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# ACUTE QUADRIPARESIS DUE TO ACUTE DEMYELINATING POLYNEUROPATHY IN A PATIENT NEWLY DIAGNOSED AS A CASE OF B-CELL LYMPHOMA- AN UNUSUAL PRESENTATION A CASE REPORT WITH REVIEW OF LITERATURE

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## ABSTRACT

Although peripheral neuropathies are commonly observed in patients with non-Hodgkin's malignant lymphomas (NHML), Guillain-Barre syndrome is extremely rare in B-cell lymphoma, occurring in less than 0.3% of the cases. We describe a seventy year old patient newly diagnosed as a case of B-cell lymphoma, who developed quadriplegia. Based on clinical course, neurological examination and EMG findings, GBS as a Para neoplastic disorder was diagnosed in spite of normal cerebrospinal fluid protein content.

**Key Words:** Neuropathies, non-Hodgkin's malignant lymphomas, Guillain-Barre syndrome (GBS)

## INTRODUCTION

Guillain-Barre syndrome (GBS) is an idiopathic acute inflammatory demyelinating polyneuropathy that is believed to be immunologically mediated. Approximately two-thirds of the cases are related to a recent upper respiratory or gastrointestinal tract infection especially infections due to *Campylobacter jejuni*, Cytomegalovirus, and Epstein-Barr virus 1, 2. Recent immunization has also been associated with GBS. The swine influenza vaccine administered widely in the United States in 1976 is the most notable example. Mechanism is presumably immunization against neural antigens. GBS has been reported to be associated with some systemic diseases such as Hodgkin lymphoma, HIV, and systemic lupus erythematosus. It is extremely rare in NHL, occurring in less than 0.3% of cases<sup>3-5</sup>. We describe a rare case of B cell lymphoma complicated by GBS.

## CASE REPORT

A 70 years old male ex-smoker, previously fully functional presented in clinic with the history of headache for 2 months and difficulty in walking for 2 weeks. According to the patient he suddenly developed very severe generalized throbbing headache 2 months back. This was associated with lacrimation, persisted for 45 minutes and got relieved by taking analgesic. There

was no associated visual impairment, photophobia, phonophobia, nausea or vomiting. After that he developed severe generalized bone pain. He also developed numbness of both lower limbs and difficulty in walking. He denied any history of fever, diarrhea, urine or fecal incontinence, trauma, backache, sore throat, rash, blurring of vision, diplopia, facial weakness, shortness of breath, difficulty in swallowing, abdominal pain, jaundice or seizures.

His higher mental functions were normal. All cranial nerves were intact. Fundoscopy showed sharp disc margin. Cerebellar function was intact. Tone and bulk was normal in all limbs. Power was 5/5 in all limbs. Deep tendon reflexes were absent in all limbs. Plantars were flexor bilaterally. Sense of position was intact. No sensory impairment was noted.

Laboratory parameters like electrolytes, CSF study and full blood count were reported normal. Serum LDH was 18203 IU/L (Normal 140-333 IU/L), CRP 16.3 mg/dl (Normal <1mg/dl) and ESR was 33 mm/1<sup>st</sup> hr

Leukemia Immunophenotyping by 5-Color Cytomics Fc500 Beckman Coulter Flow Cytometer was performed.

Lysed bone marrow sample was tested for a viability index which turned out to be 87%. Sample was then incubated with a comprehensive panel of monoclonal

antibodies and run on a 5-Color Cytomics FC500 Flow Cytometer. CD45 staining was performed and gating was done on bright CD45 lymphoid cells (38%) population. This population shows bright reactivity with B-lymphoid markers i.e., cCD79a, CD19, CD20 and CD22 along with HLA-DR and CD45. This population is negative for CD10. The gated population also shows positivity to surface immunoglobulin IgM and Lambda light chain restriction. The results are consistent with B-cell lymphoma.

CT Chest, abdomen and pelvis were normal. X ray of the whole spine showed no evidence of any lytic lesion in visualized bones. Multi-level mild osteophyte formation is identified in cervical, thoracic and lumbar vertebrae suggesting spondylosis. Electromyography/Nerve Conduction Studies was performed. The findings were suggestive of acute acquired demyelinating neuropathy.

Patient was put on intravenous immunoglobulin (IVIG), but his condition deteriorated and he got intubated due to severe respiratory insufficiency and landed in the intensive care unit. IVIG in a dose of 28 gm/day was given for 5 days. His condition improved over the next six days. On the 8th ICU day he was extubated and shifted out of ICU.

## DISCUSSION

Patients with lymphoma frequently develop neurologic abnormalities. The differential diagnosis of peripheral neuropathies depends on the clinical setting, but mainly includes nervous system infiltration with lymphoma and drug toxicity, both of which have been well described. Central nervous system infiltration can usually be diagnosed easily using imaging techniques, and in certain circumstances, by subsequent stereotactic biopsy. The occurrence of lymphoma causing peripheral nerve infiltration has been described, but is uncommon and difficult to diagnose<sup>5, 6</sup>. Peripheral nerve involvement in lymphoma can present with several different syndromes. Patients may present with plexopathy or individual cranial or peripheral nerve deficits, or with generalized sensory, sensorimotor or motor neuropathies. Guillain Barre Syndrome is an idiopathic acute inflammatory demyelinating polyneuropathy that is believed to be immunologic mediated. Approximately two-thirds of the cases are related to a recent upper respiratory or gastrointestinal tract infection, especially infections due to *Campylobacter jejuni*, Cytomegalovirus and Epstein Barr virus<sup>6, 7</sup>. Recent immunization has also been associated with GBS. The swine influenza vaccine, administered widely in the United States in 1976, is the most notable

example. The mechanism is presumably immunization against neural antigens. GBS has been reported to be associated with some systemic diseases such as Hodgkin lymphoma, HIV, and systemic lupus erythematosus<sup>2, 4, 5</sup>. It is extremely rare in NHL, occurring in less than 0.3% of cases. GBS is manifested as an acute, ascending polyneuropathy, predominantly motor paralysis with respiratory failure, leading to death. In severe cases, the ocular motor nerves are involved and even the pupils may be unreactive. More than half of the patients complain of pain and an aching discomfort in the muscles mainly those of the hips, thighs, and back- and therefore can be misdiagnosed with lumbar disc disease, back strain and other orthopedic diseases<sup>5, 6</sup>. Sensory loss occurs to a variable degree during the first few days and may be barely detectable. Reduced and then absent deep tendon reflexes are consistent finding.

The most important diagnostic studies are electromyography (EMG) and CSF examination. The CSF is under normal pressure and is acellular or contains only a few lymphocytes and 10-50 cells per mL at most, whereas protein levels are elevated (albuminocytologic dissociation, elevated proteins without cells). Abnormalities of nerve conduction are early and dependable diagnostic indicators of GBS. The most frequent early electrodiagnostic findings are reduction in the amplitude of muscle action potentials, slowed conduction velocity, and conduction block in motor nerves. Prolonged distal latencies (reflecting distal conduction block) and prolonged or absent F-responses (indicating involvement of proximal parts of nerves and roots) are other important diagnostic findings, all reflecting focal demyelination. Most peripheral neuropathies in NHL are attributed to local infiltration by lymphomatous cells causing axonal damage<sup>3, 5, 7, 8</sup>. This disorder can affect nerve roots and cranial nerves and may cause plexopathy, mononeuropathy or generalized neuropathy. These neuropathies may resemble an asymmetric mononeuropathy multiplex or a generalized disorder such as chronic inflammatory demyelinating polyradiculoneuropathy. When NHL infiltrates diffusely, the term with B-cell lymphoma and Burritt lymphoma, neurolymphomatosis is used. We believe that immune mechanisms triggered by NHL initiate the development of GBS in this patient. Although GBS is commonly seen in Hodgkin lymphoma, it is an extremely rare entity in NHL<sup>1, 7</sup>. Our patient was diagnosed recently as a B-cell lymphoma during hospital admission. He was not on any drug for lymphoma, so GBS in this patient was purely diagnosed as a paraneoplastic syndrome associated with B-Cell lymphoma which is a rare entity.

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