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AYURVEDIC MANAGEMENT OF GUILLAIN-BARRE SYNDROMEIN PEDIATRIC AGE GROUP: A CASE REPORT

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Abstract: ***Guillain-Barré syndrome (GBS) is an autoimmune origin acute peripheral neuropathy, in which rapid motor weakness occurs and is mostly triggered by a previous infection. It occurs at a rate of2.7 per 1,00,000 per year and is more common in men than women.According to modern science, treatment includes intravenous immunoglobulin and plasmapheresis, both are expensive, and successful within few days of disease appearance.There is no direct descriptionof this disease, available in Ayurvedic texts,few scholars correlated GB Syndrome with Sarvanga Vata. As this disorder is auto immune, few also correlate with Gara Visha. It can be considered as Anukta Vyadhi having correlation with Pitta Vikriti, Kapha Kshaya and Vata Prakopa.A 15 years old male patient was brought on wheel chair to All India Institute of Ayurveda, with complaint of unable to walk without support, stepping gait, weakness in bilateral lower limbs(Rt>Lt) for 6 months, pain in both calf muscles and altered sensation of bilateral feet(Lt>Rt) for few months.The patient was treated based on the principles of Vatavyadhi chikitsaandRasayana Chikitsa which includeDeepana Pachana, Udwartana(massage with medicated powders), Abhyanga (oleation therapy), Ruksha Churna Pinda Sweda(fomentation with warm dry powder),Swedana (fomentation), Kalabasti (medicated enema procedure),Parisheka (fomentation by pouring of warm oil) and Shamana Chikitsa. Patient was admitted in the hospital for 47 days and follow up was done for further 2 months.The assessment was done on Foot and Ankle Stability Measure Scaleand Ankle Hindfoot Scale . Ayurvedic management gave significant improvement and patient was able to walk without support, improved gait, started doing cycling and pain was relieved while discharge from hospital.***

Key words: Guillain Barré Syndrome (GBS), Sarvanga Vata, Kala Basti

1. Introduction:

Guillain Barré Syndrome (GBS) is an autoimmune, frequently, fulminant polyradiculoneuropathy and of acute in nature[1]. It occurs at a rate of2.7 per 1,00,000 per year[2]and is more prominent in men than women. In GBS rapid areflexic motor paralysis occurs, typically ascending paralysis, from lower limbs to upper limbs, evolves within hours to days. When it involvesrespiratory muscles (in around 20-30% patients)[3], it may affect life. As percontemporary medical science, this condition is managed through administration of

intravenous immunoglobulin and plasmapheresis[4], which are expensive and effective only when given within 4weeks and 2 weeks.Moreover administration of IVIG possess risk of liver inflammation and kidney failure. Ayurveda provides cost effective and better management of GB Syndrome[5]. There are four Subtypes-Acute Inflammatory Demyelinating Polyneuropathy(AIDP), Acute Motor Axonal Polyneuropathy(AMAN), Acute Motor and Sensory Axonal Neuropathy(AMSN) and Miller Fisher Syndrome(MFS).

In Ayurveda, no description of such disorder is mentioned, but few scholars have correlated this with*Sarvanga Vata*[6]. *Sarvanga Vata* wordis made up of two words viz.*Sarvanga* and *Vata,* where *Vata* affects whole body. Few Scholars have correlated autoimmune disorders with Ojovisramsa[7], Kaphavrita Vata[8], Ama[9] and Gara visha concept.

2. Patient information:

A male patient of 15 years (UHID No-418234, Date-September 29th 2020) came to AIIA OPD of Kaumarabhritya on wheel chair, with chief complaints of unable to walk without support, weakness in bilateral calf muscles (Rt>Lt) for 6 months, pain in bilateral calf muscles and altered sensation in Bilateral feet(Lt> Rt) for few months. Patient was taking Allopathic treatment (tab thiamine, pyridoxine, cap rejunex) but no improvement was found.

The patient was healthy before 5th April 2019 as per his parents statements,then he developed intermittent high grade fever, not associated with chills and rigors with max. recorded temperature of 105 F, continued till 15th April 2019, following which he was admitted to a super speciality hospital on 15th April and diagnosed as mild ascites, viral myositis, thrombocytopenia with hepatic dysfunction and encephalopathy. At the same time, he complained of pain in both thighs when rising from sleep, lasts for 5-10 minutes and remained painfree for most of time. Patient got discharged on 23rd April 2019, remained symptom free except fever(100-101F) in May. On 8th June 2019, after arising from sleep, he complained of bilateral calf pain lasted for 4 days, continuous with no relation to activities. By 12th June, he displayed irregular stepping as if walking like drunkard, though there is no history of falling down and could walk without support. He was able to sense temperature and texture of floor. Further after 8 days, he was unable to lift his both feet and toes up(Rt>Lt) and used to make slapping sound while walking and required support to walk. He could climb stairs without difficulty by bending at hips and never had bucking of knees. This condition remained static and patient and parents noticed thinning of both calves after July month. There was no history of weakness of upper limb, fasciculation, change in sweating, hair density, change in temperature, sensation, bladder and bowel disturbance, convulsion, decrease in vision, double vision, nasal speech and any disturbance in smell, hearing or in swallowing. Patient attended the OPD of Kaumarabhritya, AIIA and got admitted on 28/10/2020 and discharged on 14/12/2020(47 days). Past History: No similar illness in past, history of Koch's at 10 years of age, took ATT for 12 months, Family History: Not significant, Personal History: mixed diet, No addictions,

Treatment History: Metro Hospital at Faridabad diagnosed for mild ascites, viral myositis, thrombocytopenia with hepatic dysfunction and encephalopathy(iv monocef, iv acyclovir, iv doxy, iv optoneuron, 1 megaplatelet given), At Fortis Escort Hospital, Faridabad diagnosed for Length dependent PN(Severe Axonal SM)?, Craniopharyngioma, Transaminitis (iv optineuron, in dexa, iv dynapar and tab pregabalin was given). Patient was admitted in AIIMS on 2/8/2020 and was diagnosed for Acute Motor Axonal Neuropathy

(demyelinating?): Sequalae to Guillain Barre Syndrome, condition was found static and was discharged on 8/8/2020.

At the time of admission patient had altered sensorium of both feet (Rt<Lt), progression in previous symptoms and therefore was diagnosed as Acute Motor and Sensory Axonal Neuropathy (AMSN) Sequalae to Guillain Barre Syndrome. Follow up was taken after 2 months.

3. Examination

Dashavidha Pariksha: *Prakriti*(Bio-Constitution)-*Kapha-Pitta*, *Vikriti*(Disease Susceptibility)- *Vata Pradhana Pitta Kapha*, *Saara*(Quality of tissues)-*Madhyama,Samhanana*(Compactness of body)-*Madhyama*, *Pramana*(Anthropometry)-(*Madhyama*), *Satva*(Mental stamina)-*Pravara*, *Satmya*(Adaptability)-*Pravara,AharaShakti*(Digestive Power)-*Samyaka*, *Vyayama Shakti*(Physical Strength)-*Madhyama,Vaya*(Age)-*Avara*

General Examination:B.P=110/70, No pallor, itecturs, clubbing and lymphadenopathy noticed, Chest-Bilateral Clear, CVS- S1, S2+, No murmur, P/A-no organomegaly, Nervous System:Higher Mental Function - within normal limit, Speech: normal, Meningeal Sign absent, Motor Examination: Bulk(Rt and Lt) Upper Limb-Normal, Lower limb-bilateral calf muscles atrophy, Tone-Normal of four limbs, Power—Bilateral Upper Limb-Normal, Lower Limb- Hip:4+/5, Knee:4+/5, Ankle1+/5(bilateral), Reflexes-Deep Tendon Reflexes-Biceps, Triceps, Supinator, Knee-2+(bilateral), Ankle-0(bilateral)

Sensory Examination:Fine touch, pain, temperature-altered in both feet(L>R),Vibration examination: Altered(L>R), Joint position and sense: Altered(L>R), Cerebellar system: WNL, Extrapyramidal System: NAD, Gait:Stepping gait (bilateral foot drop) with support, Skull and spine: WNL, No meningeal signs

4. Investigations:

NCV of limbs:28/7/2019-Very severe sensorymotor axonal pattern polyneuropathy involving lower limbs with ongoing active denervation, below knee muscles and chronic reinnervation in above knee(vastus lateralis muscle) bilaterally Diagnosis: Acute motor and sensory axonal neuropathy(AMSN)

MRI Brain(15/4/2019): suggestive of moderately large tubercinerium cavernous cerebral vascular malformations associated with developmental venous anomaly consistent with mixed vascular malformation and large right intraorbital cavernous malformation.

Assessment Criteria:

1. Foot and Ankle Ability Measure (FAAM): having subscales
   a) Activities of Daily Living Subscale: Maximum 84 points
   b) Sports Subscale:Maximum 32 points
2. Ankle Hindfoot Scale(100 Points Normal-100 for Normal)

5. Management:

A stepwise management protocol was adopted for management of this patient. The details are as follows:-

1. *Deepana-Pachana*: Hingwashtak Churna(with *Ghrita*, with first bite of meal) for 3 days

2. *Udwartana* with Kolakulatthadi Churna for 5 day »
3. *Sarvanga Abhyanga* with Balashwagandhadi Tail and Dhanwantar Tail for 7 days then*Sarvanga Swedana* with Dashmoola Kwatha on the same day »
4. *Ruksha Churna Pinda Sweda* with Kottamchukkadi Churna for 7 days »
5. *Abhyantara Snehana* with Goghrita for 7 days then *Virechana* with Trivrita Avaleha »
6. *Parishek* with Balshwagandhadi Taila for 15 days with *Kala Basti-Niruha Basti*of*Mustadi Yapana Basti*, *Anuvasana Basti*of Bala Taila for 15 days.

   After *Deepana Pachana* with Hingwashtak Churna, Oral medications given were Cap. Palsinuron 1 BD, Syrup Balarishta 15ml BD(with equal water after food), Ashtavarga Kashaya 20ml BD(empty stomach) for19 days then stopped while *Abhyantara Snehana*, *Virechana* and *Samsarjana Karma*. Then with Basti and *Parisheka* same oral medications were given with Brihatvatachintamani Rasa 1 tab BD with honey. After discharge, medicine for follow up was- Brihatvatachintamani Rasa 1 tab BD with honey, Ashwagandha+Shatavarai +Yashtimadhu Churna (in equal amount) 1 TSF BD for Ksheerapaka, Balamula Kwatha with Vidarigandhadi Kwatha(in equal amount) 20 ml BD(empty stomach), Dashmoolarishta 20ml BD with equal water after food.

Table1. *Snehapana*

Date	Dose (ml)	Time of Administration	Onset of Hunger	Sneha Digestion Time
15/11/2019	30	7:50am	12:30pm	4hrs 30 min
16/11/2019	60	7:35am	7:30pm	10 hrs
17/11/2019	10	7:30am	1:00pm	5hrs30 min
18/11/2019	140	7:30am	1:pm	5hrs30 min
19/11/2019	160	7:35am	4:30pm	9hrs
20/11/2019	190	7:25am	3:30pm	8hrs
21/11/2019	220	7:30am	1:00pm	5hrs 30 min

Table 2. *Kalabasti*

Date	30/11	1/11	2/11	3/11	4/11	5/11	6/11	7/11	8/11	9/11	10/11	11/12	12/12	12/12	13/12
Anuvasana /Niruha	A	A	N	A	N	A	N	A	N	A	N	A	N	A	A

A-*Anuvasana Basti*, N-*Niruha Basti*

Table 3. *Samsarjana Karma*

Date	*PratahAnnakala*(Morning diet)	*SandhyaAnnakala*(Evening diet)
25/11/2020	-	*Peya*
26/11/2020	*Peya*	*Vilepi*
27/11/2020	*Vilepi*	*AkritaYusha*
28/11/2020	*KritaYusha*	*AkritaMamsa Rasa*
29/11/2020	*KritaMamsa Rasa*	Light Diet

6. Result

On assessment on different scales improvement was found mentioned in table 4

Table 4. Assessment on Scales

Scales		B.T.	After *Uwartana*	After S.A. and S.S. #	After R.C.P.S.##	After Virechana	After Basti and Parisheka.	After follow up of 2 months
FAAM*	ADLS**	29	30	30	35	42	55	70
	Sports Subscale	2	4	4	4	4	6	7
Ankle Hindfoot Scale (AOFAS)		38	38	28	41	49	74	81

* Foot and Ankle Ability Measure

** Activities of Daily Living Subscale

#*Sarvanga Abhyana* and *Sarvanga Sweda*

Ruksha Churna Pinda Sweda

Table 5. Clinical Findings:

Before Treatment	**After Treatment**
Stepping Gait with Slapping sound (Foot drop bilateral-Rt>Lt) with support	Normal Gait

Power of Ankle-1/5	3^{+}/5(Rt), 4^{+}/5(Lt)
Touch, Temperature, Pain sensation diminished (Lt>Rt) on dorsum of toes, Root of great toe, upper half plantar surface	Touch, Temperature, Pain-Normal Sensation
Unable to walk without support	Able to walk without support >15 minutes, able to do cycling

7. Discussion:

GB Syndrome is an acute, progressive and self-limiting disorder. Recovery occurs in 5-10% patients, and in few patients, severely progressive, leading to respiratory and kidney failure and death.In the present case, condition of patient was static for few months and then further progression occurred and admitted in AIIA. In Ayurvedic Prospective, *Sampropti*can be understood as,in GB Syndrome, immunity of body is not able to remember to identify self-bodynerve tissues, this can be correlated with *Medha Vikriti*(of immune system)at *Sookshma* level which is *Pitta Karma Vikriti Lakshana*. Patient had digestion problems and low appetite.Due to *Manda Jatharagni, Panchabhautik Agni*goes into*Aamajavastha,* causes*Aamaj Vriddhi* of the *Tikshna Guna*of *Pitta Dosha*. Altered *Medha Guna* of *Pitta* causesinappropriate identification of self nerves as enemy and *Aamaj Vriddhi* of *Tikshna Guna* result in attack of immune system on self-body nerve tissues. Progressively*Kapha Kshaya*(demyelination) and *Vata Prakopa* (improper nerve conduction)occurs.

Therefore, management plan was *Ama Pachana**Samshodhan of Pitta*Pacification of *Vata**Brimhana* of *Samyak**Mamsa, Majja* and *Kapha* *Rasayana Chikitsa*

First Step is to treat *Aamaj Awastha of Bhutagni*. For this,*Hingwashtaka Churna*[10] was given as *Deepana* and *Pachana* as it has *Deepaniya* and *Aamaghna and Shoolahara*effect. *Hingwashtaka Churna* was given before food as it works on *Apana Vaya* before food.

***Udwartana*:** It is a process where massage is done with some pressure and in upward direction (*Pratilom Gati*). *Kolakulatthadi Churna* was taken as this is *Ushna* and *Vata Shamaka*. The purpose to start the *Panchakarma* Procedures with *Udwartana* was that, in neurodegenerative or demyelinating disorders there is always some involvement of *Aama*. To get *Nirama Avastha, Udwaratan* is very useful as friction while scrubbing produces heat*(Ushnata*), the powder we took is *Rukhsa*(dry) and *Laghu* and was heated , these *Gunas* are opposite to the *Gunas* of *Aama* (*Picchila*,*Guru* and *Sheeta)*[11]. Thus helps in getting *NiramaAwastha,* along with this, due to *Ushnata Guna* initiation of *Vata*pacification process starts. When we start the therapy with *Udwartana* we are preparing the body for other procedures by giving the whole body a messageto be prepare through touch therapy. Here *Kolakulatthadi churna* was used for *Udwartana* which has *badar, kulathi* etc. ingredients which are *Vata Shamaka*

After getting *Samyaka Lakshana* of *Aama Pachana, Sarwanga Snehana* with*Balaashwagandhadi Taila* and *DhanwantariTaila*was given followed by *Sarvanga Swedana* with *Dashmoola Kwatha*(both procedures on the same day).*Balashwagandhadi Taila*[12] is *Vata Shamaka*,*Balya*and nutritive and*Dhanvantari Taila*[13] is *Vata Shamaka*. This

intervention was seemed to work as *Unupashaya*, weakness of the calf musles increased and thus it was concludedthat *Amapachana* wascompletely not achieved. Therefore *Ruksha Churna Pinda Sweda* was applied with *Kottamchukkadi Churna*[14], to get *NiraamAwastha*. After seven days next step was *Pitta Samshodhana*. For this *Virechana* is considered as best *Panchakarma* procedure. *Abhyantara Snehapana* with *Goghrita* for seven days was given followed by 3 days *Sarvanga Abhyanga* and *Sarvanga Swedana*. *Virechana*is medicated purgation. It's given for *Shodhana*(purification)of whole body for which*Trivrita Awaleha*[15] was used as it is palatable and safe for children.*Virechana*also provides a platform for providing better results of *Basti* for *Vata Shamana*. After *Virechana* improvement was found on all scales.

Kala Basti isbest for *Vata* Management. It brings all *Doshas* from whole body into *Koshtha* and expulsion of the *Doshas*.*Niruha* was given with *Mustadi Yapana Basti*[16] also called as *Rajayapana Basti*, as this is *Yapana Basti*, it is safe for children without side effects and can be given in any season. *Bala Taila*[17] was used for *Anuvasana* as it is *Vata Doshahara* and *Balya*.*Parisheka* is an assortment of *Swedana Chikitsa*(local or whole body) in *Panchakarma*, where medicated liquid (*Taila, Kwatha, Water*, Milk, *Takra* etc.) is to be poured on the body(locally or whole body). *Parisheka Swedana* with *Taila* gives benefits of *Snehana* and *Swedana*at the same time. In the *PoorvaKarma* of *Basti*, *Snehana* and *Swedana* should be done on *Kati-Pradesha*, to make *Kala Basti* more effective in *Vata Shamana* and giving the patient *Balya* and *Brimhana* Effect.*Parisheka* with *Balashwagandhdi Taila* was done on *Kati Pradesh* and bilateral lower limbs.*Balashwagandhadi Taila* is *Vatashamaka* along with *Balya* and *Brimhana* properties. After *Kala Basti*, *Rasayana Chikitsa* was given to nourish all dhatus.

In Cap Palsinuron, ingredients like *Lajjalu* is neuroprotector and helps in myelination, *Sameerpannag rasa*, *Kurasani Ajwayan*, *Mahavatavidhwansa Rasa*, *Ekangveera Rasa*are *Vatahara* and *Shoolahara* and neurotonic.*Ashtavarga Kashaya*[18] is analgesic, anti-inflammatory and *Aama Pachaka*. *Balarishta*[19] has good antioxidant activity, *Vata Shamaka* and*Balya*. Therefore, these oral medicines were used along with *Panchakarma* procedures like *Udwartana*, *Sarvanga Abhyanga* and *Sarvanaga Sweda* and *RukshaChurna Pinda Sweda*and *Kala Basti*. *Abhyantara Snehpana*, *Virechana* and *SansarjanaKrama* Period was oral medication free period. *Brihatvatachintamani Rasa*[20] is a *Suvarnakalpa*, *Rasayana*, *Balya* and *Vata Shamaka*. *Ashwagandha Churna*is *Rasayana* and has neuroprotective effect[21]. *Shatavari Churna* is *NaimitticRasayana* for GIT, Stress reliever and has antioxidant effect[22].*Yashtimadhu Churna* is anti-inflammatory, *Brimhaniya,Medhya* and has healing effect[23]. *Balamula Kwatha*is*Balya* and has *Vata Shamaka* properties. *Vidarigandha* is mentioned in *Angamardaprashamana*[24]*Mahakashaya* and *Brimhaniya*.*Dashmoolarishta*[25]is *Tridoshashashamak* and has anti-inflammatory effect. These medicines were given for follow up period.

Improvement was seen on Foot and Ankle Ability Measure Scale, from 20 to 79 on Activites of daily Living Subscale and from 2 to 7 in sports subscale. On Ankle hindfoot scale improvement was seen from 38 to 81 showing significant improvement in foot drop and nerve conduction.

8. Conclusion

Guillain Barre syndrome can be correlated with *Sarvanaga Vata* with*Pitta Vikriti* and*Kapha Kshaya*. From this case report it can be concluded that GB syndrome can be effectively managed with *Deepana-Pachana*,*Rooksha Churna Pinda Sweda*, *Virechana*, *Basti*, *Parisheka* like*Panchakarma* Procedures and oral medications like *Hingwashtaka Churna*, *Balarishta*etc.(having a very good effect in improving conditions)and herbomineral formulations like*BrihatavatachintamaniRasa,* Cap Palsinuron etc.(having*Rasayana* and Neuro healing properties).This treatment is cost effective and hasno side effects. This is a single case report, therefore to prove the effectiveness of Treatment principles, multiple case studies is required for long duration of time.

9. Conflict of Interest: None

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