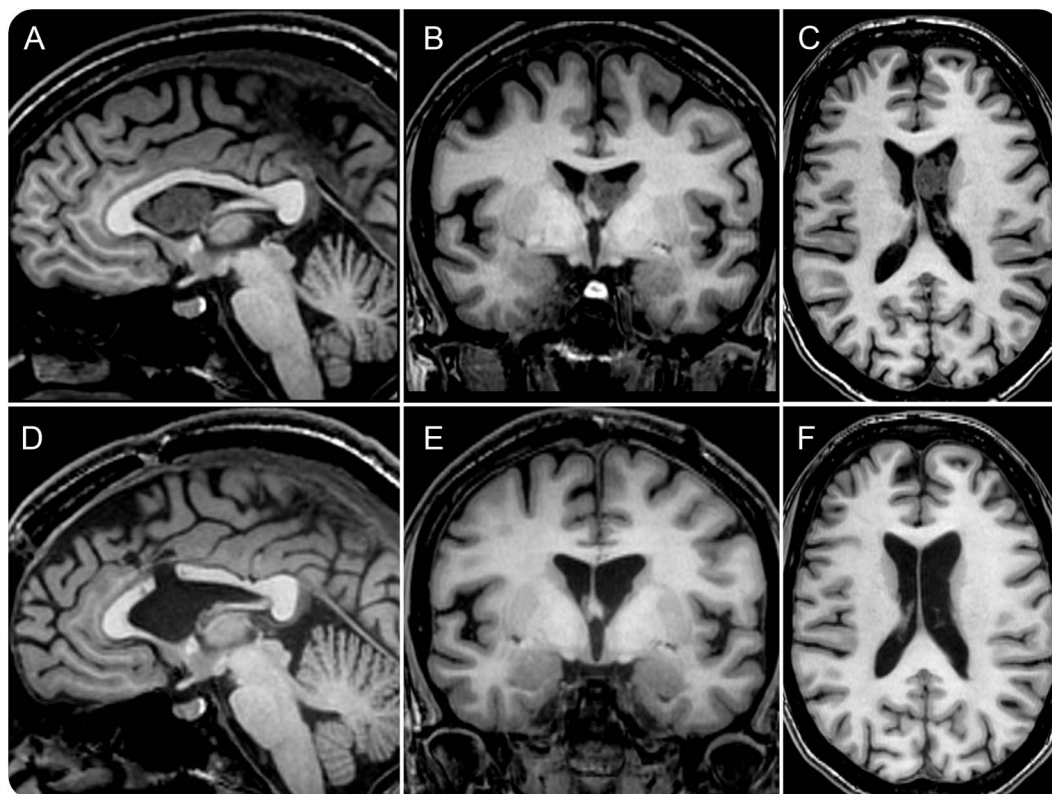


# Cough tremor as presenting symptom of intraventricular tumor



**Figure** Intraventricular tumor causing intermittent hydrocephalus



MRI shows intraventricular mass (A) and Monro foramen partial obstruction (B) leading to slight enlargement of left lateral ventricle (C). Coughing shifts the tumor, with complete obstruction to the free flow of CSF in the Monro foramen, causing intermittent hydrocephalus. Monro foramen obstruction disappeared after surgical removal of subependymoma (D-F).

A 39-year-old woman presented with right-hand tremor triggered by coughing. Her examination revealed tremor and irregular myoclonus at rest and transient right-hand tremor precipitated by coughing (video at Neurology.org). Brain MRI showed intraventricular tumor and partial foramen of Monro obstruction (figure). Intraventricular tumors in this location can cause sudden intermittent hydrocephalus,<sup>1</sup> and focal thalamic lesions may cause hand tremor.<sup>2</sup> We hypothesize that compression of the ventral intermediate nucleus of the thalamus caused by cough-induced hydrocephalus, with dysfunction of cerebello-thalamo-cortical circuit, may be the mechanism for cough-associated tremor of the contralateral hand; this disappeared after surgical removal of the subependymoma. Cough tremor may be associated with intraventricular tumors.

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Supplemental data  
at Neurology.org

tumor, analysis and interpretation of data. Dr. Ferrigno: analysis and acquisition of data. Dr. Vescio: analysis and acquisition of data. Prof. Quattrone: analysis and interpretation of data. Dr. Bono: study concept and design, drafting/revising the manuscript, analysis and interpretation of data.

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1. Chittiboina P, Zhang S, Bao J, Vannemreddy P, Guthikonda B. Subependymoma at the foramen of Monro presenting with intermittent hydrocephalus: case report and review of the literature. *J La State Med Soc* 2010;162:214–217.
2. Lehéricy S, Grand S, Pollak P, et al. Clinical characteristics and topography of lesions in movement disorders due to thalamic lesions. *Neurology* 2001;57:1055–1066.

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