



## VARIOUS MANIFESTATIONS OF GUILLAIN BARRE SYNDROME – A CASE SERIES

## Neurology

Deepika Sagar

Associate Professor and Head, Department of Neurology. L.L.L.R.M. Medical College, Meerut.

Dheeraj Kumar  
Soni\*

Associate Professor and Head, Department of Cardiology, L.L.L.R.M. Medical College, Meerut. \*Corresponding Author

## ABSTRACT

Guillain-Barre syndrome (GBS) is an acute, degenerative neurological disorder which can be fatal if not diagnosed and treated early. It is an acquired condition which have the characteristic features as progressive, symmetrical, proximal and distal weakness. Loss of sensation is common in this disease and muscle reflexes are decreased to absent. Etiology remains unclear but pathophysiology includes demyelination of spinal nerve roots. Death is usually rare but can take place due to secondary causes. Early diagnosis and prompt referral should occur. We are presenting the case series of 8 patients with variable presentation of the disease.

## KEYWORDS

polyradiculopathy, Guillain-Barre syndrome, Peripheral nerves, Extremity weakness

## INTRODUCTION

According to World Health Organization, GBS is a polyradiculoneuropathy which occurs due to autoimmune attack of the body over parts of sensory nervous system.<sup>1</sup> The result of this may induce sensory impairment, motor control deficit, and severe pain in the affected areas leading to disability affecting the upper and lower extremities. GBS can be induced by bacterial or viral infection, vaccination or surgery. Diagnosis is usually based on symptoms and bilateral weakness, rapid progression and hypo-reflexia.

The disease can affect the people from all age groups, male or female aged 10 to 80 years. The symptoms of the disease may mimic the patients exposed to certain toxins, Diabetic polyneuropathy and Charcot-Matje-Tooth syndrome. It is important to rule out above differential diagnosis by taking proper history.

GBS can be axonal or demyelinating. Most common form is Acute Inflammatory demyelinating neuropathy (AIDP). It can also cause temporary left ventricular dysfunction, often as a form neurogenic stunned myocardium due to autonomic nervous system involvement. This is caused by an over release of catecholamines, leading to temporary cardiac injury.<sup>2</sup>

Early treatment with intravenous immunoglobulins (IVIg) is better in this disease as this syndrome could progress to life threatening condition. Role of physiotherapists is important in ICU setting to prevent long term contractures.

## CASE SERIES

## Case 1.

A 28 years old male presented with pain followed by weakness in both lower limbs past 5 days. Patient had no history of diabetes, toxin exposure, fever and other comorbid conditions.

On examination, power in the lower limb was grade 3/5 and in upper limb was grade 5/5. There was loss of superficial reflexes- plantar, abdominal and cremasteric. There was no respiratory involvement and gag reflex was intact. Nerve Conduction Studies (NCV) shows demyelinating motor neuropathy in lower limbs. 2D ECHO of the patient shows normal LV function.

Patient was managed conservatively with steroids for 3 days. No IVIgG was given. There is no progression in his weakness in next 5 days. Patient regained his power completely in next 7 days.

## Case 2.

A 33 years old female presented with acute onset lower limb weakness

Table 1. Case Summary

Cases	Age	Sex	Factors	NCV report	Respiratory failure	Mechanical ventilation	IvIgG given	ECHO	Stay weeks
1.	28	M	No	Demyelinating Motor neuropathy in lower limbs	No	No	No	Normal	2
2.	33	F	No	Severe axonal sensory motor neuropathy	Yes	Yes	Yes	Normal	4

past 3 days. There was no prior significant history. Power was grade 0/5 in both lower limbs. NCV studies shows severe axonal sensory motor neuropathy. 2D ECHO shows normal LV function. She was started IvIgG (1 gm/kg body weight).

Patient symptoms progress from lower to upper limbs with respiratory involvement in next 1 day. Gag reflex was weak. Patient was intubated and kept on mechanical ventilation. Patient gradually shows improvement in the power in next 2 weeks and she regained her power completely in next 4 weeks.

## Case 3.

A 21 years old female was brought with complaint of fever and joint pain with weakness in lower limbs past 3 days. Her weakness had progressed from lower to upper limbs in next 2 days. On examination, she had hypotonia in all 4 limbs with complete head lag. Power was 1/5 in all 4 limbs. NCV studies shows severe axonal and demyelinating motor sensory polyneuropathy. Gag reflex was intact.

Investigations show IgM Dengue positive. Platelets counts were 54,000. She was kept on IvIgG for 3 days. There was no sign of respiratory or autonomic failure. Patient regained her power to 5/5 in next 3 weeks with proper physiotherapy.

## Case 4.

A 31 years old female was brought in the emergency with weakness in all 4 limbs past 2 days with frothing from mouth past 6 hours. Patient gag reflex was very weak so she was intubated and kept on mechanical ventilation. At the time of admission, there was no significant history. Power in all 4 limbs progressed to 0/5 in all muscles and neck by day 1. NCV studies shows severe axonal sensory motor polyneuropathy in both lower and upper limbs. 2D ECHO of the patient shows LVEF 45% with global hypokinesia of left ventricle.

Patient was given IvIgG therapy for 5 days. Tracheostomy was done after 3 weeks as there was improvement in the power. She regained her power to 4/5 in next 3 weeks.

## Case 5.

A 45 years old male farmer, smoker was presented in the emergency with exposure to some toxins in the field and acute onset weakness in both lower limbs since 12 hrs. power was 2/5 In both lower limbs. There is no respiratory involvement and gag reflex was intact. NCV studies shows demyelinating neuropathy in both lower limbs. 2D ECHO shows normal LV study.

Patient was given IvIgG for 2 days after that he was managed conservatively. He regained his power completely in 10 days.

3.	21	F	Dengue	Severe axonal sensory motor neuropathy	No	No	Yes	LVEF 45%	3
4.	31	M	No	Severe axonal sensory motor neuropathy	Yes	Yes	Yes	LVEF 45%	6
5.	45	M	Toxins	Demyelinating motor neuropathy	No	No	Yes	Normal	2
6.	35	M	Dengue	Axonal sensory motor neuropathy	No	No	No	Normal	3
7.	48	F	Fever	Severe axonal sensory motor neuropathy	Yes	Yes	Yes	LVEF 30%	8
8.	25	M	No	Axonal sensory motor neuropathy	Yes	Yes	Yes	Normal	5

**Case 6.**

A 35 years old male presented with complaints of pain and weakness in both lower limb past 3 days. He had prior history of fever and loose stools past 2 days. Power was grade 3/5 in both lower limbs. Dengue NS1 antigen was positive. NCV studies shows demyelinating motor neuropathy in both lower limbs. Reflexes was absent in lower limbs. There was no progression in the disease and no respiratory involvement. patient was managed conservatively. No immunoglobulins was given. He regained his power in next 2 weeks.

**Case 7.**

A 48 years old female presented with weakness in both lower limbs past 3 days. She had history of fever past 2 days. On examination, power was 1/5 in both lower limbs, reflexes was absent. Patient was advised admission but attendants refused and left against advice. Next day, she again came in the emergency with frothy secretions in the mouth and weakness in all 4 limbs. Power was grade 0/5 in all 4 limbs. She was immediately intubated and kept on ventilatory support. IVIgG (1 gm/kg wt ) was given for 5 days. 2D ECHO of the patient shows severe LV systolic dysfunction (LVEF 30%).

Initially patient showed no response but after 2 weeks, she has some movements in lower limbs. Physiotherapy was started and tracheostomy done. She showed some improvement on power after 4 weeks.

**Case 8.**

A 25 year old male presented with acute onset weakness in both lower limbs with no prior significant history. The weakness progress to both upper limbs with respiratory involvement in next 2 days. Power was 1/5 in all 4 limbs. Gag reflex was weak. Patient was intubated and kept on mechanical ventilation. IVIgG was given in B.D. doses for 3 days.

Patient shows improvement in power in next 2 weeks. He regained power completely in next 2 weeks.

**DISCUSSION**

The incidence of GBS is 0.5-1.5 cases per 1,00,000 population in individuals younger than 18 years.

Among bacterial infection, most common organisms are *Campylobacter jejuni* and *Mycoplasma Pneumoniae*. Among viruses, most common are Cytomegalovirus, Epstein-Barr and Varicella Zoster virus. Certain heavy metal toxins can also lead to symptoms mimic GBS although the incidence is very rare.

The outlook of the GBS is favourable. All those patients who presented early and received treatment either in the form of steroids or IVIgG shows near complete recovery in their symptoms within few weeks. However patient with severe disease who presented late may have a poor prognosis and may have a mortality rate of around 8-10% particularly because of complications from extended mechanical ventilation.

Overall our case series shows that many patients with GBS had predisposing factors in the form of fever, loose stools or toxins exposure. However, all of them had good prognosis and they recover fully in due course of time. It is important to note that while most of them recover from the illness, some of them may have a poor long term prognosis. Therefore a multidisciplinary approach and close monitoring along with proper physiotherapy is very crucial for achieving the best possible outcomes.

A study in Turkish population involving 23 patients showed similar overall outcome at 1 year when comparing axonal and demyelinating form of GBS. Patients with axonal form of syndrome have a delayed recovery as compared to demyelinating form as in our study.<sup>3</sup>

A dose of IVIgG is recommended (1 gm/kg wt daily twice for 3-5 days) in those with severe presentation or respiratory failure.<sup>4</sup> Plasmapheresis is recommended in patients in whom IVIgG therapy fails.<sup>5</sup>

**CONCLUSION**

GBS syndrome can present in various forms with various triggering factors. It can present from mere weakness in the limbs to near complete flaccid paralysis. Proper history and examination is crucial for the diagnosis of the syndrome. Early presentation and timely intervention can save the patients from future comorbidities. Demyelinating form has better recovery as compared to axonal one. IVIgG should be given to all those patients with rapid progression of symptoms or having respiratory involvement. Physiotherapy is important for all the patients.

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