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Role of Ayurveda in the Management of Guillain-Barré Syndrome

Case Study

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Abstract

Guillain-Barré syndrome (GBS) is a peripheral neuropathy with acute onset, and characterized by rapidly developing motor weakness. It is autoimmune in nature and triggered by a preceding infection. A 48 years old female patient was brought with complaints of paralysis of all the four limbs (quadriplegia), back pain and pain in the right lower limb since one month. She was previously treated in tertiary care hospital with IV Immunoglobulin and plasmapheresis but showed no improvement. So she admitted and treated in Mahatma Gandhi Ayurved College Hospital & Research Centre, Salod (H) Wardha on 21.06.2018. In *Ayurveda*, there is no direct description of this disease but this condition can be correlated with *Sarvanga vata (vata* affecting all parts of the body), hence she was treated following principles of *Vatavyadhi chikitsa* which include *Abhyanga* (Oleation therapy), *Swedana* (Fomentation), *Matrabasti* (enema with medicated oil), *Nasya* (Nasal medicated oil administration) and various herbomineral formulations for 51 days. Along with this physiotherapy and Trans Electrical Nerve Stimulation was also applied. Significant results were observed in the form of improvement in the muscle power from zero to four for all the four limbs with improvement in her general condition as well as daily activities

Keywords: *Abhyanga, Basti*, GBS, *Sarvanga vata, Shashtika shali pindasweda, Vatavyadhi*.

Introduction

Guillain Barré syndrome (GBS) is an acute, frequently severe, and fulminant polyradiculoneuropathy that is autoimmune in nature. It occurs year-round at a rate of between 1 and 4 cases per 100,000 annually; in the United States, ~5000–6000 cases occur per year. Males are at slightly higher risk for GBS than females. GBS manifests as a rapidly evolving are flexic motor paralysis with or without sensory disturbance. The usual pattern is an ascending paralysis that may be first noticed as rubbery legs. Weakness typically evolves over hours to a few days and is frequently accompanied by tingling dysesthesias in the extremities. The legs are usually more affected than the arms, and facial diparesis is present in 50% of affected individuals. Pain in the neck, shoulder, back or diffusely over the spine is also common in the early stages of GBS, occurring in ~50% of patients. Approximately 70% of cases of GBS occur 1–3 weeks after an acute infectious process, usually respiratory or gastrointestinal (1).

Treatment of GBS according to Modern Medicine includes Intravenous Immunoglobulin and Plasma pheresis which both are expensive (2).Hence there is need of cost effective treatment, which improves the Quality of Life in the patients having no side effects.

In Ayurveda no such disease is described but on the basis of symptoms this condition can be correlated with *Sarvanga vata* that is *vata* affecting all parts of the body. It is described in *snayugata dushta vata lakshana* by *Acharya Charak* in *Vatavyadhi chikitsa adhyaya.* In *Vatavyadhi* predominance of *vata dosha* is present hence the principles of *Vatavyadhi chikitsa* can be used in treating this condition (3). It includes *Snehana* (oleation therapy), *Swedana* (fomentation), *Shashtika shali pinda sweda* (4). (sudation using a *shashtika* rice cooked in milk and *Balakwath*), *Basti* (Medicated enema), *Nasya* (administration of medicated oil in nostrils) and use of *vatahar* formulations.

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Case Report

A 48 years old female patient (OPD No-1806210096-21/06/18) was brought with complaints of paralysis of all the four limbs (quadriplegia). She also had complaints of back pain and pain in the right lower limb since one month. She had increase frequency of micturition. She was a known case of hypertension and was taking treatment for the same regularly since 3 years. She was also taking medicines for Diabetes mellitus since one month.

Past history

Patient was alright before one month. She had fever and loose motion and took medicines for the same from family physician for 3-4 days. Later on she started feeling weakness in both lower limbs. The weakness progressed into both upper limbs as well. The intensity of the weakness gradually increased. After 2-3 days she seeked advice of a medical specialist and hence went a tertiary care unit. Meanwhile she also developed difficulty in breathing. There she was investigated for Electromyelogram (EMG), Nerve Conduction Velocity (NCV) and MRI. She also underwent blood and other

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routine investigations and then was diagnosed as suffering from Guillain Barre Syndrome on 25/05/2018.

She was given IV Immunoglobulin infusion, Injection Lupinox 0.4ml OD S/C, Injection Dynapar 1cc TDS IV, Injection Pan 40mg, Syp.Duphalac 30ml SOS and IV Fluids. Patient was shifted to another tertiary care hospital. There she was treated with IV Immunoglobulin, Inj. Lupinox, Inj. Eldervit, Inj. Dynapar, Inj. Tramadol, Inj. Pan, Tab. Atorva, Tab.Gabantip AT, Tab.Benformet plus, Tab. Glycomet GP 2, Tab.Lenol ER, Syp. Duphalac, IV Fluids meanwhile she was given physiotherapy and Trans Elecrical Nerve Stimulation. But there was no improvement. Then 8 cycles of plasmapheresis were given. With this there was improved in the respiratory functions but no improvement in quadriplegia. She was advised physiotherapy and Trans Electrical Nerve Stimulation. Then she came to *Kayachikitsa* OPD of Mahatma Gandhi Ayurved College Hospital & Research Centre, Salod (H) Wardha on 21.06.2018.

Examination of patient on admission-
Ashtavidhapariksha

The patient's pulse was *vatakapha* predominant and tongue was *saam* (coated). She had *sthula akruti* (obese) having weight 78kg. She was catheterized with No.16 Foley's catheter.

General examination

The general condition of patient was moderate, she was afebrile with pulse rate 110/min, Blood pressure 130/80 mm Hg and respiratory rate 18/min. Her chest movements were normal and equal on both sides.

Systemic examination

In the systemic examination, findings of respiratory and cardiovascular system were within normal limits. Abdomen was mildly distended, non-tender and bowel sounds were present. Patient was conscious, well oriented with time and place and responding well to commands. Pupillary reaction to light was normal. Examination of cranial nerves was normal. Muscle atrophy was absent. Muscle fasciculations and irritability absent. Involuntary movements were absent. Muscle tone –All four limbs flaccid.

Table No.1: Showing Muscle power gradation: On admission

	Right	Left
Upper limb	0/5	0/5
Lower limb	0/5	0/5

Gradation of Muscle Power --The Following are the Gradation of the Muscle Power (5)

0- Complete paralysis
1- A flicker of contraction only without any movement
2- Movements possible with gravity elimination
3- Movements possible against gravity but not against Resistance
4- Movements possible against gravity plus resistance but weaker than normal
5- Movements against gravity and full resistance (Normal Power)

Examination on admission-

Table no.2- Hughes GBS Disability Scale (6)

Hughes GBS Disability Scale	4/6
Cranial nerve examination	All cranial nerves intact
CN XI (Accessory nerve)	Shrugging of shoulders - not possible with resistance

Hughes functional grading scale for GBS Score Description

0: Healthy
1: Minor symptoms or signs, able to run
2: Able to walk 5 m independently
3: Able to walk 5 m with a walker or support
4: Bed- or chair-bound
5: Requiring assisted ventilation
6: Death

Reflexes

- Visceral reflexes (micturition &bowel) – Intact
- Superficial reflexes - Glabellar tap reflex -ve
- Abdominal reflex (both sides) -ve
- Babinski's sign (B/L) -ve

Deep tendon reflexes-

- B/L Upper Limb: Biceps, triceps, radial jerks – absent (areflexia)
- Lower Limbs: Knee & ankle jerks – absent (areflexia)
- Clonus –absent
- Co-ordination – can't be elicited.

Sensory nerves:

- Tactile sensation, temperature sense- intact
- Tactile Discrimination, Position sense – Intact
- Vibration sense and Stereognosis – Intact.

Investigations

Routine investigations of blood, urine, liver function, renal functions, serum electrolytes, CPK were within normal limits.

CT-Scan of brain and MRI lumbar spine was normal.

Electromyogram and Nerve Conduction Velocity showed symmetrical sensory motor axonal polyradiculoneuropathy affecting both UL & LL.

Impression: GB Syndrome.

Treatment given

- *Bahya Snehana* (External oleation)- *Abhyanga* with *Ashwagandha bala taila* in *anuloma gati* (downward) for 20min.

- *Nadisweda by Nirguṇḍi* (*Vitex nigundo*) and *Dashamula siddha kwatha* (decoction) for a period of 15 minutes.
- *Shashtika shali pinda sweda- Bala mula* (root of *Sida cordifolia Linn.*) and *Ashwagandha* (*Withania somnifera Linn.*) were taken in equal quantity each of 20gm and 500ml of milk was processed by boiling it to reduce the quantity to half. Then 50 g of *Shashtika shali* (rice harvested in 60 days) was cooked in this milk to form the paste. Then *pottali* of this paste was formed and applied with gentle circular motions for 30 min in *anuloma gati*.
- *Nasya* with *Ksheerabala taila* 8 drops in each nostrils.
- *Matrabasti 50ml (enema of medicated oil) of Ashwagandha taila (Withania somnifera Linn.)* was given for 7 days.
- *Brhatvatachitamani Rasa* 60mg mixed with *Guduchi* (*Tinospora cordifolia Linn.*) *churna* 2gm and *Ashwagandha Churna* 2gm was given.
- Capsule *Palsineuron 500mg three times a day.*
- Physiotherapy.
- Trans electrical nerve stimulation once in a day.
- Patient was treated for a total of 51 days.

Result and Observations

Improvement in Symptoms Before and After Treatment was noted. Patient admitted on 21.06.2018. Above treatment was started and continued for 51 days. Patient was assessed weekly and improvement was noted as following.

Table no.3- Showing Improvement of patient after treatment

SN	Date	Daily routine activities	Muscle power grade			
			Right Upper limb	Left Upper limb	Right Lower limb	Left lower limb
1	21.06.2018	Patient unable to sit, stand and walk	0/5	0/5	0/5	0/5
2	28.06.2018	Patient unable to sit, stand and walk	0/5	0/5	1/5	0/5
3	05.07.2018	Patient can sit with support for 15-20mins.	1/5	1/5	1/5	1/5
4	12.07.2018	Patient can sit with support upto 30-45 mins.	2/5	2/5	2/5	2/5
5	19.07.2018	Patient can sit without support.	2/5	2/5	2/5	2/5
6	26.07.2018	Patient can stand with support for 15-20mins.	3/5	3/5	3/5	3/5
7	02.08.2018	Patient can stand without support.	3/5	3/5	4/5	3/5
8	09.08.2018	Patient can walk with support.	4/5	4/5	4/5	4/5

Table no. 4: Showing reflexes before and after treatment

Reflexes	BT	AT
Planter	Absent	Flexor
Biceps	Absent	+
Triceps	Absent	+
Ankle	Absent	+
Knee	Absent	+

Discussion

GBS is an Autoimmune Disease. In modern medicine pathogenesis in the demyelinating forms of GBS, the basis for flaccid paralysis and sensory disturbance is conduction block. This finding, demonstrable electrophysiologically, implies that the axonal connections remain intact. Hence, recovery can take place rapidly as remyelination occurs. In severe cases of demyelinating GBS, secondary axonal degeneration usually occurs; its extent can be estimated electrophysiologically. More secondary axonal degeneration correlates with a slower rate of recovery and a greater degree of residual disability. When a severe primary axonal pattern is encountered electrophysiologically, the implication is that axons have degenerated and become disconnected from their targets, specifically the neuromuscular junctions, and must therefore regenerate for recovery to take place. In motor axonal cases in which recovery is rapid, the lesion is thought to be localized to preterminal motor branches, allowing regeneration and reinnervation to take place quickly. Alternatively, in mild cases, collateral sprouting and reinnervation from surviving motor axons near the neuromuscular junction may begin to reestablish physiologic continuity with muscle cells over a period of several months (7).

There is no direct reference of GBS in *Ayurveda* classics but according to its clinical features, and involvement of the *doshas* and *dushyas* it can be correlated with *Sarvanga Vatvyadhi*. The *'Vaat'* is described as "*Vaa Gati Gandhanayoh"* wherein *'Gati'* represents 'Motor function and '*Gandhana'* represents

'Sensory function. *Samprapti* of this mainly involves predominance of *Vaat Dosha*, as entire Nervous System is under the Control of *Vata* it is mainly responsible for all movements in the body. Hence, correction of *Vata* is very important in treatment of GB syndrome. Hence this case of GB syndrome was treated by using *Vatavyadhi chikitsa sutra*.The main *chikitsa* of *Vatavyadhi* includes *bahya Snehana*, *Swedana*, *Basti* and *Vatahar chikitsa* using various herbomineral formulations (8).

For *Abhyanga Ashwagandha bala taila* was used. It alleviates *vatadosha*, it is *pushtikara* (strength promoter) and *Jarahar* (prevents aging). Considering the vitiation of *vata doṣha* and dhatukshaya Vatahar and balya taila was selected and movements were performed in *anuloma gati* which reduces its *chalaguna* (property to move) causing inability to transmit nerve impulses (9).

Shashtika shali pinda Sweda helps in nourishment of muscles and in improvement of the movements. It is a type of *Brimhana Sweda (nourishment)* having *Vatahara (vata alleviating)* and *Balya (Strength promoter) property.* Its ingredients like milk and *Shashtika Shali* nourishes and gives strength to muscle tissues. *Bala and Ashwagandha* gives nourishment to nervous tissues. During application of *taila* the heat is generated which causes vasodialation, because of which the blood circulation improves causing removal of waste products. Improvement in blood circulation helps in nutrition of muscle tissues. It decreases stiffness of muscles and increases strength and flexibility of muscles which helps in improving movements(10). Skin *i.e. Sparshanendriya* is considered as the site of *Vata.* Hence *Shashtika shali pinda sweda* when applied directly on the skin lead to the correction of the deranged *Vata,* which helps in correction of the impaired functions (11). *Shashtika shali pinda sweda* (fomentation using *Shashtikashali* rice cooked in milk processed with *Bala* (*Sida cordifolia* Linn.) and *Ashwagandha* (*Withania somnifera* Linn.) was used. All ingredients of the *pindasweda*, *ksheer* (milk), *Shashtika shali* and *Balamula* have *santarpana* qualities (Antioxidantant and nourishing) and is indicated for *balya* (strenghthening), *brimhana* (nourishing) of *dhatus* with alleviation of *vata* . *Shashtika shali* helps in opening up of blocks in nerve conduction and facilitates remyelination of nerves which helps in transmitting nerve impulses (12,13).

Basti (medicated enema) is an effective treatment for *vata.* It also brings about *anulomana* (Downward movement) of *vata. Matrabasti* is a type of *abhyantar snehana* which helps in pacifying *Vatadosha*. *Ashwagandha taila matrabasti* 50ml was given for 15 days. This route of administration of medication also facilitates its rapid absorption. *Ashwagandha* is *balya, rasayana* and gives strength to nerves Nasya is the route of administration of drugs through nose as it reaches to the brain and eliminates the morbid *doshas* responsible for producing the *vyadhi* (14).

Nasya is indicated in all *Urdhvajatrugata vikara* (diseases of upper part). Diseases of spinal cords and roots can be considered under *Urdhvajatrugata vikara. Nasya* can be given in neurological disorder in which muscle wasting and muscular weakness is present. Ksheerabala taila is used in this case which rapidly get absorbed and causes *bruhana* and helps in alleviation of *vatadosha* in *urdhvajatrugata part* (15).

Brihatavatachintamani Rasa (prepared by Sri Dhootapaapeshwara Pvt. Ltd.), a *Suvarnakalpa* which contains *Suvarna bhasma, Roupya bhasma, Abhrak bhasma, Praval bhasma, Mouktika bhasma, Louha bhasma, Rassindoor* with *bhavana of Ghrita Kumari* (*Aloe vera Tourn.ex* Linn.) is an excellent *Vatashamak, Balya* and *Rasayana*. All ingredients of it are indicated as a stimulant, nervine, nootropic and rejuvenative action which improves the acuity of mind and indicated in the management of stroke. It is an excellent rejuvenative and anti-aging medicine (16).

Capsule *Palsineuron* contains *Mahavatavidhwansa, Samirpannaga, Ekangvir rasa, Khursani Ova (Hyoscyamus niger* Linn.*), Lajjalu (Mimosa pudica* Linn.*)* manufactured by *SG Phyto Pharma Pvt. Ltd.*, Kolhapur. It manily works on neuromuscular disorders. *Mahavatvidhwansa* improves metabolic processes in CNS and PNS, activates neuro-muscular communication, *Sameerpannag* improves tissue oxidation and regulates blood supply in affected areas, *Ekangveer Ras* promotes healing of damaged nerves and blood vessels, *Sootshekhar Rasa* provides nutritional support for faster healing of damaged tissues. *Lajjalu* has regenerative effect on neuro-lesions. *Khurasani Owa* checks neuro-irritation. Due to properties of these ingredients it is indicated in cases of neuro-muscular disorders of CNS and PNS, hemiplegia, general paralysis, facial paralysis, hand shoulder syndrome, convulsions, whole body stiffness, sciatica, nerve injury, neuralgia (nerve pain), cramps in calf, myalgia (muscle pain), Migraine and other neurodegenerative disorders (17,18,19).

Guduchi (Tinospora cordifolia (Willd) Miers ex Hook. F. & Thoms*)* and *Ashwagandha* (*Withania somnifera* Linn.) both have *balya* and Rasayana properties which helps in strengthening and promoting bulk of muscle tissue. It has immunomodulatary action, which helps in correcting immune dysfunction of the body and helps in reducing stress (20,21) Physiotherapies like passive exercises, passive assisted exercises and resistive exercises were started when patient was in complete bedridden condition. Later on strengthening exercises for quadriceps, hamstrings, deltoid and biceps muscles along with calf muscle stretching exercises were given. After gaining muscle strength of lower limbs and when patient started to stand with support, co-ordination exercises, knee balancing and ankle balancing exercises started. Studies have shown that physical fitness can positively influence not only outcomes such as mobility and fatigue levels in GBS patients (GBSPs) but also mental functioning (22,23). Along with this Electrical nerve stimulation for lower back, upper and lower limb was started which helps in reducing pain (24).

Significant results were observed in the form of improvement in the muscle power.The muscle power was zero in all four extremities at the time of admission which improved to four after treatment with improvement in general condition of patient. According

to modern medicine, it takes several months to year in patients of GBS to achieve full functional recovery (25). In this patient recovery was seen in one and half months, which suggests the rapid recovery due to favorable effects of management of principles given in *Ayurveda.*

Conclusion

Guillain Barre syndrome can be compared with *Sarvanga Vatavyadhi*. From this case study it can be concluded that GB syndrome can be effectively treated with using *Vatavyadhi chikitsa sutra* like *Abhyanga, Shashtika shali pinda sweda, Basti, Nasya* and *various* herbomineral formulations like *Brihatavatachintamani rasa, Ekangvir rasa, Guduchi* and *Ashwagandha.* Physiotherapy and Trans Electrical Nerve Stimulation also have prime role in improving condition GB syndrome patient. All this treatment is cost effective and having minimum or no side effects and if given adjuvant to Modern medicine showed rapid improvement. This is a single case study so to prove effectiveness of *chikitsa* principles it should be conducted on large sample size for long duration of time.

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