

# Normal Pressure Hydrocephalus on $^{111}\text{In}$ -DTPA CSF Cisternography and MRI

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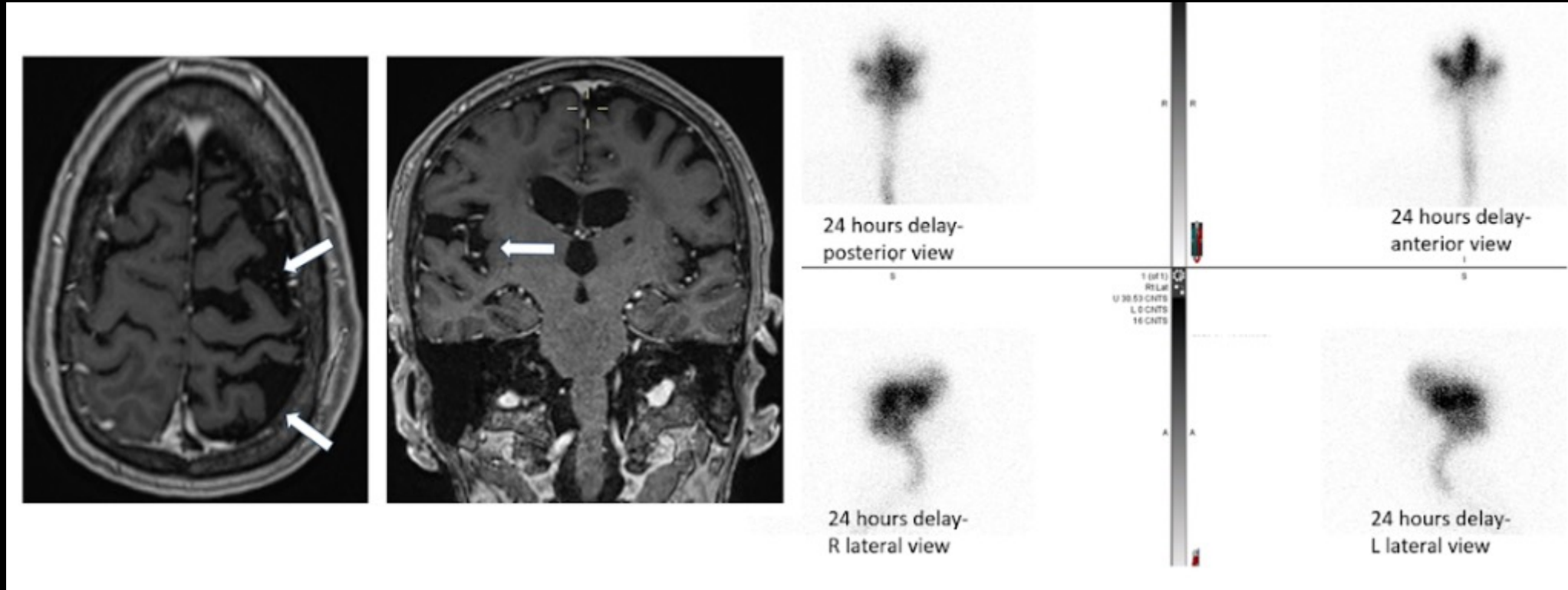


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# Clinical Presentation

- A 75 year old male presented with forgetfulness and confusion.

# Imaging Discussion



MRI brain showed ventricular enlargement disproportionate to cerebral atrophy, periventricular hyperintensities, enlarged right sylvian fissures, and disproportionately enlarged subarachnoid space (arrows).

111In-DTPA CSF cisternography showed persistent radiotracer reflux into ventricles at 24 hours without radiotracer activity over the cerebral convexities.

# Management and Outcome

- Patient has been scheduled for ventriculoperitoneal shunt placement.

# Take Home Points

Normal pressure hydrocephalus is characterized by a triad of symptoms including ataxia, urinary incontinence, and dementia. The underlying cause of this condition is unknown. Despite ventriculomegaly on imaging, CSF opening pressure remains within the normal range. Imaging features can be helpful in diagnosing NPH.

# Take Home Points

**MRI findings:** Ventricular enlargement disproportionate to cerebral atrophy, periventricular hyperintensities, enlarged sylvian fissures, disproportionately enlarged subarachnoid spaces, upward bowing of the corpus callosum, superior and posterior medial sulcal effacement, a callosal angle  $>90$ , and Evans index  $<0.3$ .

# Take Home Points

Additional supportive imaging modality for equivocal cases is CSF cisternography using intrathecal radiotracer. Planar views in multiple projections are typically acquired at multiple time points up to 48 h. In normal CSF flow, the radiotracer should reach the basal cisterns within the first hour, the Sylvian fissure by 2–6 h, the cerebral convexities by 12 h. On the other hand persistent ventricular radiotracer activity with lack of cerebral convexity activity is seen in NPH cases.

# References

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