimensions of MS in Ayurvedic parlance. **Materials and methods** – Modern standard textbooks of medicine, Ayurvedic classical texts and research articles related to present study were viewed to understand the disease MS. **Result**– MS should be studied under the label of *Anukta Vyadhi* since no direct description of the disease is available in Ayurvedic classics. On the basis of clinical presentation role of *Vata* vitiation is evident in development of MS. It can be correlated with different domains of *Vatavyadhi* depending on the presentation and pathology. As there is no cure of the disease in modern medicine, Ayurveda can provide much needed insights in improving quality of life of patients and providing better management.

Index Terms - Multiple sclerosis, Demyelinating disorders, Ayurveda, *Vatavyadhi*.

I. INTRODUCTION

Multiple sclerosis (MS) is an autoimmune disease of the central nervous system (CNS) characterized by chronic inflammation, demyelination, gliosis, and neuronal loss.¹ It is the most frequent cause of non-traumatic neurologic disability in young and middle-aged adults.² The global prevalence of MS was 35.9 per 100,000 people in 2020. It is about twice as common in females.³ In India it was regarded as a rare disease in past but marked surge in cases of the disease is observed in recent years.⁴ Exact data is not available due to lack of epidemiological studies. The prevalence of MS is low near the equator and increases in the temperate zones of both hemispheres.⁵ The age of onset is typically between 20 and 40 years.⁶

Genetic as well as environmental factors have evident role in MS. The risk of familial recurrence is about 15%. Environmental factors like vitamin D deficiency and exposure to Epstein–Barr virus is known to increase the MS risk but underlying mechanism is not clear yet. An immune hypothesis is supported by increased levels of activated T lymphocytes in the CSF and increased immunoglobulin synthesis within the CNS. Activated T lymphocytes enter across the blood–brain barrier. These recognize myelin-derived antigens on the surface of the nervous system’s antigen-presenting cells, the microglia and undergo clonal proliferation.

The resulting inflammatory cascade releases cytokines and initiates destruction of the oligo-dendrocyte-myelin unit by macrophages.

Main pathology behind the disease is demyelination caused by autoimmune response directed against CNS myelin. Demyelination of neurons further lead to axonal damage contributing in irreversible neurologic disability.

Symptoms of MS are extremely variable and depend on the location and severity of lesions within the CNS. Most common manifestations are related to sensory symptoms, motor symptoms, autonomic symptoms, cerebellar symptoms, etc. like fatigue (*Angamarda*), tingling and numbness (*Supti*), muscle spasm (*Udveshtana*), stiffness (*Angagraha*) and weakness (*Daurbalya*), pain (various kinds of *Vedana*), depression and anxiety (*Chittodvega / Chittavasada*), cognitive problems like impaired thinking, planning and learning ability (*Prana* involvement), bladder control & bowel problems like constipation due to ANS involvement (*Apana* dysfunction), speech and swallowing problems (*Prana – Udana* dysfunction).

There are four clinical types of MS based on the course of disease⁷ –

- i. Relapsing/remitting MS (RRMS) – accounts for 85% of cases at onset and is characterized by discrete attacks with often complete recovery over ensuing weeks to months.
- ii. Secondary progressive MS (SPMS) - always began as RRMS. However, at some point the clinical course changes and a steady deterioration is observed in function un-associated with acute attacks. For a RRMS patient risk of developing SPMS is ~2.5% each year.
- iii. Primary progressive MS (PPMS) – accounts for ~15% of cases and there is a steady decline in function from onset.
- iv. Progressive/relapsing MS (PRMS) – accounts for ~5% cases. It includes a steady deterioration from disease onset along with occasional attacks super imposed.

No single test can diagnose the MS. Macdonald criteria⁸ for the diagnosis of multiple sclerosis include clinical condition of patients combined with MRI and evoked potential findings. CSF examination can demonstrate inflammatory nature of lesion in absence of other disorders.

There is no treatment available to promote re-myelination. Therefore, current management of MS include treatment of acute attacks with short term glucocorticoids, relapsing MS with disease modifying reagents like beta-interferon, glatiramer acetate, fingolimod, natalizumab; and symptomatic treatment.

In such conditions, an attempt to understand the disease in Ayurveda perspective is needed. Ayurvedic understanding of diseases pathogenesis and accordingly the diseases management may help someone, to restrict or even delay the progression of the disease.

II. AIM

To understand the different dimensions of MS in Ayurvedic parlance.

III. MATERIALS AND METHODS

Modern standard textbooks of medicine, research articles from various search engines including ResearchGate, PubMed and Google Scholar related to present study were viewed to understand the disease MS. Ayurvedic classical texts were referred for comprehending the pathophysiology from Ayurvedic perspective.

IV. MULTIPLE SCLEROSIS IN AYURVEDA

There is no disease entity exist in Ayurveda classics that can be one to one compared with MS. Previous conceptual and case studies diagnosed MS as *Prana Avrutha Vyana* and due to *Vata Pitta Vriddhi* and *Kapha Kshaya*⁹, *Snayusadam* with *Nadibalakshayam*¹⁰, *Anukta Vatvyadhi*¹¹, *Dhatukshayajanya Vaatvyadhi*.¹² Role of *Vata* vitiation behind pathogenesis of MS is accepted by all regardless of different opinions presented by scholars.

On the account of its presentation and involvement of Nervous system, the disease may be compared with *Vatavyadhi*. It should be considered as an *Anukta Vyadhi* and based on the pathology and clinical presentation of the disease, its *Samprapti* can be understood. Basic foundation of *Samprapti* of any disease is constituted by status of *Dosha*, *Dhatu*, *Srotas* and *Agni*.

Dosha - *Va Gatigandhanyo*¹³ and *Vayu Tantrayantradhara*¹⁴ denote *Vata* as nervous system of body. As MS is a neurodegenerative disease, role of vitiated *Vata* is obvious in its pathogenesis. MS lesions are located in CNS and *Shira* is described as *Uttamanga* where all the senses of body reside.¹⁵ Symptoms manifestation of disease occur according to the site of *Kha Vaigunya* in *Shira*.¹⁶ Normal *Vata* is responsible for proper functioning of all sense organs, cognitive functions, elimination of waste, state of mind and so on.¹⁷

whereas vitiated *Vata* results in the impairment of all these functions and development of symptoms similar to MS. Hence MS can be undoubtedly looked as a *Vatavyadhi*.

Vata can be vitiated via three different pathologies i.e., *Svanidan Prakopa*, *Dhatu Kshaya* and *Aavarana*.¹⁸ *Svanidan Prakopa* implies vitiation of *Vata* by indulgence of food and regime having properties similar to *Vata* i.e., *Ruksha*, *Sheeta*, *Laghu*, *Sukshama*, *Chala*, *Vishada* and *Khara*.¹⁹ Such causative factors include excess consumption of dry, cold, pungent, bitter, astringent food, reduced or irregular food intake excessive physical activity, traumatic injury, suppression of urges, not sleeping during night and others.²⁰

Dhatu Kshaya refers to not only quantitative but as well as qualitative depletion of *Dhatu*. Food, activities and psychological factors opposite to *Dhatu* in terms of *Dravya*, *Guna* and *Karma* cause *Dhatu Kshaya*.²¹ It leads to vitiation of *Vata* which in turn fills the empty channels formed because of *Dhatu Kshaya* resulting in generalized or localized disorders.^{22,23}

Aavarana- Tridosha circulate throughout the body but only *Vata* is capable of movement.²⁴ Vitiating *Vata* aggravates other two doshas and spread them in the body developing various diseases.²⁵ *Pitta*, *Kapha*, *Dhatu* or *Mala* obstructs the pathway of *Vata* resulting in *Aavarana*. *Aavarana* of one type of *Vata* can also occur by the other one.

Dhatu - Myelin sheath is made up of protein and fatty substances. So, myelin degeneration can occur due to *Mamsa* and *Meda Dhatu Kshaya*. *Majja* present in *Mastishk* is called as *Mastulunga*.²⁶ CNS being the site of MS lesion, direct involvement of *Majja Dhatu* can be inferred in its pathogenesis. A person with *Majja Dhatu Kshaya* is mentioned to always have *Vatavyadhi*²⁷ implying the link between *Vata Dosha* and *Majja Dhatu*. Normal function of *Majja Dhatu* is to nourish *Shukra Dhatu*. Hence impaired *Majja Dhatu* can cause sexual dysfunction presenting as loss of libido, male impotency etc.

Srotas - Food and activities with properties similar to *Dosha* and opposite to *Dhatu* cause *Srotodushti*.²⁸ Involvement of *Mamsa*, *Asthi* and *Majja Dhatu* in patients with MS imply the vitiation of respective *Srotas* too. In *Vatvyadhi*, there could be *Sanga* and/or *Vimargagaman* type of *Srotodushti*.

Agni - *Mandagni* is mentioned as major cause of all diseases.²⁹ *Mandagni* produces *Aama* in body and accumulation of *Aama* interferes the immune system of the body.³⁰ Hence favors the development of autoimmune diseases in body.

Symptoms of MS appear according to the location of lesion while *Vata* also develops symptoms as per the causative factors and vitiated site of body.³¹

Sign and symptoms of MS	Dosha / Dhatu involvement
Sensory symptoms (paraesthesia, hypesthesia, pain)	<i>Vata</i>
Weakness of the limbs	<i>Mamsa Kshaya</i>
Facial weakness	<i>Mamsa Kshaya</i>
Optic neuritis, Diplopia	<i>Vata</i>
Spasticity	<i>Vata Kapha – Sheetana Guna</i>
Ataxia	<i>Prana- Vyana Vayu Dushti</i>
Vertigo	<i>Majja Kshaya</i>
Dysarthria	<i>Udana Vayu Dushti</i>
Bladder dysfunction	<i>Apana Vayu Dushti</i>
Constipation	<i>Apana Vayu Dushti</i>
Bowel incontinence	<i>Apana Vayu Dushti</i>
Sexual dysfunction	<i>Apana Vayu Dushti</i>
Cognitive dysfunction (memory loss, impaired attention, slowed information processing)	<i>Prana Vayu Dushti</i>
Depression	<i>Prana Vayu Dushti</i>
Fatigue	<i>Rasa Kshaya</i>

Vatavyadhi are usually difficult to treat. *Aavruta Vata* is difficult to treat or incurable after 1 yr. General treatment of *Nirupstambha Vatavyadhi* include *Snehan*, *Svedan*, *Mridu Virechan*, *Niruha* and *Anuvasana Basti* depending on the condition of the patient.³² In *Aavranjanya Vatavyadhi*, *Aavarak* should be identified and treated first. In case of *Aavarana* by *Pitta* and *Kapha* both, *Pitta* should be treated first. No definite treatment modality can be stated for management of MS as there are many variants of pathologies responsible for disease

development. Hence MS can be managed on the line of *Vatavyadhi* but exact treatment depending upon the presenting condition of the patient.

IV. Conclusion

There are lot of novel emerging diseases nowadays which are not described in classical Ayurvedic texts. Ayurvedic understanding of these diseases is vital for their proper management. One of such conditions is multiple sclerosis as there is no mention or direct correlation of it in Ayurveda. But it can be well understood as an *Anukta Vatvyadhi* with basic principles of Ayurveda. *Vatvyadhi* is a broad spectrum of diseases and can be developed by various different pathologies, therefore, all aspects should be considered before initiating the treatment. MS might not be cured completely but patient's quality of life can surely be enhanced by proper Ayurveda modalities.

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