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REVIEW ARTICLE

Guillain-Barré Syndrome (Gbs): A Comprehensive Overview from Modern Medicine and *Ayurvedic* Perspective.

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ABSTRACT
Guillain-Barré Syndrome (GBS) is a rare neuroimmune disorder characterized by acute muscle weakness, ascending paralysis, and even respiratory failure as a result of immune-mediated injury to the peripheral nervous system. This article provides a comprehensive overview of GBS, including its pathophysiology, clinical manifestations, diagnostic approaches, and modern medical management strategies such as intravenous immunoglobulin (IVIG) therapy, plasma exchange, and supportive care. Additionally, an Ayurvedic perspective on GBS-like conditions is explored, correlating the disorder with Vyana Vayu Avarana and Vata Dushti. Ayurvedic interventions, including Panchakarma therapies, herbal medications, and dietary modifications, are discussed as potential complementary approaches. By integrating modern neurology with Ayurveda, this review highlights a holistic approach to managing GBS, promoting better patient outcomes through a blend of contemporary and traditional healing modalities.
Keywords: *Guillain-Barré Syndrome, Neuroimmune Disorder, Peripheral Neuropathy, Intravenous immunoglobulin (IVIG), Plasma Exchange, Vyana Vayu Avarana, Panchakarma.*

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INTRODUCTION

The peripheral nerve system is impacted by the uncommon but dangerous autoimmune disease known as Guillain-Barré Syndrome (GBS), which can cause sudden muscle weakness, sensory abnormalities, and possibly fatal consequences like respiratory failure. [1] The disorder develops when the immune system unintentionally targets peripheral nerves- myelin sheath or axons, impairing signal transmission. [2] GBS often follows infections, vaccinations, or surgical procedures and presents with rapidly progressing, ascending paralysis [3]. From a modern medical perspective, the management of GBS focuses on immunomodulatory treatments like intravenous immunoglobulin (IVIG) and plasma exchange, along with supportive care to prevent complications. [4,5] In Ayurveda, GBS-like conditions can be understood in terms of *Vata Vyadhi* (neurological disorders), primarily involving *Vyana Vayu Avarana* (obstruction of the *Vyana Vayu* function) and *Vata Dushti* (vitiation of Vata Dosha). [6] The symptoms of GBS, such as progressive muscle weakness, sensory impairments, and autonomic dysfunction, align with conditions described in Ayurvedic texts, including *Pittavruta Vyana Vayu and Kaphavruta Vyana Vayu*.[7] *Ayurvedic* management involves a combination of *Panchakarma* therapies (such as *Basti* and *Virechana*), herbal formulations (like *Ashwagandha*, *Bala*, and *Guggulu*), and dietary and lifestyle modifications to restore *Doshic* balance and improve nerve function. [8,9]

PATHOPHYSIOLOGY OF GBS: MODERN MEDICAL PERSPECTIVE

Immune System Dysfunction:

In Guillain-Barré Syndrome (GBS), the body's defense system, which normally fights infections, mistakenly attacks the nerves instead. This is often initiated by an immune stimulus, such as an infection (viral or bacterial), recent surgery, or even vaccination. [1] The immune system's attack damages the myelin sheath (in the most common type of GBS) or the nerve axon, leading to the disruption of nerve

signals. [2]The onset of GBS usually occurs one to two weeks following the immune trigger. The first symptoms typically appear as tingling or weakness in the feet and hands, gradually spreading upward (ascending paralysis) to affect other parts of the body. This weakness may progress over hours to weeks, making GBS a rapidly evolving disorder. [3]

Peripheral Nervous System Damage:

All of the nerves outside of the brain and spinal cord are part of the peripheral nervous system, becomes the primary target of the immune attack. The damage affects both motor and sensory functions, leading to symptoms such as muscle weakness, paralysis, and sometimes loss of sensation (paraesthesia).[4] As the disease progresses, it can lead to respiratory failure in severe cases, necessitating mechanical ventilation in about 20-30% of patients due to weakness in the respiratory muscles. [5]

Symptoms

- Weakness that begins in the hands and feet , often spreads to the arms and upper body
- Areflexia (loss of reflexes) in affected muscles
- Sensory disturbances, such as tingling or numbness
- Ascending paralysis, which progresses from lower limbs to upper limbs
- Respiratory muscle involvement in severe cases, leading to breathing difficulties
- Autonomic nervous system dysfunction, causing abnormal heart rates, blood pressure fluctuations, and digestive issues.[10]

Subtypes of Guillain-Barré Syndrome

GBS has several subtypes, which differ based on the specific nerves affected and the type of damage incurred. Understanding these subtypes is crucial for determining the appropriate treatment and prognosis.[1]

1. Acute Inflammatory Demyelinating Polyneuropathy (AIDP)

This is the most common form of GBS, particularly in Western countries. In AIDP, the immune system targets and damages the myelin sheath, which is the protective covering surrounding the nerve fibres. Myelin is crucial for the rapid transmission of electrical signals along nerves, and its destruction leads to slowing or blocking of these signals, causing muscle weakness and loss of coordination. [2] The hallmark of AIDP is the progressive weakness that begins in the legs and ascends toward the upper body.[4]

2. Acute Motor Axonal Neuropathy (AMAN)

More common in parts of Asia and South America, AMAN primarily affects the axon of the motor neurons. Unlike AIDP, AMAN doesn't involve damage to the myelin sheath but rather the nerve fibre itself. Patients with AMAN experience pure motor symptoms without sensory loss. This subtype can progress more rapidly and may result in severe paralysis.[11]

Clinical Diagnosis and Management of GBS

GBS is a clinical diagnosis based on the rapid onset of muscle weakness, typically progressing over several days to weeks. Diagnostic tools include:

- Electromyography (EMG) and nerve conduction studies (NCS) to detect nerve damage
- Lumbar puncture to analyse cerebrospinal fluid, which often shows elevated protein levels without an increase in white blood cells
- MRI to rule out other causes of acute paralysis.[11]

Treatment in modern medicine focuses on immunotherapy and supportive care:

1. Intravenous immunoglobulin (IVIG): Administered to neutralize harmful antibodies attacking the nerves.
2. Plasma exchange (plasmapheresis): This procedure filters out the antibodies from the blood that are damaging the nerves.
3. Supportive care: This includes managing respiratory failure, monitoring heart and lung function, and preventing complications such as infections or blood clots.

***Ayurvedic* Perspective on Guillain-Barré Syndrome**

Ayurveda, the ancient Indian system of medicine, does not describe GBS in modern clinical terms. However, certain *Ayurvedic* concepts correlate closely with the pathophysiology and symptoms of GBS. Specifically, the conditions *Pittavruta Vyana Vayu* and *Kaphavruta Vyana Vayu* exhibit similar characteristics to those seen in GBS, such as restricted movement, muscle weakness, and sensory disturbances.

Ayurvedic* Concept of *Vyana Vayu

व्यानो हृदि स्थितः कृत्स्नदेहचारी महाजवः||
गत्यपक्षेपणोत्क्षेपनिमेषोन्मेषणादिकाः|
प्रायः सर्वाः क्रियास्तस्मिन् प्रतिबद्धाः शरीरिणाम्|[12]

In *Ayurveda*, *Vyana Vayu* is one of the five subtypes of *Vata Dosha* and governs circulation, movement, and the coordination of various functions of the body, particularly the voluntary movement of muscles. When Vyana Vayu is obstructed by *Pitta* or *Kapha*, the condition is referred to as *Avarana* (blockage or obstruction), leading to symptoms similar to those of GBS, including:

व्याने पित्तावृते तु स्याद्दाहः सर्वाङ्गगः क्लमः||
गात्रविक्षेपसङ्गश्च ससन्तापः सवेदनः|
गुरुता सर्वगात्राणां सर्वसन्ध्यस्थिजा रुजः||
व्याने कफावृते लिङ्गं गतिसङ्गस्तथाऽधिकः|[13]

- Restricted movement of limbs
- Burning sensations and pain
- Heaviness in the body
- Pricking and aching pains
- Gradual loss of motor functions, starting with one limb and potentially affecting the whole body

This condition can occur due to a disruption in the normal flow of *Vata*, aggravated by imbalances in the other *Doshas*.

Pathogenesis of GBS in *Ayurveda*

In *Ayurvedic* terms, the pathogenesis of GBS can be understood as an imbalance of *Vata*, often aggravated by *Pitta* and *Kapha Doshas*. This imbalance leads to a *Vata Dushti* (vitiation of *Vata*), affecting the *Vyana Vayu* in particular. The condition may be classified as either *Saama* (associated with toxins or metabolic waste) or *Niraama* (free from toxins), depending on whether there is the presence of *Aama* (toxins).

The obstruction of *Vyana Vayu* by *Pitta* or *Kapha* results in a state of *Avarana*, where the natural functions of *Vyana Vayu* are disrupted, leading to weakness, pain, and restricted movement.

***SAMPRAPTI GHATAKA*:**

1. *Dosha* Involvement

Pradhana Dosha*: Vata Dosha (Vyana Vayu Dushti)* – responsible for movement, circulation, and neuromuscular coordination.

Anubandha Dosha:

Pitta Dosha (Pittavruta Vyana Vayu) – manifests as burning sensation, inflammation, and nerve damage.
Kapha Dosha (Kaphavruta Vyana Vayu) – causes heaviness, numbness, and loss of muscle strength.

2. *Dushya* (Affected Tissues)

- *Rasa Dhatu*
- *Rakta Dhatu*
- *Mamsa Dhatu*
- *Majja Dhatu*

3. *Srotas* (Channels Involved)

- *Rasavaha Srotasa*
- *Raktavaha Srotasa*
- *Mamsavaha Srotasa*
- *Majjavaha Srotasa*

4. *Agni*

Agni Dushti (Impaired Digestion): *Jatharaagni* and *Dhaatvaagni Mandhya* (*Rasa*, *Rakta, Mamsa and Majja Dhatvaagni*)

5. *Udbhava Sthana* (Origin Site of Disease)

Pakwashaya (Large Intestine): The main site of *Vata Dosha* imbalance, which influences nerve function.

6. *Vyaktisthana* (Manifestation Site)

Sarvasharira (Whole Body): GBS affects multiple body systems, primarily nerves and muscles, leading to systemic dysfunction.

Samprapti* (Pathogenesis) of GBS in *Ayurveda

1. ***Nidana* (Causative Factors)** – *Vata*, *Pitta*, *Kaphavardhaka AaharaVihara*
2. ***Dosha Prakopa* (Aggravation of *Doshas*)** – *Vata* aggravation with involvement of *Pitta* and *Kapha*.
3. ***Srotorodha* (Obstruction of Channels)** – *Ama* and *Kapha* obstruct the pathways of *Vyana Vayu*.
4. ***Dhatukshaya* (Tissue Degeneration)** – Progressive weakness due to depletion or disturbances of *Rasa*, *Rakta*, *Majja* and *Mamsa Dhatu*.
5. ***Vyadhi Vyakta Avastha* (Manifestation of Disease)** – Weakness, paralysis, autonomic dysfunction, respiratory involvement.

***Ayurvedic* Treatment of GBS**

Ayurveda approaches the treatment of GBS through a combination of therapies aimed at balancing the *Tri-Doshas*, eliminating *Aama,* and restoring normal function to the nervous system. The primary treatment strategies include *Santarpana* (nourishing**)** and *Aptarpana* (depleting) therapies, depending on the state of *Vata* and the involvement of other *Doshas*.

1. *Panchakarma* Therapies

Panchakarma is a detoxification and rejuvenation therapy that plays a crucial role in *Ayurvedic* treatment. For GBS-like conditions, the following therapies are often recommended:

***Virechana* (therapeutic purgation)**: Used to eliminate aggravated *Pitta* and *Kapha Doshas.*

***Basti* (medicated enema)**: Especially effective in balancing *Vata* and nourishing the nervous system. Both *Niruha Basti* (decoction enemas) and *Anuvasana Basti* (oil-based enemas) are commonly used.

***Abhyanga* (oil massage) and *Swedana* (Sudation)**: Helps pacify *Vata* and improve circulation and nerve function. Special oils like ***Mahanarayan* oil** or ***Dashamoola* oil** may be used.

2. Herbal Medicines

Specific *Ayurvedic* herbs are known to pacify *Tridosha* and promote nervous system health. Common herbs used in the treatment of GBS-like conditions include:

***Ashwagandha* (*Withania somnifera*)**: Known for its rejuvenating and nerve-strengthening properties.

***Bala* (Sida cordifolia)**: Traditionally used to strengthen muscles and nerves.

***Guggulu* (*Commiphora mukul*)**: An anti-inflammatory herb used to reduce pain and inflammation.

***Rasayana* therapies**: These are rejuvenating formulations aimed at restoring energy and vitality.

3. Diet and Lifestyle

A *Vata*-pacifying diet is recommended, which includes warm, nourishing, and easily digestible foods. Foods rich in healthy fats like *Ghee* are particularly beneficial for promoting nerve health and strength. Additionally, lifestyle modifications, such as gentle *Yoga, Pranayama* (breathing exercises), and stress management techniques, are advised to support recovery.

CONCLUSION

Guillain-Barré Syndrome is a complex disorder with a rapid onset of paralysis and the potential for life-threatening complications, including respiratory failure. Modern medicine focuses on immune modulation through therapies like IVIG and plasmapheresis, combined with supportive care, to manage GBS effectively.

Ayurveda offers an alternative understanding of GBS-like conditions, emphasizing the balance of *Doshas*, particularly *Vata*, and the restoration of normal nerve function through detoxification *(Panchakarma)*, herbal treatments, and lifestyle modifications. Both systems of medicine emphasize the importance of early intervention and personalized treatment strategies to improve patient outcomes and reduce long-term disability.

REFERENCES

1. Willison HJ, Jacobs BC, van Doorn PA. (2016): Guillain-Barré syndrome. *Lancet*. 2016;388(10045):717-27.
2. Yuki N, Hartung HP. (2012): Guillain-Barré syndrome. *N Engl J Med*.;366(24):2294-304.
3. Wakerley BR, Uncini A, Yuki N (2014); GBS Classification Group. Guillain-Barré and Miller Fisher syndromes—new diagnostic classification. *Nat Rev Neurol*. ;10(9):537-44.
4. Hughes RA, Cornblath DR. (2005): Guillain-Barré syndrome. *Lancet*. ;366(9497):1653-66.
5. van den Berg B, Walgaard C, Drenthen J, Fokke C, Jacobs BC, van Doorn PA. (2014): Guillain-Barré syndrome: pathogenesis, diagnosis, treatment and prognosis. *Nat Rev Neurol*. ;10(8):469-82.
6. Agnivesha. Charaka Samhita (2014): revised by Charaka and Dridhabala, Sutra Sthana 20/11. Varanasi: Chaukhambha Orientalia.
7. Sushruta. Sushruta Samhita, (2012): edited by Kaviraj Ambikadatta Shastri, Nidana Sthana 1/79. Varanasi: Chaukhambha Sanskrit Sansthan; .
8. Vagbhata. Ashtanga Hridaya, (2017): translated by Srikantha Murthy KR, Sutra Sthana 12/1-5. Varanasi: Chaukhambha Krishnadas Academy.
9. *Tripathi B. Madhava Nidanam, Vatavyadhi Nidanam 22/5-10. Varanasi: Chaukhambha Sanskrit Series; 2010.*
10. Fokke C, van den Berg B, Drenthen J, Walgaard C, Jacobs BC, van Doorn PA. (2014): Diagnosis of Guillain-Barré syndrome and validation of Brighton criteria. *Brain*.;137(1):33-43.
11. Kuwabara S. (2004): Guillain-Barré syndrome: epidemiology, pathophysiology, and management. *Drugs*. ;64(6):597-610.
12. *Vagbhata. Ashtanga Hridaya*, (2007): with commentaries by *Arundatta* and *Hemadri. Varanasi: Chaukhambha Surabharati Prakashan; Sutrasthana 12/10*.
13. *Agnivesha. Charaka Samhita*, (2014): revised by *Charaka and Dridhabala*, with commentary by *Chakrapani Datta*. *Varanasi: Chaukhambha* Orientalia; *Chikitsasthana 28/227-228.*

14. Tubaki BR, Tarapure S. (2020): *Ayurveda* management of Guillain-Barre syndrome: A case report. *J Ayurveda Integr Med.* ;11(1):73-77. Available from: https://doi.org/10.1016/j.jaim.2018.08.004