AN INTERESTING CAUSE OF INTRACRANIAL HYPOTENSION-CASE REPORT

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Abstract:

Intracranial hypotension is a frequently misdiagnosed syndrome of headache caused by reduced intracranial cerebro spinal fluid (CSF) pressure. The cause of the hypotension may be due to CSF leak or may be spontaneous without any apparent cause. The syndrome is characterized by headache, vomiting, dizziness, diplopia, facial numbness, all of which are orthostatic in nature. We report a case of a young woman with idiopathic intracranial hypertension, who developed postural headache and convulsions following a lumbo peritoneal shunt procedure, with MRI features suggestive of intracranial hypotension. Patient improved with bed rest and hydration. Intracranial hypotension due to overdrainage, should be thought of whenever patient develops headache after placement of a non programmable shunt. We report this case to highlight the importance of recognizing intracranial hypotension as a cause of headache, while managing idiopathic intracranial hypertension with shunt procedures.

Keyword: Idiopathic intracranial hypertension, Intracranial hypotension, Lumbo peritoneal shunt, cerebro spinal fluid T2 FLAIR, CORONAL SECTION:

INTRODUCTION:

Intracranial hypotension is a frequently misdiagnosed syndrome of headache caused by reduced intracranial CSF pressure. The cause of the hypotension can be due to CSF leak or can be spontaneous without any apparent cause. The syndrome is characterized by headache, vomiting, dizziness, diplopia and facial
numbness all of which are orthostatic in nature. The atypical features are parkinsonism, fronto temporal dementia, hypopituitarism, seizures, coma and death. We report a case of a young woman with idiopathic intracranial hypertension, who developed postural headache and convulsions following a lumbo peritoneal shunt procedure with MRI features suggestive of intracranial hypotension.

**CASE STUDY:**
This 26 year old female was admitted in our institute, with headache, which was insidious in onset and progressive in nature. Headache was initially right hemicranial, subsequently became holocranial, not increased by cough or sneeze. Intensity of headache was more in the morning and it was associated with nausea and vomiting. Patient developed diplopia fifteen days later, which was binocular, for distant objects and images were separated horizontally. Patient also had blurring of vision in both eyes. On examination, patient was found to have bilateral papilloedema and bilateral abduction restriction. There was no fever or neck stiffness. Lumbar puncture was done and manometry showed increase in the opening pressure of 800mm of CSF. CSF sugar and protein were normal and there were no cells. Culture and sensitivity showed no growth. Based on the modified Dandy criteria1, patient was diagnosed as a case of idiopathic intracranial hypertension and underwent lumboperitoneal shunt, in view of impending threat to the vision. On the fifth post operative day, patient developed two episodes of generalised tonic clonic seizures and two days later another episode. She developed new onset, varying type of headache, which was aggravated on assuming erect posture. On examination she had no focal or meningeal signs. Postoperative MRI brain showed T2 and FLAIR hyperintensities in the left posterior parietal cortex with gyral thickening. There were bilateral thickening of the pachymeninges which showed enhancement with contrast. MRI spine showed post theco peritoneal shunt state (done for idiopathic intracranial hypertension) and there was a collection of CSF opposite to L3L4 vertebrae in the posterior subcutaneous plane. No obvious leak tract noted. These features in cranial and spinal MRI were suggestive of intracranial hypotension. Patient improved with bed rest and hydration.
T2 SAGITTAL LUMBAR SPINE
Discussion: Intracranial hypotension is a frequently underdiagnosed syndrome of headache, caused by reduced intracranial CSF pressure. The cause of the hypotension can be due to CSF leak or can be spontaneous without any apparent cause. Symptoms of CSF leak are orthostatic headache, which is alleviated by lying down with the head lower than the chest, nausea, tinnitus, horizontal diplopia, hearing loss, blurring of vision, facial numbness and tingling of the arms. Neuroimaging of spontaneous or idiopathic intracranial hypotension may demonstrate diffuse linear thickening and enhancement of the dura, both above and below the tentorium, venous sinus engorgement and venous enlargement, enlargement of the pituitary, descent of the brain and small subdural fluid collections (hematoma/hygroma).

T1 CONTRAST AXIAL
CSF opening pressure is usually < 60 mm H2O.

Our patient developed seizures and varying type of headache, which was orthostatic, following lumboperitoneal shunt for idiopathic intracranial hypertension. The advantage of lumboperitoneal shunt is that it is an extracranial procedure with minimal infection rate. Complications of lumboperitoneal shunt are shunt block, shunt infection, CSF leak and radiculopathy. Overdrainage was recorded in 1-15 percent of patients. It was seen in 15 percent patients in the LP shunt group without a valve, while the LP shunt with a valve did not develop any overdrainage complications. Overdrainage complications can be avoided by programmable valve. There is a similar case report of a 47-year-old woman with idiopathic intracranial hypertension, who underwent routine placement of a LP shunt. In the postoperative period, her headache became worse. Radionuclide shunt studies were done and they showed no anterograde tracer flow, suggestive of either obstruction or a leak. After that, spinal magnetic resonance (MR) imaging was done. MRI showed a CSF leak from the lumbar thecal sac. The presence of a leak was confirmed by a Computed Tomography (CT) myelogram, showing extravasation of contrast agent into the epidural space. She was treated with the application of a CT-guided blood patch at the leak site. Treatment of intracranial hypotension include bed rest, hydration and steroids. Epidural blood patch is used in patients with spinal leaks, who fail to respond to noninvasive measures. Blood patches are generally thought to be safe but occasional reports of increased CSF pressure and persistent epidural fluid collections have been reported. Surgical repair may be performed in patients who do not improve with blood patch and if the site of the leak has been identified. The overwhelming majority of patients have a spinal-level leak, although they are generally higher than the

Conclusion: Persistent headache in a patient who has undergone CSF shunt procedure, that too if orthostatic,
can be due to intracranial hypotension following a CSF leak. We report this case to highlight the importance of recognizing intracranial hypotension as a cause of headache, while managing idiopathic intracranial hypertension with shunt procedure.

References:


