Adult Aqueductal Stenosis

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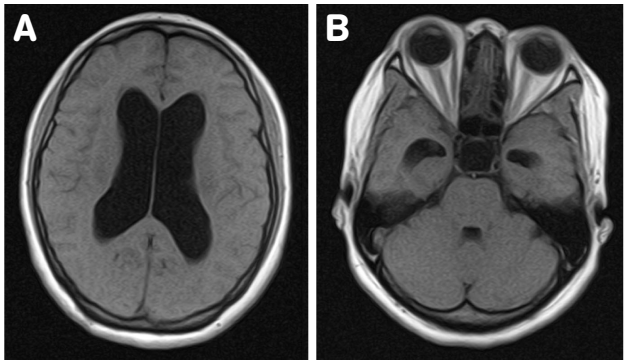

Figure 1. (A) A T1-weighted axial non-contrast MR image shows prominent lateral ventricles without enlargement of the cortical sulci. (B) A T1-weighted axial non-contrast MR image shows enlarged temporal horn of lateral ventricles with normal fourth ventricular size.

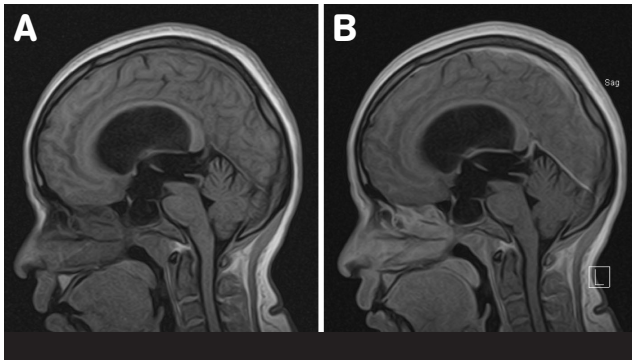

Figure 2. (A) A T1-weighted sagittal non-contrast MR image shows empty sella and enlarged ventricular system above the aqueduct of Sylvius. (B) A T1-weighted sagittal contrast MR image shows neither compressive periaqueductal lesion nor obstructive aqueductal lesion.

A 36-year-old woman came to our outpatient department with a chief complaint of two attacks of transient dizziness and soreness pain in nostril followed by right hemiparesis and difficulty in speech, lasting within one hour since one week before. These symptoms got worse when she kept in upright position and were relieved after lying down. She stated that her husband had hit her head many times this year. Neurological examinations revealed no deficit in mentality, attention, cranial nerves, motor and sensory system and also coordination. Initial brain computerized tomography disclosed an obvious supratentorial hydrocephalus with normal size of the fourth ventricle. Lumbar puncture showed an increased opening pressure up to 355 mmH_2O. Cerebrospinal fluid (CSF) demonstrated mildly traumatic tapping by 3-tube test. The CSF studies showed values of leukocyte count, cytology, protein and sugar levels all within normal limits. Laboratory tests did not show significant abnormalities in the following data: whole blood cell count, erythrocyte sedimentation rate, serum routine chemistry, titer of antinuclear antibody, rheumatoid factor, and venereal titers. Brain magnetic resonance imaging (MRI) excluded intracranial mass, focal inflammatory or edematous change but enlarged lateral and third ventricles, empty sella and normal fourth ventricular size (Figs. 1-2). Under the impression of aqueductal stenosis (AS), she received ventriculoperitoneal shunting and got symp-

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tom-free later.

Cine MRI is now useful for the evaluation of CSF dynamic compromise especially in partial obstructive and communicating hydrocephalus[1]. The typical features of related anatomy are shown on conventional MRI (Figs. 1-2).

AS is the most common form of non-communicating hydrocephalus in adults[2]. Primary AS is an isolated stenosis of the aqueduct, and secondary AS is caused by compression of the aqueduct by space-occupying intracranial lesions. Primary AS has been classified in four histological types: atresia, forking, septum and gliosis. Traumatic head injuries have been claimed to cause AS in a few cases, but the causal relationship is unclear. Headache is a frequent symptom in AS. In younger AS patients, other symptoms and signs of raised intracranial pressure are frequently found, such as obscurations, occulomotor disturbances, diplopia, papillary edema, nausea and tinnitus.

In our case, atypical presentation as transient ischemic attack was noted. Definite cause of her AS remained unclear. We propose there was a CSF dynamic compromise due to minor intraventricular or subarachnoid hemorrhage-related post-inflammatory adhesion band, or fibrosis around the aqueduct of Sylvius.

References:

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2. Tisell M. How should primary aqueductal stenosis in adults be treated? A review. Acta Neurol Scand 2005;111:145-53.