Hydrocephalus Ex Vacuo

Ex Vacuo hydrocephalus also refers to an enlargement of cerebral ventricles and subarachnoid spaces, and is usually due to brain atrophy (as it occurs in dementias), post-traumatic brain injuries and even in some psychiatric disorders, such as schizophrenia.

As opposed to hydrocephalus, this is a compensatory enlargement of the CSF-spaces in response to brain parenchyma loss - it is not the result of increased CSF pressure.

Differentiating true hydrocephalus from hydrocephalus ex vacuo

Delayed ventricular enlargement months to years after TBI may instead be due to atrophy (hydrocephalus ex vacuo) secondary to diffuse axonal injury, and may not represent true hydrocephalus. It may not be possible to accurately differentiate these two conditions, and the decision to shunt may, therefore, be difficult (similar to the dilemma in patients with NPH vs. atrophy).

Radiographic features

Features that favor hydrocephalus include:

dilatation of the temporal horns

lack of dilatation of parahippocampal fissures

increased frontal horn radius

acute ventricular angles

periventricular interstitial edema from the transependymal flow

intraventricular flow void from CSF movement on MRI

widening of the third ventricular recesses: midsagittal plane

upward displacement of corpus callosum: midsagittal plane

depression of the posterior fornix: midsagittal plane

decreased mamillopontine distance: midsagittal plane

narrow callosal angle

cingulate sulcus sign