

AN AYURVEDIC CASE REPORT ON AMYOTROPHIC LATERAL SCLEROSIS

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ABSTRACT

Amyotrophic Lateral Sclerosis (ALS) is a common and most severe type of Motor Neuron Disease. It is characterized by progressive skeletal muscle weakness, wasting and fasciculations. Survival is for 3-5 years, and the death is from respiratory paralysis. The incidence of ALS is between 0.6 and 3.8 per 100000 persons per year. Males are predominantly affected. Here is a case report of 45yrs old male who presented with complaints of difficulty in walking since 3years, with an insidious asymmetric onset of weakness of bilateral lower limbs with wasting and fasciculations. In Ayurveda, the case was symptomatologically diagnosed as *Mamsa Sosha*, which occurs as the result of obstruction of *Snayu* and *Rakthadhamanis* (*Mamsavaha srotomoolas*). The assessment was done using ALSFRS-R Scale. The treatment was aimed at improving the quality of life and also decreasing the rate of disease progression. The treatment principle adopted was *Srothosodhana* (*Ama- Avaranaghna cikitsa*) and *Brimhana*. Promising results were obtained after treatment.

Keywords: ALS, MND, Ayurveda, *Avaranaghna cikitsa*, *Mamsa Sosha*, *Mamsa Kshaya*

INTRODUCTION

Amyotrophic Lateral Sclerosis (ALS) is the most common form of progressive motor neuron disease,

which is the most devastating of the neurodegenerative disorders.¹ Average age of onset is

45years in India.² There is an incidence of 0.6-3.8 per 100000 and a prevalence of 4.1-8.4 per 100000.³ Males are more affected than females. The first evidence of the disease is insidiously developing asymmetric weakness, usually first evident distally in one of the limbs. The pathology is characterized by the loss of Pyramidal Betz cells in the motor cortex, as well as loss and degeneration of the large Anterior horn cells of the spinal cord and lower cranial motor nuclei of the brainstem. Weakness is associated with progressive wasting and atrophy of muscles, spontaneous twitching of motor units. When the denervation involves bulbar muscles, the symptoms are difficulty with chewing, swallowing and movement of face and tongue. Death is caused by the involvement of muscles of respiration.

Ayurveda being a medical science believes in symptomatologic diagnosis. Here the main symptom is Muscle wasting which can be correlated with *Mamsa Soshā* (wasting). *Mamsa soshā* is explained by Acharya Susruta in the context of *Mamsavaha Srotas*. He opines that *Moolasthanā* (root) of *Mamsavaha srotas* are *Snayu*, *Twak* (skin) and *Rakthavahini dhamanis* (circulation). Any *Vidhathwa* (injury/ obstruction) to these *Moolasthanas* lead to *Svayathu* (swelling), *Soshana* (wasting) and *Siragrandhi* (varicose veins).⁴ Here *Snayu* and *rakthavahini dhamanis* are best correlated with neurological and vascular supply of muscle tissue respectively. *Twak* (skin), possibly due to its protective function.

Here *Mamsa soshā* manifested probably due to obstruction or injury to *Snayu* along with *Rakta vahini dhamani*, considering the neurological deficit in MND. *Soshā* indicates *Vatavridhi*. So, following *Avaranagna*, *Mamsagata vata* treatment protocol is best suited which includes *Srothosodhana* followed by *Samana*.⁵ *Srothosodhana* mainly includes *Virechana* (purgation) and *Nirooha* (enema) and *Samana* (pacification) for *Vata dosha* and *Vata Pitta dosha* is *Brimhana* (Nourishment)⁶ itself which includes *Snehana*.⁷ *Snehana* (unction) is indicated for nourishing *Suskha dhathu*⁸ and also repeated *Sneha*, *Sweda* (oleation and fomentation) is indicated in all

Vatavyadhi's.⁹ Association of *Pitta* along with *Vata* can lead to the immediate progression of the disease.

Narrative

A 45 years old male, known case of Type 2 Diabetes Mellitus for 5years, on irregular medication came to Hospital on 28/12/2020 with complaints of difficulty in walking, since 3years. He had insidious asymmetric onset of weakness of bilateral lower limbs (started distally) (R>L), wasting and fasciculations. He had high stepping gait on the right side and difficulty in negotiating chappals. There was no sensory, autonomic, bulbar symptoms or memory impairment. His father had similar complaints at the age of 70 and died at 75 years of age due to respiratory complaints. On examination, the patient was anxious, alert and responding to vocal commands. The speech was clear. Muscle tone was hypotonic on bilateral lower limbs, Muscle bulk was reduced on bilateral lower limbs (R>L). Muscle power 5/5 on bilateral upper limbs. Hip- abduction and adduction 5/5 bilaterally, flexion and extension 4+/5 bilaterally. At knees- flexion 4+/5 bilaterally, extension 5/5. At ankles- plantar flexion 5/5 in left and 3/5 on right. Dorsiflexion 5/5 bilaterally. Deep tendon reflexes were diminished on the left side and absent on the right side. Plantar reflexes were extensors bilaterally. Abdominal reflex was absent. There was a h/o trauma on the right knee 5yrs back.

Haematological reports showed hyperglycemia and dyslipidemia. NCS (on 05/03-2019) showed prolonged distal latencies in the left peroneal nerve and reduced Compound Muscle Action Potential (CMAP) in bilateral peroneal and tibial nerves. EMG (on 19/11/2019) showed the proximal axonopathy process of lumbosacral segments.

The dietary pattern of the patient was irregular, preferred sweet and spicy food articles. Appetite and bowel were normal, had difficulty initiating sleep and was addicted to smoking.

GENERAL EXAMINATION ON ADMISSION

The patient came limping to OP, was conscious, alert, oriented, cooperative, moderately built and nourished, with erect posture. Afebrile, with pulse-76/min, regular rhythm, full volume. Respiratory rate- 16/min,

abdominothoracic. Blood pressure-110/70mmHg. On physical examination, asymmetrical thinning of muscles on B/L lower limbs were noted. Involuntary fine twitching movements were present on the upper arm (R) and lower limbs. Findings of the Respiratory and Cardiovascular system were within normal limits, the abdomen was mildly distended and non-tender, bowel sounds were present, all cranial nerves were intact on examination. The sensory system was intact.

DIAGNOSIS AND ASSESSMENT

The patient was diagnosed by EI-Escorial criteria for MND/ALS by the World Federation of Neurology. The assessment was done before and after treatment using the Amyotrophic Lateral Sclerosis Functional Rating Scale-Revised (ALSFRS-R).

ROGI- PAREEKSHA

Ashtasthana Pareeksha

The Patient *Nadi* (pulse) was of *Vata-Kapha*. On examination, his *Mutra* (urine), *Malam* (stools) *Jihwa* (tongue), *Sabda* (sound), *Sparsa* (touch) and *Drik* (eyes) are found to be *Sadharanam* (normal).

ROGA PAREEKSHA

NIDANAS

1. Aharaja

Rasa - *Madhura*, *Katu*

Quantity - moderate

Quality - *Seeta* and *Abhisyandi*

2. Viharaja

Cigarette smoking

Prolonged standing

Hard work

Air Conditioning

Vata - *Mutra* - *Puresha Vegadharana*

POORVARUPA - *Avyaktam*

LAKSHANA - *Mamsa sosham*, *Gati sangam*, *Guru* *gatrata*, *Sphuranam*

UPASAYA - *Usna*

ANUPASAYA - *Seeta*

SAMPRAPTI - Due to the prolonged use of cigarettes, *Pitta Raktha dusti* manifests, following that he started job in Saudi Arabia, there he developed *Kaphaja prameha*, by the intake *Madhura*, *Abhisyandi Ahara* and *Seeta vihara* due to constant A/C exposure. *Kapha medodusti* caused the defective formation of *Snayu*,

especially in *Adhakaya* (lower body) due to prolonged standing along with that *Pitta Rakta dusti* vitiated the *Raktavahini dhamini* which together led to *Mamsa Sosha*. Here *Vata dosha* in *Mamsa* got obstructed (*Avruta*) by *Pitta Kapha Dosha* leading to *Sthanika vatavidhi* manifested as *Mamsa Sosha*.

SAMPRAPTHI GHATAKAS

Dushya: Dosha: Sannipatha

Dhatu: Rasa, Raktam, Mamsa, Medas

Upadhatu: Snayu

Agni: Madhyama

Srotas: Rasavaha, Rakthavaha, Mamsavaha and Medovaha

Srotodushhti: Sangam

Rogamargam: Madhyama

Rogaswabhavam: Chirakari

Udbhava Sthana: Amasaya

Prasarasthana: Adhovaha dhamani

Asrayasthana: Snayu

Vyakthisthana: Adhakaya

Prakriti - Vata pitta

CHIKITSA PRINCIPLE

1. *Nidana parivarjana* (avoidance of causative and precipitating factors) –
Avoiding *Madhura*, *Abhisyandi Ahara*, *Sita Seva*, prolonged standing and excessive work
2. *Samprapti Vighatana Cikitsa* (breaking the pathogenesis)
Ama Cikitsa (elimination of ama)
Avarana Cikitsa (removal of obstruction)
Mamsagata Vata Cikitsa (treatment for *Vatadosha* vitiation in *Mamsadhātu*)
3. *Dhathusamyakara Cikitsa* (Normalising tissues)

Treatment Done:

I. Amahara cikitsa

a. Deepana Pachana [D1 - D2]

1. *Gandharvahastadi kashayam* - 90ml Bd before food
2. *Shaddharanam* Tab 1 Bd after food

b. Rookshana [D3 - D9]

1. *Udwarthanam* with *Varachoornam*

II. Avaranagna cikitsa

a. Pitta avarana cikitsa [D3 - D9]

1. *Guloochyadi Kashayam* - 90ml Bd before food
2. *Vaiswanara choornam* - 5g Bd with lukewarm

water

b. Kaphamedoavarana cikitsa [D10 - D16]

Internal Treatment

1. Nishakathakadi kasayam muhur muhur
2. Tab Goranchi 1 Bd after food

External Treatment

1. Udgharshana - Jeevanthyadi choornam, Dhanyamlam and Honey

c. Rajatamoavarana cikitsa

1. Manasamitravatakam 1HS

III. Mamsagata Vata Cikitsa

a. Kayavirechana [D17-D29]

1. Snehana

Internal: Indukantham Ghritam -10g with Dhanwantharam Kasayam 90ml Bd before food

External: Abhyangam - Balatailam

Talam - Ksheerabala and Kachooradi choornam

2. Swedam

Choorna Pinda Sweda for 3 days

3. Virechana - Gandharveranda tailam - 20ml with milk morning 7 am

4. Peyadi kramam -2 days

b. Sirovirechana / Nasya [D30-D36]

1. Anutailam - 2.5ml each nostril for 3 days
2. Ksheerabala 7 Avarthi - 2.5ml each nostril for 4 days

Internal Medication -

- A decoction made of Guduchi, Satavari, Chandana and Bala 90ml Bd before food.
- Dhanwantharam sevya tailam - 5ml with kasayam
- Nishakathakadi kasayam -muhur

c. Nirooha [D37-D50]

Sneha sweda - Shashtika pinda sweda - 7days

Rajayapana Vasthi - 7 days

d. Samana chikitsa [D51-D71]

Internal treatment

Rasnadasamoola ghritam 5ml Bd with Dasamoolaristam 30ml

External treatment

Pichu - Mahanarayana tailam on Rt lower limb -7 days

Adhakaya pizhinjutadaval - Mahamasha tailam - 7 days

Kativasti - Mahamasha tailam - 7 days

Discharge Medicines:

Rasnadasamoola ghritam 10g BD

Nishakathakadi kasayam -muhur

A decoction made of guduchi, satavari, chandana and bala - 90ml Bd

RESULTS

After the treatment for 2^{1/2} months, the patient's walking improved, negotiation of chappals were possible, weakness of the lower limbs improved with a marked reduction in the frequency of fasciculations. During the hospital stay, no progression of the disease was noted. The ALSFRS-R score was 46 before the treatment which became 52 after the treatment.

DISCUSSION

MND is a progressive neurodegenerative disorder that affects both the upper and lower motor neurons. In Ayurveda, as the pathology starts with Ama formation due to Apathya ahara- vihara (unwholesome regimen), treatment starts with Deepana Pachana (appetizer and digestant) using Gandharvahasthadi Kashayam which is mentioned as Deepana, Anulomana oushada in the context of Vatavyadhi (Sahasrayogam). Shaddharana choornam is Deepana Pachana indicated in Amasaya gata vata.

After Deepana Pachana, Avaranagna Chikitsa is the next step required for which Rookshana can be done externally by Udwarthana with Varachooranam. Pitta Avarana Chikitsa given prior importance in Kapha Pitta Avarana. So Guloochyadi kasayam is given as Pitta Kapha Samana and in order to improve Agnibala, Vaiswanara Choornam is added. The next stage is Kaphamedo Avaranagna, Udgharshana having the property of Kapha Medoharatva is given, whereas medicines Jeevanthyadi Choornam, Dhanyamlam and honey alleviate the associated pitta dosha also. Pramehagna oushadas like Nishakathakadi and Goranchi are given considering the Pitta Dosha. Goranchi contains Silajathu as one of the main ingredients, having Chedya property. As The patient also experiences stress and sleeplessness, Manasamitravatakam is also added.

After giving Avaranagna Chikitsa, the next Dosha to be considered is the Avrutha Vata, as it is the main

culprit of *Kshaya*. As the pathology occurs in *Mamsa Dhatu*, *Mamsa Gata Vata* protocol can be adopted, which includes *Virechana*, *Nirooha* and *Dosha samana*. *Virechana* is done following *Sneha Sweda*. *Snehana* is done with *Indukantham ghritam*, which is given along with *Dhanwantharam Kasayam*, where *Indhukantham ghritam* is having the property of *Deepana Pachana* and its initial indication is *Vatavyadhi* and *Dhanwantharam Kasayam* is *Vata Pitta Samana*, *Brimhana Yoga* which is suitable for the *Dosha Samanatva* and *Dhatu Poshana* of previous traumatic condition. *Virechana* is given using *Gandharverandam* in milk after *Choorana Pinda Sweda*, as a combination of *Eranda Tailam* (castor oil) and milk is indicated for *Sodhana* in *Vatavyadhi*. Following *Kayavirechana*, *Sirovirechana* is done first three days with *Anutailam* and the following four days with *Ksheerabala Tailam 7 Avarthi*. A decoction made of *Guduchi*, *Satavari*, *Chandana* and *Bala* is given, which is mentioned in *cikitsa manjari*, as it is *Vatapittahara* and *Balya*. After *Virechana*, *Rajayapanavasti*¹⁰ is given following *Shashtikapinda Sweda* which is at same time *Srotosodhana* and *Balya*. The final protocol is *Dosha Samanatva* which is *Brimhana* for *Vata* and *Vata-Pitta* and is given as *Pichu*, *Pizhinjutadaval* and *Kativasti*. *Pichu* is given with *Mahanarayana Tailam*, as it is indicated in *Snayu Roga* and *Karshitha* for the purpose of *Brimhana*.¹¹ *Pizhinjutadaval* and *Kativasthi* are done with *Mahamashatailam*, a *Brimhana Yoga* which is indicated in *Mandha Chankrama* (difficulty walking) in *Bhaishajya ratnavali Vatavyadhi* chapter. *Rasnadasamoolaghrita* mentioned in *Kasa Chikitsa* of *Astangahridaya* is given as *Brimhana Sneha* as it contains *Ajamamsa* which can bring *Dhatu Samyavastha* (normalcy of dhatu).

CONCLUSION

Motor neuron disease is a progressive condition where muscle wasting is the predominant symptom. As a science rooted in symptomatology, Ayurveda focuses

on symptomatologic diagnosis which is *Mamsa sosha*. It is very well explained by Acharya Susruta in *Vidha lakshanas* of *Moolasthanas* of *Mamsavaha Srotas*, *Snayu* and *Rakthavahini Dhamanis*. *Vidha* can be understood as the obstruction by *Kapha* and *Pitta Doshas*. So *Avaranahgna chikitsa* was done, followed by *Mamsagata Vata Chikitsa* for vitiated *Vata Dosha*, which ultimately caused *Mamsa Sosha*.

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Attachments

ALS Functional Rating Scale-Revised (ALSFRS- R)

Sl. No	FUNCTION	BEFORE TREATMENT	AFTER TREATMENT
1	Speech	4	4
2	Salivation	4	4
3	Swallowing	4	4
4	Handwriting	4	4
5a	Cutting Food & Handling Utensils	4	4
5b	Cutting Food & Handling Utensils	4	4
6	Dressing and Hygiene	4	4
7	Turning in Bed and Adjusting Bed Clothes	3	4
8	Walking	3	4
9	Climbing Stairs	1	3
10	Dyspnea	3	4
11	Orthopnea	4	4
12	Respiratory Insufficiency	4	4
	TOTAL	46	52

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