Case Report

Ayurveda management of Guillain-Barre syndrome: A case report

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A B S T R A C T

Guillain-Barre syndrome (GBS) is a severe acute paralytic neuropathy with rapid progression usually occurring post infections. Inspite of the active medications it is associated with severe weakness, incomplete recovery and pain. Long disease course can cause autonomic dysfunction or deterioration in general health and life threatening complications like respiratory failures. Current case was diagnosed as GBS with motor, sensory & sphincter disturbance. Ayurveda diagnosis of Sarvangavata was made and customized treatment strategy was planned. First part of Kaptha pitta samrushtavata (Vatadosha associated with Kaptha and Pitta dosha) and then vatadhara chikitsa were followed. Treatments were Koshtha shodhana (gut cleansing), Abyanga (massage of whole body with medicated oil), Ksheera parishke (dripping of medicated milk over body), Anna lepa (application of medicated rice poultice over body), Anna lepa (application of medicated rice poultice over body), Shastikshali panda sweda (Rubbing of medicated rice poultice over body), Shirotalam (trans cranial drug administration by applying medicines over scalp), Basti (trans rectal administration of medicines) and Oral medications. Panchakarma treatments were for 14 days followed by oral medications for next 151 days. Intervention period of 165 days showed complete recovery of all the motor, sensory & sphincter deficits however follow up of the patient was maintained for 437 days looking in to the sustainability of the outcomes.

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1. Introduction

Guillain-Barre syndrome (GBS) is one of the most common severe acute paralytic neuropathy. It is a heterogeneous rapidly progressive disease. GBS has a monophasic disease course post infection and is usually non relapsing. Around 20–30% of patients may be associated with life threatening respiratory failures. Prevalence is 2.7 per 1,00,000 per year [1]. Prevalence is more in men than women and has seasonal fluctuations.

GBS is usually preceded by an infection resulting in immune stimulation. This induces molecular mimicry between microbial and nerve antigens leading to an aberrant autoimmune response targeting peripheral nerves and their spinal roots [2]. One to two weeks post immune stimulation, clinical manifestation begins with a rapidly evolving are flexic motor paralysis with or without sensory disturbances. Typically weakness is ascending paralysis which evolves over hours to a few days. Affliction of lower limbs is more common than upper. Cranial nerves can be involved. Other manifestations include tingling dysesthesias, autonomic disturbance, and respiratory failure. Peak presentations are in a period of 2–4 weeks [3]. Main phenotypes of GBS are acute inflammatory demyelinating polyneuropathy and acute motor axonal neuropathy based on pathology involved in myelin sheath or nerve axon respectively. Intravenous Immunoglobulins (IVIg) [4] and plasma exchange [5] have shown evidences in the management of GBS. In spite of these therapies patients develop severe weakness, incomplete recovery, pain, fatigue and a long disease course [1]. Other hindrance of these therapies specially in developing and under developed countries are the high cost involvement. Mortality rate in GBS is 4–7% in spite of the advances in the treatment strategies [6]. Mortality is due to ventilatory insufficienty, pulmonary complications, autonomic dysfunction and deterioration in general health. Recovery period may last from months to years with decay in immune response and endogenous repair of peripheral nerves. Recovery results in severe and permanent disability with substantial affect on daily activity and quality of life [7]. Poor prognostic factors are high age (above 40 yrs) and high disability at nadir [1]. Studies have recommended for development of more effective treatments.

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[8], Ayurveda mentions a clinical condition termed sarvanga vata- vyadhi [9], which symptomatically relates to GBS. Sarvangavata presents itself with motor deficits, speech derangement, severe pricking and aching pains, may affect from single limb to whole body. Treatment of sarvangavata depends on pathological state of vataadosha. Vataadusti could be due to primary increase in Vata alone or due to other dosha and dhatus (body tissues). State of vata can be saama (gross metabolic disturbance) or niraama (without gross metabolic disturbance). Pathological staging could be due to gata or avarana. Considering these various factors management is planned either through santarpana (nourishing) or apatarpana (debilitating) principles (Table 1).

2. Patient information

A 60 year old female patient presented with loss of power of both upper and lower limbs, associated with deranged sensation like pricking and tingling sensation all over the body, numbness in both palms & soles, incontinence of urine since last 12 days and Foley's catheter in-situ reported to outpatient department of KLE Shri BMK Ayurveda Hospital Belagavi on 10th September 2016.

3. Clinical findings & diagnostic assessments

Clinical examination at KLE Ayurveda hospital, Belagavi showed that deficit in sensory system like tingling, pricking sensations all over the body and numbness at both palmar and plantar surface of all extremities. Motor system like quadriplegia and muscle power was of grade 1. Patient had incontinence of urine. Further examination showed no abnormality in cranial nerves, higher mental functions were intact. Details of examinations findings at different time points have been summarized. Patient met diagnostic criteria of GBS [10].

Assessments were done at various time points like 1st, 4th, 7th, 10th, 14th, 96th, 113rd, 165th, 283rd, 367th and 437th day of intervention. Sensory system assessment like tingling, pricking and numbness were assessed through visual analogue scale (0–10) [11]. Power was graded (0–5) [12], Reflexes (0–+++ ) [13]. Clinical assessments of activities of daily living (ADL) were through The Barthel Index (BI) [14], comprehensive disability assessments were through Modified Rankin Scale (MRS) [15], quantitative measure of neurological deficit were through NIH Stroke scale (NIHSS) [16] (Supplementary file. Table 1).

4. Timeline

History revealed episode of fever 20 days back which lasted for 8 days and was treated by a local physician. On 8th day patient noticed gradually progressive bilateral weakness in both upper and lower limbs, back ache and incontinence of urine for which she was shifted to a tertiary care centre at Belagavi. Patient didn’t have history of diplopia, regurgitation, dysphagia, loose stools and trauma. Patient was a known case of Essential hypertension and was on tablet Amlodipine 5 mg once a day. Examination findings in tertiary care centre were arereflexic quadriparesis, urine incontinence, preserved higher mental status functioning. Vital examination findings like blood pressure, pulse, respiratory rate etc. were within normative limits. Blood investigation parameters like haemogram, renal and liver function test, electrolytes, Creatinine Phosphokinase (CPK) values were within the normative limits.

| S.No | Textual Information – Sarvanga vata [9] | Textual Information – Guillain barre syndrome (GBS) | Manifestations in the Patient |
|------|----------------------------------------|--------------------------------------------------|-------------------------------|
| 1.   | Pathogenesis- Morbid Vata increase (वात्क्षणिक) associated with decreased tissue elements (धुधाः), association of other dosha (Samsrutsa dosha) like pitta & kapha | Nuevo degenerative disorder, autoimmune dysfunction | Preceded with fever followed by heaviness (गुरुत्वात्) and stiffness (सस्त्रतिः) of extremities. Suggestive of Kapha & Pitta involved Sarvangavata |
| 2.   | Pitta association in pakshaghata produce increase in body temperature (धार्मक, कप्प, पित्त वातावरणविकारः) , Kapha association cause heaviness (गुरुत्वात्) and stiffness (सस्त्रतिः) (Maadhava Nidaana. 22.42) | GBS can affect motor and sensory functioning of all limbs | Loss of power of both upper and lower limbs. Incontinence of urine. |
| 3.   | Vatitata vata affects to the right or left part of the body (घर्षणमात्रे एव पक्ष दक्षिणं वामं वाममेववामं बाह्याभ्यन्तरमायामं) | There is usually a progressive ascending motor weakness starting in the lower limbs, spreading to paraplegia and quadriplegia | Loss of muscle strength in all extremities. First affecting both lower limbs then both upper extremities were affected. Sensory deficits of pain, pricking, tingling sensation all over the body. Loss of sensations in soles & palms. Not affected. |
| 4.   | difficulty for the movements (नुवदिःतास्यविकारः) | Sensory deficits | Patient had pain and aesthetics. |
| 5.   | Pain (दर्हिँ, वीर्यं, प्रशं) in the affected areas | Cranial nerve involvement resulting in facial, oculomotor, or bulbar Weakness. | |
| 6.   | speech deficits (वाचनमुग्मेऽविकारः) | Paralysis or paresis may later develop to contractions and flexion deformities. | Autonomic dysfunction is common and may cause arrhythmias |
| 7.   | Sirsa and snayu gets affected (सिरसा सनयु परावृत्तिः) in Sarvanga vata. Snayugato vata has features contracture deformity (रुजं भृतवस्तिसम्बन्धः) (Cha.chi.28/35) | Strudusti can cause pain (त्रु) and loss of sensation (रुक्तिः). (Cha.chi.28/36) | Autonomic dysfunction is common and may cause arrhythmias |
| 8.   | Sarvangavata with prannava dusti presents with karmendriya dusti like urinary incontinence | GBS presentations can begin with effecting single limb and spread to other limbs and to the whole body | Urinary incontinence |
| 9.   | It affects to one part of the body or whole body it is known as sarvangaraga (सार्वंगरोगिः तत्वसंस्कारार्थः) | Sarvangaroga (सार्वंगरोगः तत्वसंस्कारार्थः) | Affecting all four limbs, pain in all over the body, Urinary incontinence. Hence effecting whole body |
| 10.  | Contractures in lower limbs (पादं सङ्कोच) | Muscle wasting & contractures | Urinary incontinence |
| 11.  | Apanovoyu abnormality | Autonomic dysfunction | Completely cured |
| 12.  | Prognosis – pakshaghata caused due to involvement of multiple dosha is curable (हस्तसमुन्निः) | 70–80% have complete recovery. 20–30% may have persisting disability | |
Patient was diagnosed with AIDP (Acute Inflammatory Demyelinating polyradiculopathy) and was treated with Intravenous Immunoglobulins (IVIG) and pulse steroid therapy for 9 days. However patient noticed slight worsening of limb power. Patient got discharged from hospital due to lack of affordability to treatment. Three days later patient approached KLE Ayurveda Hospital Belagavi (IPD No. 3522-10/09/16).

Case is unique because of motor, sensory and sphincter disturbance presentation and its management through Ayurveda. Case reporting is done as per the CARE Case report guidelines (http://www.care-statement.org).

5. Therapeutic intervention

Patient was diagnosed with sarvangavata, pathological staging was Kapha Pitta dosha abnormality along with vata.

Management was with koshtha shodhana, sarvangaabhyanga, shastika shali panda sweda, anuvasana basti, anuvasana basti, shaman aushadhi (oral medications).

Details of the treatment like chronological interventions, duration of treatment, medicine used, dosage etc. have been enlisted (Supplementary file Table 2 and 3).

All ayurveda panchakarma procedures were done as per the principles and practices of Ayurveda [17].

Shiro taladharana is a procedure in which Bala roots, amalaki fruits, Musta rhizome, Guduchi stem powders of 7.5 gms each were mixed with sufficient quantity of Karparpadyadi Taila till attained the paste consistency. Then this paste was placed on scalp of the patient over which two gauze pieces of 6.5 x 6.5 cms size were placed. These paste and gauze piece were secured by tying with a cloth from scalp to chin. This was carried out from 5pm to 7pm and was retained for 120 min and later was removed and scalp was cleaned.

6. Follow-up and outcomes

Patient was treated from September 2016 to November 2017. Active intervention for GBS was till February 2017 (165 days) during which period patient had neurologic deficits. And patient follow up observation was continued till November 2017 (437 days) as patient had other symptoms like amlapitta (Acid peptic disorder) and sandhivata of dakshina janu sandhi (Osteoarthritis of right knee joint) (Supplementary file. Table 1).

Outcome on Sensory system findings like tingling and prickling sensation showed a reduction from score 8 to 5 by 10th day and to complete recovery by 165th day. Numbness reduced from score of 10 to 3 by 10th day and complete recovery by 113th day. Muscle strength of all extremities showed a steady increase from grade 1 (base line), 3 (10th day), 4 (96th day) and complete recovery by 165th day. Tendon reflexes improved from areflexic state to near normal on 14th day and to normalscy on 96th day. Restoration of urinary sphincter control was observed by 7th day of intervention. Clinical assessment measures showed gradual improvement from base line scores [10 (BI), 5 (MRS), 13 (NIHSS)] to 14th day scores [50 (BI), 4 (MRS), 6 (NIHSS)] and a complete recovery [BI (165th day), MRS (283rd day), NIHSS (283rd day)]. All Neurological deficits were restored by 165 days of intervention (Supplementary file. Table 1).

7. Discussion

Ayurveda treatment showed to be effective in management of GBS. Extended follow up observations showed that improvements were well sustained. Patient continued the follow up even after total remission of the GBS symptoms for other health complaints like right knee joint pain and acid peptic disorder. Accordingly medications were advised.

GBS in current patient was severe debilitating with total loss of power in all extremities, sensory deficits in all four limbs and incontinence of urine but was with no life threatening conditions like respiratory disturbance or autonomic dysfunctions like arrhythmias. Patient could not afford standard therapy of IVIG due to cost factor.

Ayurveda treatments were on the line of vatavayadhi. Koshtha shodhana (gut cleansing), Sarvanga abhyanga (massage of whole body with medicated oil), ksheera parishke (dipping of medicated milk over body), Shastika shali pinda sweda (Rubbing of medicated rice poultice over body), Sarvanga Annalepa (application of medicated rice over the body), Shirotala dharaana (trans cranial drug administration by applying medicines over scalp), Basti (trans rectal administration of medicines) and oral medications.

Initially diagnosis of sarvangavata was with kapha pitta samritha avastha was made hence koshtha shodhana, ksheera parishka, shirotalam, basti with Kaphapittahara medicines were initiated. During the course of panchakarma management there were slight modifications. Sweda (sudation therapy) was shifted from ksheera parishke to pinda sweda after physicians felt that patient can tolerate pinda sweda as it is mahan sweda (strong fomentation). Niruhabasti with musta, dashamooala and guduchi kashaya basti and mahatiktaka anuvasana basti was started and anuvasana basti were altered to Vamana (30ggarbha). Vasana was to address pain (पीट) decreased sensations (वज्रतन) along with other manifestations of morbid vata. Once the kapha lakshana like heaviness (gurauto) decreased and lightness of body was observed on 10th day, basti treatment was modified to musta, dashamoolaa and guduchi ksheera basti and ksheerabala anuvasana basti (Table 2) (Supplementary file Table 2).

After gut cleansing (koshtha shodhana), oral medications were started on day 2 of treatment. Medications administered to counteract Kapha Pitta samrutha vadatosha were Dhanadhanaanyad kashaya (DDK) [18], Dashamooala kashaya [19], Tab Bruhat vata chinttami rasa (without gold) (BVC) [20], Capsule Ksheerabala (KB) [21] and Ksheerapaka of guduchi, yastimadhu, bala. On day seven of treatment, we noted increase in pain and stiffness in whole body hence to address vatakapha pathology oral medications were modified. Dashamooala kashaya was withdrawn and replaced with Dashamooala arista [22], Sahacharadi kashaya [23] and Capsule Nueron [24]. Capsule Nueron were included because of Kaphavatahara ingredients like lashuna, eranda, dashamooala, trayodashanga guggulu etc. Daily abhyanga of whole body with Maha masha tail [25] followed by hot water bath was advised. On Day 96 patient reported gross decrease in numbness but not in tingling & prickling sensation, hence we added Balarista [26], capsule Palsineuron (ingredients like mahavata vidwamsa rasa, sameerapannya rasa etc are potent vatahara, shulahara and rasayana) [27]. On Day 113 again Cap Nueron were added as patient noticed slight heaviness of limbs. From 165th day on wards we noticed that all the symptoms associated with GBS had subsided and patient had amlapitta manifestations and sandhi vata of dakshina janu sandhi hence medicines like kamadudha rasa [28] and dashmooalarista were prescribed (Table 2) (Supplementary file. Table 3).

Various medicinal preparations were used during the course of treatment. Compound formulations like BVC tablet, Neuror capsule, Palsineuron capsule, KB capsule were used. Liquid medicaments like Sahacharadi kashaya, DDK, dashmooalarista, dashamooala kashaya, bala arista. Previous studies on some of these medicines have shown beneficial effect. BVC has shown neuroprotective activity [29], bala arista has shown anti-inflammatory activity [30], Shastika shali pinda sweda has shown improvement on motor deficits of cerebral palsy patients [31], Anuvasana basti with ksheera balaltaa showed to produce improvement in osteoarthritis [32], Aswagandha (Withaniasomnifera) has neuroprotective effect [33], Dashamooala has anti-inflammatory effect
Possible samprapti vighatana analysis.

| Sr.No | Duration of Intervention | Lakshana (Manifestation) | SAMPRAPTI (Pathology) | Doshva Vrddhi | Chikitsa (Treatment) |
|-------|--------------------------|--------------------------|----------------------|--------------|-------------------|
| 1.    | 1st –10th Day            | Fever as pre morbid manifestation | Pitta Kapha          | Pitta Samsruta vata vruddhi | Kostahodhana, Ksheerapaka (guduchi,yastimadhu,bala) |
| 2.    |                          | Loss of sensation (चुम्बन), Heaviness (गुम्बन) |       | Vata Kapha Kapha Pitta samrusatra vata vruddhi | |
| 3.    |                          | Pains (धर्मन, तोद), loss of functioning (रसुन, श्रद्धा), Disturbed sleep (धर्मनिर्माण), Urine incontinence (होशसंयमनीय) | Vata | Vata Mahatikutka ghruta & Mahavishagharbha taila, Sarvanga abhyanga with Mahavishagharbha taila, Shastikshali panda sweda | |
| 4.    | 10th – 14th Day          | loss of functioning (रसुन, श्रद्धा), loss of motor activity (कर्मक्षय), tingling and pricking sensation all over the body (तोद), decreased sensation (घुम्बन) | Vata Vyanavata Apanavata | Vata – Vyanavata Apanavata | Sarvanga abhyanga with ksheerabala taila, shastikshali panda sweda, annalepa, ksheerapaka parishek, shirotalam, mustadi ksheera basti, anuvasa basti with ksheerabala taila | |
| 5.    | 14th – 165th Day         | Pain (धर्मन), loss of functioning (रसुन, श्रद्धा), decreased sensation (घुम्बन) | Vata pradhanaka kaptha | Vata pradhanaka kaptha | VataKapalahara Rasayana – Sahacharadi (vasu,kapha), Dashamularista (Tridoshbha) Bhrabvatata chintamani, Capsule Nueron, Capsule Kshirabala etc. | |

8. Conclusion

Ayurveda management of GBS showed amelioration of motor, sensory and sphincter deficits. Treatment with 14 days of various panchakarma procedures and oral administration of Ayurveda medicines for next 151 days showed complete recovery on all deficits. These treatments were safe and effective. Following Ayurveda model of treatment like stage wise and customized approach have beneficial effect. Outcome showed significant role of Ayurveda in severe debilitating disorder like GBS. Ayurveda management can decrease the disability and improve quality of life.

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Conflict of interest

None.

Informed consent

Patient gave informed consent for publication.

Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jaim.2018.08.004.

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