A Case of Neuromyelitis Optica Misdiagnosed as Cervicogenic Headache

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Neuromyelitis optica (NMO) is an inflammatory demyelinating disease of the central nervous system associated with longitudinally extensive myelitis and optic neuritis. It is characterized by relapses that lead to blindness and paralysis sequelae. But, this is rare disease; therefore high clinical suspicion for a correct diagnosis and proper examinations are not easy. However, early diagnosis is essential to prevent sequelae. We report the case of NMO with headache. A 30-year male patient who suffered headache visited our pain clinic because of aggravated pain despite treatment. The cause of the pain was revealed as NMO by more detailed previous history and examination. (Korean J Pain 2014; 27: 77-80)

Key Words:
headache, myelitis, neuromyelitis optica, optic neuritis.

Headache is a common symptom seen at a medical institution and is diagnosed based on the information obtained from the patient and physical examination [1-3]. It is more helpful to make a more accurate diagnosis if a diagnostic workup like MRI or CSF analysis is performed, but most headaches are primary headaches that show relatively good outcomes, and secondary headaches are rare, so it is not economical to perform these tests for all cases [3,4]. However, the condition may worsen if a fast diagnosis is not achieved, so doctors treating headaches always need to be well aware of the progress of the patient’s disease as well as the presenting symptoms, and perform further tests when necessary. The case below is a patient who was considered to have an ordinary headache but was found to have a rare myelopathy by performing a complete medical examination by listening carefully to the past medical history of the patient and observing his progress,

CASE REPORT

A 33-year-old male patient came to the hospital complaining of headache that had been occurring for two weeks prior to his visit. One week before visiting the hospital, he received a cervical facet joint block and drug treatment in another hospital, but the pain continued so he visited the pain clinic at our hospital. In the first medical examination, the patient said that he did not have any unusual past history. The headache began at the left occipital region and then gradually spread to the posterior neck, where numbness and aching developed: there was no
paresthesia. Additionally, during the same period, the patient had blurred vision as a symptom. The physical examination performed at the time of the hospital visit appeared to be normal.

At first, it was suspected to be a general cervicogenic headache, so a bilateral greater occipital nerve block was performed as a diagnostic block and his progress was monitored. Three days later in the clinic, the ache in the head area had slightly decreased, but the numbness had spread from the face to the posterior neck, both shoulders, and both arms. In addition, during the physical examination performed this time, the Lhermitte sign appeared to be positive. Hence, a more detailed past history was examined, and it was found that 15 years ago the patient’s eyesight suddenly failed so he was diagnosed with optic neuritis, and during the same period, he also suffered from myelitis. Secondary headache due to central pain was suspected from the progress of the disease, past history, and physical examination, and thus C-spine MRI was performed. As a result, an extensive intramedullary high signal intensity was observed from the medulla oblongata to the C5 (Fig. 1). Visual acuity test, color vision test, visual field test, and fundus examination performed in ophthalmology to check for anomalies in the optic nerve all appeared to be normal, but in the subsequent goggle VEPs (visual evoked potentials), a bilateral ocular or prechiasmal lesion and suspicious bilateral upper brainstem lesion were observed. In addition, the oligoclonal band IgG appeared negative in the CSF analysis. There were no abnormalities in the brain MRI, and the NMO-Ab test was negative.

Based on the past medical history and test results above, the patient was diagnosed with neuromyelitis optica, and steroid pulse therapy was performed for 5 days in which 1 g of solumedrol was given on each day. Subsequently, the neurological symptoms and MRI observations improved, so the drugs were changed to oral steroids and the patient was discharged (Fig. 2).

**DISCUSSION**

Secondary headache is a headache that occurs in connection to other diseases. Therefore, it is important to reveal the reasons. Among secondary headache types, it is important to differentiate those caused by central pain. Central pain is pain from a disease or lesion in the central nervous system, and a disease that can especially occur in relation to headache is myelopathy [5]. When secondary causes due to structural abnormalities or accidents are excluded, the major causes for myelopathy are multiple sclerosis and neuromyelitis optica. Multiple sclerosis is a representative autoimmune disease that occurs in the central nervous system such as the brain, spine, and optic nerves [6]. Mostly, it is asymmetrical, and characteristically involves only part of the ascending or descending course of the spine. In addition, cerebrum invasion is commonly ob-

![Fig. 1. Extensive intramedullary high signal intensity at medulla oblongata and C-spine (between medulla oblongata and C5).](image1)

![Fig. 2. Marked improvement of previous intramedullary high signal intensity at cervical spinal cord, since last MRI.](image2)