

Post Immunisation Myelin Oligodendrocyte Glycoprotein Antibody Associated Disease with Partial Cervical Myelopathy Managed Conservatively Through Ayurveda – A Case Report

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ABSTRACT:

Myelin Oligodendrocyte Glycoprotein antibody-associated disorder (MOGAD) is a newly discovered autoimmune demyelinating condition that is frequently associated with acute disseminated encephalomyelitis. It typically develops after infection or immunisation and is characterised by severe clinical episodes such as limb paralysis, loss of sensation, impaired bowel bladder control, and blurring of vision. Intravenous methylprednisolone (IVMP) 1,000 mg once day for 5 days is the conventional therapy for a MOGAD attack, which can last for a long time and is accompanied with post-administration difficulties. *Greevastambha* and *sarvanga roga* can be correlated as ayurvedic terminologies based on the signs and symptoms of MOGAD. A 35-year-old female patient diagnosed with MOGAD and Partial Cervical Myelopathy managed conservatively through *Jwarahara*, *Amavatahara* and *Vatavyadhi Chikitsa* got symptomatic relief, functional and quality of life improvement with 58 days of in-patient treatment at Department of Salyatantra, Govt. Ayurveda College Tripunithura, Ernakulam, Kerala.

KEYWORDS: *Amavatahara chikitsa*, *Greevastambha*, MOGAD, Partial Cervical Myelopathy, *Sarvangaroga*.

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INTRODUCTION:

Myelin Oligodendrocyte Glycoprotein antibody-associated disorder (MOGAD) is a newly found autoimmune demyelinating condition that is frequently linked with acute disseminated encephalomyelitis and generally arises after infection or immunisation.^[1] An accurate MOGAD diagnosis requires: (1) the finding of MOG-IgG in serum and/or CSF using a valid laboratory assay; and (2) the existence of a clinical-MRI phenotype consistent with MOGAD. When compared to other CNS

demyelinating illnesses, the spectrum of clinical-MRI symptoms of MOGAD is more variable, with significant changes when the condition is investigated during or after acute bouts.^[2] In general, MOGAD is characterised by severe clinical episodes including paraparesis or paralysis of limbs, loss of sensation, loss of colour vision or blurring of vision and loss of bowel and bladder control. In contemporary medical system, intravenous methylprednisolone (IVMP) 1,000 mg once day for 5 days is the standard treatment for a MOGAD attack,

which can linger for a long period and is associated with post-administration issues. Surgery to decompress the spinal cord may be suggested if symptoms of cervical myelopathy continue or worsen after nonsurgical therapy especially in patients with increasing neurologic deficits and evidence of severe spinal cord compression or oedema. At the same time, the risks of surgical correction may raise concerns about post-operative consequences such as paraplegia or quadriplegia.^[1] According to the signs and symptoms explained in MOGAD and cervical myelopathy, *Greevastambha*, in which neck stiffness incapacitating the patient to complete daily activities can be considered as a key feature along with *Sarvangaroga*.^[3]

CASE REPORT:

A 35-year-old female patient came to Salyatantra OPD, Govt. Ayurveda College Hospital Tripunithura, Ernakulam, Kerala on 04.03.2022 with complaints of electric shock like sensation while moving neck lasting for previous one week and weakness of both upper and lower limbs for more than one month with an antalgic gait as well as double vision, which incapacitated her to do her routine activities and household works. She was asymptomatic till the 41st day after receiving the first dose of vaccine for Covid 19 (taken on 15.11.2021), during which period, she experienced numbness of the right little finger as a major symptom. Later, the numbness began to impact the ring and middle fingers on consecutive days, coupled with slight pain over the nape of the neck and inside the head, notably around the ear, more apparent on the right side, making it impossible for her to swallow food and beverages. On the seventh day after the first symptom, her entire body became numb, most noticeably over the right side of her head and lips, which was also quite painful. She was immediately

taken to a nearby hospital on 03.01.2022, where an MRI scan was recommended. On MRI, she was diagnosed with partial cervical myelopathy. With immediate effect, steroid injections were started, followed by oral steroids, and after fifteen days of treatment, the numbness and pain were relieved symptomatically, but her neck movements were severely restricted, with electric shock-like sensations on even the slightest movement of the neck as well as weakness of both upper and lower limbs. Over time, she began to notice double vision while looking at items over her head. She was urged to seek emergency care and had a CSF study. The steroid use persisted, and CSF investigation revealed the patient had Myelin Oligodendrocyte Glycoprotein Antibody Associated Disease (MOGAD), and newly identified diabetes mellitus and dyslipidaemia. She thus started taking steroid tablet Wysolone (40 mg) once in the morning after food and an immunosuppressant Mofigen (500 mg) once in the morning and evening, as well as diabetes and dyslipidaemia medications such as tab Atorvas (10 mg) once in the evening after food and Metformin (500 mg) once in the morning and evening after meal and one Glimeperide (1 mg) tablet in the morning. After getting discharged from that hospital, she consulted at Salyatantra OPD, Government Ayurveda College Hospital Tripunithura on 04.03.2022 and admitted to the hospital on the same day.

Physical examination as on 05.03.2022:

On examining the cervical spine, there was no visible abnormalities by inspection, whereas grade II tenderness was present at C1-C2 level as well as all the range of movements of neck were restricted due to pain. Special tests including Spurling's test, Lhermitte's sign, Hoffman's sign, and inverted supinator sign were positive. Her gait was antalgic with short steps as she was

feeling weakness of both lower limbs with loss of power (grade 4) on extension and abduction of hip as well as flexion of knees (muscle power grade 4 in all abovementioned movements).

INVESTIGATIONS:

MRI Brain and MRA contrast enhanced on 03.01.2022

Impression - Short segment non-enhancing intramedullary central T2 hyperintense lesion noted in the cervical cord at the level of C1 vertebra. Subtle T2 hyperintensity noted in the orbital segment of the left optic

nerve – possibility of demyelination is likely high.

MRI Brain or Orbit – Contrast Enhanced on 02.03.2022

Impression - In a case of Myelin oligodendrocyte antibody associated disease (MOGAD), the scan is noted to show a short segment ill-defined non enhancing intramedullary central T2 hyper intense lesion noted in the cervical cord at the level of C1 vertebra. The hyperintensity has become less conspicuous compared to the previous scan dated 03-01-2022.

Blood report as on 05.03.2022

FBS – 70 mg/dl

PPBS – 120 mg/dl

HbA1c- 5.3%

ESR – 50 mm/hr

Hb – 11.2 g/dl

T. WBC – 17000 cells/ cu mm

Total Protein – 6.5 mg%

ALP – 80 IU/L

Albumin – 3.9 mg%

Globulin – 2.6 mg%

Bilirubin (D) – 0.1 mg%

Bilirubin (T) – 0.5 mg%

SGOT – 30 IU/L

SGPT – 45 IU/L

S. Creatinine – 0.8 mg%

S. Uric acid – 3.7 mg%

Blood Urea – 18 mg%

Total Cholesterol-182 mg%

THERAPEUTIC INTERVENTIONS:

Table -1: Internal medications followed during the period of admission:

Date	Medicine	Dose	Remarks
04.03.22 – 10.03.22	<i>Amritottaram (Nagaradi) Kashaya</i>	90 ml bd	Before food
04.03.22 – 10.03.22	<i>Shaddharanam Churnam</i>	12g bd	With warm water
11.03.22 - 30.05.22	<i>Maharasnadi Kashaya</i>	90 ml bd	Before food
11.03.22 - 30.05.22	<i>Yogaraja Guggulu Gulika</i>	2 bd	With <i>Kashaya</i>
11.03.22 - 30.05.22	<i>Ksheerabala Taila</i> 101 times	10 drops bd	With <i>Kashaya</i>

Table -2: External therapies done during IP management:

Date	Therapy	Medicines used	No. of days	Progress
07.03.2022	<i>Dhanyamladhara</i>	<i>Dhanyamla</i>	07	Achieved neck stability
14.03.2022	<i>Abhyanga</i>	<i>Kottamchukkadi Taila</i>	05	
21.03.2022	<i>Patrapottalisveda</i>	<i>Ksheerabala Taila</i>	07	Spasm of the neck relieved,

04.04.2022	<i>Jambeerapindasveda</i>	<i>Ksheerabala Taila</i>	07	slight relief from pain
11.04.2022	<i>Choornapindasveda (Snigdha)</i>	<i>Kolakulathadi Choorna Tila taila</i>	07	Pain relieved Range of motion of the neck regained
18.04.2022	<i>Pizhinjutadaval</i>	<i>Kottamchukkadi Taila</i>	07	
18.04.2022	<i>Matravasti</i>	<i>Sahacharadi Mezhu (60ml)</i>	07	
02.04.2022	<i>Marsha nasyam</i>	<i>Dhanwantram Taila</i> 21 times	07	
09.05.2022	<i>Shashtikapinda Sveda</i>	<i>Ksheerabala Taila</i>	07	

Table -3: Cervical spine examination findings before admission and after treatment:

Part examined	Examinations	Before treatment (04.03.2022)	After treatment (30.05.2022)
Cervical spine	Inspection	No visible abnormalities	No visible abnormalities
	Palpation	Grade II tenderness over C1-C2 level	No tenderness over cervical region
	Range of motion		
	Flexion	10°	45°
	Extension	15°	50°
	Lateral Flexion (Left)	20°	45°
	Lateral Flexion (Right)	10°	40°
	Lateral Rotation (Left)	35°	75°
	Lateral Rotation (Right)	25°	70°
	Special tests		
	Lhermitte sign	Positive	Negative
	Hoffman's sign	Positive	Negative
	Inverted supinator sign	Positive	Negative
	Spurling's test	Positive	Negative
Gait		Antalgic	Normal

RESULT:

The patient regained the cervical range of motion up to an acceptable level, not compromising her day-to-day activities. Whole body numbness was relieved except over bilateral soles. Electric shock like sensation while moving the neck as well as instability in the gait was relieved and the dose of steroid medication was tapered. Comparative analysis of the cervical spine examination findings before and after treatment are tabulated in Table 03. The

patient was discharged to home on 31.05.2022 after 58 days of hospital stay.

DISCUSSION:

The signs and symptoms presented by the patient with MOGAD go hand in hand with the *Vataja Nanatmaja Vyadhis* as per acharya Charaka, which include stiffness of neck (*Greevastambha*), pain and weakness of whole body (*Sarvangaroga*), pain in jaws (*Hanubheda*)^[4] as well as some symptomatology mentioned in *Vatika*

Jwara.^[5] Hence, the treatment plan adopted primarily in this case is *Vatasamana* and *Jwarahara* in action. Internal medications like *Amritottaram kashaya*^[6] which has specific action in *Tridoshaja jwara* as well as *Shaddharana Churna*^[7] was helpful in reducing the symptoms that were caused mainly due to *Amavastha*. After attaining proper *Rookshana* and *Amaharatva* by both internal and external therapies like *Dhanyamladhara*, *Vataharatwa* is considered as the main aim of management. This purpose was served by the internal administration of the *Maharasnadi Kashaya*^[8] along with *Yogaraja Guggulu Gulika*^[9] and *Ksheerabala Taila* 101 times^[10] *Anupana*.

These medications together with the external *Vatahara* therapies is found effective in relieving the pain over the neck, numbness and weakness of the whole body. *Abhyanga* with *Kottamchukkadi Taila*^[11] was considered to be reducing the symptoms caused by vitiation of *Vata* (*Vatavyadhi Prasamana*) as well as stiffness of body parts (*Stambhavināsana*). Various kinds of *Svedas* after *Abhyanga*, like *Patrapottalisveda*, *Jambeerapindasveda*, *Choornapindasveda* and *Pizhinjutadaval* along with *Matravasti* using *Sahacharadi Mezhu* ^[12] (60 ml) was helpful in relieving the stiffness of the neck (*Stambhahara*) and pain in multiple joints (*Vatasamaka*) as well as improving mobility of joints (*Sandhiceshta*). *Marsa Nasya* using *Dhanwantaram Taila*^[13] 21 times acted as a nervine tonic which has specific action over the area above atlantoaxial joint (*Jatru Urdhwam*) helped in reducing the severity of electric shock like sensation, which was a predominant symptom experienced by the patient. As a whole the internal medications combined with external therapies acted at multiple levels, primarily aiming at *Vataharatwa* and *Jwaraharatwa* along with nervine tonic action helped the patient to

regain the range of motion of the cervical spine to an acceptable level without compromising the daily routine activities. Usage of modern antidiabetic and antidyslipidemic drugs persisted, during the course of treatment, she did gradual tapering of the dose of steroid tablet *Wysolon* from 40 mg to 5 mg.

CONCLUSION:

Myelin Oligodendrocyte Glycoprotein Antibody Associated Disease combined with Partial Cervical Myelopathy is a rare condition developing after immunization or infection. *Vatika Jwara*, *Amavata* and *Vatakopa Lakshana* are found in various stages of this disease. Ayurvedic treatment protocol considering the pathogenesis in MOGAD include *Jwarahara*, *Amavatahara* and *Vatavyadhi Chikitsa*. A 35-year-old female diagnosed with MOGAD got symptomatic relief, functional and quality of life improvement with conservative Ayurvedic treatment. So, following this protocol, we can effectively manage MOGAD combined with cervical myelopathy. Along with that, modifications using external as well as internal medications acting on CNS, specifically applied over the head can be advocated to improve the other signs and symptoms developed as part of MOGAD.

Limitation of study:

Difficulties of the vision was not corrected through the current management. Integration of the procedures for the management of the same can be done in further cases with same complaints. To establish the validity of the protocol, large sample studies can be conducted with participants having MOGAD and partial cervical myelopathy.

Ethical Consideration:

Informed written consent was taken from the patient before publication. Data leading

to personal identification including name, address, photographs with unmasked eyes were not included in the entire case report.

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