



## Review Article

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### CONCEPTUAL UNDERSTANDING OF TRANSVERSE MYELITIS IN AYURVEDA: A CRITICAL REVIEW

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#### ABSTRACT

Transverse myelitis (TM) is a rare neurological disease of spinal cord inflammation. Onslaught inflammation damage the myelin is leading to nervous system scaring. Consequently, the patient presents devastating neurological effects. It can afflict people of any age, gender or race. Symptoms per usual evolve over hours or days and then deteriorate over days to weeks. Symptoms include pain, sensory problems, weakness in the legs and arms, and bladder and bowel problems. Most people partially recover within three months; others may be permanently disabled. There is no cure for TM thus far, but neurological deficit can be minimised. From the purview of Ayurveda, TM can be categorised under the spectrum of Vata disorder. Recent research report the successful treatment of TM. However, each explains the pathology differently. This review will discuss the concepts of TM apropos to Mishravarana (combined occlusion) and its management. We suggest that symptoms and pathology of TM simulate closely with Avaranajanya Vatavyadi (disease of Vata due to occlusion). Mishravarana (combined occlusion) illustrates the complexity of the disease process involved.

**Keywords:** Avarana, Mishravarana, Transverse myelitis, Vata Vyadi

#### INTRODUCTION

Transverse myelitis is an inflammation of the medulla spinalis. Transverse refers to the band-like sensation across the body's trunk, with sensory changes below; myelitis refers to spinal cord inflammation.<sup>1</sup> Inflammation within the spinal cord interrupts communications between nerve fibres in the spinal cord and the rest of the body, affecting sensation and nerve signal below the injury.<sup>2</sup> Transverse myelitis has a bimodal onset between 10-19 years and 30-39 years. Incidence rate 1-8/ million annually. 1/3rd of cases progress severe rapidly. The thoracic spine is involved in 80% of cases. Cervical and lumbar spine 10% each.<sup>3</sup> Based on the duration of symptoms, there are two types: Acute TM developing over hours to several days and subacute TM usually growing over one to four weeks. Based on the spinal lesion, acute complete TM involves the whole section of spinal cord, acute partial and longitudinally extensive.<sup>1</sup> The incident rate of TM is gradually increasing. The treatment option in contemporary science is limited, and as such, no definitive cure to date. However, various studies are available on the successful treatment of TM by Ayurveda. The authors have quoted TM differently based on its presentation, such as Pittavruta Vata (Vata occluded by Pitta), Kukundara Marmabhogata (injury to the vital point in low back region, one on each side of the vertebral column), Pakwashayagata Vata (vitiating of Vata in the colon),<sup>4</sup> Urusthambha (paralysis of thigh)<sup>5</sup>, Kaphavruta Vyana, Meda, Mamsa or Majjavaruta Vata (occlusion of Vyana Vata by Kapha, fat, muscle, or bone marrow).<sup>6</sup> Hence, understanding the concept of TM from an Ayurvedic perspective is the need of the hour. Thus, material helpful to this context was collected and compiled from different classical Ayurveda literature, textbooks, E-books, journals and internet sources.

#### Conceptual Study

Among the three Dosha, Vata has the exclusive ability to move. Vata governs all actions throughout the body, whether voluntary or involuntary.<sup>7</sup> As Vata derived from the root word Gati (movement) and Gandhana (knowledge perception), it can be generally attributed to the nervous system. Any disease affecting the nervous system can be included under the umbrella of Vata disorders.<sup>8</sup> The site of 5 types of Vata in the spine can be distributed as Prana and Udana in the cervical region, Samana at the thoracic level, Apana at the lumbar spine, and Vyana present all over. 5 types of Vata in its unvitiated state maintain the body functions. Spitting, sneezing, eructation, respiration, and deglutition are supported by Prana Vata.<sup>9</sup> vocalisation, drive, vital energy and strength is sustained by Udana Vata.<sup>10</sup> Samana Vata perpetuate the normal function of digestive fire.<sup>11</sup> Gait, flexion, extension and twinkling are assisted by Vyana Vata.<sup>12</sup> Normal urine, semen and faeces are fostered by Apana Vata.<sup>13</sup> So Vata in the vitiated state produces abnormal functions.

**Causes:** The exact cause of TM is unknown. Several conditions that appear to cause TM includes immune system disorder, infectious disease, systemic inflammatory disease, and vascular disease. Recent reports suggest ATM as an unexpected frequent complication of covid-19 and AZD1222 vaccine.<sup>14</sup>

**Symptoms:** The spinal cord segment determines the affected body part at which damage transpires.<sup>2</sup> In 2002 TM consortium has proposed the criteria for diagnosing idiopathic acute TM. They are bilateral sensorimotor and autonomic spinal cord dysfunction, clearly defined sensory level, progressing the clinical deficit from 4 hours to 21 days. CSF analysis reveals pleocytosis and elevated IgG index; MRI identifies gadolinium-enhancing

cord lesions.<sup>15</sup> Jindal et al. (2012)<sup>5</sup> diagnosed the patient presenting the symptoms of inability to move his legs and no sensation below his navel, coldness of leg, loss of appetite, and failure to hold the urge of defecation Urusthambha (Paralysis of thigh). Upendra Dixit (2014)<sup>6</sup> observed heaviness, loss of function, and numbness in both legs. MRI revealed acute transverse myelopathy, Brown sequard syndrome with the demyelinating process. The author considered a disease as Urusthambha (paralysis of thigh) involving different pathogenesis such as Kaphavruta Vyana (Vata occluded by Kapha), Mamsavruta Vata (Vata occluded by muscle), Medavruta Vata (Vata occluded by fat), Majjavruta Vata (Vata occluded by bone marrow) and Sankramaka Vyadi (infectious disease) along with the involvement of Prana Vata. Jithesh et al. (2017)<sup>4</sup> analysed acute weakness of lower half of the body, loss of sensation below nipples and obstruction of urine from almost nine months as subacute myelitis involving the pathology of Pittavruta Vata, Kaphavruta Vata, Kukundara Marmabhogata (injury to vital spot-on low back region, one on each side of the vertebral column) and Pakvashayagata Vata (vitiating Vata in the colon). On analysing the above condition, the symptoms imply one pathology that is combined occlusion. Here features including mutual occlusion of Vata and occlusion of other Dosha to a subtype of Vata are seen. TM generally presents with rapidly progressing muscle weakness in the legs, and cervical lesion presents with arm weakness. These symptoms are seen occlusion of Prana by Udana presents with loss of motor functions, loss of strength and may lead to death.<sup>16</sup> In most patients, the sensory level is documented below the dermatomal distribution of spinal lesions. The pain usually includes the lower back, extremities, and abdomen; tight band-like sensation, sharpshooting sensation, tingling, numbness, and burning sensation are familiar. In occlusion of the Samana by Kapha, coldness of body is felt.<sup>17</sup> occlusion of Vyana Vata by Pitta is characterised by a burning sensation, exhausted body, pain, increased temperature, convulsive limbs, and Gatra Sanga. In Kaphavruta Vyana (occlusion of Vyana by Kapha), heaviness all over the body, pain in all joints is observed.<sup>17</sup> occlusions of Vyana by Apana is characterised by abnormal function of faeces, urine, and semen.<sup>19</sup> As TM presents with typical bowel and bladder symptoms such as increased frequency, urgency, incontinence, difficulty voiding, constipation, and sexual dysfunction.

**Treatment:** In contemporary science, treatments such as IV corticosteroids, plasmapheresis, IVIG, cyclophosphamide, rituximab, stem cell therapy, physical therapy and psychotherapy are advised.<sup>20</sup> The Chikitsa of TM is done based on the stage of the disease and the patient's strength. Treatment is selected considering the Avarana (occlusion of body channels) and Dhatukshya (emaciation of body tissue) stage. Treatment of occlusion is aimed towards the removal of the occluder. Cleansing of the channel is done with Anabhishtandi and Snigdha medications. In all types of occlusions, prompt measure for Vata Anulomana and at the same time not antagonistic to Kapha and Pitta should be selected.<sup>21</sup> Different Panchakarma modalities like Yapana Basti and Sramsana, Rasayana are highly recommended. Usage of Shilajatu, Payas, Guggulu and Bhargavaprokta Rasayana are praised in this context.<sup>22</sup> In Anyonyavarana, the Vata should be redirected to the respective channels. Udana Vata directed upwards, Apana Vata assisted downwards. Samana Vata governed in the lateral direction. Vyana Vata en routed in an average trend, and Prana has to be protected.<sup>23</sup> As TM presents with Pitta and Kapha Avarana, the initial treatment should be Pittahara. Vata and Pitta present with opposite Sheeta cold and hot qualities, respectively. Hence, Sheeta cold, as well as Ushna Chikitsa (heat modalities), is advocated alternatively.<sup>24</sup> Virechana (purgation) is the solution for both Pitta and Vata. So mild and oil purgation can be administered with castor oil. This is beneficial in all types of occlusions.<sup>25</sup> Avipathy powder and medicine to reduce pitta also

help to alleviate Pitta.<sup>4</sup> Once pitta occlusion is removed, Kapha tackling measures can be selected. Based on the strength of the patients' dehydration therapy such as powder massage, paste massage, pouring fermented liquid,<sup>4</sup> sand fomentation, and power fomentation can be administered. TM involving sole Kapha occlusion and sand fomentation helps manage most symptoms.<sup>5,26</sup> Once occlusion is removed or patients' approach in the Dhatukshya stage, management aims to alleviate Vata, and a nourishing line of treatment is adopted. A therapeutic enema is adopted as it is a prime treatment modality for the disorder of Vata. Yapana Basti is the foremost choice as this alleviates all Tridosha. Madhu Tailika Basti, Yukta Rata Basti, Arda Matrika Basti can be advocated.<sup>27</sup> Erandamoola Nirooha, Pippalyadi Anuvasana,<sup>4</sup> Dashamoola Nirooha and Anuvasana<sup>7</sup> have satisfactory outcomes. Oil and rice bolus massage can benefit by tackling Vata Dosha and nourishing the tissues. Nasya and Murdhni Taila can be adopted in TM involving the cervical spine. Oral medicine can be administered at any stage of the disease. Mineral preparation gives excellent outcome—Upendra Dixit<sup>6</sup> report managing acute phase by mineral preparation.

## CONCLUSION

TM is a disease due to the occlusion of Vata that presents with the features of combined occlusion. Based on the signs and symptoms of TM, occlusion of Prana by Udana, occlusion of the Samana by Kapha, Vyana occlusion is by Pitta, occlusion of Vyana by Kapha and occlusion of Vyana by Apana can be diagnosed. The treatment of TM depends on the stage in which the patient approach the disease. Prompt measures must be adopted to remove the occluder. The obstructed Dosha is removed, Vata can be guided in a normal direction. Mutual occlusion is most challenging to treat as there is a need to navigate derange Vata Dosha in its path. Timely diagnosis of TM and will help in its effective Management.

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## ABBREVIATION

TM: Transverse Myelitis  
ATM: Acute Transverse Myelitis  
MRI: Magnetic Resonance Imaging  
IVIG: Intra Venous Immuno Globulin  
CSF: Cerebro Spinal Fluid

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