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Recurrent Ophthalmoplegia Presenting Different Clinical Features in a Patient with Anti-GQ1b Antibody Syndrome

Dear Editor,

It has been proposed that Miller-Fisher syndrome (MFS), Guillain-Barré syndrome (GBS), Bickerstaff's brainstem encephalitis, and acute ophthalmoplegia without ataxia are considered to make up a continuous spectrum of illness: anti-GQ1b antibody syndrome [1-3]. We present a case of recurrent anti-GQ1b antibody syndrome that demonstrates why this syndrome should be regarded as a spectrum disease.

A 37-year-old man experienced sore throat and mild fever. Two weeks after the onset of his symptoms, he was admitted to the Department of Neurology at the Asan Medical Center for acute binocular horizontal diplopia. With the onset of diplopia, he also reported clumsiness in his hands, giddiness, unsteady gait, limb weakness, and dysphagia. When he was referred for an ophthalmologic work-up, esotropia of 15 prism diopters was observed in the primary position on the alternate prism cover test. On ocular motility examination, -2 limitation of abduction and -1 limitation of adduction with gaze-evoked nystagmus were noted in both eyes. The patient's vertical gaze was intact. He had normally reactive pupils to both light and near stimulus. He was fully conscious and oriented. However, he could not walk without support due to gait ataxia. The patient also had dysmetria and finger-nose ataxia. His deep tendon reflexes were noted as normo-hyperactive.

Blood laboratory tests, cerebrospinal fluid examination, and brain and orbital magnetic resonance images were revealed to be normal. In the serologic analysis of antibodies against ganglioside complexes (anti-GD1b, anti-GM1, anti-GQ1b, and anti-GT1b antibodies) using GanglioCombi ELISA (Bühlmann Laboratories, Schönenbuch, Switzerland), anti-GQ1b IgG antibody was positive (100%), and anti-GQ1b IgM antibody was borderline positive (43.87%) (borderline range, 30% to 50%). After treatment with intravenous immunoglobulin, the patient's neurological symptoms began to improve. Two months later, the abnormality in ocular motility had completely disappeared.

Eighteen months after the initial episode, the same patient presented with recurrent binocular diplopia. With the onset of diplopia, he reported mild dizziness, but no clumsiness, giddiness, unsteady gait, limb weakness, or dysphagia. On the alternate prism cover test, esotropia of 8 prism diopters was observed in the primary position. Ocular motility examination revealed a -1 limitation of abduction and a -1 limitation of adduction with gaze-evoked nystagmus in both eyes (Fig. 1). Although the degree of ophthalmoplegia was less severe than that of the first episode, the oculomotor findings suggesting bilateral sixth cranial nerve nucleus and medial longitudinal fasciculus abnormality were quite similar to those from the first episode. The same laboratory and imaging work-ups as performed in the initial episode were repeated. Brain magnetic resonance images

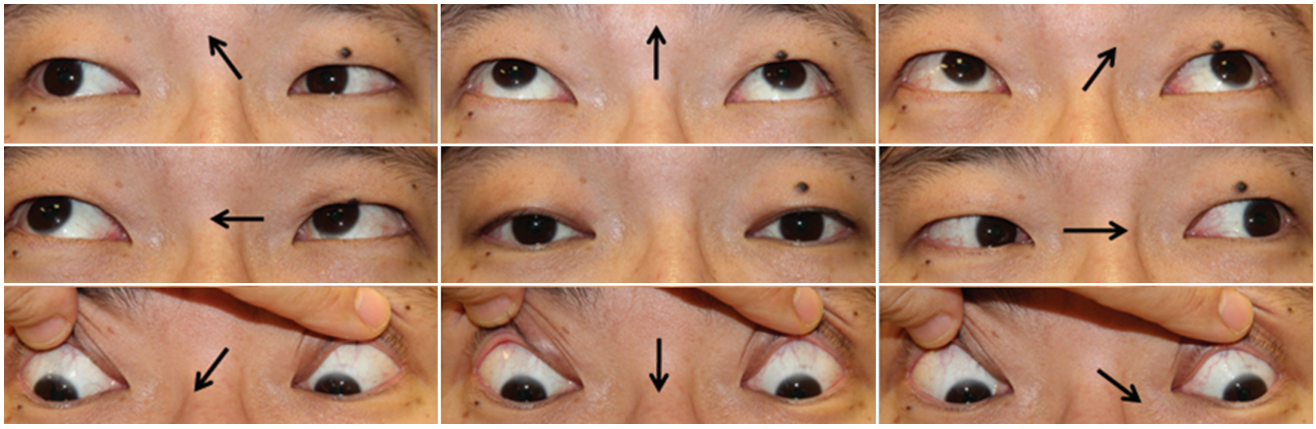

Fig. 1. Five days after the onset of diplopia, a -1 limitation of abduction and a -1 limitation of adduction with gaze-evoked nystagmus were noted in both eyes. Vertical gaze was intact.

showed no remarkable findings. In the serologic analysis, anti-GQ1b IgG antibody was positive (100%), and anti-GQ1b IgM antibody was borderline (39.52%). Two months after the initiation of retreatment, all abnormalities in ocular motility had completely disappeared. After 3 months, retests for the antibodies against ganglioside complexes were performed, and anti-GQ1b IgG and anti-GQ1b IgM were found as to be negative (8.21% and 2.12%, respectively).

We reported an uncommon case of recurrent anti-GQ1b antibody syndrome showing distinct phenotypes in different periods. Such a case was first described by Hamaguchi et al. [4]. The recurrence rate of GBS was reported as uncommon (about 1% to 6%), and both Bickerstaff's brainstem encephalitis and MFS have been considered to be monophasic diseases [4]. In our case, the initial episode could be diagnosed as atypical MFS overlapped with GBS. The patient's symptoms were summarized as acute ophthalmoplegia, ataxia, and limb weakness without areflexia. The second episode included only acute ophthalmoplegia, which could indicate acute ophthalmoplegia without ataxia. Although the nosologic relationship among MFS, GBS with ophthalmoplegia, Bickerstaff's brainstem encephalitis, and acute ophthalmoplegia without ataxia remains controversial, these diseases have been considered part of an anti-GQ1b antibody syndrome because of the common immunopathogenic characteristics of elevated anti-GQ1b antibodies in the serology [2]. Our case supports the concept of a continuous spectrum of anti-GQ1b antibody syndrome with overlapping features and also due to the different phenotypes exhibited during different periods with common immunopathogenic characteristics.

Serologic testing for anti-GQ1b antibodies is very helpful in diagnosing the aforementioned diseases that are supposed to be anti-GQ1b antibody syndrome [5]. We detected increased level of anti-GQ1b antibodies during every episode. Moreover, we confirmed a normalization of the level of anti-GQ1b antibodies after the remission of symptoms, which may indicate that the level of anti-GQ1b antibodies is correlated with the disease activity.

In conclusion, we report an unusual presentation of recurrent anti-GQ1b antibody syndrome that demonstrates why anti-GQ1b antibody syndrome should be regarded as a disease with a continuous spectrum.

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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