

Ayurvedic Management of Guillain-Barre' Syndrome (GBS) with Correction of Finer Movements of Handwriting

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Abstract

GBS is a severe acute paralytic neuropathy with rapid progression usually occurring in post infections. In spite of active medication it is associated with severe weakness, incomplete recovery and pain. Diagnosis from Ayurveda point of view depends on the presenting and associated complaint from simple gata-vata samprapti to that of marmabhighata. With the similar background, a 53 yrs old female patient presented with the complaints of inability to walk without support, weakness in bilateral lower limbs and upper limbs, pain in both calf muscles and altered sensation of bilateral feet and arms. Diagnosis made was medasavrita vata based on the presenting complaints. As there is involvement of vata involving gambheera dhatu with avarana samprapti, initially treatment was intended to remove avarana and kapha medas vilayana. Hence ruksha, vata shamaka chikitsa, deepana, pachana was planned. After the removal of ama and avarana, snehana, brumhana, rasayana line of treatment was adopted followed by shamanachikitsa. After 6 months of treatment in this concept, patient showed complete recovery of all the motor, sensory and sphincter deficits. In the management of neurological deficits, the correction of finer movement counts a lot in assessing the therapeutic benefit of the treatment and it is an important aspect for subjective assessment of improved quality of life. Hence in the present study, hand writing correction by the treatment was selected as an evidence for the same.

Keywords

Guillain-Barre syndrome, medasavritavata, marmabhighata, avarana, shamanachikitsa.

Introduction

Guillain-Barre syndrome is an acute immune-mediated disease of peripheral nerves¹ and nerve roots that is usually triggered by infections. The incidence of GBS can therefore increase during outbreaks of infectious diseases. It is characterised by progressive,

ascending, symmetrical limb weakness, and paresthesia with diminished or absent deep tendon reflexes with or without respiratory and cranial nerves involvement. Overall incidence is estimated to be 1.1-1.8/100,000/year, which raises after the age of 50 to be 1.7-3.3/100,000/year². Weakness and tingling in the extremities are usually the first symptoms. These sensations can quickly spread, eventually paralyzing whole body³.

Normal use and function of the hand are dependent upon the synergy of many muscles; those acting on the wrist, as well as on all digits¹. The muscles of the wrist are important because they stabilize and prevent unwanted wrist movements, which allow the finger muscles to maintain an adequate length that is favorable for producing tension and pre-tension⁴.

Finger movements should work in reciprocal synchrony with movements of the wrist. Grasp is weaker with wrist flexion than with wrist extension. Wrist extension is critical to stabilizing the structure and allowing finger movements at the best mechanical advantage for freedom of range and control.

To maintain good stability of the wrist in extension for distal finger function, it is necessary for the wrist flexors to work antagonistically with the wrist extensors to provide stable contraction and maintain the proper control of the wrist in its best functional position.³

The extrinsic finger muscles have their bellies in the forearm. These muscles narrow

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to pass through the carpal tunnel and into the tendon sheath. They insert on the interphalangeal joints of the digits. The extensor extrinsic are responsible for extending the metacarpophalangeal joints of digits 2 through 5 and extend the wrist by continued action. The flexor extrinsics flex the PIP joints and the MP joints and the wrist by continued action.

Intrinsic muscles of the palm function primarily to move fingers in abduction or adduction in relation to the midline axis of the hand.

The structure and function of the anatomy of the hand and wrist are responsible for an almost infinite combination of skilled movements of digits, supported by stability of the wrist and elbow, arches of the hand and joints of the upper extremity⁴. If one considers the intricate movements of the hand and its skill, the many problems, which can arise in writing and manipulation, can be appreciated⁶.

Case Report

A Female patient aged 53 years presented with complaints of loss of strength in both upper and lower limbs, unable to walk without support associated with stepping gait, altered handwriting, weakness in bilateral lower limbs, pain in both calf muscles and altered sensation of bilateral feet, slurred speech, difficulty in swallowing since 1 year.

Detailed history

Patient was apparently healthy before 1 year. One day she started with complaints of fever. Gradually she noticed weakness in both lower limbs which progressed to upper limbs within a week. So that patient was not able to walk without support, Altered handwriting associated with lost bladder and bowel reflex. Altered sensation in both the limbs, Slurred speech, difficulty in swallowing, heaviness in the body observed. Later need of support increased, so patient was admitted in allopathic hospital in Bombay. After evaluation she was shifted to ICU after rapid progression of disease. Routine investigations were done.

Investigation findings at the time of onset

HRCT chest showed S/O early bronchiectatic changes and they took neurological opinion also. Patient started on steroids, LMWH, Antibiotics and supportive treatments. MRI Brain done S/O chronic ischemic changes noticed. CSF examination done and it showed albumin-cytological dissociation. USG of abdomen and

pelvic showed B/L fullness of pelvicalyceal system, significant of post void residue. IV Immunoglobulins were given. Later disease progressed to difficulty in getting up from lying down position along with episodes of falling saturation level. Repeated MRI showed Acute infarct in external capsule. ENT reference given and patient was intubated and tracheostomized on 28/4/2021. 2nd cycle of IVIG given. Electrolytes correction was done. Tracheal secretions culture showed sphingomonas growth. Antibiotics escalated. Patient had episode of blurring vision and autonomic dysfunction. MRI brain showed posterior (occipital) infarct, B/L large vessel vasculitis then repeated ET secretion culture it showed pseudomonas+ Klebsiella growth. Medications adjusted. Then Patient had dyselektrolytemia. Nephrology and endocrinology opinion were taken. Patient developed complete right sided pneumonia, so treatment was modified. Patient gradually weaned off. Physiotherapy and speech therapy continued. Urine culture showed klebsiella growth. Along with this antibiotic were continued. Tracheal tube was changed. Patient was hemodynamically stable, hence discharged on 31st July 2021. Patient continued 3 months of oral medications and physiotherapy.

Past History

H/O viral fever 1 year back

Family History

Nothing specific

Treatment History

Patient started on steroids, LMWH, Antibiotics and supportive treatments

Medications prescribed for the complaints. Details are not available.

Examination findings and Investigations during first visit are given in Table 1 and 2

Table 1 : General Examination

Nadi	70/min
Mutra	Vikritha(catheterized)
Mala	Katina, once in two days
Jihva	Upalepatwam
Shabdha	Prakruta

Sparsha	Ruksha
Druk	Vikritha(Blurred vision)
Aakruti	Prakruta
Prakriti	vata-kapha
Sara,satva,saatmya,samhanana,pramana	Avara
Aharashakti,vyayamashakti	Alpa
Vaya	Madhyama

General examination		
Built	Moderate	Pulse -70 BPM
Nourishment	Under	B.P -110/70mm of hg
Pallor	Absent	Temp -98.6
Icterus	Absent	Rs -18 times/min
Cyanosis	Absent	Height -152cm
Clubbing	Absent	Weight-40kg
Lymph nodes	Not palpable	BMI- 17.31
Oedema	Absent	

Table 2 : Systemic Examination on 20/10/2021

Systemic Examination	
RS	NVBS Heard
CVS	S1S2 Heard
P/A	Soft, non-tenderness
CNS	
1) HMF	Intact
	Fully conscious oriented to time, place, person intact Memory intact Intelligence good Slurred speech
2) Cranial nerve examination	1) Olfactory Nerve-Intact 2) Optic nerve - Blurred vision (snellen's chart-distant vision 3/6 on both the eyes) 3) Oculomotor - Intact 4) Trochlear - Intact 5) Trigeminal - Intact 6) Abducens - intact 7) Facial - Intact 8) Vestibulocochlear - not elicited 9) Glossopharyngeal - Intact 10) Vagus - Intact 11) Accessory - not possible to lift both the shoulders 12) Hypoglossal - Intact

3) MOTOR SYSTEM		
a) Involuntary movements- Absent		
b) Muscle bulk	RT	LT
Biceps	11 inches	11 inches
Forearm	8 inches	8 inches
Mid-thigh	15 inches	15 inches
Calf muscles	10 inches	10 inches
c) Muscle tone		
Right hand	Hypotonia	
Left hand	Hypotonia	
Right leg	Hypotonia	
Left leg	Hypotonia	
d) Muscle strength		
Upper limb	RT	LT
Elbow - Flexion	2/5	2/5
- Extension	2/5	2/5
Wrist - Flexion	2/5	2/5
- Extension	2/5	2/5
Finger abduction	2/5	2/5
Opposition of thumb	2/5	2/5
Test of Grip	2/5	2/5
Lower limb		
Hip - Adduction	2/5	2/5
Abduction	2/5	2/5
Flexion	2/5	2/5
Extension	2/5	2/5
Knee - Flexion	2/5	2/5
Extension	2/5	2/5
Ankle - Dorsiflexion	2/5	2/5
Plantarflexion	2/5	2/5
e) Co-ordination		
Sensory - Stereognosis	Absent	Absent
2 Point discrimination- UL	Absent	Absent
- LL	Absent	Absent
Graphesthesia	Absent	Absent
Motor UL- Finger nose test		
Co - ordination- not able to elicitate		
-	Finger nose finger	
LL - Knee heel test		
4) SENSORY SYSTEM		
a) Lateral spinothalamic tract:	Pain sensation - Temperature sensation	Altered

b) Posterior spinothalamic tract:	Touch Vibration Joint sense Pressure sense	Altered
c) Cortical sensations:	Tactile localization Two-point discrimination Graphesthesia Stereognosis	Absent
5) Reflexes		
Superficial - corneal	Present	
Abdominal	Present	
Deep -	RT	LT
Biceps jerk	Diminished	Diminished
Triceps jerk	Diminished	Diminished
Knee jerk	Diminished	Diminished
Ankle jerk	Diminished	Diminished
Clonus- patella	Diminished	Diminished
Ankle	Diminished	Diminished
Babinski reflex	Negative	Negative
Abdominal	Absent	
LOCOMOTORY EXAMINATION ON 20/10/2021		
Inspection	Mild atrophy of pelvic and thigh muscles . Walking not possible Muscle power and tone altered Tenderness L3-4 No warmth Forward bending-restricted Backward bending- restricted Left lateral and right lateral- restricted	
Palpation		
Range of movement		
Investigations on first visit on 20/10/2021 Routine studies of blood and urine were within normal limits. CT-scan of brain was normal. MRI spine was within normal limits.		
EMG-NCV showed sub-acute demyelinating sensory motor polyneuropathy involving both upper and lower limbs and distal and proximal segment was affected.		

Samprapti Ghataka :

Dosha	- Vata kapha pradhana tridosha
Dushya	- Rasa, rakta, mamsa, meda, snayu, kandara
Srotas	- Rasavaha, raktavaha, mamsavaha, medovaha
Sroto dushti	- Sanga
Agni	- Jataragni, Dhatwagni
Ama	- Jataragni, Dhatwagni mandya janya ama
Udbhavasthana	- Amashaya, Pakwashaya
Sancharasthana	- Rasayani
Vyakthasthana	- Shakha

Adhistana - Shakha
 Rogamarga - Madhyama
 Sadhya - Asadyata - Kricchra Sadhya
 Diagnosis as per Ayurveda - Medasavrittha vatawith kapha pitta samsrushta avastha.

Intervention

I line of treatment

Table 3:

DATE	DIAGNOSIS BASED ON AVASTHA	OPD	IPD	DISCHARGE MEDICINE
20/10/2021	complaints of weakness in both lower limbs, difficulty while walking, unable to hold the things in hands.	Advised investigations	Alepa Dhanyamladhara for 7 days.	Continued treatments
28/10/2021			Dashamoolaparisheka Balamoolaparisheka For 10 days	Continued treatments
8/11/2021		-----	Utsadana Abhyanga for 10 days	Continued treatments
18/11/2021			Rajayapanabasthi (yoga) for 8 days	Continued treatments
26/11/2021			Pinda sweda(shashtika shaali) for 10 days	Continued treatments
6/12/2021			Pizhichil(bala taila) for 10 days	Continued treatments
16/12/2021			Matra basthi (Dhanwantara taila) for 15 days	Continued treatments
30/12/2021			Abhyanga (Mahanarayana taila) Physiotherapy continued for 1 months	Discharged medicines given for 1 months
3/2/2022				● Stressan 1-1-1 ● Alert 1-1-1 ● Saraswatharista 3tsp tds ● Cap.Brahmi gritha 1-0-1 ● Lsm 1tsp with hot water ● Medya vati 0-0-2 ● For 1 Months
10/3/2022	complaints of weakness in both lower limbs, difficulty while walking, climbing stairs and running, unable to getting up from sitting position slightly improved		● Rajayapana basti (kaala) ● Tailadhara ● Udwartana with godhumachurna (Afternoon) ● Abhyanga (Morning) ● For 8 days	Continued treatments

18/3/2022			• Rajayapana basti (kaala) • Tailadhara • Udwartana with godhuma churna(A) • Abhyanga (M) • For 5 days	Continued treatments
23/3/2022			• Matra basti (Dhanwantara taila) • Abhyanga (Bala Taila) • For 8 days	Continued treatments
1/4/2022			• Abhyanga (Bala Taila) • Matra basthi • Physiotherapy • For 15 days	Continued treatments
15/4/2022			• Abhyanga (Bala taila) • Physiotherapy • For 21 days	Discharge medicines given for 2 months
7/5/2022				• Brahat vata chintamani with gold 1-0-0 • Ajamamsa rasayana 2tsp-0-0 • Vidangarista 6tsp -o-6tsp • For 2 months

Results and Observations

After 2 sitting of different ayurvedic treatments, following is the changes observed in the patient

Table 4: Comparison between gait during treatment course

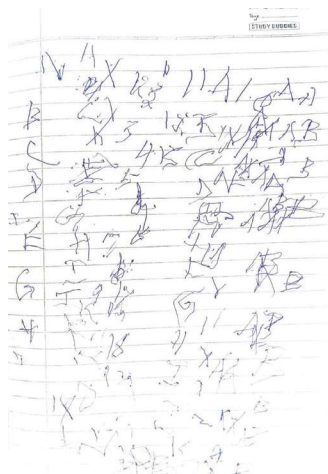
Date	Gait
20/10/2021	Patient unable to walk, sit and stand
5/12/2021	Patient can sit with full support
3/2/2022	Patient can sit with minimum support
10/3/2022	Patient can walk with support and walker
7/4/2021	Patient can walk independently without support

Table 5: Comparison of Muscle power grades during treatment

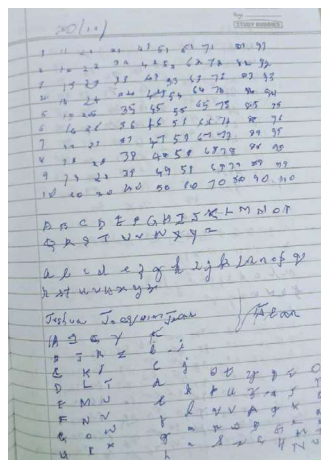
MPG	20/10/2021	5/12/2021	3/2/2022	10/3/2022	7/4/2021
Right UL	2/5	3/5	4/5	4/5	5/5
Left UL	2/5	3/5	4/5	4/5	5/5
Right LL	2/5	3/5	3/5	3/5	5/5
Left LL	2/5	3/5	3/5	3/5	5/5

Figures 6: Comparison of Handwriting during treatment course

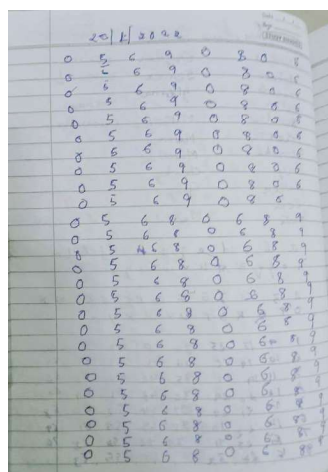
Day 1 : 5/12/2021



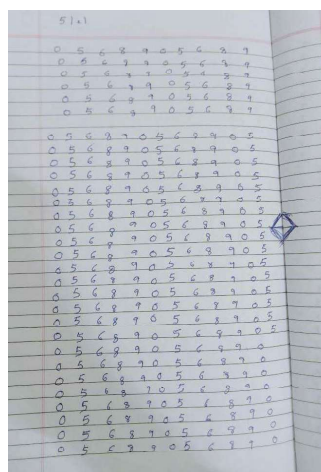
Day 25: 30/12/2021



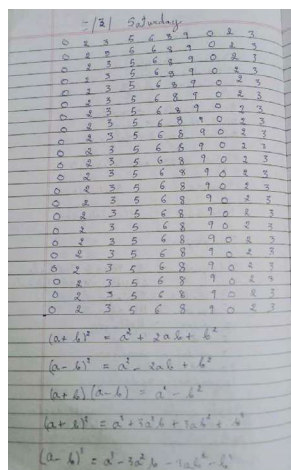
Day 45 : 20/1/2022



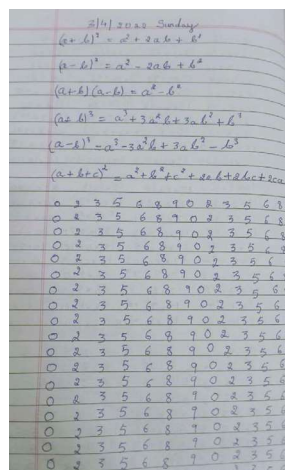
Day 60 : 5/2/2022



Day 90 : 5/3/2021



Day 115 : 5/4/2022



Discussion

GB syndrome is a rare, serious neurological disorder. It is an autoimmune disease that affects the peripheral nervous system and can lead to weakness and paralysis that may last for months or years. Weakness and tingling sensation in the extremities quickly spreads, eventually paralyzing the whole body. In its most severe form it is a medical emergency. It leads to complications like breathing difficulties, residual numbness, bowel and bladder function problems, blood clots, pressure sores, etc. Rarely death may occur from complications such as respiratory distress syndrome and heart attacks.

The present case was diagnosed as Medasavritha vata⁷ with kapha pitta samsrushta avastha based on symptoms like loss of strength in both upper and lower limbs, unable to walk without support associated with stepping gait, altered handwriting, weakness in bilateral lower limbs, pain in both calf muscles and altered sensation of bilateral feet, Slurred speech, difficulty in swallowing.

Initially, to remove avarana and samsrusta kapha pitta avastha, the line of treatment planned was rukshana, deepana, pachana, tridosha shamaka. Hence, alepa, dhanyamladhara, dashamoola parisheka were planned for 7 days. The mode of action by these treatments- Once the kaphaja lakshana like heaviness(guruta) decreased and lightness of body observed on the 8th day, yapana basti as rajayapana basti treatment was planned. As there was avarana and vata involved, the management required was to remove avarana and to control vata. Hence a basti having these dual benefit in the form of yapana was selected. To tackle vata more effectively abhyanga with mahanarayana taila was added. To remove the samrusta kapha Dashamoola parisheka was selected has Dashamoola is having kaphaghna property and parisheka sweda helps in reduce the stiffness and heaviness in the body. Tailadhara helps in revitalizing the nervous system and thereby controlling the vayu. To tackle the vata Matrabasti with Dhanwantara taila was added.

In the second sitting , gambheera dhatugata avastha was managed by basti and bahir parimarana treatments like Rajayapana basthi, Udwarthana with godhuma churna and Abhyanga with Bala taila was added.

After kosta shodhana oral medications given on the day of discharge. Pharmacological action of drugs could be through actions on pranavayu, vyana vayu and all dhatus(tissues) specially mamsa, sira, snayu, majja. Ayurveda management showed significant result recovery in GBS patient with sensory, motor deficits and urinary sphincter disturbance. Long term follow up showed sustenance of all the positive outcomes.

Conclusion

Ayurveda management of GBS showed amelioration of motor, sensory and sphincter deficits. Treatment with 21 days of various panchakarma procedures and oral administration of ayurveda medicines for next 6 months 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.

GBS is an acquired immune mediated inflammatory disorder of the peripheral nervous system. Mostly GBS is precipitated by an infection, manifested as neurological signals slowed, altered or blocked resulting in paraesthesia and weakness. Ayurvedic care intervention can speed up the recovery of GBS and can treat the residual symptoms. This case stands as a testimony in treating the residual symptoms thereby bringing back the patient to near normal life.

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