



## Case Study

### A CRITICAL UNDERSTANDING OF MYASTHENIA GRAVIS AND IT'S TREATMENT IN AYURVEDA - A CASE STUDY

Vidyasagar<sup>1\*</sup>, Prashanth A.S<sup>2</sup>

\*<sup>1</sup>Post graduate scholar, <sup>2</sup>Professor and Head, Department of Postgraduate Studies in Kayachikitsa, Ayurveda Mahavidyalaya, Hubballi, India.

#### ABSTRACT

Relatively Myasthenia gravis is an uncommon disorder with an annual incidence of 10-20 new cases per million. Diagnosis follows a bimodal distribution with a predominantly female peak in the second and third decade of life and a predominantly male peak in the fourth to eighth decades. It presents with fluctuating skeletal muscle weakness and fatigue most commonly affecting the ocular muscles, although any muscle may be affected. MG affects 50 to 200 per million people. It is newly diagnosed in three to 30 per million people each year. Diagnosis is becoming more common due to increased awareness. Although there is still no cure for myasthenia gravis in modern sciences other than symptomatic management, Ayurvedic therapies can give much more promising results. Comparison between myasthenia gravis and diseases explained in Ayurveda is difficult and exact correlation is not possible. But based on *Nidana*, *Roopa*, *Upashaya*, and *Anupashaya*, a probable diagnosis can be made and treated accordingly. When aggravated, a single *Dosha* may cause manifold diseases depending upon the various etiological factors and the sites of manifestations. Hence nomenclature of all types of diseases in definite terms is not always possible. If a physician is not able to name a particular disease, he should not feel ashamed on that account. In the present study, *Vatavyadhi chikitsa*, *Asthimajjagata vata chikitsa*, *Arditavat chikitsa* and *Avarana* concepts were applied for diagnosis and treatment. *Nasya*, *Nasapana*, *Basti chikitsa* were planned accordingly. *Vatakaphahara*, *Dhatvagni vardhana*, *Brimhana* and *Snehana dravyas* were used in the management.

KEYWORDS: Myasthenia Gravis, *Vata Vyadhi*, Ayurveda, *Nasapana*.

#### INTRODUCTION

An autoimmune neuromuscular disorder resulting in weakness and fatigability of skeletal muscles, usually due to auto antibodies directed against acetylcholine receptors (AChRs) at neuromuscular junctions (NMJs).<sup>[1]</sup> The word is from the Greek mys "muscle" and astheneia "weakness", and the Latin: gravis "serious". Myasthenia results from dysfunction of the neuromuscular synapse (i.e., the neuromuscular junction [NMJ]), causing clinical "fatigue," which is defined as muscle weakness that worsens with muscle use and improves with rest. It most commonly occurs in women under the age of 40 and in men over the age of 60. It is uncommon in children.<sup>[2]</sup>

The disease is characterised by progressive fatigable weakness, particularly of the ocular, neck, facial and bulbar muscles. The cardinal symptom is abnormal fatigable weakness of the muscles; worsening towards the end of the day or following exercise is characteristic. Intermittent ptosis or diplopia is common but weakness of chewing,

swallowing, speaking or limb movement also occurs.<sup>[3]</sup>

There is no direct reference of the disease similar to MG in Ayurvedic texts but based on *Nidana*, *Roopa*, *Upashaya*, and *Anupashaya*, a probable diagnosis can be made and treated accordingly. Acharya Charaka in *Maharogadhyaya* enumerated several *Vataja* varieties of diseases. These are called as *Atmaroopas* of *Vata*. Even when these inherent properties are manifested partially, these are diagnosed and treated as the disorders of *Vata* only. For example, *Sramsas* (looseness) *Bhramsa* (dislocation), *Vyasa* (expansion/division), *Sanga* (obstruction), *Bheda* (separation), *Sada* (general Malaise/depression), *Kampa* (tremors), *Toda* (piercing pain), *Shosha* (wasting), *Shoola* (colic pain), *Supti* (numbness), *Sankocha* (contractions), *Sthambha* (stiffness)<sup>[4]</sup>. Among them many of the symptoms can be observed in patients of Myasthenia Gravis [MG]. Hence the management is to be according to *Vatavyadhi chikitsa* only.

**MATERIALS AND METHODS**

**AIMS AND OBJECTIVES:** To evaluate the effect of Ayurvedic treatment in a case of Myasthenia Gravis.

**Case Details**

**Chief complaints**

A 29 year old female patient approached to the *Kayachikitsa* OPD of Ayurveda Mahavidyalaya Hospital Hubballi, with the complaints of;

- Pain in the right half the head and face,
- Deviation of mouth towards left side,
- Weakness in the right half of the body,
- Blurred vision, sometimes double vision,
- Intermittent ptosis, and contraction of the facial muscles leading to deviation of mouth towards one side and Pain in cervical region.
- Patient cannot sit continuously for more than half an hour. On mental stress and strain, continuous staring objects and reading would cause frequent

attacks of contractions and deviations which last for around 3 to 4 hours since 4 years.

**History of Present illness**

According to the patient she was asymptomatic 4 years ago, then gradually from a mild headache, confusion and irritations, the other symptoms followed. There were series of trauma to the neck region due to frequent falls on ground. *Ahara* was mainly *Santarpana* in nature and leading sedentary life style.

There was no any history of hypertension. She consulted many hospitals for the same, but couldn't get any results.

Medicinal history: There was no specific medicinal history, nor any preceding history of viral illness or diarrhoea. Patient was not taking any disease specific medications, other than some NSAIDs.

**Table 1: Table showing Subjective and Objective Findings**

Subjective Findings	Objective findings
Pain in the right half the head and face	Contraction of the facial muscles leading to deviation of mouth towards one side
Weakness in the right half of the body	Intermittent slurring of speech
Blurred vision sometimes double vision	Shortness of breath with exertion
Fatigue with solid food	Deviation of mouth towards left side
Frequent choking of food necessitating changes in diet	Eyelid droop
	Intermittent ptosis
	Pain in cervical region

**Examinations**

On general examination: body weight, heart rate, respiratory rate, temperature, blood pressure, CVS, RS, CNS, blood investigations all were within normal limits.

Patient was well built, conscious, well oriented but ill looking with difficulty in smiling, deviation of mouth on the left side and rigidity of the neck was present. Patient was having hand to knee gait with emaciation of the right leg as post-polio effect. Ear examinations revealed normal external auditory canal and tympanic membranes. Hearing was normal in both ears.

**Examination of Eyes:** Fundus of both eyes was within normal limits. Cornea of both eyes was normal in sheen and transparency. Anterior chamber of both

eyes were normal. Pupil of both eyes was bilaterally normal in size and shape. Reaction to light was normal in both the eyes.

**Examination of Musculoskeletal system:** At examination, the patient had bilateral facial weakness. Swallow was delayed. Power was normal (5/5) in three limbs, (except right lower limb effected by polio) and reflexes were normal. (apart from absent ankle reflex).

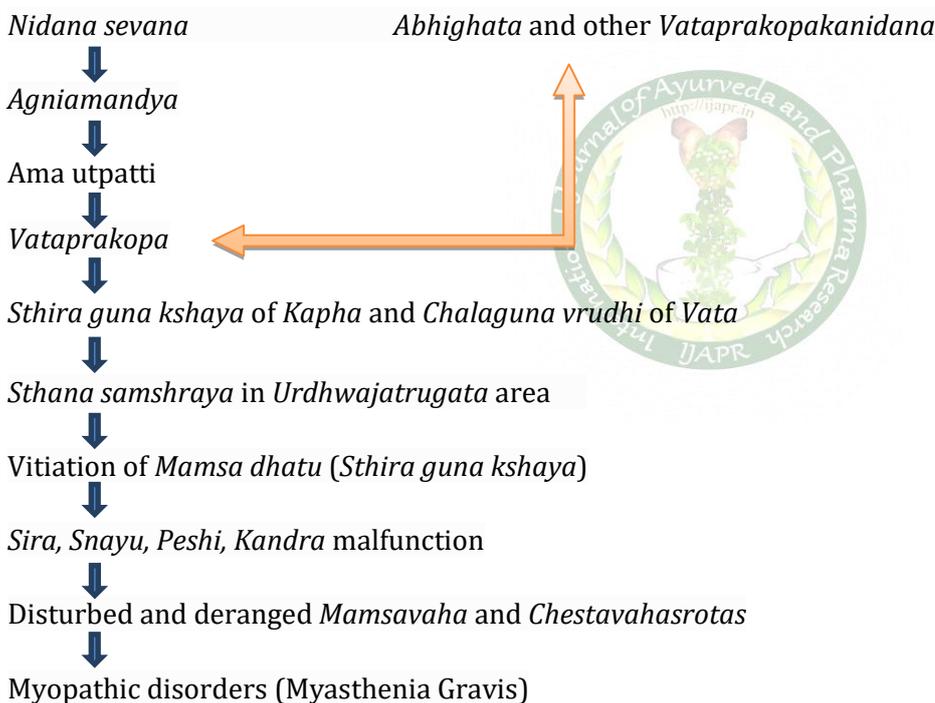
On inspection there was no any muscle wasting in both upper and left lower limbs. But there was emaciation of the right lower limb. Tone of both the upper and lower limb was seems to be normal. (Table - 2)

**Table 2: Table showing general examinations of patient**

Investigations	General examinations	Facial examination	Sensory nerve examination
Hb%- 10.9gm% WBC-10,500/cmm N-46% L-45% E-07% M-02% ESR - 28 RR: 18/min. MRI of brain showed no significant abnormality.	Weight : 65kg Pallor : absent Icterus : absent Cyanosis: absent Clubbing: absent Oedema: absent Temperature: afebrile. Gait: hand to knee gait.	Inability to puff cheeks. Inability to smile. Inability to wrinkle The eyebrow. Inability to close Left eye Completely. Regular Contractions of facial muscles.	Superficial reflexes- Intact Deep reflexes- Intact Vision- blurred and Double vision. no other neurological or autonomic complaints,

**Understanding of Samprapti**

Comparison between myasthenia gravis condition and diseases explained in Ayurveda is difficult and exact correlation is not possible. Hence to understand the probable *Samprapti* an attempt has been made as below. *Kapha dosha* and *Mamsadhatu* both are identical in certain aspects like both are *Parthiva dravyas*. Both perform *Lepa/Ulepa*, and both are '*Deha bala kara*'. In the present condition both are affected.



**Assessment Criteria**

Assessment was done based on complaints of the patient and also using gradation system developed by Myasthenia Gravis foundation of America.<sup>[5]</sup>

**Table 3: Showing Assessment criteria**

Grade	0	1	2	3
Talking	Normal	Intermittent slurring or nasal speech	Constant slurring or nasal speech can be understood	Difficult to understand speech
Chewing	Normal	Fatigue with solid food	Fatigue with soft food	Gastric tube
Swallowing	Normal	Rare episode of choking	Frequent choking necessitating changes in diet	Gastric tube
Breathing	Normal	Shortness of breath	Shortness of breath at	Ventilator

		with exertion	Rest	dependent
Impairment in ability brush teeth to comb hair	None	Extra efforts, but no rest periods needed	Rest periods needed	Cannot do one of these functions
Impairment of ability to arise from a chair	None	Mild, sometimes uses arms	Moderate, always uses arms	Severe, requires assistance
Double vision	None	Occurs, but not daily	Daily, but not constant	Constant
Eyelid droop	None	Occurs, but not daily	Daily, but not constant	Constant
Pain in the right half the head and face	None	Occurs, but not daily	Daily, but not constant	Constant
Contraction of the facial muscles	None	Occurs, but not daily	Daily, but not constant	Constant
Weakness in the right half of the body	Absent	Mild	Moderate	Severe

### Treatment

**Table 4: Showing Shodhana Chikitsa**

Treatment modality	Medicines used	Duration of treatment
<b>1<sup>st</sup> Course of Treatment</b>		
<i>Sarvanga Abhyanga</i> and <i>Sarvanga swedana</i>	<i>Karpooradi taila + Kottamchukkadi taila</i>	15 days
<i>Nasya</i>	<i>Anu Taila</i>	8 days
<i>Nasapaana</i>	<i>Mashabaladi Kwatha</i>	8 days
<b>2<sup>nd</sup> Course of treatment after 10 days of gap</b>		
<i>Basti karma</i>	<i>Niruha Basti = Mansyadi Kashaya</i> <i>Sneha Basti = Panchagavya Ghrita + Kethaki Mooladi tailam (Total 13 Niruha Basti and 17 Sneha basti )</i>	30 days

**Table 5: Showing Shamana chikitsa**

Medicine	Dosage	Anupana
<i>Prasarinyadi kashaya</i>	15ml BID	<i>Ushna jala</i>
<i>Varunadi Kashaya</i>	15ml BID	<i>Ushna jala</i>
<i>Shirashooladi Vajra Rasa</i>	250mg BID	<i>Ushna jala</i>
<i>Kapikacchu choorna</i>	5grams BID	<i>Ushna jala</i>
<b>Combination of fine powders of below medicines</b> 1. <i>Swarna bhasma</i> - 100mg, 2. <i>Abhrak bhasma shataputi</i> - 5gms, 3. <i>Pravala bhasma</i> - 10gms, 4. <i>Guduchi satva</i> - 100gms, 5. <i>Ashwagandha choorna</i> - 50gms, 6. <i>Kamadudha rasa</i> - 30tablets 7. <i>Shirashooladi vajra rasa</i> - 10 tablets, 8. <i>Unmada gaja kesari rasa</i> - 20 tablets.	1 pinch BID	Honey

### Results

After the course of *Abhyanga* and *Swedana*, body ache, heaviness and neck pain was slightly reduced. After *Nasya* for 8 days, there was no much difference in condition, Hence *Nasapana* was planned. After *Nasapana*, patient experienced comparatively less frequent attacks of muscular contractions and stiffness was reduced. After rest of couple of days, *Karma Basti* was planned. *Basti* was carried out for 30 days. During the course of *Basti*, there was dramatic change in the symptoms and frequency of attacks was drastically reduced.

After around 60 days of comprehensive management, there was 100% relief in talking, chewing and swallowing. 50% of result was found in shortness of breath, double vision, and other muscular dysfunctions. Frequent attacks of muscular contractions were reduced from 3-4 times a day to once or twice in a week. Results are tabulated as below.

**Table 6: Showing Results**

Grade	BT	AT	Results
Slurred speech	1	0	100%
Fatigue with Solid food	1	0	100%
choking of food	2	0	100%
Shortness of breath	2	1	50%
Impairment in ability brush teeth to comb hair	2	0	100%
Impairment of ability to arise from a chair	2	0	100%
Double vision	2	1	50%
Eyelid droop	2	1	100%
Pain in the right half the head and face	3	0	100%
Contraction of the facial muscles	2	1	50%
Weakness in the right half of the body	2	1	50%
<b>Total</b>	<b>21</b>	<b>6</b>	<b>81.81%</b>

## DISCUSSION

In the present case, *Nidana* was found to be *Abhghata*, and *Santarpanajanya vata prakopa*. Mainly there was *Chalaguna vrudhi* or *Vata* and *Sthiraguna kshaya* of *Kapha* and *Mamsadhātu*. So the treatment was planned accordingly after *Nidana parivarjana*. The condition is very much closer to the condition of *Ardita* explained by Ayurvedic texts,<sup>[6]</sup> in which there is deviation of mouth towards one side, weakness in the half part of the body, slurred speech, etc. *Acharya Chakrapani* comments that *Ardita* can be *Vegakaleena* or *Avegakaleena*<sup>[7]</sup>, as the symptoms were close enough to *Vegakaleena ardita*, *Arditavat chikitsa* was also thought of. Finally *Vata vyadhi* general line of management was started. Patient was responding only to *Vatakapha hara* line of treatment. *Ushna, laghu, Snigdha ahara* was *Upashaya* and opposite were *Anupashayas*.

### Probable mode of action of Treatment

*Abhyanga* and *Swedana* was done initially to combat the *Vata dosha*, being the *Urdhwajatrugata lakshana yukta vyadhi*, *Marsha Nasya* was given with *Anu taila*.<sup>[8]</sup>

*Nasapana* is systemic delivery of medications through nasal route. Due to high degree of vascularization and permeability of the nasal mucosa, when the *Kashaya* in larger dose is poured continuously definitely has the more residence time of medicines as compared to that of *Nasya*, thus the better nasal drug absorption takes place. Thus *Nasapana* with *Mashabaladi Kashaya*<sup>[9]</sup> was selected. *Mashabaladi kwatha* is having ingredients such as *Masha, Bala, Eranda, Ashwagandha, Rasna, Kapikacchu* etc. which is highly *Vata kaphahara* in action. *Prakshepa* with *Hingu* and *Saindhava* makes it

more penetrating. This *Kashaya* acts as *Balya, Srotoshodhana*.

*Basti* being *Ardha chikitsa* and the main treatment modality in *Vata* predominant disorders<sup>[10]</sup> proved beneficial in present case. *Mamsyadi kashaya*<sup>[11]</sup> was used in *Niruha Basti*, which is having *Jatamansi, Ashwagandha, and Parasikayavani* as ingredients, *Tridosha shamaka* (subsides the increased bio humors) property of *Jatamansi* and *Kapha Vaata shamaka* (decreases) property of *Ashwagandha* corrects all the somatic ailments.

*Sneha Basti* with *Panchagavya Ghrita* and *Kethaki mooladi tailam. Panchagavya ghrita*<sup>[12]</sup> is prepared by processing ghee with milk, curd, urine and dung extract all from cow sources. It is indicated in conditions like *Apasmara* (epilepsy), *Jvara* (pyrexia), *Unmada* (psychosis), *Kamala* (jaundice) etc. Its anti-convulsant and hepato-protective activities have also been evaluated and proven experimentally.<sup>[13]</sup>

*Ketaki mooladi taila* has been also selected for *Sneha Basti* which is *Ketaki Moola, Bala, Atibala* etc., as ingredients mainly indicated in *Asthimajja gata-vataprakopa*.<sup>[14]</sup>

*Kapikacchu* is *Madhura, Guru, Snigdha, Ushna veerya vatahara, Balya* and *Brumhana* in nature. In *Kapikacchu* (*Mucuna pruriens*), levodopa, or L-dopa, is one of these compounds. This bioactive chemical is a precursor to several neurotransmitters, including adrenaline, noradrenaline, and dopamine. As in Myasthenia Gravis is a neuromuscular disease involving Acetyl choline receptors<sup>[15]</sup>, this *Kalpa* has been tried here.

The *Prasarinyadi kashya*<sup>[16]</sup> having *Prasarini, Rasna, Rasona* as ingredients relieves pain associated

with *Vata*. *Shunthi* being *Amapachana*, *Masha* and *Bala* promote strength and bulk of the weakened muscles and soft tissues, all most all the ingredients such as *Prasarini*, *Bala*, *Rasona*, *Rasna* etc. have an integrated approach towards relaxing and releasing the muscle cramps and catches.

*Varunadi kashaya*<sup>[17]</sup> is again *Vata kapha hara* and useful in conditions of *Vikruta meda* and *Kapha dosha*, the *Kalpa* has been selected.

*Shira Shuladi Vajra Rasa*<sup>[18]</sup> balances the *Tridosha*. It is a Herbomineral Ayurvedic medicine indicated in treatment of *Shiroroga* (disease of head) and *Urdhwajatrugatarogas* of where there is *Avarana* of *Vata* by *Kapha*. As there were similar complaints, the *Yoga* has been selected.

The combinations of *Bhasma* like *Swarna*, *Abhraka*, *Pravala*, *Kamadugha*, *Amrita satwa* are highly *Balya* and *Bramhana* in nature. Which improve the *Dhatwagni* and corrects the tissue malfunctioning.

## CONCLUSION

This is one face of Myasthenia Gravis disease treated in Ayurveda. To understand it completely and set a standard parameter for diagnosis and treatment of Myasthenia Gravis, further more researches involving large sample size has to be carried out by future research scholars. As Acharya Charaka explained, if a physician is not able to name a particular disease, he should not feel ashamed on that account because it is not always possible to name all types of diseases in definite terms.<sup>[19]</sup> When aggravated, a single *Dosha* may cause manifold diseases depending upon the various etiological factors and the sites of manifestations. So the physician should try to comprehend the nature of the disease based on the *Dosha*, site of manifestation, and etiological factors and then initiate the treatment.

*Asthimajjagata vata chikitsa*, *Vatavyadhi chikitsa*, *Arditavat chikitsa* and *Avarana* concepts were applied here for diagnosis and *Vatakapahara*, *Dhatvagni vardhana*, *Brimhana* and *Snehana dravyas* were used in the management. Overall results were satisfactory. Ayurveda can do wonders in many such dreadful conditions. But the need of the hour is to diagnose every condition based on Ayurvedic parameters and treat it accordingly.

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**\*Address for correspondence**

**Dr. Vidyasagar Panchal**

PG Scholar,

Dept of Kayachikitsa,

Ayurveda Mahavidyalaya Hubballi.

Email;

[vidyasagarpanchal@gmail.com](mailto:vidyasagarpanchal@gmail.com)

Phone : 9916516416

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