CASE REPORT

EFFECTS OF SENSORY-MOTOR TREATMENT IN GUILLAIN-BARRE
SYNDROME-A CASE REPORT

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ABSTRACT
A case of successful sensory rehabilitation of a Guillain Barre syndrome (GBS) has been reported. Sensory loss in GBS occurred suddenly and reached to a maximum loss within a period of four weeks. The patient showed absent reflexes along with sensory and motor weakness. Patients showed electro-physiological indication of demyelination in L3, 4 and 5 nerve roots. It is designated that the nerve conduction readings are significant for the diagnosis of GBS patients. These patients respond positively to sensory therapy as far as the lower limbs are concerned showing a favorable consequence. The present case study endorsed a successful sensory rehabilitation in GBS.

Keywords: Electromyography, sensory rehabilitation, GBS.

1. INTRODUCTION
Guillain–Barre syndrome (GBS) is also known as acute inflammatory demyelinating polyradiculo-neuropathy.¹ It is described by increasing motor weakness and lack of muscle stretch reflexes with sensory loss.¹-¹³ The case presently reported showed the typical presentation of dysesthesia i.e. Abnormal sensation of touch.² As a case of acute demyelinating neuropathy, GBS may also present with a period dependent outline of sensory progression.⁴ The detailed neurological examination of GBS shows symmetric distal limb paresthesias like stocking and glove type sensory loss (hypoesthesia) for pain and temperature, loss proprioception, and vibration senses along with typical or brisk tendon reflexes.³,⁵ Appropriate diagnosis is very significant because GBS is treatable with optimal supportive care, anticipation and prevention of complications are the mainstay of therapy.⁶ GBS affects 1 to 4 / 100,000 per year and men are affected more frequently as compared to women.⁸

1.1. Patient Presentation
Sensory alterations were also present in the patient. The sensory examination was conducted at first assessment by testing modalities that sub serve large fibre (vibration sense and proprioception) and small fibre (pinprick, pain and temperature) function. This was in conjunction with the consideration of both focal and length dependent features, since this can provide key clues to the likely cause. Sensory examination must be approached with a clear diagnostic purpose and guided by knowledge of the major cutaneous nerve and root patterns. Combined involvement of the proximal and distal muscles was the predominant type of muscle weakness and in most of these patients the proximal and distal muscles were equally involved. Sensory disturbances lasted longer than two months. Electrophysiological help is often required in these situations. Nerve conduction studies show features of demyelination, especially motor nerve conduction block and temporal dispersion.⁸ Mode of spreading was most commonly ascending. Spread within the limbs initially affected without no ascending to other body parts which was the next most common variety.¹² Patient showed reduced epidermal innervation with pathological evidence of active nerve degeneration in the dermis with marked root value of L3,4,5, fragmentation of subepidermal nerve plexuses and a beaded appearance of dermal nerves. Along with sensory deficit, patient also presents with autonomic dysfunctions. These
patients had sensory signs, proprioceptive more often than superficial. Autonomic disturbances were also observed especially hypertension and sometimes tachycardia. Muscles innervated by peripheral nerves along an entrapment site i.e. L3, L4, L5 presented with the most severe deficits. The diagnostic criteria for a sensory loss and areflexia variant of GBS were proposed in 1981. However, clinical cases meeting these criteria have been relatively scarce.

1.2. Interventions
Optimal supportive care and anticipation and prevention of complications are the mainstay of therapy. Inflammatory neuropathies are uncommon but important to diagnose because they are treatable. Therapy should not over fatigue the motor unit, which has been associated with paradoxical weakening. Little is known of the long-term implications of the disability caused by GBS. Investigation similar to that performed for post-polio syndrome and spinal cord injury should be carried out in the rehabilitation. GBS has a serious long-term impact on the patients' work and private life. In this particular case patient showed marked sensory improvement in couple of months. Ideal compassionate care and prevention of complications was the mainstay of rehabilitation. Compensatory techniques and desensitization (inhibitory techniques) were used to get better results. Sensory re-education is an integral portion of treatment. Initially for one month, intensive treatment and following home plan was given to the patient, that is:

- Continuous light touch and pressure through different texture and materials applied on dorsum of the foot and lateral side of the sole, except sole of the foot. This procedure was carried out in hot and cold water alternatively.
- Standing on different texture, walk on sand, pebble, marble, etc.
- Use stimulator for sensitization and massager for relaxation.

- Ball and manual pressure.

After 4 months, the patient was reassessed and when he got enough sensation, that he can feel tactile stimulation but still not discriminate and also desensitize area where hypersensitivity could be observed. After this sensory motor work and different techniques were applied to use small muscles of foot. These programs were continued for two years approximately and then reassessed through monofilament. This gave some good results, and after aesthesia, allodynia, hyperesthesia were fully controlled.

<table>
<thead>
<tr>
<th>Problems</th>
<th>Interventions</th>
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<tbody>
<tr>
<td>Loss of sensation</td>
<td>Compensation techniques</td>
</tr>
<tr>
<td>Diminished</td>
<td>SensoryRe-Ed/retraining</td>
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<tr>
<td>Hypersensitive</td>
<td>Desensitization</td>
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3. RESULT
Being a case of acute inflammatory poly radiculo-neuropathy, GBS is generally considered as a quickly progressive and symmetrical disorder. The time of its commencement to complete advancement is about 4 weeks. The clinical background of this case of GBS is characterized and associated in an effort to enhance the demarcation of the disease. This was significantly different from other patients of GBS as far as the sensory rehabilitation is concerned. GBS shows a severe and quickly advanced beginning, symmetric muscle degrading, without or diminished muscle stretch reflexes. This makes its management much more interesting and challenging. In a research study conducted on 57 patients of GBS, statistically important relationships were established between the degree of lasting motor deficit and the severity of the weakness. This showed that the rehabilitation of GBS is a matter of commitment and assurance (Table 1 and 2).
Table 1. Semmes - Weinstein monofilament test assessment.

<table>
<thead>
<tr>
<th>NERVE</th>
<th>2.83</th>
<th>3.61</th>
<th>4.31</th>
<th>4.56</th>
<th>5.07</th>
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<tbody>
<tr>
<td>L3</td>
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<tr>
<td>L4</td>
<td>Medial malleolus</td>
<td>Pathway</td>
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<td>L5</td>
<td>Pathway</td>
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<td>Distal phalaynx</td>
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<tr>
<td>SI</td>
<td>Heel (lat.)</td>
<td>Heel (med.)</td>
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<td>Metatarsal pad</td>
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Table 2. Semmes - Weinstein monofilament test reassessment.

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<th>NERVE</th>
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<tr>
<td>L4</td>
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4. DISCUSSION
The clinical background of this case of GBS are characterized and associated in an effort to enhance the demarcation of the disease. This was significantly different from other patients of GBS as far as the sensory rehabilitation is concerned. As GBS is characterized by the acute onset of rapidly progressive, symmetric muscle weakness with or without decreased muscle stretch reflexes, its management become much more challenging.\(^7\) In a research study conducted on 57 patients of GBS, statistically significant correlations were found between the degree of residual motor deficit and the severity of the weakness in the acute phase.\(^13\) Patient presented to occupational therapy department was in quite stable condition. He had weakness in upper and lower extremity and sensory loss in lower limb as well. The patient further showed paraesthesia at calf level and at dorsum of foot, which initially appeared with a sensory disturbance (hot and cold sensation) and was followed by a quite atypical descending progression. Three strategies were used, sensitization, desensitization and compensatory techniques. The clinical background of this case of GBS is characterized and associated in an effort to enhance the demarcation of the disease. This was significantly different from other patients of GBS as far as the sensory rehabilitation is concern.
5. CONCLUSION
The present case study not only confirms the presence of sensory GBS but also endorses the successful sensory rehabilitation. The GBS can be a shattering illness because of its abrupt and surprising commencement. Along with all other facts, the recovery of GBS is a long-lasting procedure. The rehabilitation period may be as long as a couple of years. However the commitment and assurance can produce excellent result as shown by this example of a successful rehabilitation.

References