The majority of cases of spontaneous intracranial hypotension (SIH) result from spontaneous cerebrospinal fluid (CSF) leaks. The disorder has a broad clinical and imaging spectrum, with substantial variability in clinical and imaging features, in CSF findings, and in response to treatment. Headache is the most common symptom, and is typically orthostatic, but with chronicity the orthostatic features may blur into a chronic, lingering headache. Other clinical features include neck pain, nausea, emesis, interscapular pain, diplopia, dizziness, change in hearing, visual blurring, radicular upper-extremity symptoms, and a variety of other much less common manifestations. To avoid misdiagnosis or oversight, a high index of suspicion is essential.

The most common cranial magnetic resonance (MR) imaging feature of SIH is diffuse pachymeningeal gadolinium enhancement. Other manifestations include imaging evidence of sinking of the brain, subdural fluid collections, enlargement of the pituitary, engorgement of venous sinuses, and engorgement of the epidural venous plexus. Yet, cranial MR imaging findings may also be normal. CSF opening pressure is typically low, and CSF analysis may be normal or show increased protein concentration and a primarily lymphocytic pleocytosis. The pathogenetic core and the independent variable is decrease in CSF volume, whereas clinical imaging and CSF findings, including CSF opening pressures, are all variables dependent on the loss of CSF volume. Many patients respond well to treatment, but some present stubborn therapeutic challenges (1).

Most of the previously published reports dealing with intracranial hypotension syndrome focus on cranial MR imaging findings. Although spinal MR imaging findings such as epidural fluid collections, collapse of the dural sac, and spinal dural enhancement after injection of a gadolinium contrast medium have been described, previous experience of MR myelography in this field is very limited. In a recent study, TSAI et al. reported experience of heavily T2-weighted MR myelography in 17 patients with SIH in detecting abnormal CSF collections. MR myelography showed three kinds of abnormal CSF collections in 15 patients—epidural (n=15), extraspinal (n=6), and CSF collections along the nerve roots (n=6)—and one meningeal diverticulum. MR myelography results helped in the early diagnosis of SIH in 24% of patients whose initial brain MRIs failed to show typical SIH findings (2).

In this issue of Acta Radiologica, Dr. TOMODA and his colleagues (2) describe their experience of three-dimensional (3D) fast spin-echo (FSE) MR myelography in the detection of CSF leakage. The authors report lumbar 3D FSE findings in a retrospective series of 27 patients who were clinically suspected of having intracranial hypotension syndrome and had a positive finding on radionuclide cisternography examination. CSF leakage was identified in 22 (81.5%) of 27 patients. Of the 22 patients, this finding was definitive in 16, and six were graded as possible. For the definitive cases, 3D FSE images clearly showed the extent of the leaked CSF in the paraspinal structures. The authors conclude that 3D source images of MR myelography seem to be a useful method for the noninvasive detection of CSF leakage. Invasive cisternography may be reserved for equivocal cases. Spinal imaging may be very important in diagnosing the presence of CSF leakage and in determining the exact location of CSF leakage when treatment of epidural blood patch is considered. The results of this study and previous MR myelography literature in this field are encouraging. The article by TOMODA et al. is highly recommended reading.

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References