Cerebral Hyperperfusion Syndrome in Chronic Subdural Hematoma

- Clinical Analysis of Superficial Temporal Artery-Middle Cerebral Artery Bypass Combined with Brain-Temporal Muscle Sticking in the Treatment of Chronic Internal Carotid Artery Occlusion
- Suspected Cerebral Hyperperfusion Syndrome after Stenting for Intracranial Vertebral Artery Stenosis Associated with Reduced Cerebral Blood Flow to the Posterior Cerebral Artery Territory
- Rapid evacuation of chronic subdural hematoma - A possible traumatic brain injury (TBI)
- Cerebral Hyperperfusion Syndrome After Chronic Subdural Hematoma Drainage
- In Reply to "Cerebral Hyperperfusion Syndrome After Chronic Subdural Hematoma Drainage"
- Cerebral Hyperperfusion Syndrome After a Burr Hole Drainage Surgery for Chronic Subdural Hematoma
- Carotid Artery Stenting for Symptomatic Internal Carotid Artery Stenosis Associated with Moyamoya Disease
- Postoperative hyperperfusion syndrome in elderly patients with chronic subdural hematoma

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This syndrome is associated risk of postoperative delirium and neurological deterioration. Hyperperfusion syndrome is also observed in traumatic brain injury. A rapid decompression of a subdural hematoma leads to a brain shifting to the skull bones and thus a traumatic brain injury due to decompression. The development of hyperperfusion syndrome could be related to the decompression of the subdural hematoma in a rapid fashion [1)].

ASL Perfusion Might Predict Treatment Outcomes of Chronic Subdural Hematoma [2)].

Temporary acute agitated delirium is a frequent complication after surgery for chronic subdural hematoma (CSH) in elderly patients. To clarify the pathogenic mechanism underlying this complication, we measured cerebral blood flow before and after surgery in elderly patients with CSHs.

Methods: Twenty-seven patients aged 75 years or older with unilateral CSH underwent treatment involving a single burr hole craniostomy with continuous catheter drainage. Cerebral blood flow was measured using single photon emission computed tomography 1 day before surgery, and at 1 hour and 24 hours after surgery. Acute agitated delirium was diagnosed by the characteristic behavioral abnormality.

Results: SPECT imaging 1 hour after surgery demonstrated hyperperfusion in the cerebral cortex beneath the CSH in 14 patients (51.9%). Of these 14 patients, five showed acute agitated delirium a few hours after surgery that persisted for 10 to 12 hours. A hematoma was detected in the right hemisphere in all five patients. Hyperperfusion was significantly more intense in patients with acute agitated delirium both 1 hour and 24 hours after surgery than in patients (n = 9) without acute agitated delirium. Moreover, mean arterial blood pressure during the first postoperative hour was significantly higher in patients with acute agitated delirium.

Conclusion: In elderly patients with CSH, intense and prolonged hyperperfusion after surgery induces

temporary acute agitated delirium. This postoperative hyperperfusion syndrome is exacerbated by hypertension [3].

Case reports

an 82-year-old woman who presented with ipsilesional symptoms including contralateral hemiparesis and dysarthria, progressively worsening consciousness, and status epilepticus after a burr hole drainage surgery for CSDH. Magnetic resonance fluid-attenuated inversion recovery imaging showed diffuse subcortical low intensity in the ipsilesional hemisphere almost simultaneously with the appearance of the symptoms. Arterial spin labeling magnetic resonance perfusion imaging showed an abnormal increase of cerebral blood flow in the hemisphere. Continuous propofol administration and blood pressure management improved the symptoms.

Conclusions: CHS can cause severe postoperative complications after drainage surgery for CSDH. Subcortical low-intensity fluid-attenuated inversion recovery imaging is a useful investigation for early detection of CHS in CSDH, and arterial spin labeling imaging is an effective minimally invasive modality for confirming the diagnosis [4].

1)
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