

Spontaneous Intracranial Hypotension (SIH) and Idiopathic Intracranial Hypertension (IIH): Imaging Presentations

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Received 2016 December 21; Accepted 2017 February 08.

Abstract

Background: Any change in Intracranial pressure (ICP), either elevation or reduction, could be with clinical and Neuroimaging presentations which depend to the severity of the pressure changes. The principal symptom in both of these syndromes, that is, Intracranial Hyper and Hypotension, is headache which in SIH, is mainly orthostatic or postural (positional) type which occurs when the patient is in upright position, and gradually disappears when the patient is lying down. In most cases, the headaches gradually increase from the moment the patient wakes up in the morning. However, in other cases the headaches are quick and severe. The acuteness of the headaches varies in each case, which affects how quickly the condition is diagnosed. Some of the other related symptoms in intracranial hypotension state are loss of hearing, dizziness, tinnitus, vertigo, stiffness of the neck, nausea, Loss of consciousness, Coma and even vomiting. In Intracranial Hypertension situation transient visual obscuration or blurring, double vision, visual loss and less likely joint pain, low back pain and even intermittent ataxia. In neurological examinations cranial nerve palsies (mainly VI) may be found. In neuroimaging studies especially on MR imaging several nonspecific and heterogeneous presentations such as dural enhancement, vertical displacement of the brain (an appearance like Arnold-Chiari type I malformation), subdural effusion or subdural hematomas mainly in chronic cases in Idiopathic intracranial hypotension and flattening of the posterior sclera, distension of perioptic subarachnoid space, tortuosity of optic nerve and an empty sella in Idiopathic intracranial Hypertension might be seen which the presence of 3 or more of the MRI features is 95% specific in predicting idiopathic intracranial hypertension. CSF leak is a recognized cause of intracranial hypotension. This condition may be spontaneous or secondary to spinal puncture; neurosurgical procedures (iatrogenically); dehydration; uremia and spinal trauma. In intracranial hypertension situation the etiology is unknown. However, two hypothesis are reduced CSF absorption at the level of the arachnoid villi and increased brain intraparenchymal water (Vasogenic brain edema).

Objectives: Upon completion of this presentation, participants will be able to: 1) Recognize MRI appearance of the spontaneous intracranial hypotension and idiopathic intracranial hypertension (Pseudotumor cerebri). 2) Review their various clinical and imaging presentations.

Conclusions: In this presentation we will review Imaging presentations of our several proved cases. As mentioned, there are heterogeneous groups of signs and symptoms and MRI presentation in these disorders which may cause misdiagnosis with other neurologic disorders and awareness, understanding, and recognition of these presentations may permit the radiologist to play a significant role in the prevention of misdiagnosis, unwanted surgical interventions or extensive diagnostic evaluation procedures.

Keywords: Spontaneous Intracranial Hypotension (SIH), Idiopathic Intracranial Hypertension (IIH), Magnetic Resonance Imaging (MRI)

This is an abstract presented in the 33rd Iranian congress of radiology (ICR) and the 15th congress of Iranian radiographic science association (IRSA).