

11-2011

## Functional recovery of untreated human immunodeficiency virus-associated Guillain-Barré syndrome: A case report

Adam L. Schreiber

*Jefferson Medical College of Thomas Jefferson University, Department of Rehabilitation Medicine, Philadelphia, PA*


John W. Norbury III

*Physical Medicine and Rehabilitation and Thomas Jefferson University Hospital; Department of Physical Medicine and Rehabilitation, Brody School of Medicine of East Carolina University, Greenville, NC*

Eduardo A. De Sousa

*Department of Neurology, Division of Neuromuscular Disorders, at Jefferson Medical College of Thomas Jefferson University; Assistant Professor in the Department of Neurology, Division of Neuromuscular Disorders, University of Oklahoma - College of Medicine, Oklahoma City, OK*

Follow this and additional works at: <https://jdc.jefferson.edu/rmfp>

 Part of the [Medical Immunology Commons](#), [Medical Neurobiology Commons](#), and the [Neurology Commons](#)

[Let us know how access to this document benefits you](#)

### Recommended Citation

Schreiber, Adam L.; Norbury, John W. III; and De Sousa, Eduardo A., "Functional recovery of untreated human immunodeficiency virus-associated Guillain-Barré syndrome: A case report" (2011). *Department of Rehabilitation Medicine Faculty Papers*. Paper 7.  
<https://jdc.jefferson.edu/rmfp/7>

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's [Center for Teaching and Learning \(CTL\)](#). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in Department of Rehabilitation Medicine Faculty Papers by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: [JeffersonDigitalCommons@jefferson.edu](mailto:JeffersonDigitalCommons@jefferson.edu).

**As submitted to:**

**Annals of Physical and Rehabilitation Medicine**

**And published as:**

**Functional recovery of untreated human immunodeficiency virus-associated Guillain-Barré syndrome: A Case Report**

**Volume 54, Issue 8, November 2011, Pages 519-24**

**DOI: 10.1016/j.rehab.2011.09.009**

Schreiber, A. L., Norbury, J. W., & De Sousa, E. A. (2011). Functional recovery of untreated human immunodeficiency virus-associated guillain-barré syndrome: A case report. *Annals of Physical and Rehabilitation Medicine*, 54(8), 519-524.

## Title Page

**Article Title:** Functional recovery of untreated human immunodeficiency virus-associated Guillain-Barré syndrome: A Case Report

### **Authors:**

Adam L Schreiber, DO MA<sup>1</sup>

John W Norbury III, MD<sup>2</sup>

Eduardo A De Sousa, MD<sup>3</sup>

### **Affiliations:**

1. Assistant Professor, Jefferson Medical College of Thomas Jefferson University, Department of Rehabilitation Medicine, Philadelphia, PA.
2. At the time of writing, JWN was a Resident Physician in Physical Medicine and Rehabilitation and Thomas Jefferson University Hospital and is now Clinical Assistant Professor in the Department of Physical Medicine and Rehabilitation, Brody School of Medicine of East Carolina University, Greenville, NC.
3. At the time of writing, EAD was an Assistant Professor in the Department of Neurology, Division of Neuromuscular Disorders, at Jefferson Medical College of Thomas Jefferson University and is now Assistant Professor in the Department of Neurology, Division of Neuromuscular Disorders, University of Oklahoma - College of Medicine, Oklahoma City, OK.

### **Address correspondence to:**

Adam L. Schreiber, DO, MA  
25 S 9<sup>th</sup> Street  
Philadelphia PA 19107  
Phone : 215-955-4206 Fax: 215-955-0861  
Email: adam.schreiber@jefferson.edu

**Disclosures:** None.

**Disclaimers:** FIM<sup>TM</sup> is a trademark of the Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.

**Meetings:** Presented in part at 2009 Association of Academic Physiatrists Annual Meeting in Colorado Springs Colorado, February 24-28, 2009.

## **Abstract**

HIV-associated Guillain-Barré Syndrome is a well-documented phenomenon, typically occurring at seroconversion. GBS may result in functional impairment treated with a combination of medications, plasmapheresis, and rehabilitation. The quantified functional recovery of HIV-associated GBS with or without HIV treatment is not well-described. Utilizing serial FIM scoring, we describe a patient's recovery from HIV-associated GBS after treatment with IVIg and acute inpatient rehabilitation without HIV treatment.

Key words: Guillain-Barré Syndrome, human immunodeficiency virus, rehabilitation, Demyelinating Diseases

## Introduction

Standard Guillain-Barré Syndrome (sGBS) is an autoimmune disorder characterized by sudden onset of weakness with evidence of demyelination through electrodiagnosis.<sup>1</sup>

This condition often requires pharmacological and/or plasmapheresis treatment. After treatment, 40% of sGBS patients require inpatient rehabilitation.<sup>2</sup> The most rapid improvement is the first 6 months.<sup>3</sup> sGBS recovers during the first year of onset, motor improvements at 18 months, but motor and sensory impairments are detectable in more than 50% of patients at two years.<sup>4</sup> Functional Independence Measure (FIM<sup>TM</sup>) is a proven tool to monitor rehabilitation progress of sGBS.<sup>5</sup>

There are several peripheral neuropathies associated with HIV.<sup>6</sup> HIV-associated GBS (hGBS) is well documented.<sup>7,8,9</sup> which may occur during the entire course of the disease, but typically occurs at seroconversion,<sup>10,11,12</sup> but may Quinn's states "neurological impairment [from HIV] is generally self-limited; most patients become asymptomatic in 1 to 4 weeks, although persistent neurologic deficits have been described."<sup>13</sup> Recent literature describes prolonged recovery of HIV-related chronic neurologic conditions.<sup>10</sup> Verma speculates that the clinical course and response to pharmacologic treatment for GBS in HIV-seropositive and seronegative patients is similar<sup>14</sup>, but the functional recovery of hGBS with or without HIV treatment is not well described. We describe a case of hGBS without HIV treatment with subacute recovery.

## Case report

A 45-year-old woman presented with left sided weakness after 10 days of headache with nausea and vomiting and an inability to ambulate. CT and MRI of the brain and spine were unremarkable. She refused lumbar puncture. Electrodiagnostic studies revealed demyelinating sensorimotor polyneuropathy without denervation. Diagnosed with Guillain-Barré Syndrome (GBS), she was treated with IVIG, and discharged to inpatient rehabilitation.

On admission, her initial exam revealed areflexia with intact sensation to light touch and pinprick. There were no symptoms of dysautonomia but dysesthesias were present in her bilateral hands. Manual muscle testing revealed grade 5-/5 humeral abductors, 4/5 elbow flexors/extensors, wrist extensors, 3+/5 flexor digitorum profundus, 2/5 dorsal interossei, 3/5 hip flexors, 4/5 knee extensors, and 4/5 ankle dorsi/plantar flexors bilaterally.<sup>15</sup> Functional Independent Measure (FIM<sup>TM</sup>) scores showed functional deficit requiring moderate assistance for self care, minimal assistance for sphincter control, and dependence for ambulation (Table 1). She initially made gains but then experienced progressive weakness and decline in many functional domains (Table 1).

Work-up included a second electrodiagnostic study approximately 1 month after initial study, revealing more evidence of a demyelinating polyneuropathy (Table 2): severe distal motor latency prolongation and abnormal distal temporal dispersion (duration >9.0 ms) in motor nerves. Left peroneal and right median abnormal proximal temporal

dispersion. Sural responses were present with attenuated amplitudes. No conduction blocks or demyelinating F-waves (absent F-waves with relatively normal CMAP amplitude, or severely prolonged F-wave minimal latencies) were noted. EMG revealed denervation suggestive of secondary axonal injury. Lumbar puncture had elevated protein 240mg (normal value 15-55) and cell count of 39WBC & 8RBC with normal glucose 53mg/dL (normal value 40-70). Because of elevated CSF cell count and protein, further work revealed positive HIV ELISA and confirmed by western blot. CD4 count of 334cells/ml (normal value 410-1590) and viral load 394,000copies/ml (normal value <400).

Rehabilitation was reinitiated without further pharmacological treatment for GBS or HIV. Due to concern for compliance, infectious disease consultant did not treat HIV. One month after readmission she displayed functional improvement at supervision for most self care domains, independence with sphincter control, modified independent for mobility at a wheel chair level (Table 1). Her exam on discharge revealed symmetric 1+ reflexes with sensation intact to light touch and pinprick. Manual muscle testing revealed 4+-5/5 strength in all muscle groups. Three months after discharge and five months after onset of hGBS, she had complete functional recovery; independent in all FIM<sup>TM</sup> domains including ambulation without assistive device (see Table 1). She was lost to further follow-up.

## **Discussion**

We present a case of GBS occurring as the first manifestation of HIV infection and her functional recovery after IVIG and inpatient rehabilitation which suggests that hGBS

patients may make full subacute recovery without the initiation of HAART therapy. To our knowledge, there are no reports of acute seroconverted hGBS rehabilitation recovery without HIV treatment. This may add to the controversy in the literature regarding hGBS treatment with HAART with both relapse<sup>16</sup> upon discontinuation or cause due to drug side effect or of HAART or potentially cause via immune reconstitution syndrome.<sup>17</sup>

Neurologic impairment related to HIV are recognized have prolonged recovery at best.<sup>13,</sup>  
<sup>18</sup> Our case presents hGBS taking 5 months full functional recovery. This is timely as compared to the described recovery of sGBS and confirms Verma's speculation.<sup>14</sup>

Limitations of this manuscript include the use of FIM<sup>TM</sup> scoring to quantify functional recovery, as there are other tools to evaluate recovery of GBS patients.<sup>19</sup> Additionally, she was lost to follow-up to monitor for function over a longer period of time.

### **Conclusion**

We present a case of Guillain-Barré Syndrome as the initial clinical manifestation of HIV infection. With standard GBS treatment, without HIV treatment, the patient made similar functional recovery, quantified by FIM<sup>TM</sup> scoring, that is described for sGBS. Further research is needed on the recovery of HIV-associated GBS with various treatment strategies so physicians can better prognosticate functional recovery.



## References

1. Cornblath DR. Electrophysiology in Guillain-Barre´ syndrome. *Ann Neurol*. 1990;27 Suppl:S17-20.
2. Zelig G, Ohry A, Shemesh Y, et al. The rehabilitation of patients with severe Guillain-Barre´ Syndrome. *Paraplegia* 1988; 26:250-254.
3. El Mhandi L, Calmels P, Camdessanche´ JP, et al. Muscle Strength Recovery in Treated Guillain-Barre´ Syndrome A Prospective Study for the First 18 Months After Onset. *Am J Phys Med Rehabil* 2007;86:716–724.
4. Qureshi AI, Cook AA, Mishu HP, et al. Guillain-Barre´ syndrome in immunocompromised patients: a report of three patients and review of the literature. *Muscle Nerve*. 1997;20:1002-1007.
5. Prasad R, Hellowell DJ, Pentland B, Usefulness of the Functional Independence Measure (FIM), its subscales and individual items as outcomes in Guillain-Barre´ Syndrome. *Int J Rehab Res* 2001;24:59-64.
6. Estanislao LB, Morgello S, Simpson DM. Peripheral neuropathies associated with HIV and hepatitis C co-infection: a review. *AIDS* 2005;19:S135-9.
7. Thornton CA, Latif AS, Emmanuel JC. Guillain-Barre syndrome associated with human immunodeficiency virus infection in Zimbabwe. *Neurology* 1991;41:812-5.
8. Howlett WP, Vedeler CA, Nyland H, Aarli JA. Guillain-Barre syndrome in northern Tanzania: a comparison of epidemiological and clinical findings with western Norway. *Acta Neurol Scand* 1996;93:44-9.

9. Hassan KM, Mathew I. Guillain Barre' syndrome-in an HIV seropositive subject. *J Assoc Physicians India* 2000;48:1214.
10. Cornblath DR, Hoke A. Recent advances in HIV neuropathy. *Curr Opin Neurol*. 2006;19:446-450.
11. Wagner JC, Bromberg MB. HIV infection presenting with motor axonal variant of Guillain-Barré Syndrome. *J Clin Neuromuscul Dis* 2007 Dec;9:303-5.
12. Brannagan TH, Zhou Y. HIV-associated Guillain- Barre´ syndrome. *J Neurol Sci*. 2003;208:39-42.
13. Quinn TC. Acute primary HIV infection. *JAMA* 1997;278:58–62.
14. Verma A. Epidemiology and clinical features of HIV-1 associated neuropathies. *J Peripher Nerv Syst* 2001;6:8-13.
15. John J. Grading of muscle power: comparison of MRC and analog scales by physiotherapists. Medical Research Council. *Int J Rehabil Res* 1984;7:173-81.
16. Sloan DJ, Nicolson A, Miller AR, Beeching NJ, Beadsworth MB. Human immunodeficiency virus seroconversion presenting with acute inflammatory demyelinating polyneuropathy: a case report. *J Med Case Reports* 2008 Dec 4;2:370.
17. Gilssén M, Fredman P, Fuchs D, Lekman A, Rosengren L: Temporarily controlled HIV-1 replication after intravenous immunoglobulin treatment of Guillain-Barré syndrome. *Scand J Infect Dis* 2005;37:877-881.
18. de Castro D, Bastos PG, Martinez R, et al. Episodes of Guillian-Barre´ syndrome associated with acute phase of HIV-1 infection and with recurrence of viremia. *Arq Neuropsiquiatr* 2006;64:606-608.

19. Merkies IS, Schmitz PI, van der Meche FG, et al. Clinimetric evaluation of a new overall disability scale in immune mediated polyneuropathies. *J Neurol Neurosurg Psychiatry* 2002;72:596–601.

Shah SS, Rodriguez T, McGowan JP: Miller Fisher Variant of Guillain-Barré Syndrome associated with Lactic Acidosis and Stavudine Therapy. *Clin Infect Dis* 2003;36:e131-133.