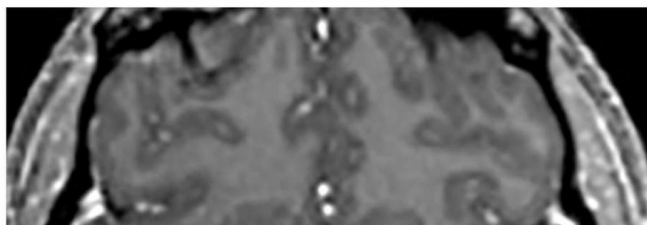
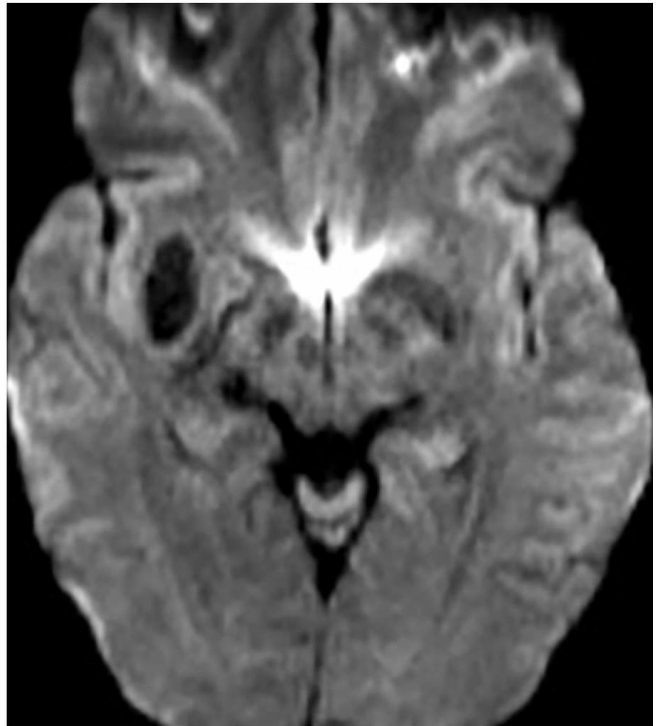
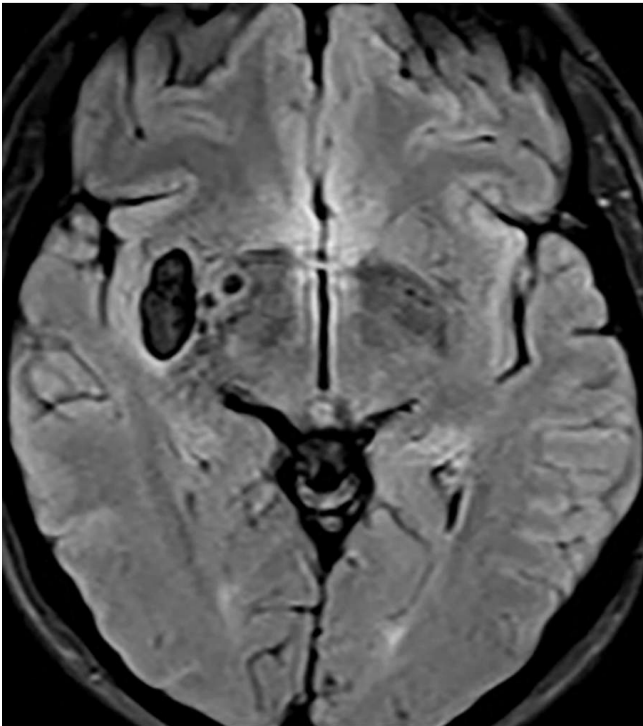
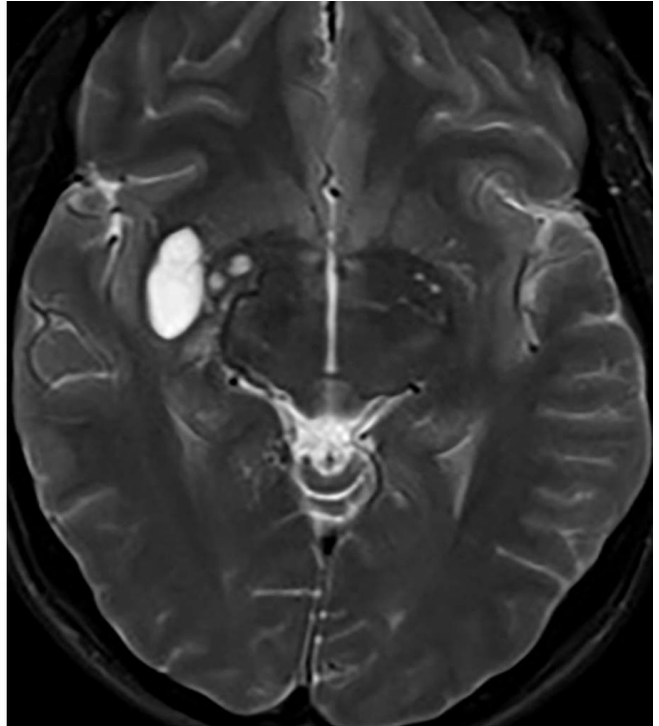
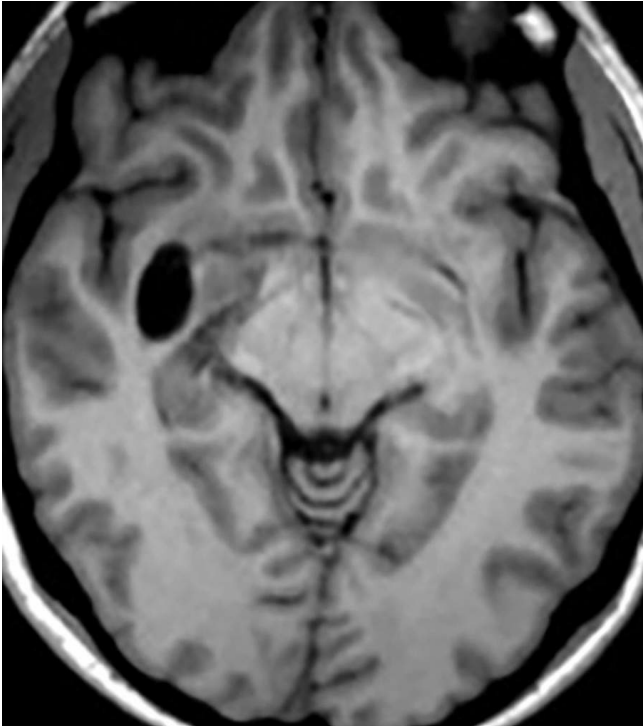




Giant Perivascular Spaces

Last Updated: July 6, 2021



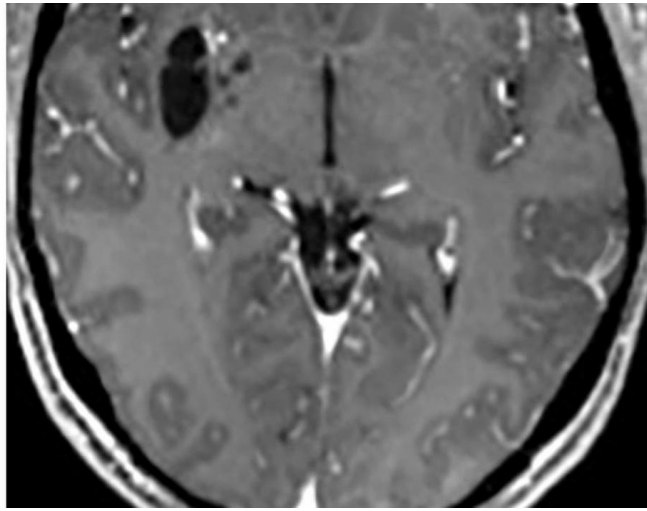


Figure 1: Large oval structure within the right putamen that follows CSF signal intensity on T1-weighted (top left), T2-weighted (top right), FLAIR (middle left), and DWI (middle right) imaging. Notice that there are a few additional smaller similar-appearing cystic structures medially, also representing dilated perivascular spaces. There is no significant adjacent FLAIR signal abnormality (middle left) or enhancement (bottom) to suggest an alternative diagnosis.

Description

- Pia-lined interstitial fluid-filled spaces
- Do not communicate with subarachnoid space

Pathology

- Fluid accumulation causing cystic-appearing spaces

Clinical Features

- Symptoms
 - Almost always normal, although patients may have headache
 - Can have an association with small-vessel disease and hemorrhage
- Age
 - No age predilection
- Gender
 - Male > female

Imaging

- General
 - Variably sized fluid-filled spaces with the signal of cerebrospinal fluid (CSF)
- Modality specific
 - CT
 - Round or even linear hypodense lesions with characteristics similar to those of CSF
 - Nonenhancing
- MRI
 - T1WI
 - Multiple well-delineated small cysts isointense to CSF
 - Can have cumulative focal mass effect, particularly if involving the basal ganglia
 - T2WI/FLAIR
 - Isointense to CSF without surrounding edema
 - DWI
 - Normal diffusivity
 - Contrast
 - No enhancement
- Imaging recommendations
 - MRI with contrast
 - DWI can be helpful
- Mimic
 - Can mimic infection, lacunar infarct, or even cystic tumor; location is often a key to the correct diagnosis, but MRI might help by demonstrating identical signal intensity to normal CSF and a lack of surrounding gliosis or enhancement

For more information, please see the corresponding chapter in [Radiopaedia](#).

Contributor: Sean Dodson, MD

DOI: <https://doi.org/10.18791/nsatlas.v1.03.02.15>

REFERENCES

Eluvathingal Muttikkal TJ, Raghavan P. Spontaneous regression and recurrence of a tumefactive perivascular space. *Neuroradiol J* 2014;27:195–202. doi.org/10.15274/NRJ-2014-10034

John S, Samuel S, Lakhan SE. Tumefactive perivascular spaces mimicking cerebral edema in a patient with diabetic hyperglycemic hyperosmolar syndrome: a case report. *J Med Case Rep* 2013;7:51. doi.org/10.1186/1752-1947-7-51

Salzman KL, Osborn AG, House P, et al. Giant tumefactive perivascular spaces. *AJNR Am J Neuroradiol* 2005;26:298–305.

Stephens T, Parmar H, Cornblath W. Giant tumefactive perivascular spaces. *J Neurol Sci* 2008;266:171–173. doi.org/10.1016/j.jns.2007.08.032